

DRAFT  
8/18/2014

# **CWPP UPDATE**

## **Community Wildfire Protection Plan Contra Costa County**

Prepared by  
Diablo Fire Safe Council

In conjunction with the  
Contra Costa County Fire Chiefs Association  
Hills Emergency Forum  
Stakeholder Committee Members

# Table of Contents

---

Executive Summary  
Introduction  
Scope and Purpose

## **Section 1: Contra Costa County Information**

- 1.1 County Overview
- 1.2 The Planning Process & Stakeholders

## **Section 2: Fire Hazard and Risk in the Wildland Urban Interface**

- 2.1 Fire Environment
- 2.2 Wildland Urban Interface Risk and Hazard Assessments
  - 2.2.1 Potential for Fire to Occur
  - 2.2.2. What to Protect
  - 2.2.3 Protection Capabilities
- 2.3 Values at Risk within the WUI
- 2.4 Strategies for Reducing Risk within the WUI

## **Section 3: Recommended Action Plan**

- 3.1 Selection of Recommended Priorities
- 3.2 Information, Education and Collaborative Planning Priorities
- 3.3 Enhanced Suppression Capability and Emergency Preparedness Priorities

## **Section 4: Prioritizing Fuel Reduction Treatments**

- 4.1 Fuels Management
- 4.2 Fuels Reduction Treatments – Geographically Based Projects
- 4.3 Fuel Reduction Treatments – Related Priorities
- 4.4 Fuel Reduction Treatments Balanced with Resource Management
- 4.5 Environmental Review and Permitting

## **Section 5: Prioritized Treatment of Structural Ignitability**

- 5.1 Structural Ignitability
- 5.2 Key Ignition Resistance Factors
- 5.3 Improving the Survivability of Structures in the WUI
- 5.4 Retrofitting an Existing Structure for Survivability

## **Section 6: Sustaining the Plan**

- 6.1 Updates of the Action Plan
- 6.2 Monitoring, Evaluating and Adapting - Updates of Action Plan
  - 6.2.1 Evaluating Information, Education and Collaborative Planning
  - 6.2.2 Evaluating Suppression Capability and Emergency Preparedness
  - 6.2.3 Evaluating Fuel Reduction
  - 6.2.4 Evaluating Reducing Structure Ignitability

## **Section 7: Signature Pages**

## **Appendices**

Appendix A: Fire Hazard Severity and WUI Area Map  
Appendix B: Community Survey

Additional Materials at [www.diablofiresafe.org/cococo\\_CWPP\\_planning\\_process\\_0214.html](http://www.diablofiresafe.org/cococo_CWPP_planning_process_0214.html)

# Introduction

Fire records for Contra Costa County document an active, damaging 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 and project partners have worked with residents, representatives of federal, regional, state and local agencies along with community organizations to update the Contra Costa County Community Wildfire Protection Plan adopted in 2009.

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.

Since within Contra Costa County there are few federally owned lands the stakeholder group discussed what the Contra Costa County CWPP Update should include and why is the plan is of value to us. The ideas can be grouped around several themes including overall planning and participation, fuel reduction projects, increased public awareness and involvement in prevention, balance of fire hazard reduction and environmental protection, fire resistant structures. Many common challenges and shared solutions were identified and a few selected for development with action plans.<sup>1</sup>

*Funding provided by a grant from the  
Cooperative Fire Program of the U.S. Forest Service,  
Department of Agriculture, Pacific Southwest Region,  
through the California Fire Safe Council.*

---

<sup>1</sup> See [www.diablofiresafe.org/pdf/CoCoCoCWPPUpdate\\_mtg\\_1\\_summary0714.pdf](http://www.diablofiresafe.org/pdf/CoCoCoCWPPUpdate_mtg_1_summary0714.pdf) for detailed Summary of Working Session #1.

# Scope

The scope of this Plan is Countywide and encompasses the following:

1. Describes the fire environment of Contra Costa County.
2. Identifies values at risk as defined by the 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, as well as 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 sources for 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 that will build useful relationships between communities and agencies.
2. Reduction of hazardous fuels in the WUI.
3. Creation and maintenance for 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 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 in the State of California. As of the 2010 census its population is 1,049,025 making it the third most populous county in the Bay Area after Santa Clara and Alameda County. The census also lists the county with a total area of 715.94 square miles for a total of 1,465.2 people per square mile.<sup>1</sup> Most of the population resides in the 19 incorporated cities, although more than 20% (200,000) live in one of the 33 census-designated and unincorporated communities.<sup>2</sup> A 2011 economic forecast listed Contra Costa County, along with Alameda County, (East Bay metro area) as the third highest median family income in California, at \$90,300. Population growth was positive with an increase between 2000 and the 2010 census as 10.6%, slightly faster than the state.<sup>3</sup>

Contra Costa County has experienced two very large growth spurts, one in the World War II years and another over the last 20 years. By 2030, Alameda County is anticipated to have over 1.2 million residents (or an additional 228,500 people).<sup>4</sup> Over one third of Contra Costa County's population growth since the early 1990s has occurred in the East County communities of Antioch, Brentwood and Oakley. South county, where it joins Alameda County in the "Tri-valley area," has also experienced considerable new housing, as well as employment growth.

The most heavily urbanized areas of West County include the cities of Richmond, El Cerrito, San Pablo, Pinole and Hercules. The West County area also includes a concentration of oil refineries and other industrial land uses, as well as pockets of low-income communities. The central part of the county, including the cities of Concord, Clayton, Walnut Creek, Pleasant Hill and Martinez have a relative balance of jobs and housing.<sup>3</sup>

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.

### Development Centers

Historical development patterns in Contra Costa County reflect its agricultural roots. Since the Second World War Contra Costa County has experienced a population growth rate that has generally exceeded the Bay Area average over every decade. As a consequence of growth in the postwar era, the character of most communities is oriented to the automobile.<sup>5</sup>

---

<sup>1</sup> Data from: <http://quickfacts.census.gov/qfd/states/06/06013.html> accessed 7/1/2014.

<sup>2</sup> From: Contra Costa County CWPP, 2009. Original source?

<sup>3</sup> Data from [http://www.dot.ca.gov/hq/tpp/offices/eab/socio\\_economic\\_files/2011/Contra\\_Costa.pdf](http://www.dot.ca.gov/hq/tpp/offices/eab/socio_economic_files/2011/Contra_Costa.pdf) accessed 7/1/2014.

<sup>4</sup> Data from: <http://www.bayareavision.org/bayarea/cc.html/> accessed 11/29/11

<sup>5</sup> Data from: <http://www.bayareavision.org/initiatives/> accessed 11/29/11

<b>West County</b>	<b>Central County</b>	<b>East County</b>
<i>Incorporated Cities</i>	<i>Incorporated Cities</i>	<i>Incorporated Cities</i>
El Cerrito	Clayton	Antioch
Hercules	Concord	Brentwood
Pinole	Danville	Oakley
Richmond	Lafayette	Pittsburg
San Pablo	Martinez	<i>Unincorporated Areas</i>
<i>Unincorporated Areas</i>	Moraga	Bay Point
Bayview-Montalvin	Orinda	Bethel Island
Crockett	Pleasant Hill	Byron
East Richmond Heights	San Ramon	Discovery Bay
El Sobrante	Walnut Creek	Knightsen
Kensington	<i>Unincorporated Areas</i>	
North Richmond	Alamo	
Port Costa	Blackhawk	
Rodeo	Briones	
Rollingwood	Camino Tassajara	
Tara Hills	Canyon	
	Clyde	
	Diablo	
	Mountain View	
	Pacheco	
	Vine Hill	
	Waldon	

**Transportation**

Contra Costa County is home to some of the most heavily traveled freeways and arterials in the San Francisco Bay Area.<sup>6</sup> Loss of function of any of these routes can have direct regional impacts that could be felt nationwide. The County is connected with major interstate highways and regional transportation systems. These include north-south freeways of I-80 and I-680, and east-west freeway I-580. These major interstates are supplemented by state freeways SR-4, SR-24, SR-61, SR-160, SR- 242, and former SR 123 (now San Pablo Avenue). State routes 4 and 24 and Interstates 80 and 680 are often severely congested with commuters traveling through the area to regional employment centers in Silicon Valley and San Francisco. This network provides access to three key bridges: the Bay Bridge that crosses the San Francisco Bay and the Benicia-Martinez and Antioch bridges that cross over the Carquinez Straight and San Joaquin River interconnecting the nine county San Francisco Bay area and Sacramento region.

Mass transit includes buses that use these highway corridors, ferries and commuter rail. Eight bus transit companies provide service in west county, central county, east county, as well as providing trans-bay service to San Rafael and San Francisco, and connections to Fairfield and Suisun in Solano Counties. Commuter rail lines connect to Alameda County and San Francisco (Bay Area Rapid Transit, BART), San Jose and Sacramento (AMTRAK Capitol Corridor) and Southern California (AMTRAK San Joaquin). Ferries provide another commuter route, connecting across San Francisco Bay from Vallejo. While there are two airports in the county, Buchanan Field in Concord and Byron Airport, neither provides passenger service.

---

<sup>6</sup> From Alameda County Transportation Commission. County Transportation Plan/ Transportation Expenditure Plan Briefing Book March 3, 2011. Pg. 4-2

Two key railroad companies have routes in the County. Over the years Union Pacific Corporation (UP) has grown by acquiring other railroads, such as the Southern Pacific.<sup>7</sup> The formerly Southern Pacific line runs parallel I-80 through Richmond, along the San Pablo Bay to Martinez where it crosses the Suisun Bay. UP's main competitor is the Burlington Northern Santa Fe (BNSF) Railway, the nation's second largest freight railroad, which also primarily services the Continental U.S. west of the Mississippi River. Together the two railroads have a monopoly on all transcontinental freight rail lines in the U.S. BNSF has the terminus of its transcontinental route in Richmond. It owns track formerly developed by Santa Fe Railroad.<sup>8</sup>

The Port of Richmond is northern California's most diversified cargo handler with a federally maintained deep-water channel. The Port encompasses five city-owned and 10 private-owned terminals for handling bulk liquids, dry bulk materials, metals, vehicles and break-bulk cargoes. It ranks number one in liquid bulk and automobile tonnage among ports on the San Francisco Bay.<sup>9</sup> Highway 580 passes through the port area and connects to transcontinental east-west I-80 and the Richmond-San Rafael Bridge that leads to north-south US Highway 101. The two major transcontinental railroads, BNSF and UP also serve the Port.

### **Geographic Features**

Two major complexes of mountains, ridges and hills that run northeast to southwest create three separate physical and hydrological landscapes. The county is typically divided into 3 geographic areas:

The western part of the county is dominated by the bayside alluvial plain, sloping from the East Bay Hills to the San Francisco Bay. Las Trampas Ridge, the Oakland-Berkeley Hills and Briones Hills are some of the features in this area.

The central part of the county consists of several valleys formed by the East Bay Hills on the east and the Diablo Range on the west. The most notable natural landmark is Mount Diablo, an isolated 3,849 foot peak at the north end of the Diablo Range.

The southeastern part of the county is considered the Tri-Valley area. This triangular shape region, located south of Mount Diablo, includes the Livermore Valley, Amador Valley and the San Ramon Valley (in Contra Costa County).

Elevations begin at sea level and reach 3,840 feet along the Valpe Ridge in the northern Diablo Range (in the southeastern portions of the County). These geographic features shape where people live and work, and results in numerous people inhabiting areas that are remote or very difficult to access under emergency conditions.

There are 31 major watersheds and sub-watersheds, with over 1,300 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 geographic features shape where people live and work, and results in numerous people inhabiting areas that are remote or very difficult to access under emergency conditions.

---

<sup>7</sup> Source: <http://www.up.com/> accessed 7/23/2014

<sup>8</sup> Source: <http://www.bnsf.com/> accessed 7/23/2014

<sup>9</sup> Source: <http://www.ci.richmond.ca.us/index.aspx?NID=102> accessed 7/1/2014

## Climate, Temperature and Rainfall

Though Contra Costa has a “Mediterranean” climate with mild winters and hot dry summers, there are distinct seasonal temperature variations across the county. The western part of the county has relatively mild temperatures; influenced by the Pacific Ocean and San Francisco Bay. The eastern part of the county has more extreme temperatures with winter lows in the 30s and summer highs above 90° Fahrenheit. Similarly, precipitation depends upon the season, location and topography. Generally the west part of the county receives more rain than the east. The East Bay Hills provide the first topographic barrier to moisture rich clouds, forcing them to release water. Consecutive rainshadow effects occur in the county on the leeward side of the hills and mountains: first east of the East Bay Hills and second east of Mount Diablo.<sup>10</sup>

## Natural Resources

The county contains an abundance of vegetative, water, air, biotic and agricultural resources. The western areas are highly industrialized, while the central and eastern sections contain suburban residential and commercial areas, interspersed with agricultural and livestock grazing lands along with parklands, watershed and other undeveloped areas. The cities in the east portion of the county have adopted Urban Growth Boundaries and policies reflecting a strong commitment to protecting the natural and agricultural resources within and surrounding their respective jurisdictions.<sup>11</sup>

## Watersheds

Contra Costa County has 31 major watersheds and sub-watersheds containing more than 1300 miles of creeks and drainages. All but eight of these watersheds are entirely within Contra Costa County. The largest watersheds in Contra Costa County are Walnut Creek (93,556 acres), San Ramon Creek (tributary to Walnut Creek, 32,915 acres) and San Pablo Creek (27,640 acres). The County also includes the upper portion of the 700 square mile Alameda Creek watershed, which is one of the most important watersheds in the Bay Area for both habitat and public drinking water supply. While the Walnut Creek Watershed is very large and spans many cities, many of the other watersheds are conveniently “community-sized”. For instance, Alhambra and Pinole Creeks are closely identified with (and are important features of) the Cities of Martinez and Pinole respectively.<sup>12</sup>

## Vegetation and Wildlife Habitat

The vegetation and wildlife habitats of Contra Costa County consist of many ecological communities including:<sup>13</sup>

- Grass dominated communities: predominantly annual grasslands dominated by grasses and forbs, but also areas of native grassland, alkali grasslands (where grasslands overlay alkali soils) and ruderal (disturbed areas with sparse typically weedy non-native vegetation). Oak savannah, where tree cover is 5-10% and shrubs are sparse, can also be classified in these grass dominant areas.
- Shrub dominated communities: wet north coastal scrub (northeast facing scrub or north coastal Franciscan scrub); dry north coastal scrub (southwest facing

---

<sup>10</sup> Source: Contra Costa County Watershed Atlas. 2003  
<http://ccwf.watershedportal.net/Watershed%20Atlas/Watershed%20Atlas.pdf>

<sup>11</sup> Source: East Alameda County Conservation Strategy <http://eastalco-conservation.org/documents.html>

<sup>12</sup> Source: Contra Costa County Watershed Atlas. 2003  
<http://ccwf.watershedportal.net/Watershed%20Atlas/Watershed%20Atlas.pdf>

<sup>13</sup> Source: East Contra Costa HCP/NCCP. October 2006.

scrub or coyote brush-sagebrush scrub; manzanita-chinquapin chaparral; emergent coyote brush scrub.

- Forest or woodland communities: oak woodland (often with 100% tree canopy cover); mixed evergreen forest (with California Bay, madrone and foothill pine); transition between oak woodland and mixed evergreen may be gradual with live oaks as common codominants.
- Riparian woodland/ scrub associated with streams and permanent water sources. May contain understory of shrubs and forbs. Wetlands, both permanent and seasonal, as well as aquatic habitats are also found in the county.
- Non-native communities: eucalyptus forest; Monterey/ bishop pine forests; predominantly non-native grasslands; broom.
- Other landscape features: rock outcrops, springs and seeps; landslides; ecotones; disturbed areas; landscape areas, irrigated agriculture (both pasture and croplands).

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 Federally protected species, vegetation and habitat is included in the *Best Management Practices Guidebook for Fuel Management Treatments in Contra Costa County* (developed for in 2009 as part of the Contra Costa County CWPP), the *Vegetation Management Almanac for the East Bay Hills* and other resource documents referenced in the Appendix.<sup>14</sup>

Contra Costa County also contains federally designated "critical habitat" for nine species:

- Alameda whipsnake (*Masticophis lateralis euryxanthus*),
- California tiger salamander (*Ambystoma californiense*),
- longhorn fairy shrimp (*Branchinecta longiantenna*),
- red-legged frog (*Rana draytonii*),
- vernal pool fairy shrimp (*Branchinecta lynchii*),
- vernal pool tadpole shrimp (*Lepidurus packardii*)
- Delta smelt (*Hypomesus transpacificus*),
- steelhead (*Oncorhynchus mykiss*),
- Contra Costa goldfields (*Lasthenia conjugens*)
- Santa Cruz tarplant (*Holocarpha macradenia*)

## **Public Lands Management**

There are several agencies that manage large areas of public lands in the county:

California Department of Parks and Recreation owns and manages Mount Diablo State Park which encompasses approximately 20,000 acres of open space.

Contra Costa Water District: Manages close to 80,000 acres in Morgan Territory, Antioch, Martinez, San Ramon, Highlands and Danville area (both rural and urban) and includes the Los Vaqueros Reservoir.

East Bay Regional Park Districts (EBRPD) offers developed and dispersed recreation opportunities in over 110,000 acres in Alameda and Contra Costa Counties. In Contra Costa County they manage large regional parks, wilderness and preserves, in addition to smaller recreation areas, preserves, regional shorelines and trails. There are 33 urban and rural parks that occupy 45,000 acres in Contra Costa County including:

---

<sup>14</sup> *Best Management Practices Guidebook for Fuel Management Treatments in Contra Costa County* is available online at [www.diablofiresafe.org/publications.html](http://www.diablofiresafe.org/publications.html) - BMP

Antioch/Oakley Shoreline, Bay Point, Big Break, Bishop Ranch, Black Diamond, Botanical Garden, Briones, Brooks Island, Browns Island, Carquinez Straight, Contra Loma, Crockett Hills, Diablo Foothills, Huckleberry, Kennedy Grove, Las Trampas, Martinez Shoreline, Miller/Knox, Point Isabel, Point Pinole, Redwood, Roberts, Round Valley, San Pablo Bay, Sobrante Ridge, Sycamore Valley, Tilden, Vasco Caves, Waterbird, Wildcat Canyon.

East Bay Municipal Utility District (EBMUD) owns and manages approximately 28,000 acres of land and water areas and is responsible for management surrounding four reservoirs: Briones Reservoir, San Pablo Reservoir, Upper San Leandro Reservoir, Lafayette Reservoir. They also manage one non-reservoir watershed basin (Pinole Valley) and a portion of the Chabot Reservoir watershed basin. Within these District managed lands are two developed recreation areas (San Pablo Recreation Area and Lafayette Recreation area), the California Shakespeare Amphitheater and an extensive recreational trail system.

City of Walnut Creek Open Space: In 1974, a \$6.75 million bond was approved by the citizens of Walnut Creek to purchase and preserve the undeveloped ridgelines that surround the city. With over 3,000 acres of oak woodlands, grassland savannah, and chaparral, this is one of the largest city operated open spaces in the San Francisco Bay Area. Six open space areas are open to the public: Acalanes Ridge, Borges Ranch, Howe Homestead Park, Lime Ridge, Shell Ridge and Sugar Loaf.<sup>15</sup>

Caltrans: Caltrans District 4 maintains over 1,425 miles of State Highway in the nine bay area counties. In Contra Costa maintains major freeway right of ways along Highway 4, Interstate 580 and 680. The Division of Maintenance is responsible for the maintenance and landscaping of the highways in the District. There are five geographical maintenance regions (North Bay/Petaluma, East Bay/San Leandro, South Bay/San Jose, West Bay/Foster City and Delta/Walnut Creek) that are responsible for the roadbed and roadside.<sup>16</sup>

## **Federal Lands**

Bureau of Land Management (BLM). While there are no Bureau of Land Management lands in Contra Costa County local stakeholders work with BLM staff from the Hollister Office in conjunction with federal grants for public education and fuel reduction projects. The BLM often takes the lead on environmental compliance review for grant projects funded by Federal agencies through the California Fire Safe Council.

Department of Defense (Navy). The Concord Naval Weapons Station (NWS) is over 12,600 acres and currently in the base realignment and closure (BRAC) process. In 2005 portions were designated for closure and reuse.<sup>17</sup> The City of Concord is the Land Reuse Authority and in charge of the implementation of the reuse plan adopted in 2010.

National Park Service (NPS). There are 3 national parks properties in Contra Costa County: John Muir National Historic Site, (Martinez) Rose the Riveter-World War II Home Front National Historical Park (Richmond) and Eugene O'Neill National Historic Site (Danville). The Pacific West Regional Office is located in San Francisco and oversees NPS owned and managed lands throughout the San Francisco Bay region and western United States. The Fire Management Office regularly exchanges information with other Contra Costa County stakeholders on best management practices for wildfire management.

---

<sup>15</sup> Source: [www.walnut-creek.org/citygov/depts/ps/openspace/default.asp](http://www.walnut-creek.org/citygov/depts/ps/openspace/default.asp) accessed 7/23/2014.

<sup>16</sup> Source: [www.dot.ca.gov/](http://www.dot.ca.gov/) accessed 7/23/2014

<sup>17</sup> Source: <http://www.concordnws.com/info.htm> accessed 8/5/2014

US Fish and Wildlife Service (USFWS) The US Fish and Wildlife Service owns and manages the Antioch National Wildlife Refuge that protects three endangered species: Lange's Metalmark butterfly, Antioch Dunes evening primrose and Contra Costa wallflower. This isolated sand dune habitat, located along the south shore of the San Joaquin River, is not open to unsupervised use by the public.

Contra Costa County stakeholders have also worked with the USFWS regional and zone fire management programs, the Recovery Program on critical habitat for the Alameda Whipsnake, and in Section 7 consultations for Biological Opinions related to fuel modification projects. USFWS funded the Diablo Fire Safe Council's development of the Best Management Practices Guidebook for Hazardous Fuel Treatments in Contra Costa County, California in 2009 by a grant through the California Fire Safe Council.

### **Other Land Managing Entities**

Pacific Gas and Electric Company: Pacific Gas and Electric Company (PG&E), incorporated in California in 1905, is one of the largest combination natural gas and electric utilities in the United States. Based in San Francisco, their service area stretches from Eureka in the north to Bakersfield in the south, and from the Pacific Ocean in the west to the Sierra Nevada in the east. PG&E utilizes a program of Integrated Vegetation Management (IVM) to manage vegetation on transmission rights-of-ways. Properly maintained right-of-ways (ROW) are essential for the safety of the public and our workers. The long-term goal of their vegetation management program is to provide for public safety, worker safety, and environmental safety while providing for reliable service.<sup>18</sup>

Union Pacific Railroad: Union Pacific operates North America's premier railroad franchise, covering 23 states in the western two-thirds of the United States providing a critical link in the global supply chain. The Union Pacific Railroad network is the largest in the United States and is serviced by 45,400 employees. From 2007-2013, Union Pacific invested more than \$21.6 billion in its network and operations to support America's transportation infrastructure. The railroad's diversified business mix includes Agricultural Products, Automotive, Chemicals, Coal, Industrial Products and Intermodal. Union Pacific serves many of the fastest-growing U.S. population centers, operates from all major West Coast and Gulf Coast ports to eastern gateways, connects with Canada's rail systems and is the only railroad serving all six major Mexico gateways. Union Pacific provides value to its roughly 10,000 customers by delivering products in a safe, reliable, fuel-efficient and environmentally responsible manner.<sup>19</sup>

### **Fire Protection Agencies**

Contra Costa County can be divided into three different types of fire protection areas: Federal Responsibility Areas (FRA), State Responsibility Areas (SRA) and Local Responsibility Areas (LRA). The efforts of fire protection agencies are made even more effective through common training in the national incident management systems (NIMS), incident command system (ICS) and the California standardized emergency management system (SEMS) that are used to manage response to multi-agency, multi-jurisdiction emergencies. Master mutual aid plans and automatic aid agreements also bring together resources.

There are three Federal agencies that manage land in Contra Costa County considered to be FRA: National Park Service, US Fish and Wildlife Service lands, the Department of Defense (Navy).

---

<sup>18</sup> Source: <http://www.pge.com/> accessed 7/23/2014

<sup>19</sup> Source: <http://www.up.com/> accessed 7/23/2014

California Forestry and Fire Protection Agency (CAL FIRE) provides fire protection for SRA lands in the county. These include Mt Diablo State Park, East Bay Regional Park District lands, Contra Costa Water District lands, and typically are outside of incorporated cities.

The Local Responsibility Areas is protected by both professional and volunteer fire fighting forces. Thirteen different entities that have direct fire protection responsibility. A detailed list and links to fire agency contacts can be found at the [www.diablofiresafe.org/links.html](http://www.diablofiresafe.org/links.html).

## Contra Costa County Fire Protection Agencies

California Department of Forestry and Fire Protection (CAL FIRE)

Contra Costa County Fire Protection District

Crocket-Carquinez Fire Protection District

East Bay Regional Parks District Fire Department

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



## 1.2 The Planning Process & Stakeholders

Update of the Contra Costa County CWPP was made possible through a grant from the US Forest Service Department of Agriculture, Pacific Southwest Region, through the California Fire Safe Council to the Diablo Fire Safe Council (DFSC). The grant could not have been possible without matching in kind services of many stakeholders.

The planning process followed an eight-step process that included 4 stakeholder meetings. Materials were posted on the Diablo Fire Safe Council web site at [www.diablofiresafe.org/cococo\\_CWPP\\_planning\\_process\\_0214.html](http://www.diablofiresafe.org/cococo_CWPP_planning_process_0214.html).

A community survey was also available on [app.fluidsurveys.com/s/CommunitySurvey1CoCoCoCWPPUpdate/](http://app.fluidsurveys.com/s/CommunitySurvey1CoCoCoCWPPUpdate/).

State, local and private agencies, companies, organizations and special interest groups, as well as the residents of Contra Costa County participated in the development and review of this CWPP. Stakeholders included:

Boy Scouts of America, Mt. Diablo Silverado Council  
Briones Residents  
CAL TRANS Hercules, Oakland and Walnut Creek  
California Department of Fish & Wildlife, Napa  
California Native Plant Society Contra Costa County  
California State University East Bay Campus, Concord  
Canyon Fire Council  
City of Walnut Creek Open Space  
Claremont Canyon Conservancy  
Contra Costa County, ECC Habitat Conservancy  
Contra Costa Fire Protection District  
Contra Costa Water District  
CAL FIRE Santa Clara Unit

Moraga Orinda Fire Protection District, Moraga  
Office of Supervisor Candace Andersen (Board of Supervisors District 2)  
Office of Supervisor Federal Glover (Board of Supervisors District 5)  
East Bay Municipal Utilities District  
East Bay Regional Park District Fire Department  
El Cerrito Fire Department  
Kensington Fuels Reduction Group and Kensington residents  
Mount Diablo State Park  
PG&E, Sacramento  
Rossmoor, Walnut Creek  
San Ramon Valley Fire Prevention District,  
Sierra Club Public Lands Committee  
Sleepy Hollow FIREWISE community, Orinda  
Walnut Creek Open Space Foundation

---

# Fire Hazard and Risk in the Wildland Urban Interface

## 2.1 Fire Environment

Wildfires are a part of Contra Costa County's natural ecosystem. The Mediterranean-like climate with no summer rains, the rugged, wind-conducive topography, and fire adapted native vegetation set the stage for periodic burns. The fire environment is made more dangerous by the abundant hazards and risk associated with a growing population and sprawling pattern of development. The urban side of the wildland-urban interface brings new hazards into the equation with introduced vegetation, structures constructed of flammable materials and many potential ignition sources.

Contra Costa County has a rich history of over 51 fires since the 1950s resulting in loss of lives, property and natural resources. The most recent being the 3,111-acre Morgan Fire that started on September 8, 2013.<sup>1</sup> 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. This increases the possibility of catastrophic wildfire, especially as the hazards of vegetation, topography, structures and fire weather are present.

### Weather

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 and strong winds could lead to rapid increases in wildfire activity.

In Contra Costa County, "Red Flag" weather can mean the occurrence of strong, hot, dry offshore winds (technically called "foehn" winds). These winds are known locally as "Diablo Winds" since they come from the north, northeast in the direction of Mount Diablo. They 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.

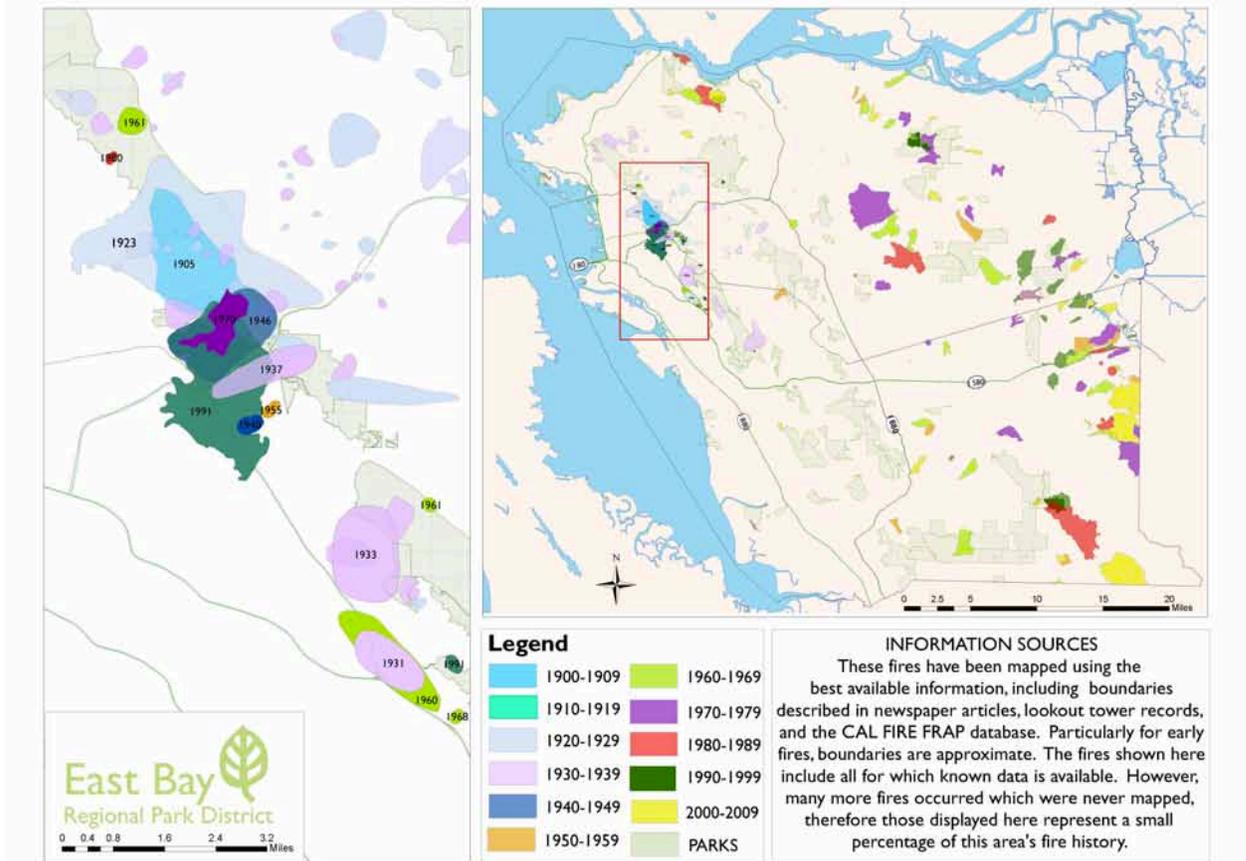
### Fuel – Structures and Vegetation

Due to homes continuing to be built in high fire hazard zones and changes in the natural fire-cycle, the county has areas of highly flammable structures amongst an over-accumulation of flammable vegetation. This massive fuel load in the area's mountains and hills makes fires very difficult to contain. In addition, non-native and invasive weedy vegetation has replaced the more fire resistive and ecologically stable native species in many places, adding to the threat.

---

<sup>1</sup> Source: [http://cdfdata.fire.ca.gov/incidents/incidents\\_details\\_info?incident\\_id=908](http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=908)

## Fire History in the East Bay



*Historically fires in Contra Costa County have clustered in 3 areas: East Bay Hills and along border with Alameda County; east areas of county around Mount Diablo and north areas of central county around Martinez.*

### Topography

The County's step topography, with canyons and swales, 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 Risk & Hazard Assessments

The wildland urban interface (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. Nationally, 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 of the developed areas not only border WUI areas, but also include conditions within the “urbanized” areas that can fuel wildfires, such as experienced in the 1991 fire in the Oakland-Berkeley Hills (officially known as the Tunnel Fire). Some locations are considered “Very High” and “High” Fire Hazard Severity Zones 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 California Department of Forestry and Fire Protection (CAL FIRE) Fire Hazard Severity maps were used as a starting point to determine where significant fire hazards exist both in the wildland and urban areas of the county. Many local cities and fire districts have developed specific maps characterizing the risk in their areas, further refining the CAL FIRE maps. These local maps are included in the Appendix.

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

Existing risk and hazard assessments can be grouped into three categories addressing potential for fire to occur, what to protect and protection capabilities.

### 2.2.1. Potential for Fire to Occur

#### Factor 1 – Risk of Fire Occurrence

##### Fire History Locations

Contra Costa County has a history of fire. The *Fire History in the East Bay* shows many fires throughout the county over the past century. Three areas show clusters of fire:

- 1) East Bay Hills – Richmond, El Cerrito Kensington and along border with Alameda County;
- 2) East areas of county around Mount Diablo, Walnut Creek, San Ramon
- 3) North areas of central-county around Martinez.

##### Fire History Patterns, Climate Change Impact and Ignitions

A look at the 15 fires in the vicinity of the Caldecott Tunnel from 1923 – 1991 shows a common pattern of ignitions during critical Diablo Wind conditions in the Fall; occurring every 10 – 20 years.

Climate change has the potential to affect multiple elements including fire behavior, ignitions, fire management and vegetation fuels. Hot dry spells may dry out fuels faster and increase disease and insect infestations resulting in higher fuel loads. Increased winds may result in more erratic fire behavior making fires harder to contain.

As a part of their fire management plan, East Bay Municipal Utility District (EBMUD) looked at causative agents for fires on their watershed from 1980-1997. Many ignitions were “unknown,” but known causes were primarily human and included arson, camp and picnic activities, powerlines, fireworks, fuel reduction activities, smoking, children, auto, rekindles. With only 2 out of the 174 fires analyzed caused by lighting. EBMUD used this information to help identify high fire risk areas including:

- All interface or intermix areas
- High use or recreational areas
- High travel transportation corridors with roadside grasslands

East Bay Regional Park District did a similar analysis of 1,900 fires over twelve years in Alameda and Contra Costa Counties and reached similar conclusions. Stakeholders and fire personnel familiar with Contra Costa and Alameda County’s fire history felt that these causes and patterns could be extrapolated to other areas.

**Fire Weather**

Another factor that has been assessed is fire weather or periods of “Diablo winds” from the east that bring low relative humidity and higher temperatures. Alameda and Contra Costa Counties have 11 remote automated weather stations (RAWS) that provide us localized information on the weather. Many fire departments also take local weather readings to supplement these regional data. In addition, National Oceanic and Atmospheric Association’s National Weather Service provides “red flag warnings” and “Fire Weather Watch” of periods of high fire danger.

[www.wrh.noaa.gov/firewx/cfw/](http://www.wrh.noaa.gov/firewx/cfw/)

**Communities at Risk**

In association with the development of the National Fire Plan the Federal Register published a list of Communities at Risk in 2001.<sup>2</sup> Twenty-five cities in Contra Costa County were identified. This list provided a starting point to identify high priority areas. It should be noted that several communities that locally are considered communities at risk, , such as Bollinger Canyon, Briones, Canyon and Diablo, were not included on the 2001 published list.

<p><b>West County</b>  <i>Incorporated Cities</i>                  El Cerrito                  Hercules                  Pinole                  Richmond  <i>Unincorporated Areas</i>                  Crockett                  East Richmond Heights                  El Sobrante                  Kensington                  Rodeo</p>	<p><b>Central County</b>  <i>Incorporated Cities</i>                  Clayton                  Concord                  Danville                  Lafayette                  Martinez                  Moraga                  Orinda                  Pleasant Hill                  San Ramon                  Walnut Creek  <i>Unincorporated Areas</i>                  Alamo                  Blackhawk</p>	<p><b>East County</b>  <i>Incorporated Cities</i>                  Antioch                  Brentwood                  Pittsburg  <i>Unincorporated Areas</i>                  West Pittsburg</p>
---	--	---

<sup>2</sup> [http://cdfdata.fire.ca.gov/fire\\_er/fpp\\_planning\\_car?filter\\_text=Contra+Costa&filter\\_field=county\\_name&action=Search](http://cdfdata.fire.ca.gov/fire_er/fpp_planning_car?filter_text=Contra+Costa&filter_field=county_name&action=Search) accessed 7/3/2014

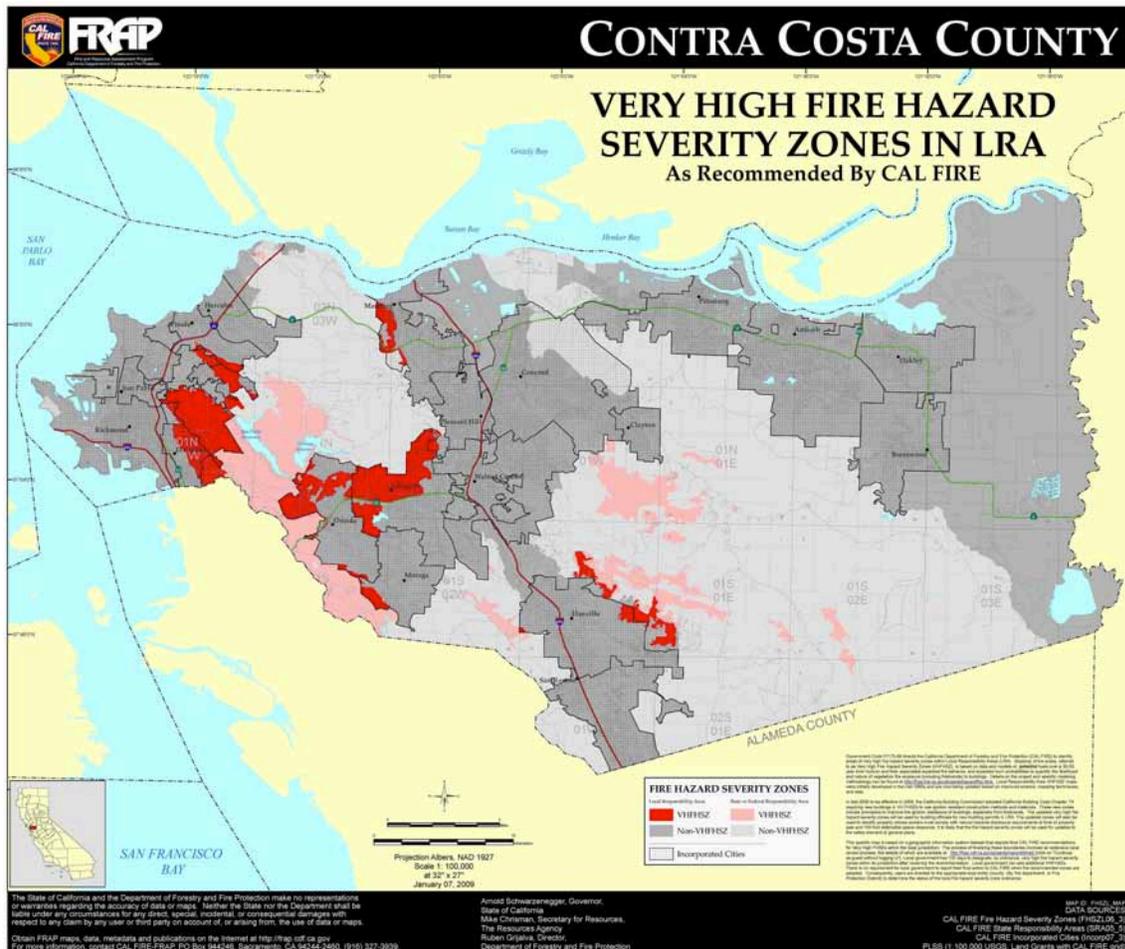
## Factor 2 – Fuel Hazards

### CAL FIRE Statewide Hazard Assessment Maps.

The CAL FIRE statewide hazard assessment maps have served as the basis for much of the analysis in the county. Very High Fire Hazard Severity Zones for State Responsibility Areas (SRA) and Local Responsibility Areas (LRA) are identified on these maps based on:

- Flame length modeled based on vegetation, topography and weather.
- Crown fire potential, ember production and ember movement
- Likelihood of burning based on fire history and other factors.

See [www.fire.ca.gov/fire\\_prevention/downloads/FHSZ\\_model\\_primer.pdf](http://www.fire.ca.gov/fire_prevention/downloads/FHSZ_model_primer.pdf) for more information on the model used to create these maps.<sup>3</sup>



In Contra Costa County "Very High Fire Hazard" Severity Zones are clustered in three areas in State Responsibility Areas (SRA) and extend into the Local Responsibility Areas (LRA):

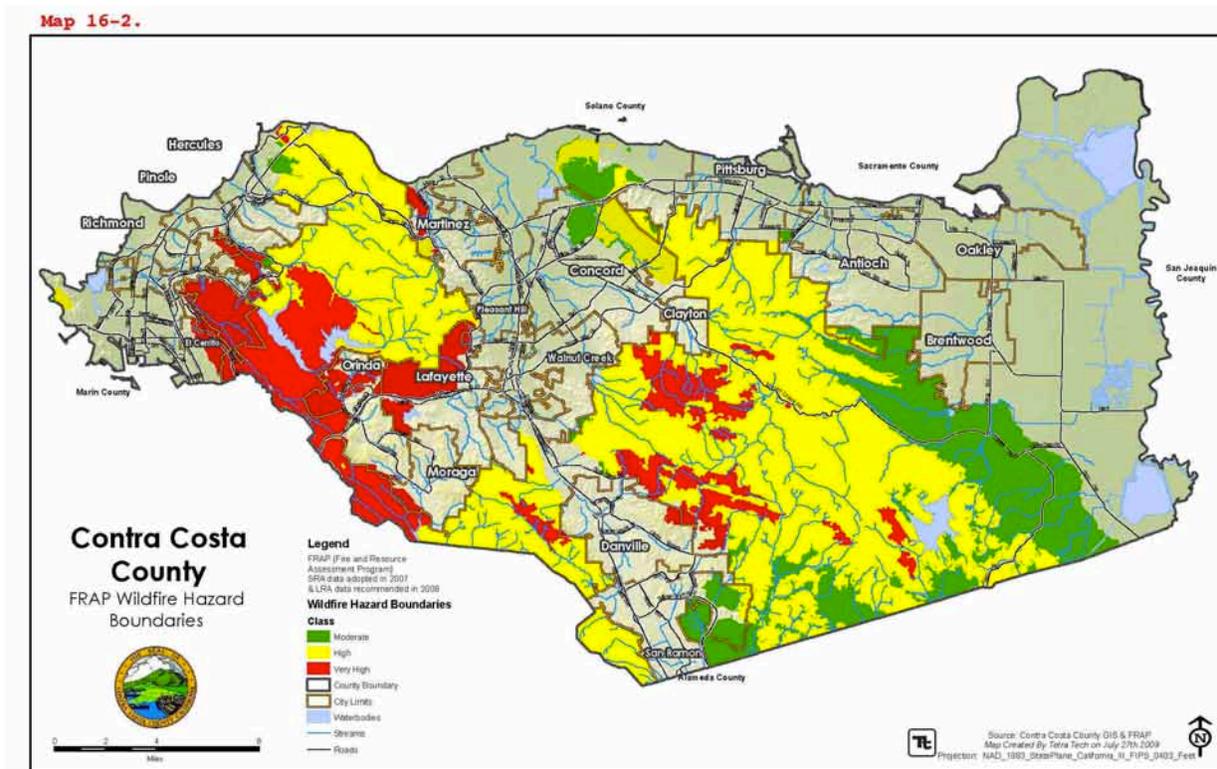
- East Bay Hills from Richmond south along the Alameda County Border;
- Central county unincorporated areas around the communities of around Orinda, unincorporated community of Briones Lafayette, Moraga and unincorporated community of Canyon, Martinez, Danville and San Ramon,
- East County on east side of Mount Diablo

<sup>3</sup> Map from: [www.fire.ca.gov/fire\\_prevention/fhsz\\_maps\\_contracosta.php](http://www.fire.ca.gov/fire_prevention/fhsz_maps_contracosta.php) accessed 7/7/2014.

Very High Fire Hazard Severity Zones in Local Responsibility Areas (LRA) include:

West County	Central County	East County
<i>Incorporated Cities</i>	<i>Incorporated Cities</i>	<i>Incorporated Cities</i>
El Cerrito	Danville	none
Pinole	Lafayette	<i>Unincorporated Areas</i>
Richmond	Martinez	none
<i>Unincorporated Areas</i>	Moraga	
East Richmond Heights	Orinda	
El Sobrante	Pleasant Hill	
Kensington	<i>Unincorporated Areas</i>	
Rodeo	Alamo	
	Blackhawk	

4



### Local Fire Hazard Assessments

Many of the communities in the county have identified areas within their jurisdictions that have high fire hazards. Annually municipal fire department, fire district and CAL FIRE staff inspects these areas for compliance with local weed abatement, exterior hazard or state public resource codes related to defensible space. These include portions of the communities of: Clayton, Concord, Danville, El Cerrito, Kensington, Lafayette, Martinez, Moraga, Orinda, Pleasant Hill, Richmond, San Ramon, Walnut Creek and unincorporated communities in the State Responsibility Areas.

Local wildfire hazard assessments also have been done in some open space areas of the county, such as for the "East Bay Regional Park District's Wildfire Hazard Reduction and Resource

<sup>4</sup> Map 16-2 from <http://www.co.contra-costa.ca.us/2302/Local-Multi-Hazard-Mitigation-Plan>, May 2011. Accessed 7/7/2014. This map is based on FRAP data and shows very high, high and moderate fire hazard severity zones.

*Management Plan.*” The EBRPD plan for portions of the East Bay hills identifies vegetation and modeled potential fire behavior (using the model FLAMMAP). It identifies treatment areas located within 200’ of homes with flame length greater than 8 feet; high potential for torching and spotting (ember production) or strategic fire route or safety zone; or areas that are currently maintained that would have flame length greater than 8 feet if not maintained. Other agencies, such as East Bay Municipal Utility District, also have adopted plans for addressing wildfire hazards on lands they manage. These can be found on the references and resources list on the DFSC website, [www.diablofiresafe.org/pdf/CoCoCoCWPP\\_Update\\_references\\_and\\_resources\\_0614.pdf](http://www.diablofiresafe.org/pdf/CoCoCoCWPP_Update_references_and_resources_0614.pdf).

Additional assessments are prepared by private companies. These assessments are usually proprietary and closely held for use solely by the company that commissioned the information, such as insurance companies.

## 2.2.2. What to Protect

### Factor 3 – Homes, businesses and critical infrastructure to protect

In addition to looking at fuel hazards it is also important to identify things that should be protected from the hazards. Some of the things to protect include:

- Homes and businesses. The Contra Costa County Hazard Mitigation Plan Update estimated that a total 21,652 structures (population of 58,895) located within the very high, high and moderate fire hazard severity zones.<sup>5</sup>
- Schools and colleges. Contra Costa County includes many public and private schools, community colleges, private colleges, public colleges and universities. 21 of them are located in the very high, high and moderate fire hazard severity zones.
- Hospitals and other health related facilities. One is located in the High fire hazard severity zones.
- Watersheds. The East Bay Municipal Utility District Fire Management Plan guides implementation of fire protection and preparedness activities that meet key watershed management objectives. Contra Costa Water District also manages their watershed lands to reduce the potential for wildfire.
- Infrastructure. Transportation networks including freeways, roads, BART, railroads that have regional connections. Utilities such as 500 KW transmission lines that are part of the national electric grid. Pipelines for liquid petroleum, gasoline and natural gas. Telecommunication networks and public emergency communication systems.
- Other things to consider. Contra Costa County is seismically active with seven major faults (Greenville, Hayward, Concord/ Green Valley, Mt Diablo, Great Valley, San Andreas and the Northern Calaveras)<sup>6</sup> that could impact access, reliability of water supply and result in potential ignitions from gas or fuel lines following an earthquake. The County also has two hazmat sites located within the high fire hazard severity zone.

In recognition of things to protect several cities have locally designated areas that further refine CAL Fire’s very high fire hazard severity zones:

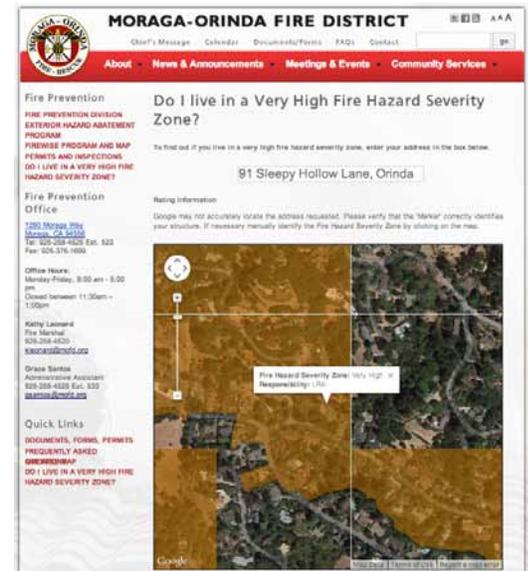
- The Fire Departments and Fire Protection Districts have special requirements for property owners to maintain defensible space. They also send out annual notices and inspect properties in this area.

---

<sup>5</sup> Source: <http://www.co.contra-costa.ca.us/2302/Local-Multi-Hazard-Mitigation-Plan>., May 2011. Accessed 7/7/2014.

<sup>6</sup> Source: <http://quake.abag.ca.gov/earthquakes/contracosta/> Accessed 7/7/2014

- San Ramon Valley Fire Protection District and Moraga Orinda Fire District have special requirements for new construction in specific areas, as well as inspections to maintain defensible space.
- Moraga Orinda Fire District developed a parcel based wildfire risk evaluation map. Collected variables were divided into three subcategories (Fire Suppression, Fire Behavior and Property Owner Intervention). Results can be viewed at <http://firewise.mofd.org/kamap>.



#### Factor 4 - Other values to protect

While fire is a natural and critical ecosystem process in many of California's diverse terrestrial ecosystem, many of the existing "fire regimes" in Contra Costa have been drastically altered from their natural variability. Introduced species, fire suppression, disease and insect infestations, and fire suppression are just a few of the reasons why some ecosystems now experience fires that are more intense and damaging. Severe environmental impacts from wildfires can include:

- Damaged fisheries, with increased water temperatures, sedimentation and changes in water quality.
- Soil erosion from both wind and water erosion. Accelerated soil erosion can lead to landslides as well as threaten nearby aquatic habitats. Hot fires can also damage soil nutrients or make soil water repellent (hydrophobic).
- Disease and insect infestations as non-native plant species invade burned areas.
- Damage to critical wildlife habitat.

#### Critical wildlife habitat

The East Contra Costa County Habitat Conservation Plan and Implementing Agreement proactively addresses "the long-term conservation needs in the region by strengthening local control over land use and providing greater flexibility in meeting other needs such as housing, transportation, and economic growth." More than 150 rare species occur in the East County area alone. US Fish and Wildlife Service have identified critical habitat for the Alameda Whipsnake and Red Legged Frog. Other federal listed species are identified in the "Best Management Practices Guidebook for Hazardous Fuels Treatments in Contra Costa County" and the *Vegetation Management Almanac for the East Bay Hills*.

#### Local watersheds, creeks and riparian areas.

Many cities and the county have recognized the importance of their local watersheds, creeks and riparian areas and have local stream protection ordinances and regulations to protect these resources. State regulatory agencies, including California Fish and Game and the San Francisco Bay Regional Water Quality Control Board (SFRWQCB), oversee protection of riparian areas, including along seasonal or ephemeral channels and issue permits required for removal of riparian vegetation. Replanting or revegetation may be required in some areas when vegetation is removed to reduce wildfire hazards.

There are also multiple water providers in Contra Costa County.

East Bay Municipal Utility District serves approximately 1.3 million customers in a 331 square mile area in Contra Costa and Alameda Counties. It manages watershed lands around their 4 reservoirs: Briones Reservoir, San Pablo Reservoir, Upper San Leandro Reservoir, and Lafayette Reservoir.

<sup>7</sup> East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan, Annual Report 2012.

Contra Costa Water serves about 250,000 customers directly with treated water and another 250,000 through six local water agencies. It draws water from the Sacramento-San Joaquin Delta and owns watershed land around Los Vaqueros Reservoir.

Significant recreation, scenic areas and areas of historical, economic or cultural value

The wildland urban interface also contains many regional parks and city owned open spaces with significant recreation and scenic areas. It also is the location of areas with historical, economic and cultural value both as documented historical and undocumented archeological sites.

### 2.2.3. Protection Capabilities

#### Factor 5 - Local Preparedness and Fire Fighting Capabilities

As identified in Section 1 pages 1.7-1.8, local fire protection agencies leverage their resources through participation in emergency management systems and common incident command system. Local preparedness and firefighting capabilities include community preparedness & emergency personnel response. During fire incidents law enforcement, including the County Sheriff and local police departments, are responsible for coordinating evacuation. Volunteer resources, such as CERT (Community Emergency Response Team), RACES (Radio Amateur Civil Emergency Service), CCMRC (Contra Costa Medical Reserve Corps) and Contra Costa County Office of The Sheriff Volunteers, also play critical roles in both preparedness and during response to wildfires.

In November 2011, the County Office of Emergency Services produced an Emergency Operations Plan for the Contra Costa Operational Area "for effective and economical allocation of resources for protection of people and property in time of an emergency<sup>8</sup>." The plan establishes the emergency organization, assigns tasks, specifies policies and general procedures, and provides for the coordination of planning efforts of the various emergency staff and service elements utilizing the California Standardized Emergency Management System (SEMS) and National Incident Management System (NIMS).

## 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, as well as cultural, economic and ecological interests, is at risk of loss in an uncontrollable wildfire. Of particular concern are those who for what ever reason would not be able to leave during an evacuation without assistance.

Area residents and agencies list homes, businesses, parklands and protected watersheds 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 about values at risks are provided to numerous residents are included in the Appendix.

---

<sup>8</sup> Source: <http://www.contracosta.ca.gov/DocumentCenter/View/7352>

The County's Local Hazard Mitigation Plan<sup>9</sup> lists the following as exposed to potential loss:

- In the urban lands of Contra Costa County, 118,828 (64% of 184,775 acres in urban land use) are located in wildland urban interface threat areas. 21,963 of those acres (12.2%) are subject to high, very high or extreme wildfire threat.
- In the non-urban areas of Contra Costa County, 34,849 acres (13% of the 271,110 acres) are located in the wildland urban interface threat areas. Most non-urban areas are located in the more remote areas (outside of the WUI). In these remote areas there are additional areas of high or very high wildfire threat (174,099 acres of the 271,100 non-urban lands).
- The population exposed to fire in the wildland urban interface is challenging to determine because census block groups do not coincide with fire risk areas. However, the County Hazard Mitigation Plan updated in May 2011 estimated the population exposed to wildfire based on the structure count of buildings in the WUI area. There are a total of 21,652 structures in very high, high and moderate severity zones (9,372 in urban and 21,652 in non urban areas). Applying the census value of 2.72 persons per household equates to a total population of 58,895 (22,492 in urban areas and 33,403 in non-urban areas. Total monetary value of structures and contents is more than \$14.7 billion<sup>10</sup>.

It should be noted that these population estimates are based on statewide data. When each community is more closely reviewed, this data appears lower than the numbers of people living within local wildfire hazard zones. However, this is the best available data as there is no other compiled information for all the communities in the county .

- 753 miles of roadway are subject to high, very high or extreme wildfire threat and 3,315 miles of roads are located in wildland urban interface threat areas (Total 5,391 miles of roads in the County). Other critical regional transit facilities within the threat area include AMTRAK, Bay Area Rapid Transit (BART) and railroads.
- Other infrastructure located within the wildland urban interface threat areas includes: pipelines under roadways, power facilities, municipal wastewater facilities, municipal water supplies and communications facilities.
- 1 critical health care facility, 19 schools, 163 critical facilities (owned by city, county or special districts), and 44 bridges and interchanges are located in areas of high or very high threat. 48 critical health care facilities, 261 schools and 788 other critical facilities and 362 bridges and interchanges are located in wildland urban interface threat areas.

## 2.4 Strategies for 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 all are immutable. Attention to decreasing the human impacts and risk factors can reduce the incidence of catastrophic wildfire. These strategies are organized to focus on each of the existing risk and hazard assessments:

---

<sup>9</sup> Association of Bay Area Governments. Multi-Jurisdictional Local Hazard Mitigation Plan. Appendix C: Natural Hazard Assessment Risk Assessment. 2010 Update. <http://quake.abag.ca.gov/wildfires/> accessed 7/7/2014. See <http://quake.abag.ca.gov/mitigation/landuse/> for data specifics by county and city.

<sup>10</sup> Source: [www.co.contra-costa.ca.us/2302/Local-Multi-Hazard-Mitigation-Plan](http://www.co.contra-costa.ca.us/2302/Local-Multi-Hazard-Mitigation-Plan), May 2011. Accessed 7/7/2014. See Tables (see Figure 16-2 to 16-5

1. **Collaborative Partners:** Recommendations related to risk of fire occurrence include working with potential collaborative partners to share ideas including volunteer groups such as Sleepy Hollow FIREWISE community, Kensington Fuel Reduction Group and Canyon Fire Council or less obvious partners such as neighborhood crime prevention councils (NCPC). Collaborative efforts may include:
  - Information
  - Education
  - Collaborative planning on a local level with more detailed assessments and project development to reduce risk of fire occurrence.

Other information dissemination partners may include the CERT, State Parks, California Office of Emergency Services (CAL OES), East Bay Regional Communications System Authority (EBRCSA), Boy and Girl Scouts of America, Contra Costa County and California Cattlemen's Association, planning and building departments, Board of Supervisors, City Council members, Contra Costa Fire Chiefs Association, CAL TRANS, Master Gardeners, University of California Extension, Institute of Building and Home Safety, California Landscape Contractors Association, local media, Contra Costa County OES, non profit habitat restoration organizations, California Native Plant Society, Walnut Creek Open Space Foundation, Muir Heritage Land Trust, Save Mount Diablo, and utilities including PG&E, East Bay Municipal Utilities District, Contra Costa Water and California Public Utilities Commission.

Electronic distribution could allow groups to customize and distribute through existing networks.

2. **Recommendations to address risk of ignitions:**
  - Fire Prevention Education – “One Less Spark, “FIREWISE, “Ready, Set, Go”, Smokey Bear, CERT, volunteers in prevention, fire department staff, equipment rental operations and contractors (spark arrestors), mowing guidelines, drought related information.
  - Enforcement – supporting consumer fireworks exclusions (including sky lanterns) fire investigations and working with law enforcement, defensible space inspections/enforcement.
  - Engineering – equipment safety, fuel reduction activities.
3. **Recommendations to address fire weather:**
  - Awareness of hazard conditions – red flag program flags, education, shared responsibility of agencies and residents. National weather service (Monterey) and remote area weather stations (RAWS).
  - Restrictions on specific uses, certain activities, specific operations or equipment (abatement work) during periods of high fire danger weather. Fire weather operations plans.
  - Shared responsibility – patrols, community watch type activities.
4. **Recommendations to address community at risk hazards:**
  - Public education and exterior hazard abatement:
    - Reducing surrounding fuels and ignitability of existing homes and structures – from the house out.
    - Focus on dense vegetation directly adjacent to homes and homes themselves.

- Weed abatement defensible space inspections and enforcement.
- Home ignition zone improvements (beyond weed abatement or fire code requirements).
- Reduce structure ignitability.
- Evacuation routes
- County-wide hazard ratings. Analysis of moderate and high fire severity areas in local responsibility area (both vegetative fuels and structure ignitability).

5. Recommendations to further support defensible space programs:

- More urgent need due to drought conditions. What to do when 100-foot defensible space goes beyond property lines.
- Volunteer activities in community open spaces. FIREWISE communities.
- Balancing habitat needs and defensible space.
- Chipping programs.
- Green waste pickup or other programs for disposal.
- Hazardous tree removal programs.
- "Seed" funding for community projects.
- Information such as lists of contractors and what sorts of work they can do. Use CERT and contractor training programs as a model for programs where they provide certificates to contractors for credibility.
- Inspection and enforcement mechanisms. Note: Not all cities and parts of Contra Costa County have mandated inspections or enforcement mechanisms; they vary by jurisdiction. In many areas fire department staffing limits the program to complaint response and restricts inspections to what can be viewed from the public streets. Code enforcement may be through weed abatement or blight related ordinances. May not address fire trails, access gates, fences and other structures.
- Showcase successful treatments of private properties where habitat values, aesthetics and fuel reduction (defensible space) goals have been met with an on-line photo gallery and details of treatment.

6. Recommendations for Homeowner Risk Reduction Behaviors (Source: Firesafe Council of California website: [www.firesafecouncil.org](http://www.firesafecouncil.org))

- Creating a minimum 30-foot defensible space around your home
- Planting low-growing, fire resistant plants around your home
- Putting a fire resistant roof on your home
- Putting fire resistant undersides to any decks and balconies on your home
- Removing any dead branches from your home's roof and around the chimney
- Making sure that your home is easily identifiable and accessibly from a main road
- Making sure that all the trees on or near your property are away from structures
- Making sure that all the trees on or near your property are away from utility lines
- Working with neighbors to clear common areas and prune areas of heavy vegetation
- Stacking firewood and scrap wood piles at least 30 feet from any structure

- Contacting your local fire department to get a personal fire safety inspection at your home and property.

7. **Recommendations to support improving structure survivability:**

- Shake roof replacement program
- Local building standards for remodeling reflective of the State adopted WUI Chapter 7A or better (recognizing these are minimum standards).
- Education regarding WUI building standards and existing code requirements – Class A roofs, smoke detectors, fire extinguishers, street address numbers. Educational materials to address inside the home, external shell, ember hardening and non-ignition zone (fences, outdoor structures) Use variety of outreach tools including DVD, website, flyers and presentations. Provide targeted materials for homeowners in existing homes.
- Practical retrofit techniques and building materials for roofs, gutters, windows, siding, vents, decks, outbuildings. Especially information regarding what can be done without major remodels. Insurance Institute for Business and Home Safety has a good retrofit checklist with relative costs. [www.disastersafety.org/content/data/file/WF\\_checklist.pdf](http://www.disastersafety.org/content/data/file/WF_checklist.pdf)
- Access road standards, turnaround, gates, and other requirements in PRC 4291 and Title 14 to increase fire safety.

8. **Recommendations to support appropriate new development & construction both in new subdivisions and as infill in existing communities:**

- Integrate fire safety into local policies, plan review and permits. Help developers and design professionals understand requirements for egress, plant materials etc.
- Keep up with current requirements. (AB2140 Safety Element, CEQA updates, Title 14 regulations Board of Forestry etc.)
- WUI building standard (State Chapter 7A or more stringent) – Roofs, Gutters, Windows, Siding, Vents, Decks, Other. Educational materials to designers, builders, plan checkers and code officials to address inside the home, external shell, ember hardening and non-ignition zone. Use variety of outreach tools including DVD, website, flyers and presentations.
- Local building requirements for fire sprinklers.
- Building for access and evacuation. Review of infrastructure design – roads (access for evacuation and emergency equipment), bridges, water, underground utilities, fire stations. This is especially important where development occurs on previously un-buildable lots where existing infrastructure may not be adequate for protection of new development.
- Analysis of moderate and high fire hazard areas for vegetative fuel loads and structure ignitability.

8. **Recommendations to support fuel management on public and large scale private lands:**

- Integrating fire with scientifically based resource and vegetation management that protects and improves native habitat values. A lot of collaborative planning work has been done in the region that should be incorporated. Balance protection of biological resources with fuel removal (e.g. bird nesting and 100' defensible space).
- Share project implementation resources (contractors, equipment, specifications), best management practices (BMP) and lessons learned. Use of goats, cattle, control burns, disk or mow fire containment lines, understory maintenance, etc..

- Project & funding support.
- Facilitate a process that permits volunteers to “adopt a park” for fuel management work, including revegetation of desirable species such as with friends of creeks groups.
- Work with local ranchers and public agencies who use cattle grazing as a tool for fire management to encourage them to adjust range management plans and graze closer to roads and fence lines to reduce ignition potential early in the season.
- Include botanical and biological experts in planning and oversight of projects to maximize effectiveness while minimizing negative impacts.
- Access for firefighter and equipment.
- Insects, pathogens, invasive plants prevention and control.
- Water sources for drafting and fire storage.
- Fuel work and public expectations

9. Recommendations protecting homes, businesses, other facilities & essential infrastructure at risk:

- Expand structure ignition reduction and defensible space activities to businesses and essential infrastructure.
- Identify infrastructure to protect: transportation networks, power grid, water treatment facilities, communications (peak of Mound Diablo) and utilities, Support fuel reduction projects such as on watersheds, roadside clearances, fire trail grading and power-line clearance. Power lines that do not follow roads may be a special concern, as it is difficult to get fire suppression equipment into the area if there is an ignition.
- Aged infrastructure or those with deferred maintenance may not meet needs for today’s larger firefighting apparatus.

10. Recommendations to support Local Preparedness and Firefighting Capability:

- Develop local evacuation plans and educate residents on preparedness. Moraga Orinda Fire District is working on evacuation plans for local areas. Reverse 911 community warnings
- Identify actions to maintain existing access/ egress during Red Flag days by reducing restrictions of road right of ways on narrow roads throughout the hills.
- Participate in and enhance existing CERT/ Neighborhood Watch programs. Ready Set Go. FIREWISE.
- Continue to support fire department response improvements: expanded mutual aid, wildland fire training, equipment etc. Coordination between agencies and land managers.

# Recommended Action Plan

## 3.1 Selection of Recommended Priorities

The Contra Costa County Community Wildfire Protection Plan (CWPP) was developed through collaboration of stakeholders and residents that attended work sessions, public presentations or commented on draft versions of this plan. Participants were invited to submit project ideas that provide protection and reduce risk. The following recommended priorities are based on this collaboration, as well as the analysis and the recommended strategies for reducing the risk with the WUI detailed in Chapters 1 and 2.

Each of the following topics outlines specific recommendations and associated actions. It is anticipated that additional opportunities for actions will be identified as the CWPP is implemented. Projects, workshops, demonstrations and education efforts will be recommended for implementation and funding 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 between private lands to public lands (regional parklands, open space, watershed lands, state or federal lands) or areas where significant natural or cultural resources are at risk.
- Seeks to create a detailed implementation plan for fire prevention or mitigation at the local level in an area identified as "at risk".
- Involves stakeholders at all levels, which is to say there is strong community support, as well as support from 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, and/or supports ongoing, previously planned efforts.
- Projects covered in an agency adopted environmental document. (Note: Some stakeholders felt that grants should not be processed for work that is not covered by required environmental document(s) or for projects where required permits are not obtainable. However, it also should be noted that some grants cover the environmental planning and permitting process which can be quite costly and difficult to fund.)
- Projects that will improve firefighting response, wildfire control capabilities and residential evacuation plans and operational programs.
- Removal of invasive plants of known high flammability listed in a recognized source such Cal-IPC California Invasive Plant Inventory (publication 2006-02 or updated).

Many of the recommended actions will take long-term commitment over multiple years to address the complex hazards. Some actions have current funding, but additional funding and efforts are needed to continue to address the issue.

### 3.2 Information, Education and Collaborative Planning Priorities

A key recommendation related to information, education and collaborative planning is working with potential partners to find common ground, share ideas and develop joint implementation of local projects. These partners may expand beyond the traditional agency partners to include volunteer groups who have interest in neighborhood or nearby open spaces. They may also include organizations, such as the California Native Plant Society or Contra Costa County Master Gardeners, offices of the mayor or elected officials, homeowner associations or local businesses. One such recommendation includes exploring partnerships to improve communication.

#### **Priority Action: Regionally Specific Educational Program and Materials**

Recommendation: Support Ready-Set-Go and FIREWISE community efforts with education programs and materials that are specific to the development patterns and conditions in Contra Costa County. These should identify inexpensive things a homeowner, contractors and others can do.

Implementation Actions:

- Focus on existing structures and how a homeowners and their contractors can improve their home's ignition resistance. Information should include non-ignition zone, such as how simple actions of cleaning leaves and not storing flammable materials below decks can reduce the potential of ignition from embers.
- Develop defensible space guidelines that look like places in Contra Costa County.
- Develop guidelines for environmentally sensitive fuel reduction.
- Develop guideline for vegetation management where erosion is an issue.
- Develop plants specific information (including on "bad plants" and how they should not be planted near windows).
- Promote existing guidelines (such as the *Vegetation Almanac for East Bay Hills* published by the Hills Emergency Forum).
- Other subjects could include how to prepare your family and home for an evacuation

Lead and Partners: Diablo Fire Safe Council and partner agencies.

Time frame: On-going

Estimated Funding Need: \$ for development and distribution of materials.

### 3.3 Enhanced Suppression Capability and Emergency Preparedness Priorities

Each year wildfires reinforce the importance of local emergency preparedness and evacuation plans. The emergency service agencies (County Office of Emergency Services, County Sheriff, and local police and fire departments) of the cities and Contra Costa County are interconnected through mutual aid agreements and common training of the Incident Command System and National Incident Management System. To expand this preparedness to a local and neighborhood level, many jurisdictions offer Citizen Emergency Response Training (CERT) programs. Since these programs focus on multiple hazards and cover the entire county few offer wildfire preparedness or local evacuation in the event of wildfire. One priority recommendation focuses on assisting in the development of local evacuation plans. Another opportunity is to collaborate with updates to local hazard mitigation plan or general plan safety elements.

Another area of concern raised during the development of the plan related to the suppression difficulty of ignitions from powerlines when those utilities do not follow roads. On July 25, 2006 a fire ignited from a downed power line in Tilden Park (near the ignition point of the historic 1923 Berkeley fire). While the firefighters were able to see the fire they had difficulty designating the area that had to be reached after a one-third mile hike through brush.<sup>1</sup> Had a service road been along the power lines the ignition would likely to have been easily located.

### **Priority Action: Evacuation Planning**

Recommendation: Collaborate with other organizations (e.g. Red Cross, CERT, CORE, Neighborhood Watch) to assist community groups develop neighborhood evacuation plans.

Implementation Actions:

- Coordinate with law enforcement agencies, Contra Costa Operation Area members, Cal Trans, public works agencies and others involved in evacuation, as well as local emergency plans.
- Focus on community groups and block level.
- Identify essential supplies to maintain (Go Pack). See Ready Set Go program information.
- Identify special populations or needs at the block level.
- Identify primary and secondary evacuation routes.
- Coordinate with CORE/ CERT members.
- Pre-designate suitable evacuation shelters
- Physical improvements to the routes as needed (shoulders, parking restrictions, vegetation clearance, signage etc.)
- Tie to general education of wildland urban interface issues, red flag warnings

Lead and Partners: Coordinate with other groups that address evacuation training such as CORE/ CERT and Red Cross, as well as outreach to home owner associations, fire departments, police departments.

Time frame: Short to identify, medium to long term to implement improvements.

Estimated Funding Need: \$ for maps and brochures; \$\$\$\$\$ for physical improvements.



© 2009-2011 CERF+ (Craft Emergency Relief Fund + Artists' Emergency

<sup>1</sup> Brenneman, Richard. "Fire Department Log." The Daily Planet. Weekend Edition, July 28-31, 2006.

# Prioritizing Fuel Reduction Treatments

## 4.1 Fuel Management

Fuel management, ideally a subset of sound vegetation and ecosystem 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 not effective. Follow up is often needed to avoid encroachment by weedy, non-native invasive species. Rigorous oversight, active management and an adaptive approach are required to achieve fuel management goals with a positive by-product of ecosystem improvement.

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

- Manual (hand labor such as pulling or cutting)
- Mechanical treatment (equipment used for mowing, selective cutting of trees, masticating or crushing)
- Prescribed herbivory (targeted grazing by sheep, goats or cattle)
- Chemical treatment
- Prescribed fire

Specific fuel management treatment goals and methods are addressed more fully in the *Best Management Practices Guidebook for Hazardous Fuel Treatments in Contra Costa County* and the *Vegetation Almanac for the East Bay Hills*. These best management practice guidebooks will continue to be refined based on environmental compliance documents, adaptive management practices and other lessons learned by the various stakeholders.

The sustainability of fuel management is an on-going challenge at all landscape scales – from the single residence, new developed neighborhoods, public open space, watershed and parklands. Existing residential areas typically depend upon private property owners and their fire agency’s fire prevention programs to reduce fuel loads. Most of the agencies have the ability to enforce compliance with local fire codes. However, they are limited by the extent of local codes, which often focus on annual weedy fuels. New residential development needs not only a plan for fire hazard reduction, but also funding mechanisms for long term vegetation management of commonly held open space. Funding must include not only initial treatments, but also on-going maintenance on an annual or multi-year cycle.

## 4.2 Fuel Reduction Treatments – Geographically Base Projects

Throughout Contra Costa County public and private agencies, fire departments and fire districts establish fuel reduction treatment priorities on a regular basis as a part of their long-range planning or annual budgeting procedures. Many of the public land managers have detailed plans that incorporate fuel reduction treatments. These plans have not only identified geographically based projects, but also have developed best management practices and mitigation measures that should be incorporated into projects to reduce the

impact of fuel reduction treatments on the environment (see on-line Appendix for further resources and references). Two such documents are:

- East Bay Hills Wildfire Hazard Reduction and Resource Management Plan and EIR. East Bay Regional Park District
- East Bay Watershed Management Plan. East Bay Municipal Utilities District

Typically, fuel treatment is done around structures, by roadways and in areas of extreme fire behavior. Treatments addressed in the *Best Management Practices Guidebook for Hazardous Fuel Treatments in Contra Costa County*<sup>1</sup> are organized by zone as follows:

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



Stakeholders in Contra Costa County have further refined this list with the following areas as appropriate for fuel management:

- Areas within 200 feet of homes in the wildland urban interface (WUI) with excessively flammable vegetation that would produce greater than 8 foot flame lengths.
- Areas within 200 feet of high-value or irreplaceable public facilities in the WUI with excessively flammable vegetation that would produce greater than 8 foot flame lengths.
- Areas within 30 foot to 100 foot of private residences in the WUI with excessively flammable vegetation that would exceed state or local defensible space codes.
- Areas with excessively flammable vegetation due to extreme amounts of litter or ground fuel levels. These may be areas where ground fuels exceed six-inches deep with occasional jackpots of fine material up to three-inch diameter. It may be with greater than two to six tons per acre with ribbon bark and understory fuel ladders in identified high risk forest like eucalyptus or Monterey pine that are subject to torching and crown fires with potential high ember flight rates into residential areas.
- Areas critical to strategic fire fighting operations in the event of a wildfire with excessively flammable vegetation.
- Areas with excessively flammable vegetation within 30 feet of wildfire evacuation and fire fighting access along paved roads and strategic fire trails.
- Areas of invasive plants that will increase the flammability of adjacent natural plant communities or displace more fire safe and fire adapted native species.

The list of current geographically based priority projects follow at the end of this section. An intended outcome of the CWPP Update process is for this list to be updated annually to ensure that efforts are coordinated whenever possible.

---

<sup>1</sup> *Best Management Practices Guidebook for Hazardous Fuel Treatments in Contra Costa County* (page 7). Available at [www.diablofiresafe.org/publications.html#BMP](http://www.diablofiresafe.org/publications.html#BMP)

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. Projects to include strategies and funding for on-going maintenance, especially follow-up management of non-native invasive species that could create hazardous fire conditions.

### 4.3 Fuel Reduction Treatments – Related Priorities

In addition to geographically based projects, the stakeholders identified two actions related to fuel reduction as priorities by during the Update process. These both will require additional refinement, as well as identification of lead/ partners and funding sources.

#### **Priority Action: Balancing Fuel Load Management with Biological Resource Protection**

Recommendation: Increase awareness of environmental sensitivities and permitting requirements throughout fuel management activities.

- Explore assumptions of what we can do in terms of fire suppression and pre-fire fuel treatments (e.g critical habitat recovery projects, regulatory agencies as partners, types of studies).

Implementation Actions:

- Collaborate with others who have a good understanding of regulations and resources need to be protected. (US Fish and Wildlife, Cal Fish and Wildlife, land trusts, creek/ watershed groups)
- Look as successful models of land managing agencies + regulators such as Contra Costa Water District, East Bay Municipal Utilities, East Bay Regional Parks District.
- Provide more information regarding environmental sensitivities. This should include mapping of sensitive species, botanical expertise on projects, recruitment studies of native plants following fuel reduction treatments; habitat preservation; invasive species; managing, permitting and replanting.
- Provide information on permits from California Department of Fish and Game and possibly Regional Water Quality Control Board for removal of riparian vegetation along seasonal or ephemeral creeks.
- Widely disseminate information on appropriate timing of fuels treatment for best success relative to reducing the reproductive viability and survivability of invasive, non-native species, while doing least harm to / improving native habitat values (see Vegetation Management Timing charts in Vegetation Almanac for the East Bay Hills for example)
- Raise public and private landowner awareness of issues and best management practices.
- Disseminate information from Green Paper prepared by Sierra Club, Native Plant Society

and Audubon Society in 2009 and other documents.

- Create a data base and photo gallery of Contra Costa County fuels/ vegetation management projects (successes and failures) with initial treatment + follow-up maintenance
- Vegetation mapping database for urban side of wildland-urban interface

Lead and Partners: None identified. Other stakeholders include (California Native Plant Society, Sierra Club, Audubon, watershed groups, land management agencies.

Time frame: On-going

Estimated Funding Need: Not identified.

### **Priority Action: Developing Fuel Management Plans**

Recommendation: Develop Fuel Management Plans for high fire hazard areas in Contra Costa County.

Implementation Actions:

- Identify planning area for Fuel Management Plan development. Develop collaborative partnership with agencies having jurisdiction, including land managers and fire departments.
- Identify potential consequences of wildfires to firefighter and public safety, as well as natural and cultural resources to be protected during response to wildfires.
- Identify guiding policies including national and regional fire management policy, wildland fire operational guides and land and resource management plans.
- Articulate specific goals, objectives, standards, guidelines and or desired future conditions which apply to all fuel management units (FMUs), and those that are unique to specific FMUs, land management agency or social conditions.
- Identify monitoring and evaluation processes.

Lead and Partners: None identified

Time frame: On-going

Estimated Funding Need: Not identified.

## **4.4 Fuel Reduction Treatments Balanced with Resource Management**

A number of the Contra Costa County CWPP Update stakeholders recommend vegetation management actions balance three factors: wildfire risk reduction, resource management and cost-effectiveness of projects over the lifetime of their implementation. Successful long-term wildfire risk reduction and resource management of the above zones must balance economic factors with the effectiveness of selected treatment methods; it is critical that selected cost-effective treatments be sustainable over the long-term.

A key premise of several organizations' support of the Contra Costa County Community Wildfire Protection Plan is that ecologically stable habitats are ultimately more economically sustainable. In effect, managing vegetation to achieve plant and animal communities and habitats with high levels of bio-diversity but inherently low fire hazards is more effective over the long term than the occasional treatment and/or ongoing maintenance of high fire

hazard vegetation. A number of the stakeholders feel strongly, that fuel reduction treatments should promote the recovery, restoration, and enhancement of native habitat.

Other members, such as Fire Departments or Fire Agencies, that participated in the update of this CWPP have jurisdiction over urban areas and do not have resource management or restoration goals beyond those required by local, state and federal laws. Several of these agencies support the desire for cost effectiveness of projects over the lifetime of implementation for wildfire risk reduction. So there is common ground that can be found within the multiple individual agency guiding missions.

## 4.5 Environmental Review and Permitting

Some stakeholders have requested that an Environmental Impact Report (EIR) be prepared for the Contra Costa County Community Wildfire Protection Plan Update. Many of the land managing agencies have already completed their California Environmental Quality Act (CEQA) compliance (as listed in section 4.2) and a FEMA led National Environmental Policy Act (NEPA) review for multiple FEMA grants in the region is on-going in the Spring of 2012.

The Contra Costa County Community Protection Plan Update is an advisory document that was prepared by the Diablo Fire Safe Council in collaboration with public agencies and other interested stakeholders pursuant to the Healthy Forests Restoration Act. The committee was comprised of stakeholders (or their representatives) living in at-risk communities, and the contents of this CWPP are opinions of these stakeholders following the procedures outlined in The Wildland Fire Leadership Council's handbook, *"Preparing a Community Wildfire Protection Plan, A Handbook for Wildland Urban Interface Communities."* More specifically, landscape and fire science discussions, WUI designation, priority of at-risk communities, regulatory interpretation and other discussions set forth in this CWPP are findings and recommendations by these stakeholders to help protect their communities from wildfires. Because this CWPP is an advisory document, the CWPP does not legally commit any public agency to a specific course of action or conduct and thus, is not a project subject to CEQA or NEPA. At least twelve counties in California have signed CWPPs without considering the CWPP as a project subject to CEQA.

However, if and once funding is received from local, state or federal agencies and prior to work performed, or prior to issuance of discretionary permits or other entitlements by any public agencies to which CEQA or NEPA may apply, the lead agency must consider whether the proposed activity is a project under CEQA or NEPA. If the lead agency makes a determination that the proposed activity is a project subject to CEQA or NEPA, the lead agency must perform environmental review.

In addition to NEPA or CEQA it is recognized there are a number of permits that may need to be obtained prior to fuel reduction work including:

- US Army Corps of Engineers: Clean Water Act Section 404 or Rivers and Harbors Act Section 10 Nationwide Permit or Individual Permit
- US Fish and Wildlife Service or National Marine Fisheries Service: Section 7 or Section 10 Consultation
- Regional Water Quality Control Board: Clean Water Act Section 401 or Porter Cologne Act 401 Certification or Water Discharge Requirement
- California Department of Fish and Game: Section 1600 Streambed Alteration Agreement; Fish and Game Code and California Endangered Species Act Streambed Alteration Agreement, CESA 2081 or CESA 2080.1 Permit

Other activities may not required specific agency permits, but may require additional review or specific mitigation measures to comply with:

- Migratory Bird Treaty Act
- National Historic Preservation Act (Advisory Council on Historic Preservation Section 106 review; State Historic Preservation Office)
- Bay Area Air Quality Management District Regulation 5. Open Burning.
- County Agricultural Commission, CAL EPA and Federal EPA on use of herbicides
- Local tree preservation ordinances
- Local stream protection regulations
- Local noise ordinances
- City or county road encroachment

Through the Santa Clara CAL FIRE Unit additional funding allowed for development of an environmental compliance needs assessment using a rubric approach. The rubric is available digitally through the DFSC web site to be used during development of fuels management projects.

## 2014 Geographically Based Fuels Reduction Projects and Prevention Strategies

Agency or Group	Project or Strategy	Status
CAL FIRE Santa Clara Ranger Unit	Technical support and personnel to allied agencies who are conducting projects in the SRA and LRA of Contra Costa County. See Unit Plan Santa Clara County.	Ongoing Funded
	Coordination of Fire Crews for project work.	Ongoing Funded (limited availability)
	Grant programs	2014-2015 funding
Caltrans	Maintenance along State highways	Ongoing Funded
Contra Costa County Fire Prevention District (CCFPD)	Annual code enforcement of Exterior Hazard Control Ordinance and standards; development and implementation of Defensible Space requirements in priority areas	Ongoing Funded
	Special assessment of hazardous areas and conditions with collaborative project planning such as the senior residential community of Rossmoor.	
	Demonstration Garden at Station 10 on Treat Blvd	
	Education Programs in high priority hazard zone (HPHZ)	
	Firewise communities	
	Chipping service in HPHZ	
Contra Costa Water District	Los Vaqueros Reservoir Watershed fuel reduction	
	Fire Management Plan	
Diablo Fire Safe Council (DFSC)	Defensible Space Program - seed fund for community projects + chipping. Filling the gaps in community defensible space	2014 - 15 grant funds
	Contractor/ Landscape Designer Training Workshops	2014 grant funds
	Western Contra Costa County Community Hazardous Fuel Reduction	2014-2015 grant funds
	Central Contra Costa County Community Fuel Reduction (Moraga - Orinda area + Sibley & Tilden)	Grant application
East Bay California Native Plant Society	PT Molate: Broom & Eucalyptus removal. With City of Richmond	
	Pt Molate: Supervised goat grazing for broom + weedy grasses, eucalyptus removal. Protect exemplary coastal grassland habitat.	
East Bay Municipal Utility District	Grizzly Peak ridgetop fuel management	Ongoing Funded
	Livestock grazing for fuel reduction	Ongoing Funded
	Plowed control lines at strategic locations	Ongoing Funded
	Trail closures during periods of extreme fire hazard	Ongoing Funded
	Annual watershed fire road maintenance	Ongoing Funded

Agency or Group	Project or Strategy	Status
East Bay Regional Park District	Project implementation in East Bay Hills. See Wildfire Hazard Reduction and Resource Management Plan.	Ongoing Funded + grant matching funding needed
	High fire danger information - use restrictions	Ongoing Funded
	Livestock grazing for fuel reduction	Ongoing Funded
	Integrated Pest Management Program (some treatments also include fuel reduction)	Ongoing Funded
El Cerrito Fire Department/ Kensington Fire Protection District	Continue to implement vegetation management programs. Visually inspect every property (public and private) within El Cerrito and Kensington.	Ongoing Funded
	Notify property owners when vegetation management standards are not being met, and achieve compliance, with 100% voluntary compliance as a goal.	Ongoing Funded
	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.	Additional funding needed
	Continue to dialog and collaborate with East Bay Regional Parks to enhance area fire safety	Ongoing Funded
Moraga Orinda Fire District	Expand education outreach to property owners in the interface areas. Firewise Communities and Reads Set Go programs	Ongoing Funded
	Continue conducting exterior hazard control program in the District on an annual basis. Property owners mailed notices and district staff inspects approximately 2,800 properties to assure compliance.	Ongoing Funded
	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 resistance construction and improve defensible space.	Ongoing Funded
	Collaborate with EBRPD and EBMUD to maintain fuels treatments in open space areas adjacent to District boundaries.	Additional funding needed
	Evacuation and wildfire disaster planning efforts	
	Central Contra Costa County (Moraga - Orinda) Community Fuel Reduction - cost share + EBRPD fuel treatments in Sibley and Tilden. Target neighborhoods include Orinda Downs/ Bear Creek Road, El Toyonal, Lost Valley, Canyon.	grant application with DFSC
National Park Service		
Pacific Gas and Electric	High voltage distribution lines	Ongoing Funded
San Ramon Valley Fire Protection District	Continue to coordinate the Exterior Hazard Abatement Program throughout the District with a special emphasis on the west side.	
	Fuel reduction and tree maintenance projects in the Las Trampas neighborhood.	
	Expand the educational outreach to those property owners that are included in the Exterior Hazard Abatement program	
	Evacuation and wildfire disaster planning efforts	
State Parks - Mt Diablo		

Agency or Group	Project or Strategy	Status
Walnut Creek Open Space (City + Foundation)	Cattle and other wildlife grazing	Ongoing Funded
	Discing and hand weed abatement on boundaries	Ongoing Funded
	Mowing fire roads to maintain internal fire breaks	Ongoing Funded
	Closures of sites due to adverse weather conditions	Ongoing Funded
	Blading of Roads by Contra Costa Fire District to insrue access for emergency vehicles	Dependent ofn Fire District Funding
	Use restrictions due to adverse weathr conditions	Ongoing Funded
	Defensible space educaton program	Ongoing Funded
	Remove cut brush or chip in place	Ongoing Funded

---

# Treatment of Structural Ignitability

## 5.1 Structural Ignitability

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 ignitability can reduce the potential of fire loss.

Adoption and enforcement of fire and building codes is an essential part of managing the risk in the WUI. The California State Fire Marshal's Office developed state of the art building standards known as "Chapter 7A" effective January 1, 2008 for use on new building construction within Very High Hazard Severity Zones. Other pertinent codes are included in California Code of Regulations (CCR) Title 24, such as the California Building Code (CBC) Part 2, California Residential Code (CRC) Part 2.5, California Fire Code (CFC) Part 9, California Reference Standards Code (CRSC) Part 12. More detail about these codes, code compliance policies and accepted products can be found at [osfm.fire.ca.gov/codedevelopment/wildfireprotectionbuildingconstruction.php](http://osfm.fire.ca.gov/codedevelopment/wildfireprotectionbuildingconstruction.php). Many local cities have adopted the state fire codes for use within their jurisdictions, or have adopted codes that exceed these minimum state standards.

It is also important to incorporate fire safety in the general plan safety elements in each city and for the county. Many of these safety elements can be found on-line, (see [www.diablofiresafe.org/pdf/CoCoCoCWPP\\_Update\\_references\\_and\\_resources\\_0614.pdf](http://www.diablofiresafe.org/pdf/CoCoCoCWPP_Update_references_and_resources_0614.pdf).)

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 must accept a high degree of risk, as well as responsibility.

## 5.2 Key Ignition Resistance Factors

The key to ignition resistance is 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. The following information is adapted from several sources including the Insurance Institute for Building and Home Safety. Additional information can be found at their website [www.disastersafety.org/Wildfire](http://www.disastersafety.org/Wildfire).

### Flammability of the Roof

Research shows that homes with a non-combustible roof and defensible space at least 30 to 60 feet around the structure have an 85-95% change of survival in a wildfire.<sup>1</sup> At a

---

<sup>1</sup> Foote, Ethan. "Wildland-Urban Interface Ignition Resistant Building Construction Recommendations." Community Wildfire Protection Plan Workshops, California Fire Alliance and California Fire Safe Council. August 2004.

minimum, a home structure 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.

Roof shape also plays an important role. If the roof has a lot of ridges and valleys or roof segments that intersect with vertical walls your house is more vulnerable to wildfire. Even a Class-A roof is more vulnerable because vegetative debris and wind-blown embers readily accumulate at these intersections and can expose combustible siding, vents or windows as well as the roof to fire.

Wind-blown debris and overhanging trees can lead to gutters full of leaves and needles on your roof and gutter. Research has shown that a home with a gutter full of leaves has enough fuel to ignite a roof, especially if there is a path for the fire to reach any exposed flammable surfaces such as the edges of roof structure or through vents. Keeping gutters clean of debris is especially important if you have a multi-story building or dormer windows where exterior siding would be exposed to flames from debris in gutters.

### **Structure Openings – Vents, Doors and Windows**

Many post-fire surveys of damaged buildings have shown that the attic/roof and foundation vents are key entry points for embers and flames. Areas where there are direct pathways to the attic, house or crawl space provide an easy entry point. This can include vents, soffits or windows prone to breaking when exposed to wildfire conditions (usually unprotected, single pane windows). Window fans, pet doors, and fireplaces chimneys can allow firebrands to enter if left open or unscreened.

Recent fires have shown that screened vents alone may fail to keep embers out of attics or other spaces. Pre-cut fire resistive covers are one solution. New technology combines several features that increase the effectiveness of preventing embers from entering these flammable spaces; however, maintenance issues need to be evaluated when these products are considered.

Testing has shown that single pane windows are highly vulnerable to breaking when exposed to wildfire conditions. Larger windows are more vulnerable to breaking than smaller windows. Some glass will break after only 1 to 3 minutes exposure to intense heat allowing flames and embers to get inside and further ignite furnishings. Double pane windows with tempered glass for the outside pane can effectively increase the ability to survive a wildfire as well as a long-term solution for energy conservation within the home.

### **Siding**

Siding can be vulnerable for several reasons. If ignited, combustible siding can provide a path for flames to reach other vulnerable components such as windows or eaves. Second, a horizontal or vertical joint in the siding (or at the top or bottom of the material) can provide access for embers or flames into the house. Some materials such as vinyl siding will deform and fall off the wall at relative low heat or flame exposure. If this happens protection of the structure will depend on the underlying sheathing in the wall assembly.

Walls need to resist heat and flames as well, as embers. Non-combustible materials like three-coat stucco, fiber cement, brick and tile resist flames, but don't always resist heat and embers. Therefore, incorporating sheet-rock or other non-combustible sheathing material into the wall assembly underneath the exterior material will improve performance.

Regardless of wall material choice, all gaps at the top or bottom edges, or at lap joints must be sealed or caulked to reduce the potential for ember intrusion. Embers can also accumulate at the foundation if the lower edges of the siding material is left unsealed. The more complicated the lap joint, such as tongue-and-groove or shiplap, the better the resistance from flame or embers. Attention to construction detail, such as use of metal flashing where fences or decks attached to walls can prevent accumulation of debris and slow ignition.

### **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. Openings or gaps in blocking also result in areas where wind-blown embers can become lodged and ignite debris or wood in these areas.

### **Decking**

Decks, patios and porches can become a pathway for fire into a home. Most are attached to a home and adjacent to doors, windows, sliding glass doors or other openings and combustible siding. Materials used to build the deck, the furniture or other items on top of the deck as well as the items stored beneath them. Decks and porches can be particularly vulnerable when the home is sited on a slope or when surrounded by vegetation where flame lengths can reach more than 30 feet exposing even elevated decks.

The combustibility of wood deck boards is common knowledge; however, the performance of plastic composite decking products are less well known. Some manufacturers are incorporating fire retardant chemicals into these products. Information can be found at the California State Fire Marshal Wildfire Protection Building Construction website <http://osfm.fire.ca.gov/codedevelopment/wildfireprotectionbuildingconstruction.php>. Specific products can be searched at the building materials listing at [osfm.fire.ca.gov/licensinglistings/licenselistings\\_bml\\_searchcotest.php](http://osfm.fire.ca.gov/licensinglistings/licenselistings_bml_searchcotest.php). In general large structural members will resist ignition better than small wood boards.

### **Fuel Hazards**

Any fuel source that will bring flames close 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 small lumber sizes, playground equipment made with wood pieces or a pile 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. In the older developed areas of Contra Costa County the road patterns were established when there were fewer homes in

the hills and fewer cars per residence. Today these narrow roads can become constricted with on-street parking, temporary lane closures, encroachment into the road right of way by construction or by overgrown roadside vegetation.

### **Surrounding topography and location of structures**

Adjacent steep slopes and topographic features, such as natural chimneys or chutes, can intensify fire behavior. Structures located mid-slope or at the top of a steep slope are more likely to be damaged. A steeper slope will result in a faster moving fire, with longer flame lengths. A home with little setback from the slope will need to be more aggressive with vegetation treatment and maintenance.

### **Weather and “Red Flag” Conditions**

Strong winds blowing a fire toward your house will have the same effect as being located on a slope. The fire will move faster and burn more intensely with taller flame lengths, blowing embers in front of the fire during periods of high winds. In Contra Costa County these high winds are often accompanied with an increase in temperature and decrease in relative humidity creating “Red Flag” conditions that further dry vegetation and wood building materials.

## **5.3 Improving the Survivability of Structures within the WUI**

Protecting structure exposed to wildfires is not a simple matter. Structures can ignite due to direct exposure to flames, from radiated heat or from embers. 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. Establishing a low fuel “home ignition zone” immediately adjacent to structures and creating “defensible space” in the first 30 - 100 feet from the house is critical.
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 homes in Contra Costa County are subject to their local fire jurisdiction’s safety regulations that require compliance with defensible space and weed abatement standards.

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

## **5.4 Retrofitting an Existing Structure for Survivability**

Many of Contra Costa County’s communities-at-risk from wildfire are largely built out. In these communities new construction will occur as infill between existing homes, so the new building codes offer few opportunities to increase structure survivability. In these communities identifying opportunities to retrofit existing homes and businesses is key to

reducing losses due to wildfire. Funding for retrofit of existing structures has been non-existent in the past. In 2011, FEMA has provided two grants to assist with wood shake roof replacement (Lake Tahoe Basin FEMA shake roof program and San Bernardino Mountains FEMA wood shake roof replacement assistance).

Priority Action: **Education and Training on Structure Retrofit**

Recommendation: Education and training related to retrofit of existing homes and structures to improve their survivability. Identify what can be done without major remodel. Evaluate new technologies, materials and products that are available for retrofit and the pros and cons.

Implementation Actions:

- Find funding for education and training program
- Educational booklet of simple things homeowners can do

Lead and Partners: No lead identified. Institute for Building and Home Safety has information and research. State Fire Marshal's Office has materials and product information related to Code 7A.

Time frame: On-going

Estimated Funding Need: \$\$ for training and materials.

Priority Action: **Access and Egress Improvements by Reducing Road Restrictions**

Recommendation: Address road restrictions that could restrict emergency access and public egress during evacuation from wildfire.

Implementation Actions:

- Identify types of road restrictions such as on-street parking, temporary closures, construction, roadside vegetation.
- Explore potential concepts that could address the issue. These could include: property inspections, public education, homeowner association education, roadside vegetation management, restriction of parking, construction permits or right-of-way encroachment on high fire days.
- Several jurisdictions have attempted to restrict parking with significant negative reaction. Successful posting of no parking during high fire days has occurred on Grizzly Peak Blvd near the UC Berkeley Campus due to a joint effort by UC Berkeley and City of Oakland.

Lead and Partners: No lead identified.

Time frame: On-going

Estimated Funding Need: \$ for public information and materials.

The Insurance Institute for Building and Home Safety (IBHS) continues to sponsor building safety research that leads to real-world solutions. They have identified key areas at risk and offer retrofit ideas. The following table has been adapted from IBHS, see [www.disastersafety.org/Wildfire](http://www.disastersafety.org/Wildfire) for additional detailed information.

<b>Retrofitting Existing Structures to Increase Wildfire Survivability</b>		
<i>Survivability Threat</i>	<i>Retrofit</i>	<i>Relative Cost/ Ease</i>
<b>Roof – the most vulnerable part of your home</b>		
Combustible roof.	Professional roof inspection to determine if covering and assembly are not “Class A.” Need to remove old roofs.	\$\$\$\$ Contractor
Gaps at edges or ridges or other openings in tile (clay) or metal roof	Install bird stops in gaps at edges or ridges. Plug any roof openings that are not functioning as vents	\$-\$\$ Contractor or Experienced DIY
Combustible siding where lower level roof (first floor) meets upper wall or upper level roof (second floor)	Replace siding with more fire resistant material and underlayment	\$\$-\$\$\$\$ Contractor or Experienced DIY
Vegetative debris accumulated on roof	Routinely remove from roof. For complex steep, roofs may consider hiring professional.	Free - \$ Agile homeowner
<b>Vents – vulnerable to wind-blown embers and flames</b>		
Unscreened or unprotected vents	Attach screens (1/8” opening) or prepare solid covers to install when a wildfire is approaching. Use caution when installing or removing covers on upper story vents.	\$ Agile homeowner
Planning to replace vents	Several types of new vent covers on market designed to reduce risk of wind-blown embers. See <a href="http://osfm.fire.ca.gov/">osfm.fire.ca.gov/</a>	\$\$ Experienced DiY
<b>Gutters – fuel for falling embers could lead to fire in attic</b>		
Vegetative debris accumulated in gutters	Clean gutters on regular gutters. For complex steep, roofs may consider hiring professional.	Free - \$ Agile homeowner
Tired of cleaning gutters	Gutter covers help manage debris build up. Can result in accumulation of debris on roof behind gutter – so some maintenance may still be required.	\$\$
<b>Open Eaves or Projections – vulnerable to flame or embers could lead to fire in attic</b>		
Open eave construction or visible gaps between blocking and rafter tails.	Plug openings with durable caulk or install non-combustible covering over blocking to eliminate openings.  Alternatively box in eaves. This method may require vents to remove excess moisture.	\$\$\$\$ Contractor or Experienced DIY
Combustible soffit material or materials used to box in eaves (such as wood boards, untreated plywood).	Replace with non-combustible material such as fiber cement product or exterior fire retardant treated plywood. Vinyl soffit material not recommended as it will deform and sag causing gaps.	\$\$-\$\$\$\$ Contractor or Experienced DIY

<b>Retrofitting Existing Structures to Increase Wildfire Survivability</b>		
<i>Survivability Threat</i>	<i>Retrofit</i>	<i>Relative Cost/ Ease</i>
<b>Windows – open windows are most vulnerable. The vulnerable part of a closed window is the glass.</b>		
Single pane windows	Install dual pane windows. Preferred are dual pane, insulated glass with added benefit of greater energy conservation  Tempered glass is 4 times more resistant to breaking in wildfire. Consider dual-pane tempered glass. Cost increases are relative to the opening size.	\$\$\$ - \$\$\$\$ Contractor
No window coverings to protect from glass breakage	Shutters or pre-made covers will protect window from embers, debris and radiant heat exposure. These would be installed prior to evacuation. Least expensive alternative is ½ plywood but need to clear area of combustible material that could ignite plywood.	\$\$-\$ Contractor or Experienced DIY
<b>Siding – fire from ignited siding can spread into stud cavity and up wall into eave, soffit or attic as well as expose window to flames.</b>		
Combustible siding	Residing is expensive but can be worthwhile if building is 15 feet or closer to adjacent properties or if inadequate defensible space. Replace with non-combustible siding so vertical flame spread will not be a problem unless you have other combustible materials of highly flammable plants adjacent to wall. Siding products and assemblies that are better able to resist penetration of flames into stud cavity can be found at <a href="http://osfm.fire.ca.gov/">osfm.fire.ca.gov/</a>	\$\$\$\$ Contractor
Gaps in joints of siding panels or simple laps joint or plain bevel joint	Panel products have fewer lap joints and can be considered less vulnerable. Wood siding shingles and plain bevel lap joints are most vulnerable.	\$\$\$\$ Contractor
<b>Decks – decks can lead a wildfire directly into you home.</b>		
Deck boards of combustible material	Replace deck boards with fire or ignition resistant material. Learn more about choosing wildfire-resistant decking at <a href="http://osfm.fire.ca.gov/">osfm.fire.ca.gov/</a>	\$\$\$-\$\$\$\$ Contractor or Experienced DIY
Combustible materials stored under or on top of deck	Move material to an enclosed area away from structure. If you choose to enclose underside of deck be sure to address moisture management issues through drainage and ventilation	Free-\$\$ Experienced DIY
Enclose area below deck to reduce accumulation of wind blown debris or embers	Use solid non-flammable material (fiber cement product or exterior fire retardant treated plywood; not lattice to enclose area below decks. Be sure to address moisture management issues through drainage and ventilation	\$\$-\$ Experienced DIY

The above information has been generalized for planning purposes. Consult building professionals and local building departments for more detail related to your structure. Adapted from "Wildfire Home Assessment and Checklist," download at [www.disastersafety.org/wp-content/uploads/wildfire-checklist\\_IBHS.pdf](http://www.disastersafety.org/wp-content/uploads/wildfire-checklist_IBHS.pdf)

# Sustaining the Plan

## 6.1 Updates of Action Plan

To ensure long-term success the CWPP needs to include a method for changing, updating and revising the plan. As partners learn from success and challenges they may identify new actions or propose a shift in how decisions are made or actions accomplished.

It is important to recognize that many communities may lack resources to engage in a complex planning, monitoring and adaptive management process. The collaborative planning effort for the Update of this Contra Costa County Community Wildfire Protection Plan was funded through a generous grant; however, similar funding is unlikely to be available for update efforts. Regardless, streamlined communications can leverage the initial planning effort to maintain a functioning collaboration and provide updates.

Project partners have agreed to the following roles in sustaining the Plan:

- Diablo Fire Safe Council: Communicate electronically with stakeholders and other partner agencies collecting information for an annual status of the plan. Annual information will include at a minimum an update of the status of geographically based fuel reduction projects and prevention strategies listed in Section 4 Prioritizing Fuel Reduction Treatments and of the priority action projects identified in Sections 3, 4 and 5. Updated information will be posted on the DFSC website and sent electronically to CWPP planning participants and other interested stakeholders.
- Hills Emergency Forum: Provide updated information on projects and activities through their Annual Report prepared each October to coincide with the anniversary of the 1991 Tunnel Fire.
- Contra Costa County Association of Fire Chiefs: The Contra Costa County Association of Fire Chiefs provides a forum for interagency information sharing across the many fire jurisdictions. They are in the unique position to continue to foster inter-jurisdictional cooperation on WUI issues and emergency response.
- East Bay Regional Park District: At a public meeting each summer, review the next year's proposed program of work for fuels management on park district lands. As part of the annual budget development process, during a Spring meeting of the EBRPD Board of Director's Executive Committee, report the prior year's fuels management accomplishments and present the proposed program of work for the next year. Work with cooperators to plan and conduct work in a way that improves fire protection and program efficiencies for both EBRPD and the cooperator.
- CAL FIRE: The Santa Clara Unit Strategic Plan updates provide opportunity to view wildfire protection for Contra Costa County in context with neighboring Alameda, Santa Clara and San Joaquin Counties. Contra Costa County is Battalion 6 of seven geographically based battalions in CAL FIRE's Santa Clara Unit. The most recent plan was completed in May 2013. The Santa Clara Unit collects information from the various stakeholders to develop their unit plan each June. The final unit plan will be shared with DFSC, who will incorporate the information into the CWPP annual updates.

- Association of Bay Area Governments (ABAG): ABAG has provided leadership in the development and updates of FEMA Multi-Jurisdictional Hazard Mitigation Plan; completed once every 5 years. The next update is scheduled for 2015. ABAG welcomes any jurisdiction or special district in Contra Costa County to participate in this process and will incorporate information from CWPP updates into the plan.
- Other Partners: **Note: This section to be further developed as the plan is implemented.**

## 6.2 Monitoring, Evaluating and Adapting Strategies

The following framework offers strategies to monitor, evaluate and adapt the elements of the CWPP<sup>1</sup>. Strategies might include:

- Only monitor what matters. Partners should identify key goals and objectives and make decisions to monitor what is most important to the long-term sustainability of their CWPP.
- Tracking accomplishments and identifying the extent to which CWPP goals have been met. This might include development of “success stories.” (Examples can be found at [www.diablofiresafe.org/current.html](http://www.diablofiresafe.org/current.html) and at Kensington Fuel Reduction Project where the portions of Wildcat Canyon Regional Park adjacent to homes have been under collaborative management between community members and East Bay Regional Park District through a right of entry agreement for the past 5 years.)
- Examining collaborative relationships and their contributions to CWPP implementation, including existing participants and potential new partners.
- Identifying actions and priority fuels reduction projects that have not been implemented and determining why.
- Setting a course for future actions and updating the plan.
- Evaluating the resources necessary for successful CWPP implementation. Identifying needed community and homeowner outreach and education programs.

In conducting an evaluation it is important to think critically about the kind of information that is accessible, what is most important to evaluate and how it might influence future priority activities. For example, the number of homes in a community with an evacuation plan provides insight into the level of preparedness among the general public, but may be difficult to obtain. Each community within Contra Costa County should adapt the evaluation process, how information and results are documented with an eye toward refinements of the CWPP to meet their own needs. The following ideas for monitoring and evaluation are provided as suggestions.

---

<sup>1</sup> Evaluation framework adapted from: Community Wildfire Protection Plan Evaluation Guide. Prepared by Resource Innovations, Institute for a Sustainable Environment. August 2008. University of Oregon. [csfs.colostate.edu/pdfs/eval\\_9-8-08\\_web.pdf](http://csfs.colostate.edu/pdfs/eval_9-8-08_web.pdf) Accessed 3/5/2012.

## 6.2.1 Evaluating Information, Education and Collaborative Planning

Understanding the extent to which information, education and collaborative planning have been maintained, grown or diminished through implementation of the CWPP will help identify strategies to strengthen future efforts. Monitoring and evaluation might address:

**Programs:** What kind of information, education and public involvement has the CWPP or its implementation fostered? Public meetings, trainings, field trips, demonstration projects, household visits, youth engagement, community events, clean up days.

**Public Awareness:** What kind of change in public awareness about wildfire has resulted from the plan or implementation actions? Knowledge of fire policies and regulations; change in number and type of human caused wildfires; awareness of local efforts to increase emergency preparedness; outreach efforts or techniques.

**Activities:** What kinds of activities have citizens taken to reduce wildfire risks as a result of the plan? Defensible space, fuel reduction, household emergency plans, woody debris disposal.

**New information:** Are there new or updated data sources that might change the risk assessment and influence priorities? Changes to process used to identify fuels treatments priorities? New wildfire related policies or ordinances? Index to access specific information?

**Involvement:** Who has been involved with CWPP development and implementation? How have relationships changed or grown? What expertise or resources did partners bring? Numbers and types of partners (local, state, federal)? Accomplishments or challenges?

**Implementation Capacity:** How has the collaborative process assisted in implementing the CWPP and building capacity for the community to reduce wildfire risk? More partnerships, increased financial resources, increases in programs or activities.

**Engagement:** Have the partners involved in the planning process remained engaged in the implementation? Have new partners become involved?

## 6.2.2 Evaluating Suppression Capability and Emergency Preparedness

Comprehensive emergency management plays a key role in reducing a community's risk from wildfire and other hazards. Integrating federal requirements for multi-hazard mitigation within the CWPP efforts can help access federal funds through FEMA and Department of Homeland Security.

**Alignment:** Is the CWPP aligned with emergency operations plans and other hazard mitigation plans? Addressing National Incident Management System (NIMS), State Emergency Management Plan (SEMS) and Incident Command Training (ICS).

**Evacuation Planning:** Does the CWPP include an evacuation plan? Has the plan been tested? Are there local neighborhood evacuation plans, animal and livestock preparedness, communication systems, resources list?

## 6.2.3 Evaluating Fuel Reduction

Monitoring hazardous fuels reduction projects on private and public lands will assist stakeholders in understanding the extent to which risk reduction goals and native habitat preservation goals are being accomplished. Monitoring these projects allows stakeholders to better understand the extent of resources need to accomplish and maintain goals, as well as to help in identifying future priorities.

**Fuel Reduction on Public Lands:** How many acres have been treated on public land that had been identified as high priority projects? Total number of acres treated; number and percentage in WUI, number and percentage within CWPP priority area; treatment types.

**Fuel Reduction on Private Lands:** How many acres have been treated on private land that had been identified as high priority projects? Total number of acres treated; treatment types; number of homes with defensible space; number and percentage treated in low income communities/ vulnerable populations.

**Compliance:** How many homes are in compliance with local fuel reduction around homes requirements. Weed abatement requirements. Defensible space inspections.

**Joint Projects:** How many projects have spanned ownership boundaries including public and private lands?

**Jobs:** Economic development and local jobs resulting from fuels reduction or restoration activities. Number of green tons/ volume of woody fuel utilized. Number of part-time/ full time jobs. Percentage of local labor.

**Environmental Protection:** Ecological monitoring to assess environmental outcomes and maintenance requirements. Community surveys using photo points. Vegetation/ invasive weed surveys.

## 6.2.4 Evaluating Reducing Structure Ignitability

Monitoring structure survivability of existing structures and new developments span a wide range of actions including retrofit, codes, public knowledge and emergency response capability.

**Fire Statistics:** Wildfire loss in year reporting on. Number of fire starts within high hazard areas. Number of human caused fires. Number of homes damaged/ lost to wildfire.

**Codes and Regulations:** Current codes and regulations for wildfire hazards. Building codes (Chapter 7A or better). How is new development increasing in high hazard areas. Requirements for new developments. Mechanism for long term open space fuel management. Infill requirements. Infrastructure design requirements (roads, sprinklers, utilities = NFPA standards).

**Public Education:** Public knowledge and understanding about structure ignitability. Homeowner education on how to reduce ignitability. How many homes have been retrofitted. Number and percentage of homes in high hazard area included in fire district.

**Response Capabilities:** Changes of local fire agency response capability. Increase in certified fire fighters/ wildfire training. Upgraded or new fire suppression equipment. Changes in response time, infrastructure, access routes.



# Signature Page

## Contra Costa County Community Wildfire Protection Plan Update Mutual Agreement

This Community Wildfire Protection Plan Update developed for Contra Costa County:

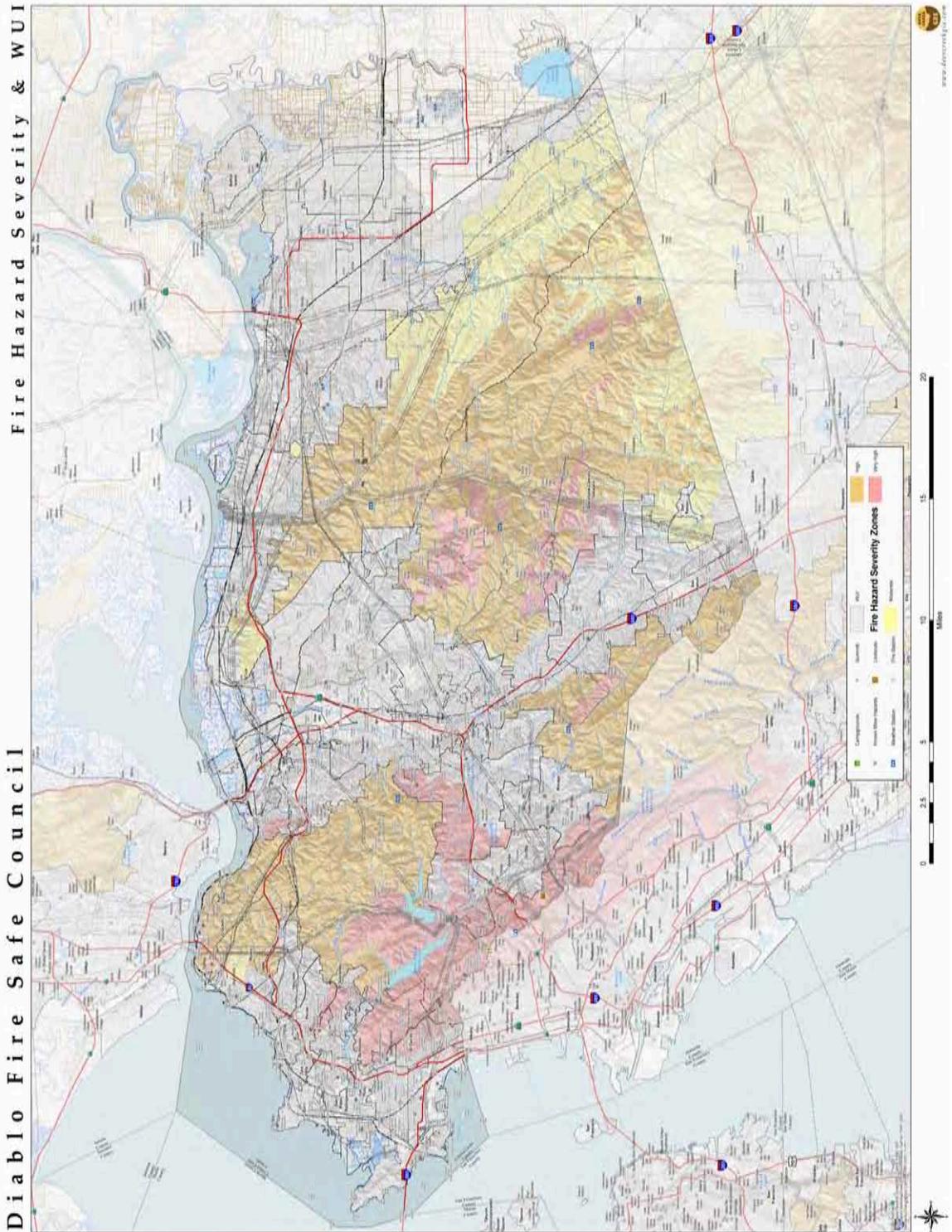
- Was collaboratively developed. Interested parties and agencies managing land in Contra Costa County have been consulted.
- This plan identifies and prioritizes areas for hazardous fuels reduction treatments and recommends types and methods of treatments that will protect community members and values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

The following letters are from the entities who mutually agree with the contents of this Community Wildfire Protection Plan.

Approved by Resolution  
Contra Costa County Board of Supervisors

# Appendix A

## Fire Hazard Severity and WUI Area Map



# Appendix B

## Community Survey

The survey will continue to collect input up to the final adoption of the plan. To participate see: [app.fluidsurveys.com/s/DRAFTCCCCWPP/](http://app.fluidsurveys.com/s/DRAFTCCCCWPP/)

### How great a risk do you think wildfire poses to your community

Response	Chart	Percentage	Count
No risk		2.0%	2
Low risk		1.0%	1
Moderate risk		31.0%	31
Extreme risk		66.0%	66
Do not know		0.0%	0
		<b>Total Responses</b>	<b>100</b>

### Check those factors you think add to your neighborhood's risk of wildfire

Response	Chart	Percentage	Count
Fuel load (vegetation)		91.1%	92
Buildings (construction, materials, location or design)		41.6%	42
Adjacent wildlands		85.1%	86
Steep topography		79.2%	80
Fire weather		82.2%	83
Inaccessible locations		59.4%	60
Single road access		63.4%	64
Limited fire protection		61.4%	62
Limited water for fire fighting		65.3%	66
Utilities (overhead electric wires)		52.5%	53
Human activities (potential ignition sources)		70.3%	71
Lack of community preparedness		53.5%	54
Other, please specify:		19.8%	20
Other, please specify:		7.9%	8
		<b>Total Responses</b>	<b>101</b>

Check those factors you think add to your neighborhood's risk of wildfire (Other, please specify:)

#	Response
1.	Homeowners not taking responsibility for their property when next to public lands
2.	canyons that direct the ongoing winds in the area
3.	Lack of protection by Contra Costa Fire Department
4.	All surrounding fire stations are closed
5.	lack of fire services in our area
6.	Lack of local fire protection services from CCCFPD or CAL-FIRE
7.	Emergency fire services are too far away
8.	We need municipal water out here! Most of us have little to no water for firefighting
9.	Many of the old firebreaks are no longer maintained
10.	No individual family emergency plan for immediate evacuation and or escape.
11.	Local Station 19 is not well supported
12.	lack of hazardous fuel removal projects by city, county agencies
13.	The closest fire house is several miles away.
14.	Lack of funding for fire fighters and inspections in rural areas (Morgan Territory Road)
15.	communicatons problems--how do we know if fire is coming?
16.	Please note response deals with El Cerrito Hillside Natural Area and nearby
17.	CCCFPD failure to use reserves and operate Station 19
18.	Lack of defensible space around houses. Loss of fire station.
19.	length of response time
20.	A NEIGHBOR HAS DEAD TREES, BUSHES, SHAKE ROOF AND OTHER FLAMABLE STUFF AROUND THEIR HOUSE. SCARY!
21.	as a recreation area, there are additional worries about people using the parks unaware of the danger.
22.	Closing of fire stations close to our area
23.	Wells are all dried up
24.	Our responce time gets longer every time a firehouse on the outskirts of town are closed, WE ARE THE OUTSKIRTS
25.	Fire stations are closed in Pinole, Rodeo, Martinez, and Lafayette
26.	CCCFPD being fiscally ignorant and agreeing to exorbitant union demands in the past, resulting in budget crises in the present.
27.	Area popular with bicycles, cars of people from elsewhere.
28.	fireman coming into the area from the city are not familiar with the address, fire road

locations, well locations, and access to properties

**Do you think your neighborhood is currently prepared to deal with wildfire**

Response	Chart	Percentage	Count
Yes		18.2%	18
No		81.8%	81
		<b>Total Responses</b>	<b>99</b>

**In updating the Contra Costa County Community Wildfire Protection Plan we are exploring a variety of actions to reduce the risk of wildfire to neighborhoods in Contra Costa County. Which of the following recommendations do you think would be effective for your neighborhood?**

Response	Chart	Percentage	Count
Education to build awareness		68.0%	68
Collaborative projects to address wildfire along with other issues (such as creek restoration, crime prevention, native plant protection etc.)		62.0%	62
Ignition reduction programs (such as Smokey bear, school programs, general prevention information)		46.0%	46
Training of volunteers (such as CERT, Firewise or Volunteers in Prevention Programs)		69.0%	69
Inspections/ enforcement of defensible space by fire personnel		58.0%	58
Inspections/ education about defensible space by peers		46.0%	46
Engineered changes to equipment or potential ignition sites		24.0%	24
Monitoring of fire weather and issuing red flag warnings		64.0%	64
Fire patrols during high fire danger weather		65.0%	65
Closures and public use restrictions during high fire danger weather		57.0%	57
Restrictions on equipment or types of work during high fire danger weather		61.0%	61
Actions to reduce vegetation around homes (create defensible space)		78.0%	78
Actions to improve home resistance to ignition		53.0%	53
Actions to reduce vegetation in open space		57.0%	57
Hazardous tree removal		55.0%	55

Community-wide chipping and green waste pick-up programs		62.0%	62
Funding for neighborhood led projects		42.0%	42
Other, please specify:		16.0%	16
<b>Total Responses</b>			<b>100</b>

**Other, please specify:**

#	Response
1.	FireWise program through MOFD
2.	increase police patrols on weekend nights
3.	Re-open Sattion 19 and or Pinole station on Pinole Valley Toad
4.	A fire station in our area
5.	Reopen our volunteer station
6.	ebmud to help with defensible space on their fence lines
7.	Local fire response
8.	Municipal water!
9.	A FIRE STATION NEARBY, I hear the funds have already been acumulated for one for one
10.	Expedite, establish and maintain a Cal Fire Station in the Briones Hills
11.	Provide the communities with local fire stations.
12.	Fire protection is really important but I don't want to see critical habitat for wildlife damaged or reduced.
13.	how about help mowing at no cost or low cost. Our taxes should already pay for someone to do it.
14.	Telephone tree, local fire station return.
15.	use of goats to reduce vegetation in open space
16.	Access to water!!!

**Select the Contra Costa County Supervisorial District in which you live**

Response	Chart	Percentage	Count
District 1 - John M. Gioia		14.6%	14
District 2 - Candace Andersen		15.6%	15
District 3 - Mary Piepho		6.2%	6
District 4 - Karen Mitchoff		4.2%	4
District 5 - Federal D. Glover		27.1%	26

Do not know		32.3%	31
<b>Total Responses</b>			<b>96</b>

**Select the Fire District or Fire Department that provides service to your home**

Response	Chart	Percentage	Count
California Department of Forestry and Fire Protection (CAL FIRE)		8.7%	8
Contra Costa County Fire District		56.5%	52
Crocket- Carquinez Fire Department		1.1%	1
East Contra Costa County Fire Protection District		2.2%	2
El Cerrito Fire Department		5.4%	5
Kensington Fire District		1.1%	1
Moraga-Orinda Fire District		8.7%	8
Richmond Fire Department		3.3%	3
San Ramon Valley Fire Protection District		3.3%	3
Do not know		9.8%	9
<b>Total Responses</b>			<b>92</b>

#	Do not know
1.	#22 Station-Crystal Ranch
2.	Not exactly sure as the boundary between Gioia's and Glover's districts meet in this area. Briones.
3.	Briones at intersection of Bear Creek Road and Garcia Ranch road. WE DO NOT HAVE A FIRE DEPARTMENT ANYMORE THANKS TO THE COUNTRY CLOSING STATION 19
4.	Briones
5.	Briones
6.	Briones
7.	Briones (Station 19 located here but not used due to lack of reserves being trained)
8.	Briones
9.	Briones
10.	Briones
11.	Orinda
12.	Briones
13.	briones

14. Briones. (bear oaks lane & bear creek road)
15. Briones, Martinez
16. Martinez, CA
17. El Cerrito Fire
18. Clayton, Dana Hills
19. Live in Walnut Creek, work in Antioch
20. I'm not sure but I live in unincorporated Clayton - Leon Drive
21. I live in the Acalanes Ridge area of unincorporated Walnut Creek
22. Briones
23. Bear Creek Road near Briones Regional Park
24. Alhambra Valley near Briones
25. Briones
26. Briones (off Bear Creek Rd)
27. Millthwait Dr., Martinez, CA. Off Alhambra Valley Rd.
28. Briones
29. BRIONES
30. ALHAMBRA VALLEY ON WANDA WAY, MARTINEZ
31. Briones. 94553
32. Alhambra Valley - Wanda Way, Martinez, CA
33. Alhambra Valley
34. martinez, ca - alhambra valley
35. Alhambra Valley, Contra Costa County with Martinez address
36. Walnut Creek
37. alhambra valley
38. Briones
39. Alhambra Valley Rd is part Martinez and part "County."
40. Alhambra Valley, Martinez
41. Briones

### Comments |

#	Response
1.	Thank you
2.	We have just completed a one week project clearing dry vegetation and cut fire breaks

	around the CSU-East Bay Concord Campus
3.	More fire safety/fire prevention education & knowledge needs to get out to homeowners so that they can create defensible space around their homes.
4.	Responses based on grass fire that burned 50 acres in course of two hours in open space adjacent to my home in June of 2012.
5.	It's good to have these type of community input surveys. We have an active e-communications list which we use judiciously, not overdoing it, so please contact me if that would be of use. ==>> caroledwinell@att.net
6.	We have been essentially abandoned by the Contra Costa Fire District, even though we pay property taxes that fund them as much as other homeowners in the County. This has happened despite "assurances" from the Fire Chief to the contrary. We also started being charged a special tax for California State Fire Dept several years ago but they have absolutely NO PRESENCE here and would be of zero use in a fire. We have also had our volunteer fire protection dept. closed down because of fights by the firefighters union and other political concerns. We are left out here without protection because there aren't enough people here for the county government to listen to (politically). The behavior of the County Fire Department regarding Station 19 has been disgraceful!!!! They could not care less about this community. I think we should be excluded from being taxed by the county for fire because they are NOT providing fire protection to us.
7.	Briones used to have a marvelous mostly-volunteer fire station. Powers that be removed our most effective equipment, quit supporting volunteers, and managed to destroy our station. Financial difficulty caused the closure of the next nearest station. Our little station, had the largest of coverages in CC County, because it included all the open park and EBMUD ground between cities! Many of us are hoping to "jump ship" and find a way to have Cal Fire protect us. I personally favored removing ourselves from existing systems, and returning to an all volunteer outfit. Our taxes would more than fund the station, if we had control over them. Hetty Dutra
8.	I feel my community has been overlooked or intentionally denied fire protection. We are clearly not a priority to the county. We now pay extra fire money to the state, but I have no faith in response time for medical emergencies or fire protection. The elimination of our protection is egregious.
9.	Ebmud needs to clear along all their property lines!
10.	While it is impractical to try and manage for the worst case scenario it would be a good idea to understand what that would be so that contingency plans could be made. It would also be advantageous to understand what the effectiveness of fire breaks in managing a severe fire. For example, what would be the effectiveness of putting a 100' fire break around a town without knowing the rate of spread and flame length of a fire encroaching on its interface. Perhaps additional work should be considered? If so, where and how much. Perhaps this would allow better use of existing funds.
11.	We need Cal Fire out here ASAP. With the building of the station, we need municipal water extended out here. Having water readily accessible, will be the key factor to keep our homes safe. I am confident residents would help pay the bill. The cemetery should help pay for water as well since they are going through 6000-8000 gallons of water a day to water their lawns and bushes. The CFD has been plagued by financial strains resulting in our closest fire stations being closed. We have to rely on our reserves, who have a history of a lack of

	backing from the fire department. We love our reserves but they are undersupported and under trained. We need help! Please help!
12.	We have been neglected, it is a matter of time before something happens. We need some attention before it is too late
13.	As a CERT program Director more use of CERT volunteers to help with public education efforts and performing fuel and defensible space inspections to support fire prevention efforts.
14.	A Cal Fire station in the Briones Hills is the single most significant factor in improving and maintaining fire protection in the area. The political forces obstructing this need must be overcome with support from the state level.
15.	HAVE A FIRE STATION CLOSE WHICH IS OF COMFORT
16.	I think this is a very important issue and I am glad that you are doing this survey. Thank you!
17.	This is a response from Friends of Five Creeks dealing specifically with the El Cerrito Hillside Natural Area, where we have a major volunteer program removing broom and, to the extent time is available, other fire-prone invasives.
18.	We live in San Ramon in the city. While there is an open space hill across the street from us, there really isn't much other space for any wildfires. There are hydrants nearby and open space hill fire I think would be easily contained. That being said, the city or neighborhood cuts down the vegetation once a year and they just did that this past weekend.
19.	Despite the fact that the target shooter who started the Morgan fire did not do so intentionally, and attempted to extinguish the fire that was immediately apparent, it seems wise to prohibit activities that have a risk of igniting fires during the dry months.
20.	It would be great to have a "fire-weather" website to check, or an e-mail service or phone alert service similar to the "Spare-the Air" no-burning alerts that are phoned out in winter time.
21.	Fire personnel should visit neighborhood areas, assess defensible space requirements, and engage neighbors in programs to achieve satisfactory defensible space. Folks in our area are willing to do their part, but need to know what to do. Also, the use of reserve firefighters would enhance our chances of dealing with fire emergencies. This is not being done presently due, I firmly believe, due to push-back from the local firefighters' union. A sad commentary when politics stand in the way of protection of the community.
22.	I have horses and my constant worry is being able to get them out safely since we have only one way in and one way out.
23.	Thank you for taking action to protect our area.
24.	Its scary out here!
25.	We live in Alhambra Valley where there is lots of vegetation. The last inspection was in July of 2007. We have some neighbors who do not keep a defensible space which concerns us. I think it would be advisable to require this.
26.	It is so dry in our neighborhood and it's loaded with dry brush and timber that would quickly ignite. We are eager for a community plan to address the current fire hazards we

face.

27. We pay a tax, disguised as a fee, to pay for Cal Fire which is neither located near our property nor have they ever been seen in this neighborhood. So, take the money generated by this fee and use it to lessen the likelihood of wild fire in Alhambra Valley. Or use the money to get a Supervisor for this District that will represent Alhambra Valley. Jim Hatchell

28. In the Alhambra Valley there is an enormous amount of highly flammable vegetation. We love the trees, Briones Regional Park and open spaces (that are left!) but perhaps you would send notices to property owners to remove trees that are dead and/or fallen. The lot next door to us is held by an absentee owner and contains a huge, huge, dead oak that is dry and will burn hot ...scary... Of course, we are surrounded by dozens of live trees.... ( and there is no way we could/will remove them) sigh our prep is more around how we would evacuate...

29. It is important not to compromise the integrity of some of the few remain native plant areas in the name of fire protection. Natives are generally pose a lower fire risk than some of our invasive dominated open spaces. Please work with knowledgeable native plant stewards to protect and properly manage existing native plant communities and active spread and restore natives (such as bunch grasses, etc) in areas that are overwhelmed with invasives like oat grass, etc.

30. I seriously doubt that a good outcome would be possible in our neighborhood if a wildfire were to start. We have limited egress, steep terrain, and a mixture of grassland and forest, located on the northwest side of Briones Regional Park. Defensible space clearance can only do so much for some of the houses, including ours, in this area. One would have to remove the forest from the steep hillsides, which would be another type of disaster.