



# 2019 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



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# Executive Summary

The 2019 Update of the Contra Costa County Wildfire Protection Plan provides an analysis of wildfire hazards and risk in the wildland-urban interface (WUI) in Contra Costa County, California. The Plan follows the standards for CWPPs established by the federal Healthy Forest Restoration Act, including:

1. Identifying and prioritizing fuel reduction opportunities across the county  
*See Section 3: Fire Hazard and Risk in the Wildland Urban Interface and Section 5: Prioritizing Fuel Reduction Vegetation Management Treatments*
2. Addressing structural ignitability  
*See Section 6: Prioritized Treatment of Structural Ignitability*
3. Collaborating with stakeholders  
*See Section 2.2: The Planning Process and Stakeholders*

Based on analysis, recommendations have been identified to aid stakeholders in reducing the threat of wildfire. The Plan complements local agreements and existing plans for wildfire protection for a coordinated effort in determining appropriate fire management actions.

The 2019 Update to the Contra Costa Countywide CWPP is the result of an area-wide planning effort. The first countywide CWPP in 2009 began with compilation of existing documents, analysis of fire behavior potential (based on fuels, topography and historical weather conditions) and collaboration with homeowners, representatives of special interest groups and agency officials. In 2014, a Draft Update was developed through a similar area-wide planning effort that reviewed the plan, updated relevant sections and refined priority actions.

The goal of the plan is to reduce hazard through increased information and education about wildfires, hazardous fuels reduction, actions to reduce structure ignitability and other recommendations to assist emergency preparedness and fire suppression efforts. Most important, it facilitates a coordinated effort between the various stakeholders.

## Recommendations

The Contra Costa County CWPP recommendations are organized into four categories of mitigation related to:

- Information, Education and Collaborative Planning
- Enhanced Suppression Capability and Emergency Preparedness
- Fuel Reduction Treatments around Homes and on Public Lands
- Improving Structure Survivability

Five *Priority Action* overviews are provided for recommended priority actions.

1. Collaborative partnerships for public communications.  
*Expand collaborative partnerships beyond traditional partners to find common goals related to wildfire safety, employ many solutions, improve public communication and reach multiple audiences.*
2. Evacuation Planning and Communication.  
*Assist community groups develop neighborhood evacuation action plans through collaboration with fire departments, emergency services and other organizations.*
3. Hazardous fuel load management balanced with biological resource protection.  
*This priority includes geographically based fuel reduction projects. Increase awareness of environmental sensitivities and permitting requirements. 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).*

4. Defensible space programs (fuel reduction around homes).  
*Expand defensible space programs for property owners in high fire hazard areas in Contra Costa County.*
5. Home hardening.  
*Develop education and training related to retrofit of existing homes and structures to improve their survivability (home hardening).*

These overviews identify implementation steps, lead and partners, timeframes and funding needs. A list is included of geographically-based, priority fuel reduction projects and prevention strategies.

The 2019 Update of the Contra Costa County CWPP is a multi-year guiding document that will facilitate the implementation of present and future mitigation efforts. It is important to note that the CWPP is a working document and will need to be updated regularly and after major “events” such as wildfire, flood, insect infestation, significant new home development, as well as the regional update of the Multi-Hazard Mitigation Plan or General Plan Safety Elements.

# 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 and updated in 2014.

Interest in wildfire prevention and protection of communities from wildfires has grown exponentially over the past years. In 2017, wind driven wildfires reached far into urban areas. The 2018 fire season was the most destructive in State history. This 2019 Update captures many of the new ideas and concerns, and sets forth implementation recommendations.

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 boundaries.
- The requirement for federal agencies, when planning fuel reduction projects, to give WUI 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 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.



*Funding provided by a grant from the  
California Department of Forestry and Fire Protection  
as part of the California Climate Investments Program*

# 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 loss of life and the damage associated with the inevitable wildfire 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.





resilient net sinks of carbon that provide a range of priceless ecosystem and societal benefits. The goals are to:

- Significantly increase the pace and scale of forest and watershed improvements on nonfederal forest lands through incentives and other mechanisms.
- Support Federal goals and actions to improve forest and watershed health and resiliency.
- Prevent forest land conversions through easements and acquisitions, as well as land use planning.
- Innovate solutions for wood products and biomass utilization to support ongoing forest management activities.
- Support key research, data management, and accountability needs.
- Protect and enhance the carbon sequestration potential and related benefits of urban forests.

The California Forest Carbon Plan provides multiple strategies to achieve these goals through working collaborative at the watershed or landscape scale across all forest types and ownership categories. It recognizes that to achieve these goals will require a sustained commitment of effort and funding from the state and federal governments. Further non-fiscal measures such as technical assistance, efficient permitting process and ongoing commitment to collaborative efforts are also critical. To foster this program, both CAL FIRE and the Department of Conservation have grant programs that make available cap and trade funding through the California Climate Investments programs including: Forest Health Grant Program<sup>2</sup> and Fire Prevention Grant Program, and the Regional Forest and Fire Capacity Program.<sup>3</sup>

### **CEQA Section –XX. Wildfire**

The California Environmental Quality Act (CEQA) is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. Changes are made continually to CEQA through legislation and case law. Guidelines are issued to explain and interpret the law for public agencies and the public. The 2019 Guidelines introduced section “XX. Wildfire Hazards – if located in or near state responsibility areas or lands classified as very high hazard severity zones.” CEQA studies now have to evaluate if the proposed project would:

1. “Substantially impair an adopted emergency response plan or emergency evacuation plan?
2. Due to slope, prevailing winds and other factors, exacerbate wildfire risks and thereby expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire?
3. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or may result in temporary or ongoing impacts to the environment?
4. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability or drainage channels?”<sup>4</sup>

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<sup>2</sup> Source: <https://www.fire.ca.gov/grants/> accessed 8/20/19

<sup>3</sup> Source: <https://www.conservaion.ca.gov/dlrp/grant-programs/Pages/Regional-Forest-and-Fire-Capacity-Program.aspx> accessed 8/20/19

<sup>4</sup> Source: [http://resources.ca.gov/ceqa/docs/2018\\_CEQA\\_FINAL\\_TEXT\\_122818.pdf](http://resources.ca.gov/ceqa/docs/2018_CEQA_FINAL_TEXT_122818.pdf) see also [http://resources.ca.gov/ceqa/docs/2019\\_CEQA\\_Statutes\\_and\\_Guidelines.pdf](http://resources.ca.gov/ceqa/docs/2019_CEQA_Statutes_and_Guidelines.pdf)



## **Contra Costa County - Climate Action Plan.**

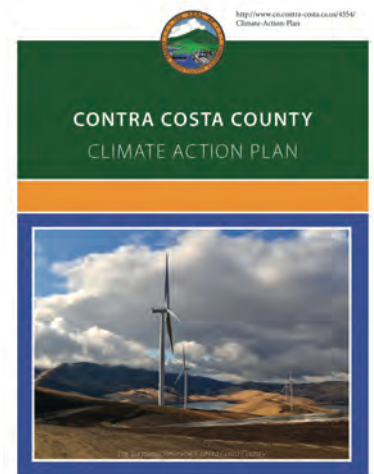
Climate change is expected to have significant adverse impacts locally, throughout California, and worldwide unless considerable steps are taken to reduce greenhouse gas (GHG) emissions. Assembly Bill (AB) 32: The California Global Warming Solutions Act of 2006 represents California's effort to reduce GHG emissions and combat global climate change. On December 15, 2015 Contra Costa County Board of Supervisors adopted the Contra Costa County Climate Action Plan.<sup>5</sup>

The plan anticipates higher temperatures that can decrease the water supply through increased evaporation rates and irrigation demand, and lead to an increased incidence of wildfires, as well as health impacts to vulnerable populations. It lays out the scientific and regulatory setting, including the California framework and existing efforts within the county. A greenhouse gas emissions (GHG) inventory identifies the major sources of emissions and presents a 2013 inventory in comparison to the 2005 baseline. It presents a forecast for years 2020 and 2035. While the County action plan does not specifically identify wildfire prevention as a healthy community strategy, it is recognized at the State level a "Carbon Plan" as critical. The Cap and Trade funding programs serve a key funding source for hazardous fuel management through the California Climate Investments (CCI) and Forest Carbon Plan.

The Climate Action Plan is currently being updated as a part of Envision Contra Costa 2040. There is a lot of interest in the climate action world to see more people install rooftop solar with battery storage; roofing materials that keep buildings cooler; planting of more trees for mitigation of heat island, sequestration of greenhouse gas emissions, flooding preventions, and buildup of water table; as well as installation of green infrastructure among other actions. The Bay Conservation and Development Commissions, "Adapting to Rising Tides" program offers a range of potential hazards and mitigation actions related to sea level rise and storm impacts.<sup>6</sup> While many of the climate action activities are widely recognized as best practices in climate resilience, there has been no research to date on how they perform during a wildfire in the wildland urban interface. However, future refinements of mitigation actions are likely to find ways to address multiple hazards, including wildfire in very high fire hazard severity areas.

## **Envision Contra Costa 2040 - General Plan Update**

Contra Costa County is in currently updating their General Plan through a process called Envision Contra Costa 2040. Envision Contra Costa 2040 will be a two-year process, with public meetings and documents developed in 2019, a public review process in the first half of 2020, and formal hearings in late 2020. The plan will include the General Plan Update, Climate Action Plan, Zoning Code Update and environmental review. The updated General Plan will respond to current concerns about sustainability, environmental justice, and affordable housing, while carrying forward enduring County values like balancing growth and conservation. The General Plan's Safety Element establishes goals and policies to minimize risk to people and property from with natural and human-caused hazards. This element will include information related to wildfires in Contra Costa County.<sup>7</sup>



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<sup>5</sup> Source: <http://www.co.contra-costa.ca.us/4554/Climate-Action-Plan> accessed 8/8/19.

<sup>6</sup> Source: <http://www.adaptingtorisingtides.org/> accessed 10/8/19.

<sup>7</sup> Source: <https://envisioncontracosta2040.org/> accessed 10/8/19.

## **Contra Costa County Local Hazard Mitigation Plan (LHMP)**

The Contra Costa County Hazard Mitigation Plan was approved by the County Supervisors in 2018 and forwarded to FEMA for final approval.<sup>8</sup> The five-year plan is in effect through April 19, 2023.

The LHMP identified the frequency, severity and warning time related to wildfire. Wildfire frequency can be assessed through review of the percent of a given area that has been burned in previous wildfire events. CAL FIRE records of fires over the 130 years from 1878 to 2015 show about 13 percent of the mapped wildfire risk zones in the planning area have burned in that period.

Potential losses from wildfire include: human life, structures and other improvements, and natural resources. There are no recorded incidents of loss of life from wildfires in Contra Costa County.

However, the most destructive wildfire in the region to date—the October 1991 Oakland/Berkeley Hills “Tunnel Fire”—occurred adjacent to Contra Costa County border with Alameda County and resulted in 25 lives lost, including a fire battalion chief and an Oakland police officer, 148 people injured, and 3,500 homes destroyed. The blaze burned approximately 1,600 acres. The estimated private property loss was \$1.7 billion at the time, according to the Insurance Information Institute.

The LHMP cites that “given the usual immediate response times to reported fires, the likelihood of injuries and casualties is minimal. Smoke and air pollution from wildfires can be a health hazard, especially for sensitive populations including children, the elderly and those with respiratory and cardiovascular diseases.” During the Camp Fire in 2018, the Bay area was impacted by smoke for weeks. “Wildfire may also threaten the health and safety of those fighting the fires. First responders are exposed to the dangers from the initial incident and after-effects from smoke inhalation and heat stroke. In addition, wildfire can lead to ancillary impacts such as landslides in steep ravine areas and flooding due to the impacts of silt in local watersheds.

The LHMP also cites, “Wildfires are often caused by humans, intentionally or accidentally. There is no way to predict when one might break out. Since fireworks often cause brush fires, extra diligence is warranted around the Fourth of July when the use of fireworks is highest. Dry seasons and droughts are factors that greatly increase fire likelihood. Dry lightning, while not common in the Bay area, may trigger wildfires. Severe weather can be predicted, so special attention can be paid during weather events that may include lightning. Reliable National Weather Service lightning warnings are available on average 24 to 48 hours prior to a significant electrical storm.

“If a fire does break out and spread rapidly, residents may need to evacuate within days, hours (or minutes as in the 2017 and 2018 wind driven fires). A fire’s peak burning period generally is between 1 p.m. and 6 p.m. Once a fire has started, fire alerting is reasonably rapid in most cases. The rapid spread of cellular and two-way radio communications in recent years has further contributed to a significant improvement in warning time.”

## **Contra Costa County Emergency Operations Plan and Guide to Wildfire Preparedness & Evacuation**

The North Bay wildfires in 2017 and Camp Fire in Paradise in 2018 elevated Contra Costa County resident’s concern of wildfire and specifically evacuation.



<sup>8</sup> Source: <http://www.co.contra-costa.ca.us/DocumentCenter/View/48893/Contra-Costa-County-Draft-Local-Hazard-Mitigation-Plan-Volume-1-January-31-2018?bidId=> accessed 7/26/19.

In 2015 Contra Costa County update their Emergency Operations Plan (EOP) that covers emergency response in unincorporated areas of Contra Costa County.<sup>9</sup> The Office Emergency Services, in the Office of the Sheriff, works closely with the 18 incorporated jurisdictions within the county. Wildfires are ranked as the 5<sup>th</sup> in the top seven natural hazard events following: earthquake, severe weather, landslide, and flood (and before drought and dam failure). The EOP covers organization, operations and recovery. It continues to highlight the incident command system and state standardized emergency management system. Supplemental elements include the County's Community Warning System, public information, private sector coordination, volunteers, training and exercises and preparedness.



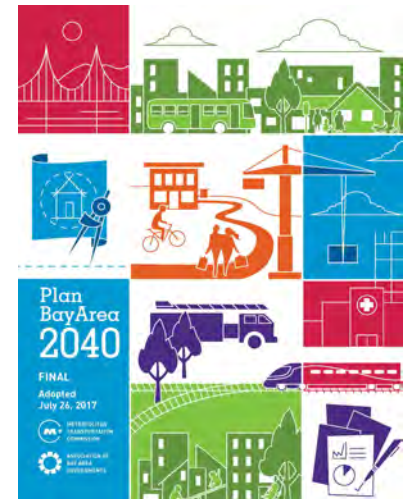
In July 2019, Contra Costa Fire Protection District and the Contra Costa County Sheriff's Office released a guide for County residents to help prepare themselves, their families and neighbors in the event of a wildfire.<sup>10</sup> Contra Costa County residents are asked to register with the [Contra Costa Community Warning System \(CWS\)](https://www.contracosta.ca.gov/DocumentCenter/View/60616/Residents--Contra-Costa--County-Guide).

### **Metropolitan Transportation Commission (MTC) - Plan Bay Area 2040**

MTC's "Plan Bay Area 2040" provides an overview of changes in the region that affect Contra Costa County. While the plan makes no specific mention of wildfire, the increasing growth and transportation investment is likely to occur in areas at risk from wildfire.

"Since the 1800s, the San Francisco Bay area has drawn people from around the world seeking fortune, education, innovation, natural beauty and a near-perfect climate — and sometimes all of the above. Through cycles of boom and bust, the Bay Area has grown to be the fourth largest metropolitan region in the United States today, with over 7.7 million people residing in the nine-county, 7,000 square-mile area. In recent years, the Bay Area economy has experienced record employment levels during a tech expansion surpassing the "dot-com" era of the late 1990s.

"In addition to bringing vitality and wealth, the rapidly growing and changing economy has also created significant challenges: adequate and affordable housing for people of all income levels, the displacement of long-time residents and a transportation system stretched past its limits. Today a very successful economy has contributed to housing, transportation and environmental challenges that pose a risk to the region's dynamism and diversity. Plan Bay Area 2040 addresses these challenges with a focus on urgent regional needs. As an update to the region's long-range transportation plan and sustainable communities strategy, Plan Bay Area 2040 projects household and employment growth in the Bay Area over the next 24 years, provides a roadmap for accommodating expected growth, and connects it all to a transportation investment strategy that strives to move the Bay Area toward key regional goals for the environment, economy and social equity."<sup>11</sup>



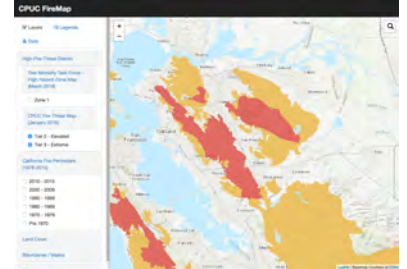
<sup>9</sup> Source: <http://www.cocosherriff.org/documents/ESD/CCC%20Emergency%20Operations%20Plan.pdf> accessed 8/8/19.

<sup>10</sup> Source: <http://www.contracosta.ca.gov/DocumentCenter/View/60616/Residents--Contra-Costa--County-Guide> accessed 8/8/19.

<sup>11</sup> From: <https://mtc.ca.gov/our-work/plans-projects/plan-bay-area-2040> accessed 8/8/19.

## **Public Safety Power Shut Offs (PSPS)**

In October 2007, devastating wildfires driven by strong Santa Ana winds burned hundreds of square miles in Southern California. Several of the worst wildfires were reportedly ignited by overhead utility power lines and aerial communication facilities in close proximity to power lines. In response to these wildfires, the California Public Utilities Commission (CPUC) initiated [Rulemaking \(R.\) 08-11-005](#) to consider and adopt regulations to protect the public from potential fire hazards associated with overhead power line facilities and nearby aerial communication facilities. Over the ensuing years CPUC issued several decisions and adopted dozens of new fire safety regulations. Several of the adopted fire-safety regulations apply only to areas, referred to as "high fire-threat areas," where there is an elevated risk for power line fires igniting and spreading rapidly.<sup>12</sup>



By December 21, 2017, the CPUC issued [Decision \(D.\) 17-12-024](#) adopting regulations to enhance fire-safety in the High Fire Threat Districts. On January 19, 2018 the CPUC adopted, via Safety and Enforcement Division's ([SED](#)) [disposition of a Tier 1 Advice Letter](#), the final CPUC Fire-Threat Map.

In Contra Costa County, Pacific Gas & Electric (PG&E) implements these precautionary measures to help reduce the risk of wildfires as part of their Community Wildfire Safety Program.<sup>13</sup> If gusty winds and dry conditions, combined with a heightened fire risk, threaten a portion of the electric system, they may turn off electricity in the interest of public safety – a public safety power shut off (PSPS). The shut off may include both transmission and distribution lines.

## **State Response after the 2018 Fires and North Orinda Sheltered Fuel Break**

On Monday January 8, when Governor Newsom was sworn in to office he issued [Executive Order N-05-19](#)<sup>14</sup> that tasked state agencies with a series of actions related to wildfire and natural disaster preparedness and response. The California Department of Fire and Forestry (Cal Fire), among other state agencies, was required to recommend to the governor administrative, regulatory, and policy changes necessary to prevent and mitigate wildfires with an emphasis on public health and safety. The report detailed personnel and resource deployment, resource procurement, and community assessment efforts. Assessments detailed high-hazard areas, socioeconomic factors, and vulnerable populations particularly at risk in natural disaster events.

The report included 35 projects, of which the North Orinda Shaded Fuel Break was project number 14. This 19.9 mile project covers 1515 acres and spans from south of Acalanes High School in Lafayette, along Happy Valley Road, Bear Creek Road and Wildcat Canyon Road in Orinda, to Inspiration Point and north along the ridge in Tilden Regional Park and Briones watershed.<sup>15</sup> The sheltered fuel break was designed to buy time for community evacuation and fire suppression response. It will protect the immediate area's 62,000 residents by significantly slowing spread of potential fire driven by Diablo winds from the northeast. Beyond Orinda and Lafayette, the sheltered fuel break will also slow the spread across county lines into Alameda County and



NOSFB Update August 19 – 25, 2019



Miles This Week: 0.6 of 19.9 | Total Miles: 9.7 of 19.9 | Acres This Week: 78.1 of 1515 | Total Acres Complete: 392.3 of 1515

**MORAGA-ORINDA FIRE DISTRICT**

Section 1: What's New Since 2014– 1.6

<sup>12</sup> For further detail see: <https://www.cpuc.ca.gov/firethreatmaps/>

<sup>13</sup> [https://www.pge.com/en\\_US/safety/emergency-preparedness/nal/shutoff-faq.page](https://www.pge.com/en_US/safety/emergency-preparedness/nal/shutoff-faq.page) accessed 7/26/19.

<sup>14</sup> Source: <https://cheac.org/2019/01/11/newsom-inaugurated-issu/health-emergency-preparedness/> accessed 8/20/19

<sup>15</sup> Source: <http://www.mofd.org/news/announcements>



the cities of Albany, Berkeley, Emeryville, Oakland and Piedmont. The North Orinda Shades Fuel Break also will slow the spread of fire into other the Contra Costa County communities including: Acalanes Ridge, Alamo, Alhambra Valley, Canyon, Castle Hill, Concord, Contra Costa Center, East Richmond Heights, El Cerrito, El Sobrante, Hercules, Kensington, Martinez, Moraga, Pacheco, Pinole, Pleasant Hill, Reliez Valley, Richmond, San Miguel, Saranap, Shell Ridge and Walnut Creek.

Governor Newsome at the same time issued [Executive Order N-04-19](#) that laid out streamlined and flexible procurement processes for emergency preparedness and response resources. State agencies were tasked with developing a new iterative procurement approaches, starting with innovative solutions to the state's wildfire risks and forest health.

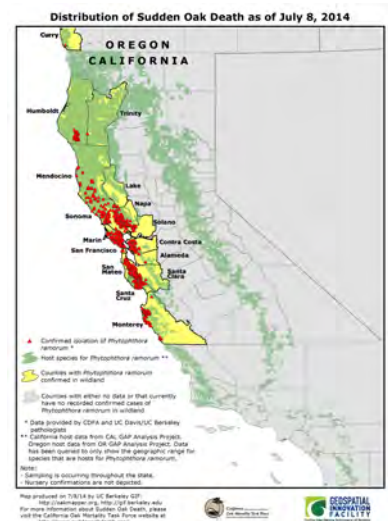
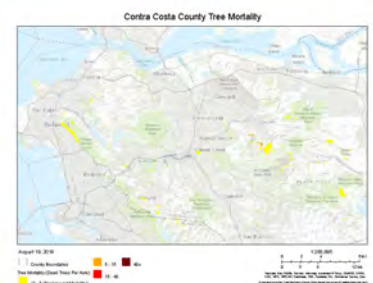
The 2018 legislative session was active with significant bills to address safety measures we will see come into affect over the next five years, such as: local assistance grant programs, fire safety planning, wildfire mitigation plans by electric utilities, mutual aid, funding, forest management and regulatory streamlining, biomass utilization, low cost retrofits and wildfire cost recovery.<sup>16</sup> The 2019 legislation session continued with introduction of bills addressing among other issues: mechanisms to develop practices for community-wide resilience against wildfires through home hardening and other measures (AB38), model defensible space program (SB190), comprehensive retrofit plans in Safety Elements (SB182), evacuation routes and capacity under a range of emergency scenarios (AB747), warning systems (SB130). On October 2, 2019 Governor Newsom signed a package of 22 bills to improve wildfire prevention, mitigation and response efforts.<sup>17</sup> As this new legislation comes into effect there will be new opportunities to incorporate into future CWPP updates.

### Tree Mortality and Sudden Oak Death

California has been facing the worst epidemic of tree mortality in modern history. Five years of drought, combined with the increased infestation of native bark beetles, have contributed to the death of millions of trees on federal, state, and private lands across California. Fortunately, Contra Costa County has had relatively minor tree mortality compared to the Sierra Region.

The tree mortality viewer<sup>18</sup> allows private citizens and stakeholder entities to participate in understanding the areas of greatest impact. Data has been collected since 2012 and most recently updated in December 2018. Primary layers include the USFS Aerial Detection Survey (depicting Tree Mortality), High Hazard Zones (for prioritizing hazard tree removal), and public Mortality Projects (where hazard tree removal projects have occurred). For more information on bark beetles and wildfire prevention and preparedness, visit [www.PrepareForBarkBeetle.org](http://www.PrepareForBarkBeetle.org).

In addition to tree mortality, the Bay Area has been infested with



<sup>16</sup> Source: <https://www.cacities.org/Resources-Documents/Policy-Advocacy-Section/Legislative-Resources/Legislative-Reports/2018-Legislative-Report>

<sup>17</sup> For further information on 2019 legislative session see <https://leginfo.legislature.ca.gov/>. For bills signed on October 2, 2019 see <https://www.gov.ca.gov/2019/10/02/governor-newsom-signs-bills-to-enhance-wildfire-mitigation-preparedness-and-response-efforts/>

<sup>18</sup> Source: <https://egis.fire.ca.gov/TreeMortalityViewer/> accessed 7/26/19.

Sudden Oak Death from *Phytophthora ramorum*.<sup>19</sup> To date Contra Costa County has had relatively isolated infections in the wildlands and urban areas in the western portion of the county (where the fog reaches). However, the potential for spread exists and the County is in quarantine with restrictions for transporting materials, including chipped wood out of the region already infected.

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<sup>19</sup> Source: <http://www.suddenoakdeath.org/sod-california-map/>



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# Contra Costa County Information

## 2.1 County Overview

Contra Costa County was incorporated in 1850 as one of the original 27 counties in the State of California. As of the 2017 American Community Survey 1 year estimates, its population is 1,174,439, 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 717.1 square miles for a total of 1,600.1 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 35 census-designated and unincorporated communities.<sup>2</sup> Median household income at \$95,339 is about 1.3 times the amount in California and 1.5 times the amount in the United States. Population growth was positive with an increase between 2010 census and the July 1, 2018 estimate census as 9.6%, slightly faster than the state.<sup>3</sup> The median age is 39.7 years about 10% higher than elsewhere in California, with 62% of the populations between the age of 18 and 64 years old.

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 2036, Contra Costa County is anticipated to have over 1.38 million residents.<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

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<sup>1</sup> Data from: <https://censusreporter.org/profiles/05000US06013-contra-costa-county-ca/> accessed 8/8/19.

<sup>2</sup> Source: [http://www.dof.ca.gov/Forecasting/Demographics/Projections/documents/P\\_PressRelease.pdf#search=%22contra%20costa%20county%20population%20projections%22](http://www.dof.ca.gov/Forecasting/Demographics/Projections/documents/P_PressRelease.pdf#search=%22contra%20costa%20county%20population%20projections%22) Accessed 10/8/19.

<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 and <https://www.census.gov/quickfacts/fact/table/contracostacountycalifornia> accessed 8/8/19

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

growth in the postwar era, the character of most communities is oriented to the automobile.<sup>5</sup>

West County <sup>6</sup>	Central County	East County
<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	Orinda	Bethel Island
Crockett	Pleasant Hill	Byron
East Richmond Heights	San Ramon	Discovery Bay
El Sobrante	Walnut Creek	Knightsen
Kensington	<i>Unincorporated Areas</i>	Marsh Creek – Morgan Territory
Montalvin Manor	Acalanes Ridge	
North Richmond	Alamo	
Port Costa	Alhambra Valley	
Rodeo	Blackhawk	
Rollingwood	Briones	
Tara Hills	Camino Tassajara Canyon	
	Castle Hill	
	Clyde	
	Diablo	
	Mountain View	
	Norris Canyon	
	North Gate	
	Pacheco	
	Reliez Valley	
	San Miguel	
	Saranap	
	Shell Ridge	
	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>7</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

<sup>5</sup> <https://mtc.ca.gov/our-work/plans-projects/plan-bay-area-2040>

<sup>6</sup> Source: Contra Costa County General Plan Housing Element.

<sup>7</sup> From Alameda County Transportation Commission. County Transportation Plan/ Transportation Expenditure Plan Briefing Book March 3, 2011. Pg. 4-2

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. Contra Costa County also lies in the flight paths of 3 major airports: San Francisco International, Oakland International and Travis Airforce Base (in Solano County to the east).

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>8</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. UPs 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>9</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>10</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. 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). 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.

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

<sup>9</sup> Source: <http://www.bnsf.com/> accessed 7/23/2014

<sup>10</sup> Source: <http://www.ci.richmond.ca.us/index.aspx?NID=102> accessed 7/1/2014

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).

### **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>11</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>12</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>13</sup>

### **Vegetation and Wildlife Habitat**

The vegetation and wildlife habitats of Contra Costa County consist of many ecological communities including:<sup>14</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

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<sup>11</sup> Source: Contra Costa County Watershed Atlas. 2003  
<http://ccwf.watershedportal.net/Watershed%20Atlas/Watershed%20Atlas.pdf>

<sup>12</sup> Source: East Alameda County Conservation Strategy <http://eastalco-conservation.org/documents.html>

<sup>13</sup> Source: Contra Costa County Watershed Atlas. 2003  
<http://ccwf.watershedportal.net/Watershed%20Atlas/Watershed%20Atlas.pdf>

<sup>14</sup> Source: East Contra Costa HCP/NCCP. October 2006.

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 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 in Contra Costa County. 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>15</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*)

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<sup>15</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

## **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 that encompasses approximately 20,125 acres of open space with an extensive system of roads and trails, campground and picnic areas in a variety of habitats. The 3,849 foot mountain offers a 360° view of the surrounding area. Parklands include rare and sensitive species, as well as significant cultural resources (prehistoric archeological sites and historic sites).<sup>16</sup>

City of El Cerrito manages El Cerrito's largest open space, the 102.5-acre Hillside Natural Area. Located on steep slopes, the area is surrounded by single-family residences.<sup>17</sup> The area includes an abandoned quarry, woodlands, grasslands and several intermittent watercourses. Recreational use of the area includes hiking, walking, dog walking and biking along the trails and fire roads, with access through several neighborhood entry points. Projects have included controlled burns, work with the Delta Conservation Crew, brush removal, dead tree removal and tree thinning, maintenance 100' from structures, as well as 200' from structures for a flame length less than 8'.<sup>18</sup>

Contra Costa Water District is a special district that serves 500,000 customers in 13 cities; providing both treated drinking water and selling wholesale both treated and untreated water to cities, water companies, industrial and irrigation customers.<sup>19</sup> The District draws its water from the Sacramento-San Joaquin Delta under contract with the federal Central Valley Project. Facilities include distribution reservoirs, pump stations and a network of pipeline that deliver treated water to customers. The Los Vaqueros Watershed consists of 18,500 acres of open space surrounding the 1,900 Los Vaqueros Reservoir.<sup>20</sup> The reservoir provides 160,00 acre-feet of water storage. The reservoir was completed in 1998 and enlarged in 2012 to improve water quality and emergency supply reliability. Contra Costa Water District's pre-fire fuel management program includes maintenance of 80 miles of fuel breaks, fire access roads, as well as grazing (sheep and cattle) on watershed lands.<sup>21</sup> They also have water projects to identify hydrant locations in Morgan Territory and adjacent Alameda County and will be installing 13 additional 500,000 gallon water tanks.

East Bay Regional Park Districts (EBRPD) is a special district that offers developed and dispersed recreation opportunities in over 125,000 acres and over 1,250 miles of trails in Alameda and Contra Costa Counties.<sup>22</sup> 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: 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

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<sup>16</sup> Source: [http://www.parks.ca.gov/?page\\_id=517](http://www.parks.ca.gov/?page_id=517) accessed 8/27/19.

<sup>17</sup> Source: El Cerrito. Urban Greening Plan 2015. <http://www.el-cerrito.org/index.aspx?NID=928>

<sup>18</sup> Source: <https://www.el-cerrito.org/1357/Fire-Hazard-Mitigation-Updates>, <https://www.el-cerrito.org/402/Vegetation-Management> Accessed 8/27/19

<sup>19</sup> Source: <http://www.ccwater.com/ArchiveCenter/ViewFile/Item/252> Contra Costa Water District 2014 Annual Report - Keys to Future Success.

<sup>20</sup> Source: Contra Costa Water District. Welcome to the Los Vaqueros Watershed: Trail and Facility Map. <http://www.ccwater.com/DocumentCenter/View/225><http://www.ccwater.com/DocumentCenter/View/225>

<sup>21</sup> Source: Contra Costa Water District. Welcome to the Los Vaqueros Watershed: Trail and Facility Map. <http://www.ccwater.com/DocumentCenter/View/225><http://www.ccwater.com/DocumentCenter/View/225>

<sup>22</sup> Source: <https://www.ebparks.org/about/default.htm> accessed 8/27/19.



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.

The EBRPD Fire Department has the lead for the Fuels Management Program and follows the Wildfire Hazard Reduction and Resource Management Plan and Environmental Impact Report. They plan work in conjunction with Park Stewardship, Park Operations, park supervisors, and other departments to develop an annual work plan approved by their Board of Directors. EBRPD uses many methods to modify or reduce the amount or availability of wildland fuels including hand crews, prescribed fire, mowing, weed-eating, masticating, and animal grazing. Dense tree stands are often thinned to remove some of the trees that typically contributes to fuel loading and to reduce the potential for wildfire to spread in the tree canopies.<sup>23</sup>

East Bay Municipal Utility District (EBMUD) is a special district that provides drinking water for 1.4 million East Bay customers.<sup>24</sup> EBMUD owns and manages approximately 29,000 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 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.

The EBMUD fuels management program and follows their Fire Management Plan, East Bay Watershed Master Plan and the Low Effect East Bay Habitat Conservation Plan.<sup>25</sup> EBMUD uses many methods to modify or reduce the amount or availability of wildland fuels including hand crews, mowing/ weed-eating, tree thinning, prescribed fire, masticating and animal grazing.

City of Walnut Creek Open Space: In 1974, the citizens of Walnut Creek approved a \$6.75 million bond 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 with over 77 miles of neighborhood trails: Acalanes Ridge, Borges Ranch, Howe Homestead Park, Lime Ridge, Shell Ridge and Sugar Loaf.<sup>26</sup>

## **Federal Lands**

Bureau of Land Management (BLM). While there are no Bureau of Land Management lands in Contra Costa County local stakeholders have worked with BLM staff from the Hollister Office in conjunction with federal grants for public education and fuel reduction projects.

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>27</sup> The City of Concord is the Land Reuse Authority and in charge of the implementation of the reuse plan adopted in 2010.

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<sup>23</sup> Source: [https://www.ebparks.org/about/fire/Fuels\\_Management/](https://www.ebparks.org/about/fire/Fuels_Management/) accessed 8/27/19.

<sup>24</sup> Source: <https://www.ebmud.com/about-us/> accessed 8/27/19

<sup>25</sup> Source: [https://www.ebmud.com/index.php/download\\_file/force/FMP\\_0602\\_1](https://www.ebmud.com/index.php/download_file/force/FMP_0602_1) ,  
<https://www.ebmud.com/EBWMP-2018-FINAL.pdf>, [https://www.ebmud.com/hcp\\_0.pdf](https://www.ebmud.com/hcp_0.pdf) accessed 8/27/19

<sup>26</sup> Source: <http://www.walnut-creek.org/departments/open-space> accessed 8/27/19.

<sup>27</sup> Source: <http://www.concordreuseproject.org/148/Overview-of-the-Reuse-Project> accessed 8/27/2019

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. The John Muir NHS manages approximately 300 acres on the north side of Highway 4 and south side of Mount Wanda. They partner with neighbors on their boundaries. Fire hazard reduction includes mowing and road clearance. The Mt. Wanda Comprehensive Site Management Plan is in development for the Mt. Wanda Unit of the site, including two parcels acquired in 2016 (3.8 Strain Ranch) and 2019 (44 acre West Hills Farm).<sup>28</sup>

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.

US Forest Service (USFS). While there are no US Forest Service lands Contra Costa County local stakeholders work with USFS staff from the Vallejo Office in conjunction with federal grants for public education and fuel reduction projects. The USFS often provides grant funding through the California Fire Safe Council.

### **Other Land Managing Entities**

BNSF Railroad: BNSF Railway is one of North America's leading freight transportation companies, with a rail network of 32,500 route miles in 28 states and three Canadian provinces. BNSF is one of the top transporters of the products and materials that help feed, clothe, supply and power communities throughout America and the world. They transport a mix of agricultural products, consumer products, industrial products and coal. BNSF moves those goods more safely and efficiently, on significantly less fuel, with fewer emissions than the all-highway alternative hauling 1 ton of freight 500 miles on 1 gallon of diesel fuel. They are headquartered in Fort Worth Texas with over 44,000 employees.<sup>29</sup>

CAL TRANS: Cal Trans District Four covers seven counties divided into five geographical maintenance regions. In Contra Costa County, District Four maintains major freeway right of ways along Highway 4, Interstate 580 and 680. The Division of Maintenance provides for public safety, maintaining and repairing the system and responding to emergencies. 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). Responsibilities include the maintenance and landscaping of the highways in the District, divided by geographical regions, specialized regions and district office functions. They partner regularly with CAL FIRE and PG&E. Vegetation management includes mowing, spraying fire strips and animal grazing (goats). They utilize contractors to manage large firebreaks, as well as tree

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<sup>28</sup> Source: <https://parkplanning.nps.gov/projectHome.cfm?projectID=77747> accessed 8/27/19.

<sup>29</sup> Source: [http://www.bnsf.com/about-bnsf/pdf/fact\\_sheet.pdf](http://www.bnsf.com/about-bnsf/pdf/fact_sheet.pdf) Accessed 8/27/19.

trimming, brush abatements. They often manage homeless encampments and related ignition concerns.<sup>30</sup>

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 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. Their three-prong Community Wildfire Safety Program focuses on 1) wildfire safety inspections and enhanced vegetation management with 15' minimum clearance from conductors and all overhead tree limbs, 2) hardening the system with equipment for improved reliability and 3) public power safety shutoffs (PSPS) when critical fire weather conditions occur.<sup>31</sup>

Save Mount Diablo is a nationally accredited land trust and conservation organization dedicated to preserving Mount Diablo's peaks, surrounding foothills and watersheds through land acquisition and preservation strategies. Since the organization's founding in 1971 the preserved open space has increased from less than 7,000 acres to over 110,000 in more than 40 parks. Save Mount Diablo preserves property through acquisition then restores lands through stewardship prior to turning them over to a long-term land management agency for public access. They also utilize land use planning strategies; monitor development proposals and ensure that habitat and land preservation are incorporated into land use plans. They have funded several research projects on the effects of the 2013 Morgan Fire on the mountain. They work closely with park agencies in the area on natural resource issues and long range planning for the entire Mount Diablo region. Save Mount Diablo uses volunteers each year to achieve weed abatement standards on their properties.

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Union Pacific Railroad: Union Pacific Railroad provides a critical link in the global supply chain; operating in 23 states in the western two-thirds of the United States, with roughly 10,000 customers. The Union Pacific Railroad network of 32,200 route miles is the largest in the United States and is serviced by 42,000 employees. From 2009-2018, Union Pacific invested more than \$34 billion in its network and operations to support America's transportation infrastructure. The railroad's diversified business mix is classified into its Agricultural Products, Energy, and Industrial and Premium business groups. 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.<sup>33</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),

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<sup>30</sup> Source: <https://dot.ca.gov/caltrans-near-me/district-4/d4-programs/d4-maintenance>, [www.dot.ca.gov/](http://www.dot.ca.gov/) accessed 8/27/2019

<sup>31</sup> Source: <http://www.pge.com/> and [https://www.pge.com/en\\_US/safety/emergency-preparedness/natural-disaster/wildfires/public-safety-power-shutoff-faq.page](https://www.pge.com/en_US/safety/emergency-preparedness/natural-disaster/wildfires/public-safety-power-shutoff-faq.page) accessed 8/27/19.

<sup>32</sup> Source: <https://www.savemountdiablo.org/about/> Accessed 8/27/19.

<sup>33</sup> Source: <http://www.up.com/> accessed 7/23/2014

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 are considered to be FRA: National Park Service, US Fish and Wildlife Service lands, the Concord Weapons Station (Navy - Department of Defense).

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 Municipal Utility District lands, East Bay Regional Park District lands, Contra Costa Water District lands, and typically areas outside of incorporated cities. The Santa Clara Unit covers over 1.3 million acres with 300,000 in Contra Costa County. The Governor, Secretary of Natural Resource Agency and Santa Clara Unit Chief are all supportive of fire prevention with over \$500 million in funding in 2019. In 2019, the State also funded new fuels crews and fire fighting hand crews, forestry aide crews (nearest out of Davis) and support from the National Guard.

The Local Responsibility Areas is protected by both professional and volunteer fire fighting forces. Twelve different local entities that have direct fire protection responsibility (in addition to CAL FIRE and Federal Fire). 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

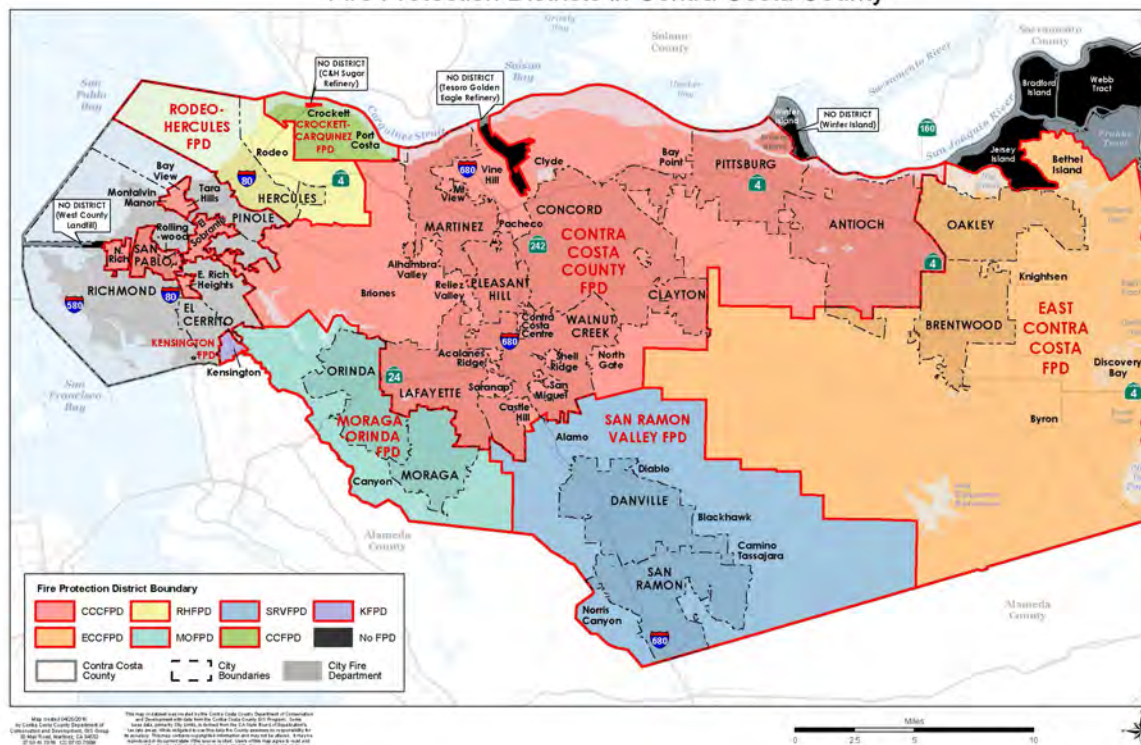
California Department of Forestry and Fire Protection (CAL FIRE)

Contra Costa County Fire Protection District

Crockett-Carquinez Fire Protection District

East Bay Regional Parks District Fire Department

Fire Protection Districts in Contra Costa County





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

### Other Local Stakeholders

Bay Area Prescribed Fire Council (BARxF) held its first gathering in November 2018, as a meeting place for land managers, fire agencies, fire science professionals, private landowners, students, researchers and others interested in prescribed fire. Their goal is to create a group with the ability to collaborate, share resources, expertise, training and experience in the pursuit of safely getting “good fire” back on the landscape.<sup>34</sup> Other events have included a workshop on the Prescribe Fire Incident Reporting System (PFIRS) and a Spring meeting and field tour of Henry Coe State Park in May 2019.

Contra Costa County is governed by the Contra Costa County Board of Supervisors. All five of the Council Districts include very high fire hazard severity zones. Most of the Supervisors have a monthly newsletter they can use to communicate fire safety messages to the public.

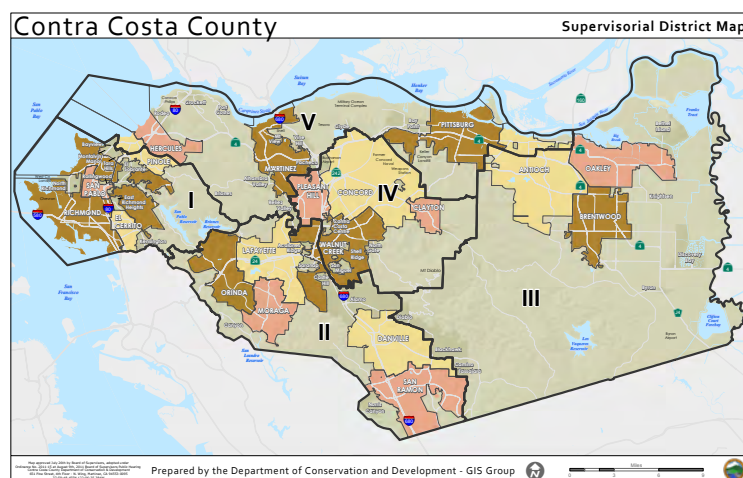
District I, Supervisor John M. Goia, Chair of the Board for 2019.

District II, Supervisor Candace Andersen Vice Chair of Board for 2019.

District III, Supervisor Diane Burgis.

District IV, Supervisor Karen Mitchoff.

District V, Supervisor Federal D. Glover.



Other stakeholders in Contra Costa County include: Animal Services, Conservation and Development, Department of Public Works and the Sheriff’s Department. Contra Costa County is in the process of a comprehensive review and update of their 2040 General Plan, which includes the safety element, urban limit line, zoning code, climate action plan and general plan designations, as well as an environmental review.<sup>35</sup>

CoCoCART (Contra Costa County Animal Rescue Team) is a non-profit group with an outreach and education program countywide. Their mission is to shelter animals during a

<sup>34</sup> Source: <https://www.eventbrite.com/o/bay-area-prescribed-fire-council-19242298773> Accessed 8/17/19.

<sup>35</sup> Source: <https://www.contracosta.ca.gov/6970/General-Plan-Update-2020> and <https://envisioncontracosta2040.org/> Accessed 8/19/19.

declared emergencies.<sup>36</sup> They work with Contra Costa County Animal Services and are developing a volunteer large animal rescue program.

Contra Costa Master Gardeners are affiliated with the UC Master Gardener Program (officially UC Master Gardener Program, Contra Costa County). UC Master Gardeners are trained volunteers for the University of California Cooperative Extension (UCCE). They are community residents who have an active interest in horticulture, have taken the Master Gardener training offered by the UCCE, and then share their knowledge. They provide University of California research-based horticultural information to the citizens of California through their volunteer efforts as UC Master Gardeners. The UC Master Gardener Program implements the ANR mission to extend research-based horticultural information to the state's home gardeners. ANR's core issues include "protect wildlands and urban areas from destructive fires." Each year, more than 200 UC Master Gardener volunteers reach out into all sections of the Contra Costa county.<sup>37</sup>

Contra Costa Resource Conservation District (RCD) is a non-regulatory agency working with individuals, ranchers, public agencies and others to facilitate conservation and stewardship of natural resources. They are one of 103 California RCDs working with their federal partner the USDA Natural Resource Conservation Service (NRCS).<sup>38</sup> They have sponsored programs on erosion control, fire road maintenance, grazing plans for grassland management, brush reduction, fire hazard reduction and natural resource protection.

East Contra Costa Habitat Conservancy is a joint powers authority formed by the cities of Brentwood, Clayton, Oakley, Pittsburg and Contra Costa County to implement the East Contra Costa Habitat Conservation Plan/ Natural Community Conservation Plan (HCP/NCCP). The plan provides a framework to protect natural resources in eastern Contra Costa County, while improving and streamlining the environmental permitting process for activities and projects that may impact endangered species, wetlands or ecosystems.<sup>39</sup>

John Muir Land Trust. John Muir Land Trust protects and cares for over 3,200 acres of open space, ranches, farms, parkland and shoreline in the East Bay. A 501(c)(3) nonprofit organization, they are accredited by the California Council of Land Trusts and have been established since 1989.<sup>40</sup>

Martinez Area CERT. In conjunction with the City of Martinez, the Martinez Area Community Emergency Response Team (CERT) educates people about disaster preparedness for hazards that may impact their area and trains them in basic disaster response skills, such as fire safety, light search and rescue, team organization, and disaster medical operations. Using the training learned in the classroom and during exercises, CERT members can assist others in their neighborhood or workplace following an event when professional responders are not immediately available to help. CERT members also are encouraged to support emergency response agencies by taking a more active role in emergency preparedness projects in their community.

The Martinez Area CERT program has worked with the Contra Costa Fire Protection District (CCFPD) from 2017 to the present (3 consecutive years) conducting weed abatement surveys throughout the high-risk fire zone (SRA and LRA) of Martinez and has given community educational workshops on fire safety and prevention. In August 2019, due to the efforts of Martinez Area CERT, the National Fire Protection Association recognized Martinez

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<sup>36</sup> Source <https://www.facebook.com/cococart>. Accessed 8/17/19.

<sup>37</sup> Source: [http://ccmg.ucanr.edu/About\\_Us/](http://ccmg.ucanr.edu/About_Us/) Accessed 8/17/19.

<sup>38</sup> Source: <http://www.ccrd.org> Accessed 8/17/19.

<sup>39</sup> Source: <https://www.contracosta.ca.gov/depart/cd/water/hcp/> Accessed 8/17/19.

<sup>40</sup> Source: <https://www.jmlt.org> Accessed 9/24/19



as a Firewise Community. The newly established Firewise "community" is a 2-mile long stretch along Alhambra Avenue that represents a wildland urban interface (WUI). Martinez Area CERT is already working in the Firewise area to provide homeowners with the needed education to make their homes and property more fire safe.<sup>41</sup>

Orindawoods. Orindawoods is a planned unit development consisting of 258 residences situated on rolling hills adjacent to Hwy 24 in the City of Orinda, CA. Guided by the premise of "run with the land", the homes are clustered in neighborhoods with approximately half of the development's 187 acres devoted to open space. Built on a natural ridgeline, the adjacent canyons and hillsides are heavy natural vegetation. For the safety of their residents and the preservation of the beautiful environment, their HOA, guided by a Board of Directors, have embarked on an extensive fire safety program. The program includes major fuel reduction in undeveloped areas, as well as defensible space programs around the residences. Orindawoods is well on its way to attaining accreditation as a Firewise Community.<sup>42</sup>

Red Cross. The American Red Cross Northern California Coastal Region serves more than 8.3 million people across 15 counties and is comprised of four chapters with 16 District office locations. The Bay Area Chapter serves Contra Costa County. The Chapter provides relief to those affected by disasters and empowers individuals in our community to prepare for, respond to, and recover from emergencies. Their preparedness program includes wildfire safety.<sup>43</sup>

The Red Cross has a volunteer network over 3,700 people in the Bay Area, partnerships with hundreds of government agencies, community organizations and businesses. County Leadership Councils serve as a Red Cross Ambassador in the community to expand Red Cross presence, deepen relationships and to connect and understand community needs so counties are better prepared and resilient in times of emergencies. The Contra Costa County Leadership Councils meets monthly in Martinez..<sup>44</sup>

Rossmoor is a residential community in Walnut Creek with a variety of home ownership options (co-ops, condos and single family homes) for active adults 55 years and older.<sup>45</sup> Begun in 1963, the community is completely build out with approximately 10,000 people in 6,678 units. Rossmoor is located on over 1,800 acres in Tice Valley adjacent to Las Trampas Regional Park. It has a single secured access point off of Tice Valley Boulevard. The community owned facilities are managed by the Golden Rain Foundation of Walnut Creek (GRF). The residential properties in Rossmoor are managed by 19 separate homeowners' associations ("mutuals"). Residents elect the boards of both their Mutual and GRF, which regularly seeks resident input and involvement. Each Mutual hires a managing company to manage the upkeep of the property. Each Mutual has a board of directors that establishes policies and rules and sets budgets to maintain the property to meet the needs of the residents.

Sierra Club Bay Area Chapter. The San Francisco Bay Chapter is the local branch of the Sierra Club, America's largest and most effective grassroots environmental organization. The Bay Chapter is comprised of the nearly 40,000 Sierra Club members who live in Alameda, Contra Costa, Marin, and San Francisco counties. The Bay Chapter is divided

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<sup>41</sup> Source: <https://martinezcet.org/> Accessed 8/17/19 and personal communication.

<sup>42</sup> Source: Personal communication

<sup>43</sup> Source: <https://www.redcross.org/get-help/how-to-prepare-for-emergencies/types-of-emergencies/wildfire.html> Accessed 8/17/19.

<sup>44</sup> Source: <https://www.redcross.org/local/california/northern-california-coastal/about-us/locations/bay-area.html> Accessed 8/17/19

<sup>45</sup> Source: <https://rossmoor.com/> Accessed 8/17/19.

geographically into eight local groups. West Contra Costa County Group, Mt. Diablo Group and Delta Group cover Contra Costa County. Groups are the smallest geographic units of the Sierra Club, with volunteer leadership and individual members critical to ensuring that Sierra Club knows what's going on in neighborhoods, parks, and streets. Groups also help keep tabs on our city councils, school boards, and other decision-making bodies.<sup>46</sup>

Sleepy Hollow Neighborhood Association. The Sleepy Hollow Neighborhood Association includes roughly 450 homes in Orinda, CA and has a long history of community building. First incorporated as the "Sleepy Hollow Improvement Association" in 1948, the organization has evolved over the years. In 2017, it was reorganized as the Sleepy Hollow Neighborhood Association, a volunteer organization that is devoted to the improvement, protection, preservation and beautification of Sleepy Hollow. At the top of our priorities for 2019/2020 and beyond is wildfire risk reduction. Sleepy Hollow is a recognized Firewise community.<sup>47</sup>

Walnut Country The Crossings, Concord is a 1,062 home subdivision near Ygnacio Valley Road and Cowell Road, located in the foothills of Mount Diablo, between Walnut Creek and Clayton. Founded in the 1970s it is designed with many cul-de-sacs ending in a greenbelt. The Cowell Homeowners Association is led by an elected Board of Directors and managed by Collins Management.<sup>48</sup>

West Contra Costa Unified School District (WCCUSD): Based in Richmond, WCCUSD covers the cities of El Cerrito, San Pablo, Pinole and Hercules and the unincorporated areas of Bayview-Montalvin Manor, East Richmond Heights, El Sobrante, Kensington, North Richmond and Tara Hills.

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<sup>46</sup> Source: <https://www.sierraclub.org/san-francisco-bay/about-us> Accessed 8/17/19.

<sup>47</sup> Source: Personal communication and <https://www.sleepyholloworinda.com/>. Accessed 10/8/19.

<sup>48</sup> Source: <http://walnutcountry.com/> Accessed 8/17/19

## 2.2 The Planning Process & Stakeholders

Update of the Contra Costa County CWPP was made possible from funding provided by the California Department of Forestry and Fire Protection as part of the California Climate Investments Program. The grant to the Diablo Fire Safe Council 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. A community survey was also available.

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:

Bay Area Prescribed Fire Council (BARxP)  
 Briones Residents  
 CAL FIRE Santa Clara Unit  
 CAL TRANS Hercules, Oakland & Walnut Creek  
 City of Walnut Creek Open Space  
 Claremont Canyon Conservancy  
 Contra Costa Fire Protection District  
 Contra Costa Resource Conservation District  
 Contra Costa Water District  
 CAL FIRE Santa Clara Unit  
 Diablo FireSafe Council  
 East Bay Municipal Utility District  
 East Bay Regional Park District Fire Department  
 East Contra Costa Fire Protection District  
 El Cerrito Fire Department  
 El Cerrito/ Kensington CERT  
 Kensington Fire Protection District  
 John Muir Land Trust  
 Martinez Area CERT  
 Moraga Orinda Fire Protection District, Moraga

Moraga Registered Professional Forester  
 National Park Service GGNRA Wildland Fire Management  
 Office of Supervisor Candace Andersen (District 2)  
 Office of Supervisor Diane Burgis (District 3)  
 Office of Supervisor Federal Glover (District 5)  
 Orindawoods, Orinda  
 PG&E Vegetation Management  
 Pinole Fire  
 Red Cross  
 Richmond Fire Department  
 Rodeo Hercules Fire Protection District  
 Rossmoor, Walnut Creek  
 San Ramon Valley Fire Prevention District  
 Save Mt Diablo  
 Sierra Club  
 Sleepy Hollow Neighborhood Association, Orinda  
 The Crossings HOA, Concord  
 UC Master Gardener Program, Contra Costa County  
 West Contra Costa Unified School District



**Help update the**  
**Contra Costa County Community Wildfire Protection Plan**


Everyone needs to prepare for wildfires.  
 Help update the community wildfire protection plan for Contra Costa County.  
 We want your input on wildfire risks and hazards.  
 Share your concerns and local knowledge.  
 Give us your opinion on recommended strategies to reduce risks.

A Community Wildfire Protection Plan (CWPP) is a collaboratively developed plan that identifies wildland fire hazards, prioritizes ways to reduce those hazards and recommends measures for homeowners and communities to reduce ignitability of structures. The Diablo Fire Safe Council is working with local fire departments, agencies, homeowner groups and others to update the existing Contra Costa County CWPP.

Participate in our survey at  
<http://bit.ly/2015CCCWPPUpdate>

Share your knowledge, test your wildfire awareness and learn more about what you can do to reduce the threat of wildfire.

For more information contact  
 Cheryl Miller, (510) 282-1265 or email [DPSMiller@conccost.net](mailto:DPSMiller@conccost.net)  
 Visit our website for the latest updates. [www.diabofire.org](http://www.diabofire.org)

**Contra Costa County Community Wildfire Protection Plan Update Overview**

Task	Timeline	Update Goals/Outcomes
<b>Update Kickoff (Step 1)</b> Contra Costa County Board of Supervisors and Fire Protection Districts (FFDs) to share perspectives, priorities and information. Triggers interested parties. Develop information channels regarding process and stakeholder involvement. Start on valid day. Provide link to partners.	Monday April 18, 2017 (10:00 AM Meeting)	Update Risk (FFD, AGS, etc.) Update goals, objectives, recommendations, strategy, survey, etc.
<b>Review Existing CWPP and Update Project &amp; Priorities (Step 2)</b> Review existing Community Plan (CP) based on survey data and best assessment. Review existing risk assessment data (AGS, etc.) Identify wildfire resources: - Home, business, personal resources as risk - Other resources related to risk - Land preparation (fire fighting capabilities) Update: Current Priority Issue Reductions Project and (Transition) Strategies and Recommendations to Reduce Structure Ignitability	Tuesday May 23, 2017 Contra Costa County Fire Protection Districts Meeting Facility 4000 West Chicago Highway Suite 210 Concord	Update Working Session #1 Agreement to update CWPP and community and assessment goals. Update and assessment strategy and recommendations.
<b>Active Plan Update and Assessment Strategy (Step 3)</b> Update: "Active Plan" and "Assessment Strategy". Identify resource assessment and priorities, risks, opportunities, funding needs & strategies for highest priority projects. Home Inspection Components: (Later 2 more neighborhood fire FFD/CWPP Community Assessments)	Tuesday July 18, 2017 Contra Costa County Fire Protection Districts Meeting Facility 4000 West Chicago Highway Suite 210 Concord	Update Working Session #2 Draft Active Plan and Assessment Strategy Assessment and Community Assessment (2 Aug 1 - Sept 15, 2017)
<b>Plan Update (Step 4)</b> Active Plan Update Conduct CWPP Risk for Public Resource Risk Assessment Update the "Community Wildfire Protection Plan" and present for approval.	Tuesday Sept 12, 2017 Location to be determined Meeting Location: P Meeting Time: 5:00 PM Best time to attend: 5:00 PM	Update Working Session #3 Active Plan and Assessment Active Plan and Assessment Strategy Update and Assessment Strategy Update and Assessment Strategy

# Fire Hazard and Risk in the Wildland Urban Interface

## 3.1 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 wildfires. 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, hazardous industrial 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 large fire 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 and have been seen in the past few years as listed later in this section. 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 in areas of human activity.

### 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 rapid speed. These can occur at any time of year, but are especially dangerous in the summer and fall when fuels have reached peak dryness. During these times, fighting a fire becomes far more difficult.

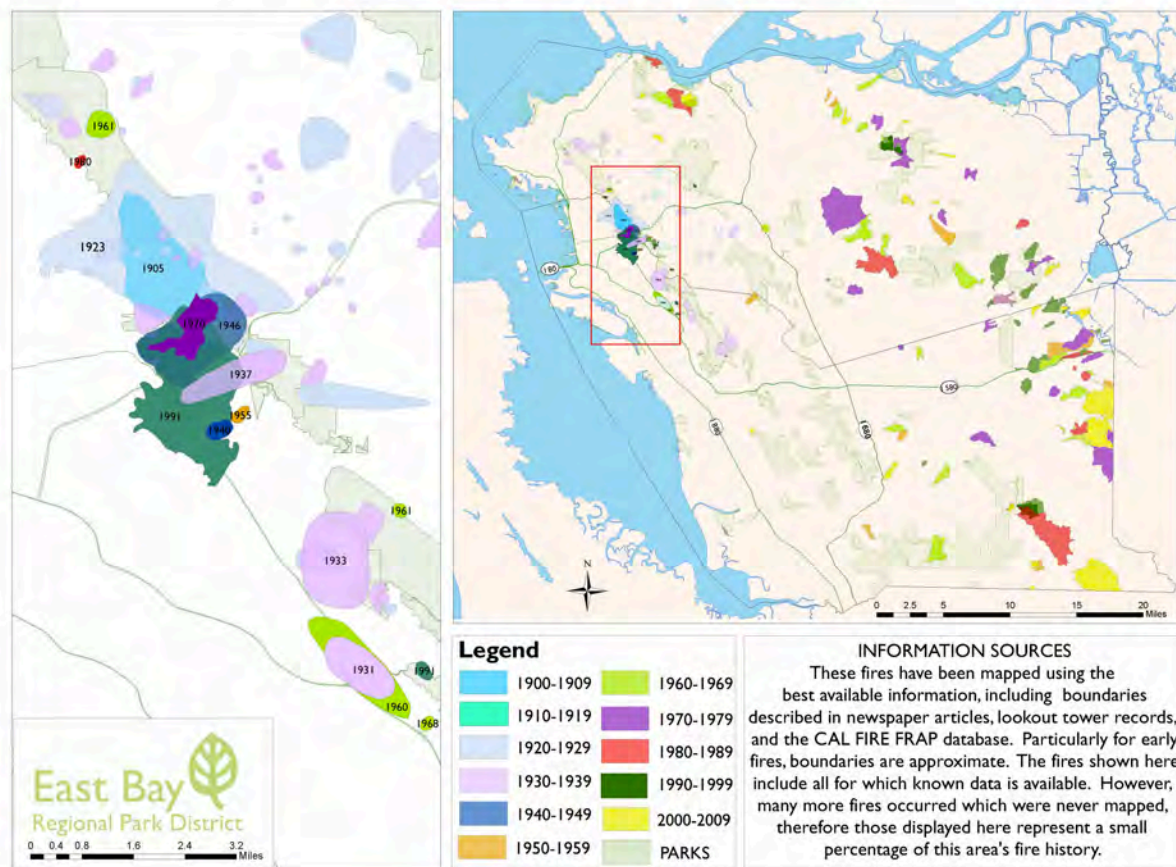
### Fuel – Structures and Vegetation

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.

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<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 steep 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.

## 3.2 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.

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 and covers most of Contra Costa county.

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

### 3.2.1. 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 the border with Alameda County;
- 2) East areas of county around Mount Diablo, Walnut Creek, San Ramon
- 3) North areas of central-county around Martinez.

According to the 2013 State of California Multi-Hazard Mitigation Plan and the California Department of Forestry and Fire Protection, Contra Costa historically experiences wildfires every two to three years. With drought conditions in recent years, wildfires have occurred annually. None of its fires have caused sufficient damage to trigger a state or federal disaster declaration. The following wildfires of over 10 acres have been recorded in or near the planning area in recent years (CAL FIRE, 2019<sup>2</sup>):

- August 8, 2019 Marsh Complex Fire - Burned 757 acres along Marsh Creek Road and Morgan Territory Road.
- August 7, 2019, Sellers Fire – Burned 58 acres along Sellers Ave and Delta Road.
- July 5, 2019, Fellow Fire- burned 24 acres along Franklin Canyon Road.
- June 6, 2019, Willow Fire – Burned 24 acres along Highway 4 and Willow Pass.
- November 1, 2018 Morgan Fire – Burned 20 acres off Morgan Territory Road and Storybook Lane, San Ramon.
- August 17, 2018, Alhambra Fire – Burned 30 acres off Highway 4 and Alhambra Ave. Martinez.
- July 25, 2018, Marsh Fire – Burned 247 acres along Marsh Creek Road and Bragdon Way.
- July 8, 2018, Bruce Fire – Burned 56 acres off Bruce Lane and Joseph Lane, San Ramon.
- July 7, 2018 Buckingham Fire – Burned 45 acres Buckingham Drive and Moraga Road Moraga.

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<sup>2</sup> Source: <https://www.fire.ca.gov/incidents> accessed 8/19/19



- June 29, 2018 Valley Fire – Burned 268 acres along Ygnacio Valley Road and Cowell Blvd., Concord.
- June 19, 2018 Iron Fire – Burned 40 acres off Montbrea Way and Ironwood, San Ramon.
- June 16, 2018 Willow Fire – Burned 25 acres along Willow Pass Road at Evora Road.
- June 2, 2018 Glen Fire – Burned 23 acres along Glen Canyon Circle and Chaparral Drive, Pittsburg.
- July 8, 2017, Deer Complex – Burned 231 acres Deer Valley Road and Marsh Creek Road, Brentwood.
- July 7, 2017, Willow Fire – burned 370 acres along Springwood Court and California Street, Rodeo.
- June 5, 2017, Fish Fire – burned 20 acres Highway 24, Orinda
- July 24, 2016, Franklin Fire—Burned 40 acres along Cummings Skyway and Franklin Canyon, 6 miles southeast of Rodeo.
- July 30, 2015, Vasco Fire—Burned 195 acres along Vasco Road, 3 miles southwest of Byron.
- June 24-25, 2015, Loma Fire—Burned 533 acres in Contra Loma Regional Park located in Antioch.
- July 11-12, 2014, Marsh Fire—Burned 80 acres east of Clayton, off Marsh Creek Road and Aspara Drive.
- September 8-14, 2013, Morgan Fire—Burned 3,111 acres southeast of Clayton, off Morgan Territory Road.
- July 1, 2013, Concord Fire—Burned 274 acres in Brentwood, near Concord Avenue and Vineyard parkway.
- July 1, 2013, Kirker Fire—Burned 492 acres south of Pittsburg along Kirker Pass Road.
- December 1-2, 2011, Collier Fire—Burned 198 acres near San Ramon Valley, along Collier Canyon Road and Highland Road.
- August 24-26, 2010, Curry Fire—Burned 375 acres east of Clayton, along Curry Canyon Road and Morgan Territory Road.
- June 11, 2010, Vista Fire—Burned 186 acres east of Walnut Creek (Shell Ridge Recreation Area).

#### **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; with large fires 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.

Wildfire causes shown in CAL FIRE's list of the top 20 deadliest and most destructive California wildfires typically relate to human activity.<sup>3</sup> Causes have included powerlines, human related activities, vehicles and arson.

As a part of its Strategic Fire Plan<sup>4</sup> the Cal Fire Santa Clara Unit (which includes Contra Costa County), tracked wildfire ignitions for the entire year 2017. The Unit experienced 336 fires, 20 of which were over 10 acres in size (6.5%). The ignition causes included:

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<sup>3</sup> Source: [https://www.fire.ca.gov/media/5512/top20\\_deadliest.pdf](https://www.fire.ca.gov/media/5512/top20_deadliest.pdf) and [https://www.fire.ca.gov/media/5511/top20\\_destruction.pdf](https://www.fire.ca.gov/media/5511/top20_destruction.pdf) accessed 8/19/19.

<sup>4</sup> Source: Cal Fire Santa Clara Unit Strategic Fire Plan. Revised July 2018. <https://osfm.fire.ca.gov/media/3121/fpppdf1619.pdf> Accessed 8/19/19.

1. Vehicles (12.8%). Catalytic converter failure and other maintenance issue remain the leading cause of fires caused by vehicles.
2. Electric power (6.5%). Electrical power caused three out of the five largest fires in the unit. There are two distinct types: distribution caused (e.g. power lines and equipment) and generation (e.g. windmills in Altamont Pass).  
  
Note: The co-occurrence of high winds causing downed powerlines or arcing can cause electric power ignitions to have a faster spread than other ignition types that are less correlated to winds (that increase the rates of fire spread).
3. Equipment (14%). One of the contributing factors in this category is the increasing number of people moving out into wildfire prone areas. Many members of the public do not realize that activities that would not have likely caused a fire in an urban environment (e.g. mowing the grass) as very likely to cause fires in WUI areas.
4. Miscellaneous causes (21.7%). This includes causes such as spontaneous combustion, fire ashes, shooting and other causes (such as homeless encampments).
5. Undetermined (34.22%). This cause is utilized when the investigator cannot eliminate additional cause classifications.
6. Arson (5%).
7. Lightening (1%).
8. Illegal campfires and campfire escapes (1%).
9. Debris Fires (<1%).
10. Smoking (1%).
11. Playing with fire (2%).

EBMUD looked at causative agents for fires on its watershed from 1980-1997. Many ignitions were "unknown," but known causes were similar to the CAL FIRE 2017 ignitions: arson, camping and picnic activities, power lines, fireworks, fuel reduction activities, smoking, children, automobiles and rekindles. Lightening cause only 2 out of the 174 fires analyzed. EBRPD did a similar analysis of 1,900 fires over twelve years in Alameda and Contra Costa Counties and reached similar conclusions.

While there has been no specific fire history developed for Contra Costa County, stakeholders and fire personnel familiar with the communities' fire history felt that these causes and patterns could be extrapolated to this area. Two additional ignition sources to consider for Richmond relates to the presence of the railroad and of heavy industry (refineries). However, statistics on frequency of these sources were not available.

#### 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/cafw/](http://www.wrh.noaa.gov/firewx/cafw/)

## 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>5</sup> Twenty-five communities 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 from wildfire or are located in the SRA very high fire hazard severity areas, such as Bollinger Canyon, Briones, Canyon and Diablo, were not included on the 2001 published list. (Note: 2019 legislation recommends an update of this list by the state Fire Marshal)

### **West County**

#### *Incorporated Cities*

El Cerrito

Hercules

Pinole

Richmond

#### *Unincorporated Areas*

Crockett

East Richmond Heights

El Sobrante

Kensington

Rodeo

### **Central County**

#### *Incorporated Cities*

Clayton

Concord

Danville

Lafayette

Martinez

Moraga

Orinda

Pleasant Hill

San Ramon

Walnut Creek

#### *Unincorporated Areas*

Alamo

Blackhawk

### **East County**

#### *Incorporated Cities*

Antioch

Brentwood

Pittsburg

#### *Unincorporated Areas*

West Pittsburg

### **Additional Communities at Risk**

By local jurisdictions or located in SRA Very High Fire Hazard Severity Zones (High or moderate severity zones)

#### *Areas within LRA*

Acalanes Ridge

Alamo

Blackhawk

Canyon

Castle Hill

Diablo

North Gate (high)

Oakley

Rodeo (high)

Rossmoor (part of Walnut Creek)

San Miguel (high)

San Pablo

Shell Ridge (high)

#### *Areas in SRA*

Alhambra Valley

Bethel Island

Bollinger Canyon

Briones

Camino Tassajara

Dougherty Valley (moderate)

Hunsaker Canyon

Marsh Creek - Morgan Territory

Norris Canyon (high)

Port Costa (high)

Reliez Valley (high)

## **Factor 2 – Fuel Hazards**

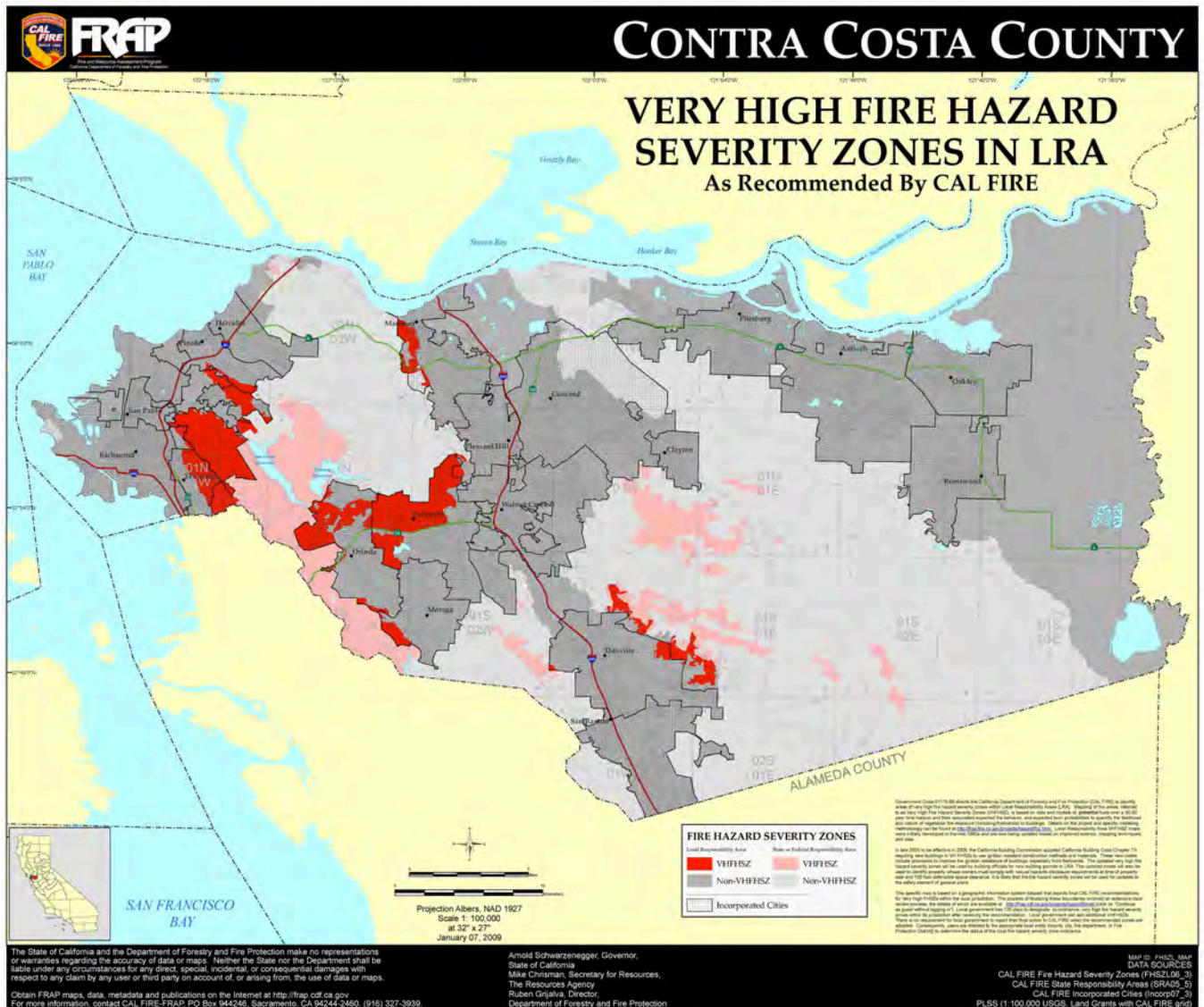
### CAL FIRE Statewide Hazard Assessment Maps.

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:

<sup>5</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)  
<https://www.federalregister.gov/documents/2001/01/04/01-52/urban-wildland-interface-communities-within-the-vicinity-of-federal-lands-that-are-at-high-risk-from> accessed 8/27/19

- 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>6</sup> Note: The wildfire severity zones in the SRAs were originally mapped in 1985 and LRAs in 1996 and have not been updated since. Although, many local governments have made similar designations under their own authority since that date.



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,

<sup>6</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.

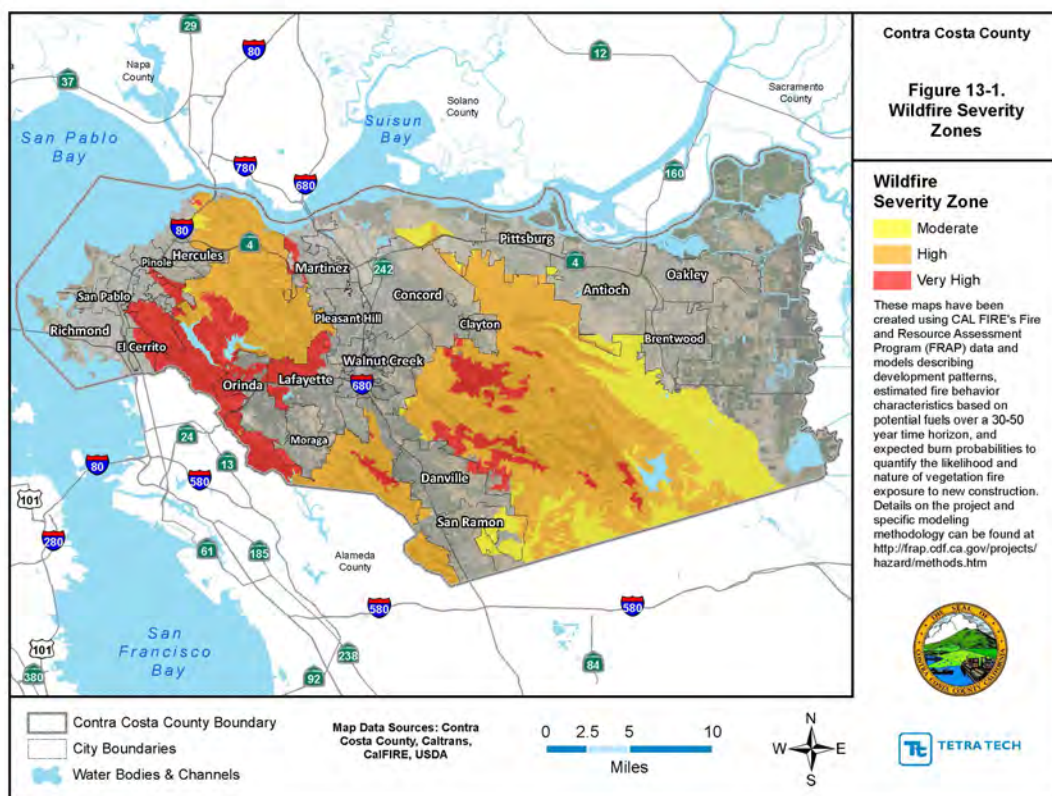


- East County on east side of Mount Diablo

### Local Fire Hazard Assessments and Inspections

Many of the communities in Contra Costa County have identified areas within their jurisdictions that have high fire hazards.

The Contra Costa County Local Hazard Mitigation Plan Figure 13-1 shows wildfire severity zones. Annually municipal fire departments, the Contra Costa County fire district and CAL FIRE staff inspect their designated high fire 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.



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

#### **West County**

##### *Incorporated Cities*

El Cerrito  
Pinole  
Richmond

##### *Unincorporated Areas*

East Richmond Heights  
El Sobrante  
Kensington  
Rodeo

#### **Central County**

##### *Incorporated Cities*

Danville  
Lafayette  
Martinez

Moraga

Orinda

Pleasant Hill

##### *Unincorporated Areas*

Alamo  
Blackhawk

#### **East County**

##### *Incorporated Cities*

none

##### *Unincorporated Areas*

none



Local wildfire hazard assessments also have been done in some open space areas of the county.

- *East Bay Regional Park District's Wildfire Hazard Reduction and Resource 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.<sup>7</sup>
- East Bay Municipal Utility District, also have adopted plans for addressing wildfire hazards on lands they manage including: Fire Management Plan, East Bay Watershed Master Plan and the Low Effect East Bay Habitat Conservation Plan.<sup>8</sup>

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

### 3.2.2. What to Protect

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.

#### 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 Local Hazard Mitigation Plan estimated that a total 25,731 structures (population of 70,747) located within the very high, high and moderate fire hazard severity zones.<sup>9</sup>
- There are a total of 46 critical facilities located within the very high, high and moderate fire hazard severity zones including: 18 protective services, 1 governmental, and 1 hazardous materials facility.
- Schools and colleges. Contra Costa County includes many public and private schools, community colleges, private colleges, public colleges and universities. 25 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.

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<sup>7</sup> Source: [https://www.ebparks.org/about/fire/Fuels\\_Management/](https://www.ebparks.org/about/fire/Fuels_Management/) accessed 8/27/19.

<sup>8</sup> Source: [https://www.ebmud.com/index.php/download\\_file/force/FMP\\_0602\\_1](https://www.ebmud.com/index.php/download_file/force/FMP_0602_1) , <https://www.ebmud.com.EBWMP-2018-FINAL.pdf>, [https://www.ebmud.com.hcp\\_0.pdf](https://www.ebmud.com.hcp_0.pdf) accessed 8/27/19

<sup>9</sup> Source: [http://64.166.146.245/docs/2018/CCCFPD/20180612\\_1115/33997\\_Attachment%20-%20Contra%20County%20Draft%20LHMP%20Final\\_Vol1.pdf](http://64.166.146.245/docs/2018/CCCFPD/20180612_1115/33997_Attachment%20-%20Contra%20County%20Draft%20LHMP%20Final_Vol1.pdf) . Contra Costa County Hazard Mitigation Plan Volume 1 – Planning Area-wide Elements. January 2018. Accessed 7/7/2019.

- Infrastructure. There are a total of 112 critical infrastructure facilities located within the very high, high and moderate fire hazard severity zones. Transportation networks including freeways, roads, BART, railroads that have regional connections and 37 bridges. Utilities such as 500 KW transmission lines that are part of the national electric grid, as well as four power supply facilities are located within the very high, high and moderate fire hazard severity zones. Pipelines for liquid petroleum, gasoline and natural gas and 19 telecommunication networks and public emergency communication systems are also in these zones.

There are also two water providers in Contra Costa County, both with facilities located within the very high, high and moderate fire hazard severity zones.

East Bay Municipal Utility District serves approximately 1.4 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.

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 and three other reservoirs.

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.
- San Ramon Valley Fire Protection District, Moraga Orinda Fire District and Richmond Fire Department have special requirements for new construction in specific areas, as well as inspections to maintain defensible space.

#### **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 repellant (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.<sup>10</sup> 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.

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

The WUI 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.

#### Seismic Activity Considerations

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>11</sup> that could impact access, reliability of water supply and result in potential ignitions from gas or fuel lines following a earthquake. The County also has two hazmat sites located within the high fire hazard severity zone.

### **3.2.3. Protection Capabilities**

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

As identified in Section 1, 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), Contra Costa County Office of The Sheriff Volunteers, Contra Costa Animal Rescue Team, also play critical roles in both preparedness and during response to wildfires.

In November 2015, the County Office of Emergency Services updated their 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>12</sup>.” The EOP covers organization, operations and recovery. It continues to highlight the incident command system and state standardized emergency management system. Supplemental elements include the

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<sup>10</sup> East Contra Costa County Habitat Conservation Plan/Natural Community Conservation Plan, Annual Report 2017. [https://www.contracosta.ca.gov/depart/cd/water/HCP/documents/Annual Reports and YIRs/2017\\_Year in Review.pdf](https://www.contracosta.ca.gov/depart/cd/water/HCP/documents/Annual%20Reports%20and%20YIRs/2017_Year%20in%20Review.pdf). Accessed 7/7/19

<sup>11</sup> Source: <http://quake.abag.ca.gov/earthquakes/contracosta/> Accessed 7/7/2019

<sup>12</sup> Source: <http://www.cocosherriff.org/documents/ESD/CCC%20Emergency%20Operations%20Plan.pdf> accessed 8/8/19.

County's Community Warning System, public information, private sector coordination, volunteers, training and exercises and preparedness.

### 3.3 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 identified in the 2014 and 2019 planning sessions are organized to focus the existing risk and hazard assessments and grouped into 10 categories:

#### 1. Collaborative Partners:

Recommendations related to risk of fire occurrence include working with potential collaborative partners to share ideas including:

- Agency collaboration on regional plan that balances fire and environment and develops best management practices for land management, e.g. 2019 legislation SB38 (Woods).
- Hospitals and health facilities (for preparedness and response for both earthquake and wildfire ignitions).
- Refineries.
- Sharing of data from LIDAR imaging (e.g. PG&E and others).
- Citizen science (to collect information about hazards).
- Changing citizen attitude toward wildfire prevention.
- Use many solutions to wildfire challenges (versus focus on only one).
- Permitting agency collaboration (especially related to CEQA or permit requirements).
- Changing public expectations and perceptions (especially use of prescribed fire).
- School superintendents (both evacuation+ hazards around facilities).

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.

Some of the identified collaborative partners may include: local CERT organizations, 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.

2. Recommendations to address risk of ignitions:

- Focus on identifying specific causes of ignitions in our area and link to solutions.
- Railroad tracks.
- Homeless/ unsheltered (potential for collaboration with those involved with this issue).
- 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:

- Public Safety Power Shutoffs (PSPS) as a new fire weather indicator and method of communicating with the public.
- Wind driven events and hazardous areas. Awareness of hazard conditions – red flag program flags, education, shared responsibility of agencies and residents. National weather service (NOAA Monterey) and remote area weather stations (RAWS).
- Public understanding of how climate change alters local fire risks.
- 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-wide hazards:

- Evacuation is limited and dangerous in many areas. Need for evacuation plans that evaluate many options e.g. shelter in place, temporary refuge, safe passages.
- Early detection/ warning / evacuation. Including: alternative transportation modes (ferries) alternate routes over public lands (e.g. Save Mt. Diablo).
- Distributed County OES (County Sheriffs office) Contra Costa County Residents Guide to Wildfire Preparedness and Evacuation.
- 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:

- Include properties with remote owners or management companies (such as mobile homes, rental properties and homeowner associations).
- Funding for education, cost share for defensible space projects, outreach, information, home hardening etc.
- Education about what defensible space is (Ladder fuels, dry vegetation etc.) and “what should my property look like?”
- 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 budget and staffing restrictions result in complaint response or 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 to support improving structure survivability:

- Offer practical retrofit recommendations (similar to earthquake retrofit). Look for opportunities with recent and new legislation to expand this program.
- Include fences and outdoor structures (materials, design, separation from main structure, etc.).
- Access road standards, turnaround, gates, and other requirements in PRC 4291 and Title 14 to increase fire safety.
- Address the debate about hardening homes and leaving the wildlands alone *versus* treating wildlands only. Support the concept that both homes and wildlands need to play a part in wildfire safety.
- 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 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.

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

- Keep up with current requirements. (Chapter 7A/ CRC 373 building codes, AB2140 Safety Element, CEQA updates, Title 14 regulations Board of Forestry etc.). Recent legislative sessions have been active with new wildfire related laws coming into effect over the next five years.
- Integrate fire safety into local policies, plan review and permits. Help developers and design professionals understand requirements for egress, plant materials etc.
- WUI building standard (Chapter 7A/ R373 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 infill development occurs on previously un-buildable lots and 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:

- Standards for treatments of fuel breaks, open space management etc. 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.
- Land use and land management practices. Large-scale vegetation management, including use of prescribed fire.
- Incorporate citizen science for detailed information.
- National Park Service developing Mt. Wanda Management Plan, Fall 2019.
- Permitting agencies as partners.
- 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.
- 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).
- 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.
- 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:

- Plan around limited capacity of access and egress and transportation routes.
- 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. Many communities are working on evacuation plans for local areas. Reverse 911 community warnings and pre-fire early evacuation. Acknowledge and plan for reluctance to evacuate.
- 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

## 4.1 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.

Sections 4, 5 and 6 of this 2019 Contra Costa County CWPP Update offers specific “Priority Action” recommendations and associated implementation 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 (Cal-IPC California Invasive Plant Inventory <https://www.cal-ipc.org/plants/inventory/>.)

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.

## 4.2 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. Priority Action 1 focuses on exploring partnerships to improve communication.

### **Priority Action 1: Expand Collaborative Partnerships for Public Communications**

Recommendation: Expand collaborative partnerships beyond traditional partners to find common goals related to wildfire safety, employ many solutions, improve public communication and reach multiple audiences.

Implementation Actions:

- Identify partners with supportive missions and develop collaborative partnerships to identify common goals and share information with multiple public audiences.
- Support new collaborative partnerships by expanding existing programs, such as Ready-Set-Go and FIREWISE community efforts.
- Identify program elements that reach across partner interests to reach multiple audiences such as:
  - Preparing your family and home for an evacuation.
  - Existing structures and how homeowners and their contractors can improve their home's ignition resistance, while they reach other goals such as earthquake resilience or energy efficiency. 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.
  - Defensible space guidelines that look like places in Contra Costa County.
  - Guidelines for environmentally sensitive hazardous fuel reduction or where erosion is an issue.
  - Plant specific information (including on "bad plants" and how they should not be planted near windows).

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

Time frame: On-going

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

## 4.3 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 Community 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. Priority Action 2 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 that address evacuation.

## Priority Action 2: Evacuation Planning and Communication

**Recommendation:** Assist community groups develop neighborhood evacuation action plans through collaborations with fire departments, emergency services and other organizations.

### Implementation Actions:

- Coordinate with local planning efforts through fire, law enforcement agencies, Contra Costa Operation Area members, Cal Trans, public works agencies and others ((e.g. Red Cross, CERT, Neighborhood Watch).
- Utilize and expand upon existing adopted emergency plans and awareness programs (Ready Set Go. Firewise. Contra Costa Citizen Guide. Map My Neighborhood)
- Focus on community groups and block level.
- Get residents to sign up for CWS (+Nixel or other systems) and monitor for red flag warnings.
- Support early detection and decision support systems.
- Identify essential supplies to maintain (Go Pack). See Ready Set Go program information.
- Identify people with access and functional needs at the block level.
- Identify primary and secondary evacuation routes.
- Coordinate with CERT members.
- Inform public about pre-designated evacuation shelters or temporary refuge areas.
- Identify and implement physical improvements to the routes as needed (shoulders, parking restrictions, vegetation clearance, signage etc.)
- Tie to general education of wildland urban interface issues.

**Lead and Partners:** Coordinate with fire departments, police departments, as well as other groups that address evacuation training such as CORE/ CERT and Red Cross. Outreach to home owner associations, general public to develop community ambassadors.

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

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

Download at  
[https://www.cccf.org/pdfs/Residents Wildland Fire Guide, County Version -- FINAL -- 7-16-19.pdf](https://www.cccf.org/pdfs/Residents%20Wildland%20Fire%20Guide,%20County%20Version%20--%20FINAL%20--%207-16-19.pdf)



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# Prioritizing Fuel Reduction Treatments

## 5.1 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. Beyond a plan for fire hazard reduction, new residential development needs a 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.

## 5.2 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 adjacent to 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.

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<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.

### 5.3 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 3: Hazardous Fuel Load Reduction Balanced with Biological Resource Protection**

Recommendation: Increase hazardous fuel load reduction balanced with biological resource protection.

- Increase awareness of environmental sensitivities and permitting requirements.
- 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:

- Collect successful examples of hazardous fuel reduction and identify best management practices.
- Collaborate with others who have an understanding of regulations and resources need to be protected. (US Fish and Wildlife, Cal Fish and Wildlife, Contra Costa Resource Conservation District, land trusts, creek/ watershed groups)
- Provide more information regarding environmental sensitivities. (Mapping of sensitive species, botanical expertise on projects, recruitment studies of native plants following treatments; habitat preservation; invasive species; managing, permitting and replanting.)
- Provide information on permits from California Department of Fish and Game and Regional Water Quality Control Board. Partner with watershed groups for removal of riparian vegetation along seasonal or ephemeral creeks.
- Widely disseminate information on best management practices including: appropriate timing of fuels treatment for reducing reproductive viability and survivability of invasive, non-native species, while doing least harm to / improving native habitat values.
- Raise public and private landowner awareness of issues and best management practices.
- 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 4: Defensible Space Programs (Fuel reduction around homes)**

Recommendation: Expand defensible space programs for property owners in high fire hazard areas in Contra Costa County.

Implementation Actions:

- Expand defensible space awareness and education efforts regionally.
- Support defensible space inspections, enforcement and abatement programs with fire agencies throughout the county.
- Provide support programs, such as cost share partnerships, SNAP (*“special needs assistance program”* for people with access and functional needs), chipping programs as incentives for homeowners to create defensible space.
- Work with owners of large parcels to develop hazardous fuel management strategies that create defensible space around their homes and adjacent homes.

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

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

Estimated Funding Need: \$ for outreach materials; \$\$\$\$ for implementation.

## **5.4 Fuel Reduction Treatments and 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 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.



## 5.5 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 and a FEMA led National Environmental Policy Act (NEPA) review for multiple FEMA grants in the region was completed in 2015.<sup>2</sup>

The Contra Costa County Community Protection Plan Update is an advisory document prepared by the Diablo Fire Safe Council in collaboration with public agencies and 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, it 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.

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

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<sup>2</sup> Source: Hazardous Fire Risk Reduction Record of Decision, East Bay Hills, California February <https://www.fema.gov/media-library-data/1425077328244-f71996db45bcd309f185c77a38c0b457/ROD.pdf>. Accessed 8/29/19.

## 2019 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 (CAL FIRE + Delta Crew) for project work.	Ongoing Funded (limited availability)
	Grant programs - California Climate Change Initiative	Ongoing Funded
Caltrans	Maintenance along State highways	Ongoing Funded
Contra Costa County Fire Prevention District (CCCFPD)	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.	Additional funding needed
	Demonstration Garden at Station 10 on Treat Blvd	unfunded
	Education Programs in high priority hazard zone (HPHZ)	Additional funding needed
	Firewise communities	unfunded
	Chipping service in HPHZ	unfunded
Contra Costa Water District	Los Vaqueros Reservoir Watershed fuel reduction	Additional funding needed
	Fire Management Plan	Additional funding needed
Diablo Fire Safe Council (DFSC)	Partners in Wildfire Prevention cost share program (Alameda and Contra Costa) seed fund for hazardous fuel reduction projects + community chipping.	2019-20 grant funds + wait list of projects
	Good to Go! Evacuation action program for four Alameda and Contra Costa communities.	2019-20 grant funds
	Planning for wildfire - CWPP updates for Alameda and Contra Costa County Communities	2019-20 grant funds
	Pathway for a FIREWISE neighborhood - FIREWISE planning and hazardous fuel reduction projects	unfunded
	Retrofit for wildfire. Education and best management practices.	unfunded
East Bay California Native Plant Society	PT Molate: Broom & Eucalyptus removal. With City of Richmond	Additional funding needed
	Pt. Molate: Supervised goat grazing for broom + weedy grasses, eucalyptus removal. Protect exemplary coastal grassland habitat.	Additional funding needed
East Bay Municipal Utility District	Grizzly Peak ridge top 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 (also includes 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 for hazardous fuel reduction projects in Hillside Natural Area.	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.	Additional funding needed
	Collaborate with EBRPD and EBMUD to maintain fuels treatments adjacent to District boundaries, including North Orinda Shaded Fuel Break.	Additional funding needed
	Evacuation and wildfire disaster planning efforts	Additional funding needed
	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	Collaborate with partners to enhance area fire safety	Ongoing Funded
	Mt Wanda Fuel Management Plan	Ongoing Funded
Pacific Gas and Electric	Community Wildfire Safety Program (inspections, hardening system and public power safety shutoffs)	Ongoing Funded
Richmond	Approve Richmond CWPP (annex to Countywide Plan Update) and implement recommendations	Additional funding needed
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.	Ongoing Funded
	Expand the educational outreach to those property owners that are included in the Exterior Hazard Abatement program	Ongoing Funded

Agency or Group	Project or Strategy	Status
San Ramon Valley Fire Protection District (cont)	Update the districts interface maps, to include fuels information, historical weather, and projected fire behavior information.	Ongoing Funded
	Evacuation and wildfire disaster planning efforts. Finalize the districts evacuation maps and plans. Conduct community outreach programs related to this data.	Ongoing Funded
	Conduct initial analysis of the boundary areas between residential neighborhoods and undeveloped areas (Interface Zone) to determine fuel reduction feasibility with cost estimates.	Additional funding needed
	Collaborate with EBRPD, EBMUD, CalFire, State Parks, and additional public and private stake holders who are conducting fuels reduction projects and wildland fire education programs.	Ongoing Funded
	Provide technical assistance to HOA related to fuels reduction and wildfire prevention.	Ongoing Funded
	Continue the yearly maintenance of the 25-miles of fire access roads within the district and evaluate additional areas where fire access roads would assist with fire suppression efforts.	Ongoing Funded
State Parks - Mt Diablo	Collaborate with partners to enhance area fire safety	Additional funding needed
US Fish and Wildlife Service	Wildfire prevention and endangered species management	Additional funding needed
Walnut Creek Open Space (City + Foundation)	Cattle and other wildlife grazing	Ongoing Funded
	Disking 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 insure access for emergency vehicles	Dependent on Fire District Funding
	Use restrictions due to adverse weather conditions	Ongoing Funded
	Defensible space education program	Ongoing Funded
	Remove cut brush or chip in place	Ongoing Funded

# Treatment of Structure Ignitability

## 6.1 Structure 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. California Residential Code (CRC) R327 requires those same codes for residential structures. 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 <https://osfm.fire.ca.gov/divisions/wildfire-prevention-planning-engineering/wildland-hazards-building-codes/>. 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. SB1241, adopted into law in 2012, required that General Plan Safety Elements address the risk of wildfire and that draft plans be reviewed by the California Board of Forestry to ensure they address wildfire.

After the 2017 wildfires, legislation began to introduce new bills calling for retrofit standards and revolving fund to assist homeowners with the cost of the work. The implementation of these new programs has yet to play out.

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.

## 6.2 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 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. For more information on roofing materials <https://www.nfpa.org/-/media/Files/Firewise/Fact-sheets/FirewiseFactSheetsRoofingMaterials.ashx?la=en>. For tips on hiring a roofing contractor <https://disastersafety.org/maintenance/tips-on-hiring-a-roofing-contractor/>.

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. If you use gutter covers make sure they are noncombustible.



## 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.

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<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.



Install window screens. Both plastic-clad fiberglass and metal screening will reduce radiant exposure to the glass and protect against ember entry, but neither will protect against flames. Skylights can be another entry point for embers or flames. For construction materials, placement and other precautions see <https://www.nfpa.org/-/media/Files/Firewise/Fact-sheets/FirewiseFactSheetsSkylights.ashx?la=en>.



## 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. Avoid untreated wood shingle and vinyl siding.

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 attaché 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. Use 1/8' mesh screening over vents. Box in open eaves to create a soffited eave. For more information on under-eave construction see <https://www.nfpa.org/-/media/Files/Firewise/Fact-sheets/FirewiseFactSheetsUnderEaves.ashx?la=en> and [https://www.fema.gov/media-library-data/20130726-1652-20490-2869/fema\\_p\\_737\\_fs\\_6.pdf](https://www.fema.gov/media-library-data/20130726-1652-20490-2869/fema_p_737_fs_6.pdf). For information on attics and crawl space vents see [https://www.fema.gov/media-library-data/20130726-1652-20490-2869/fema\\_p\\_737\\_fs\\_6.pdf](https://www.fema.gov/media-library-data/20130726-1652-20490-2869/fema_p_737_fs_6.pdf).

## 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. More information on wildfire resistance and decks <https://www.nfpa.org/-/media/Files/Firewise/Fact-sheets/FirewiseFactSheetsDecks.ashx?la=en> and for fire spread on ember ignited decks

<https://www.nfpa.org/-/media/Files/Firewise/Fact-sheets/FirewiseFactSheetsEmberIgnitedDecks.ashx?la=en>.

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 on specific products can be searched at the building materials listing at the California State Fire Marshal Building Materials Listing website <https://osfm.fire.ca.gov/divisions/fire-engineering-and-investigations/building-materials-listing/>. In general, large structural members will resist ignition better than small wood boards.

## Fencing

Burning fencing can generate embers and cause direct flame contact to a home. Using noncombustible fencing where it attaches to the building, and within the zero to five-foot noncombustible zone, reduces the opportunity of a burning fence igniting the exterior of the structure. Fencing located should be constructed of noncombustible materials. Fencing products are often available in eight-foot pieces and use of that full section of noncombustible material is recommended.

A fence design that allows for greater air flow makes it more difficult for wind-blown embers to accumulate at plank, or lattice panel to horizontal support locations. If an ignition occurs, it's also more difficult for lateral flame spread to occur in the fencing material. Vinyl fencing is not vulnerable to ember exposures alone, but did burn when subjected to flaming exposures from burning debris. Vinyl fencing will deform if subjected to radiant heat. For more detail on material, installation and maintenance choices see <https://www.nfpa.org/-/media/Files/Firewise/Fact-sheets/FirewiseFactSheetsFencing.ashx?la=en>.

The area at the base of the fence should be kept clear of debris. Flame spread to the building will be more likely if fine vegetative fuels (e.g., pine needles, leaf litter and small twigs) have accumulated. Avoid placement of combustible mulch near the fence.

### PERIMETER FENCING

When neighboring buildings are located within 20 feet of each other, use of steel fencing for the perimeter area can serve as a radiant barrier, providing added protection should a neighboring building ignite and burn. Research in Australia demonstrated the ability of panelized steel fencing to resist a radiant heat exposure.

## 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.

A noncombustible zone from 0-5 feet of the structure minimizes the likelihood of wind-blown embers igniting fine fuels (such as bark mulch) located close to the building. Ember-ignited mulch can result in a radiant heat and/or flaming exposure to the building’s exterior

### **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.

## **6.3 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.

## 6.4 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. In 2018 legislation, AB2911 (Friedman) was passed into law, requiring the Office of the State Fire Marshal create a list of low cost retrofits by January 31, 2020 that provide for comprehensive site and structure fire risk reduction to protect structures from fire risk.

Funding for retrofit of existing structures has been non-existent in the past, though 2019 legislation AB38 Fire Safety (Wood) proposed a \$1 billion revolving loan fund for structure home hardening. Other legislation proposed included General Plan Safety Element updates to include a comprehensive retrofit plan for communities (SB182, Jackson).

### Priority Action **5: Home Hardening**

Recommendation: Develop education and training related to retrofit of existing homes and structures to improve their survivability (home hardening).

- 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 to develop information by 1/31/2020.

Time frame: On-going

Estimated Funding Need: \$\$ for training 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 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 <https://www.iafc.org/topics-and-tools/resources/resource/ibhs-wildfire-checklist>.

<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. Ember accumulation at roof-wall intersection increases risk particularly if combustible siding.	Routinely remove debris 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	Many types of new vents – style and availability vary by region.  Attach screens (1/8" opening). Or prepare solid covers of 1/2" plywood to install prior to evacuation and remove upon return. 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 category 8165 Vents for WUI <a href="https://osfm.fire.ca.gov/divisions/fire-engineering-and-investigations/building-materials-listing/bml-search-building-materials-listing/">https://osfm.fire.ca.gov/divisions/fire-engineering-and-investigations/building-materials-listing/bml-search-building-materials-listing/</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. A variety of designs are available. Devises can result in accumulation of debris on roof behind gutter – so some maintenance may still be required.	\$\$ - \$\$\$

Retrofitting Existing Structures to Increase Wildfire Survivability		
<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
<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  Panelized products have fewer lap joints and considered less vulnerable.	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 stub cavity can be found at category 8140 Exterior Wall Siding and Sheathing for WUI at <a href="https://osfm.fire.ca.gov/divisions/fire-engineering-and-investigations/building-materials-listing/bml-search-building-materials-listing/">https://osfm.fire.ca.gov/divisions/fire-engineering-and-investigations/building-materials-listing/bml-search-building-materials-listing/</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



Retrofitting Existing Structures to Increase Wildfire Survivability		
<b>Garage (detached or attached)</b>		
Garage door	Weather seal the perimeter of garage doors  If open garage, install garage door to help protect combustible materials stored there.	\$ Experienced DIY  \$\$-\$\$\$ Contractor or Experienced DIY
<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 8110 Decking for WUI at <a href="https://osfm.fire.ca.gov/divisions/fire-engineering-and-investigations/building-materials-listing/bml-search-building-materials-listing/">https://osfm.fire.ca.gov/divisions/fire-engineering-and-investigations/building-materials-listing/bml-search-building-materials-listing/</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
<b>Fences – Fences can lead a wildfire directly into you home.</b>		
Fences of combustible material	Replace with a non combustible fence or use non-combustible components such as heavy wire mesh in a wood frame.  Non-combustible fencing (at least a 5-foot span) should be used in locations where the fence is directly attached to the building.	\$-\$\$ Contractor or Experienced DIY
<b>Yard Structures – Any fuel source, decorative or functional within 30 feet of you home.</b>		
Play equipment, firewood, trellises or other yard features that could bring flames to your home.	Combustible structures should be moved 30 to 50 feet away from your home.	\$\$\$-\$\$\$\$ Contractor or Experienced DIY

# Sustaining the Plan

## 7.1 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 5 Prioritizing Fuel Reduction Treatments and of the priority action projects identified in Sections 4, 5 and 6. 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: As a part of their regular planning process at public meeting, 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 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



### **CAL FIRE / Santa Clara Unit STRATEGIC FIRE PLAN**

Revised July 2018



completed in July 2018 <https://osfm.fire.ca.gov/media/3121/fpppdf1619.pdf>. 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.

- County and Local Jurisdictions: Contra Costa County has provided leadership in the development and update of FEMA Local Hazard Mitigation Plan; completed once every 5 years. Local jurisdictions have provided information for the local annexes. The next update is scheduled for 2024.
- Other Partners: **Note: This section to be further developed as the plan is implemented.**

## 7.2 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).)
- 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.

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<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.

### 7.2.1 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?

### 7.2.2 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?

### 7.2.3 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.

## 7.2.4 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 2019 Update Mutual Agreement

This Community Wildfire Protection Plan 2019 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



**DEPARTMENT OF FORESTRY AND FIRE PROTECTION**

15670 Monterey St.  
Morgan Hill, CA 95037  
(408) 779-2121  
Website: [www.fire.ca.gov](http://www.fire.ca.gov)



December 21, 2019

Board of Directors  
Diablo Fire Safe Council  
P.O. Box 18616  
Oakland California 94619

Dear Directors:

We are pleased to support the 2019 Update to the Contra Costa Countywide Community Wildfire Protection Plan (CWPP) to fulfill the standards established by the Federal Healthy Forest Restoration Act (HFRA). The plan will act as a multi-year guiding document that will facilitate implementation of present and future wildfire hazard mitigation measures.

The Community Wildfire Protection Plan developed for Contra Costa County:

- Was collaboratively developed. Interested parties and agencies managing land in the 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.

We mutually agree with the contents of this Community Wildfire Protection Plan.

Yours truly,

Jake Hess, Unit Chief  
Santa Clara Unit of CAL FIRE



## CONTRA COSTA COUNTY FIRE PROTECTION DISTRICT

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December 20, 2019

Board of Directors  
Diablo Fire Safe Council  
P.O. Box 18616  
Oakland, CA 94619

Dear Directors:

We are pleased to support the 2019 Update to the Contra Costa Countywide Community Wildfire Protection Plan (CWPP) to fulfill the standards established by the Federal Healthy Forest Restoration Act (HFRA). The plan will act as a multi-year guiding document that will facilitate implementation of present and future wildfire hazard mitigation measures.

The Community Wildfire Protection Plan was collaboratively developed for Contra Costa County. Interested parties and agencies managing land in Contra Costa County have been consulted.

Additionally, the Plan:

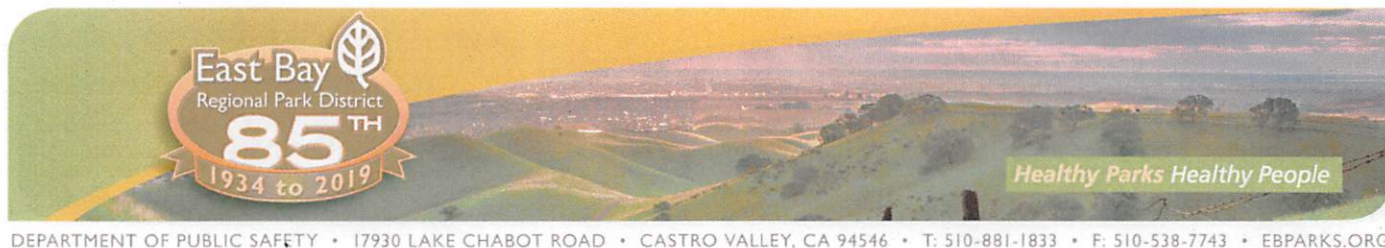
- Identifies and prioritizes areas for hazardous fuels reduction treatments and recommends types and methods of treatments that will protect community members and values at risk; and
- Recommends measures to reduce ignitability of structures throughout the area addressed by the plan.

We mutually agree with the contents of this Community Wildfire Protection Plan.

Sincerely,

A handwritten signature in black ink, appearing to read "L. T. Broschard III", with a stylized flourish at the end.

Lewis T. Broschard III  
Fire Chief



December 5, 2019

Board of Directors  
 Diablo Fire Safe Council  
 P.O. Box 18616  
 Oakland California 94619

Dear Directors:

The East Bay Regional Park District Fire Department is pleased to support the 2019 Update to the Contra Costa Countywide Community Wildfire Protection Plan (CWPP) to fulfill the standards established by the Federal Healthy Forest Restoration Act (HFRA). The plan will act as a multi-year guiding document that will facilitate implementation of present and future wildfire hazard mitigation measures.

The Community Wildfire Protection Plan developed for Contra Costa County:

- Was collaboratively developed. Interested parties and agencies managing land in the 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.

We mutually agree with the contents of this Community Wildfire Protection Plan.

Yours truly,

Aileen Theile, Fire Chief  
 East Bay Regional Park District

Board of Directors

Ayn Wieskamp President Ward 5	Ellen Corbett Vice-President Ward 4	Dee Rosario Treasurer Ward 2	Colin Coffey Secretary Ward 7	Whitney Dotson Ward 1	Dennis Waespi Ward 3	Beverly Lane Ward 6	Robert E. Doyle General Manager
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# EL CERRITO-KENSINGTON FIRE DEPARTMENT

10900 San Pablo Avenue • El Cerrito • CA • 94530

(510) 215-4450 • FAX (510) 232-4917

[www.el-cerrito.org](http://www.el-cerrito.org)



December 5, 2019

Board of Directors  
**Diablo Fire Safe Council**  
P.O. Box 18616  
Oakland California 94619

## **RE: Countywide Community Wildfire Protection Plan**

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Dear Directors:

On behalf of the City of El Cerrito and the Kensington Fire Protection District, I am pleased to support the 2019 Update to the Contra Costa Countywide Community Wildfire Protection Plan (CWPP) to fulfill the standards established by the Federal Healthy Forest Restoration Act (HFRA). This comprehensive plan will act as a multi-year guiding document that will facilitate implementation of present and future wildfire hazard mitigation measures.

The CWPP developed for Contra Costa County:

- Was collaboratively developed.
- The interested parties and agencies who are tasked with managing land in the Contra Costa County were consulted to provide feedback based on their expertise.
- 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.

Our communities have experienced the change in the potential effects of assault from wildland fire and we must embrace what has become the new norm in fire behavior. I agree with and fully support the contents of this Community Wildfire Protection Plan.

Yours truly,

Michael Pigoni  
Fire Chief  
El Cerrito – Kensington Fire Department  
(51) 812-4503



December 5, 2019

Board of Directors  
Diablo Fire Safe Council  
P.O. Box 18616  
Oakland, CA 94619

**VIA USPS MAIL**

Dear Directors:

We are pleased to support the 2019 update to the Contra Costa Countywide Community Wildfire Protection Plan (CWPP) to fulfill the standards established by the Federal Healthy Forest Restoration Act (HFRA). The plan will act as a multi-year guiding document that will facilitate implementation of present and future wildfire hazard mitigation measures.

The Community Wildfire Protection Plan developed for Contra Costa County:

- was collaboratively developed; interested parties and agencies managing land in Contra Costa County have been consulted.
- 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.
- recommends measures to reduce ignitability of structures throughout the area addressed by the plan.

We mutually agree with the contents of this Community Wildfire Protection Plan. If you have questions, please call my office at (510) 287-2023 or email me at [Scott.Hill@ebmud.com](mailto:Scott.Hill@ebmud.com).

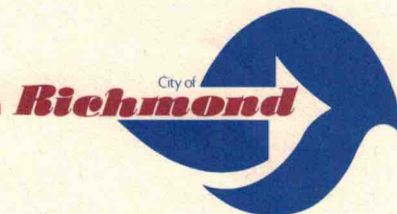
Sincerely,



Scott D. Hill  
Manager of Watershed & Recreation

SDH:cl

RICHMOND FIRE DEPARTMENT



December 5, 2019

Diablo Fire Safe Council  
Attn.: Board of Directors  
P.O. Box 18616  
Oakland, California 94619

Dear Board of Directors:

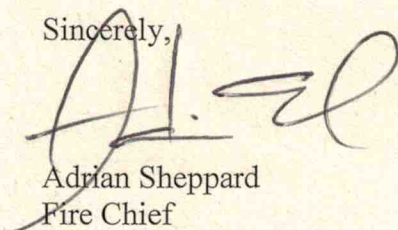
I am pleased to support the 2019 update to the Contra Costa Countywide Community Wildfire Protection Plan (CWPP), which fulfills the standards established by the Federal Healthy Forest Restoration Act (HFRA). The plan acts as a multi-year guiding document to facilitate the implementation of wildfire hazard mitigation measures.

The Contra Costa County Community Wildfire Protection Plan:

- Is a collaborative effort that includes parties and agencies managing land in Contra Costa County.
- Identifies and prioritizes areas for hazardous fuel reduction treatments, and recommends procedures that protect community members and areas of value.
- Recommends measures to reduce the ignitability of structures throughout the area.

I agree with this Community Wildfire Protection Plan.

Sincerely,



Adrian Sheppard  
Fire Chief

AS:dc



# SAN RAMON VALLEY FIRE PROTECTION DISTRICT

Administration  
Phone: 925-838-6600  
Fax: 925-838-6629  
[www.srvfire.ca.gov](http://www.srvfire.ca.gov)

**1500 Bollinger Canyon Road  
San Ramon, California 94583**

Fire Prevention  
Phone: 925-838-6600  
Fax: 925-838-6696  
Inspections: 925-838-6680

December, 5, 2019

To: Board of Directors  
Diablo Fire Safe Council  
P.O. Box 18616  
Oakland, California 94619

From: Paige Meyer, Fire Chief  
San Ramon Valley Fire Protection District (SRVFPD)

The San Ramon Valley FPD is pleased to support the 2019 update to the Contra Costa Countywide Community Wildfire Protection Plan. This plan fulfills the standards established by the Federal Healthy Forest Restoration Act (HFRA). The Community Wildfire Protection Plan will act as a multi-year document to assist with the implementation of wildfire hazard mitigation and wildland fuels reduction projects within the San Ramon Valley Fire Protection District and Contra Costa County.

The Contra Costa Community Wildfire Protection Plan was collaboratively developed by the San Ramon Valley Fire Protection District in conjunction with countywide fire agencies.

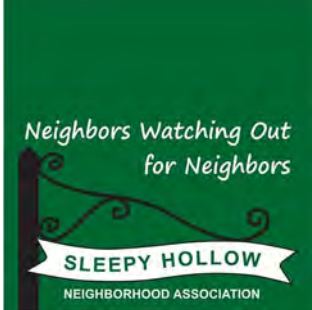
The Contra Costa Community Wildfire Protection Plan identifies and prioritizes areas for hazardous fuels reduction projects and recommends strategies and procedures that will protect the communities served by the San Ramon Valley Fire Protection District and Contra Costa County.

The San Ramon Valley Fire Protection District mutually agrees with the contents of the 2019 version of the Contra Costa Countywide Community Wildfire Protection Plan.

Sincerely,



Paige Meyer  
Fire Chief  
San Ramon Valley Fire Protection District



**SLEEPY HOLLOW NEIGHBORHOOD ASSOCIATION**  
**P.O. Box 172, Orinda, California 94563**

October 3, 2019

Board of Directors  
Diablo Fire Safe Council  
P.O. Box 18616  
Oakland, CA 94619

Dear Directors;

We are pleased to support the 2019 update to the Contra Costa Countywide Community Wildfire Protection Plan (CWPP) to fulfill the standards established by the Federal Health Forest Restoration Act (HFRA). The plan will act as a multi-year guiding document that will facilitate implementation of present and future wildfire hazard mitigation measures.

The Community Wildfire Protection Plan developed for Contra Costa County:

- Was collaboratively developed. Interested parties and agencies managing land in the 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.

We mutually agree with the contents of this Community Wildfire Protection Plan.

Yours truly,

Carol Brovelli

Sara Nelson

Co-presidents  
Sleepy Hollow Neighborhood Association

# Appendix A

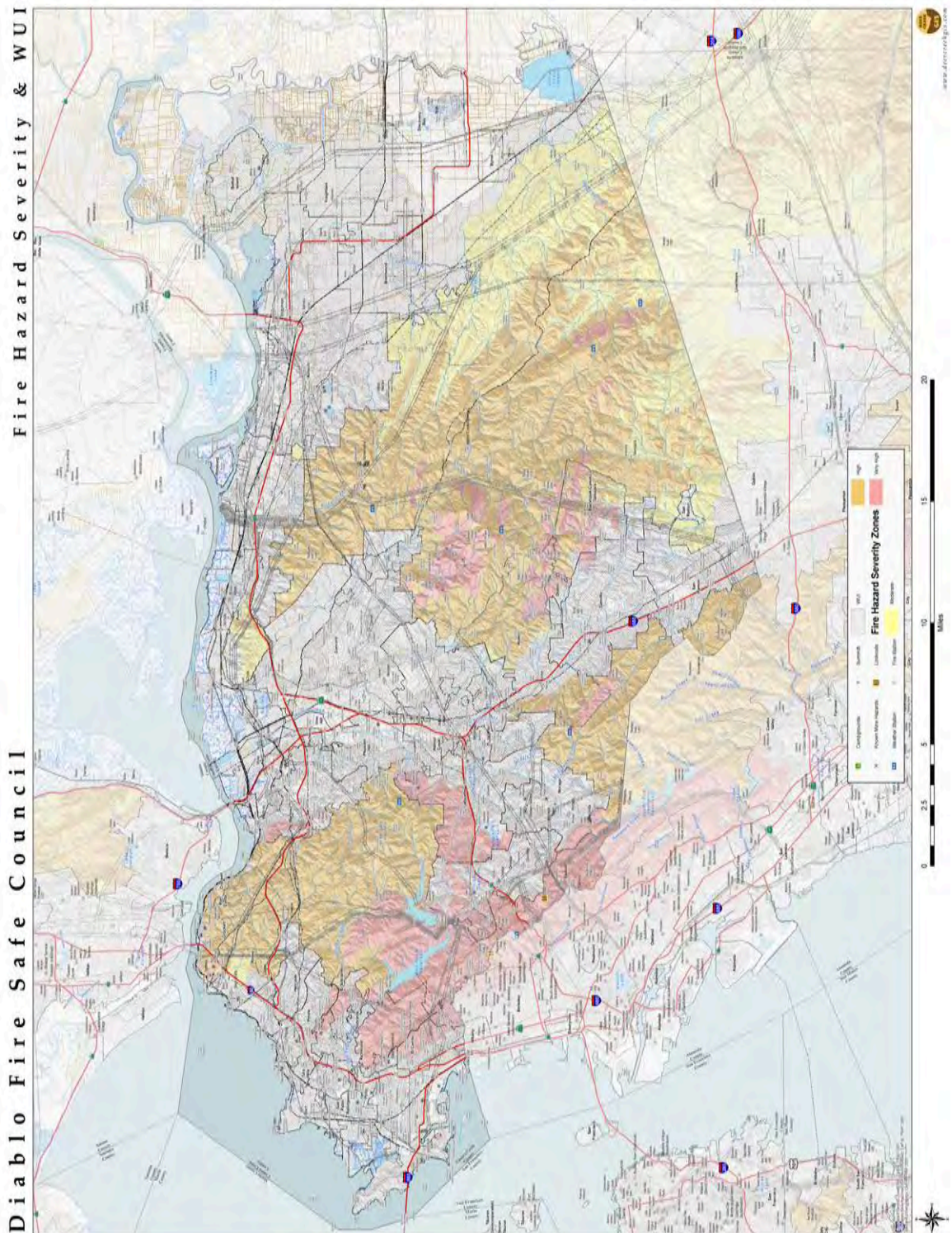
## Acronyms

ABAG	Association of Bay Area Governments
BARxF	Bay Area Prescribed Fire Council
BLM	Bureau of Land Management
CAL FIRE	California Department of Forestry and Fire Protection
CAL IPC	California Invasive Plant Council
CAL OES	California Office of Emergency Services
CAL TRANS	California Department of Transportation
CBC	California Building Code
CCR	California Code of Regulations
CFC	California Fire Code
CRC	California Residential Code
CRSC	California Reference Standards Code
CERT	Community Emergency Response Team
CEQA	California Environmental Quality Act
CCCFPD	Contra Costa County Fire Protection District
CCI	California Climate Investments program
CCMRC	Contra Costa Medical Reserve Corps
CoCoCART	Contra Costa County Animal Rescue Team
CoCo OES	Contra Costa County Office of Emergency Services
CoCo RCD	Contra Costa County Resource Conservation District
CPUC	California Public Utilities Commission
CWPP	Community Wildfire Prevention Plan
CWS	Contra Costa Community Warning System
EBMUD	East Bay Municipal Utility District
EBPCSA	East Bay Regional Communications Systems Authority
EBRPD	East Bay Regional Park District
EOP	Emergency operations plan

FRA	Federal responsibility area (for fire protection)
GHG	green house gas
HCP/ NCCP	Habitat conservation plan / natural community conservation plan
IBHS	Insurance Institute for Business and Home Safety
ICS	Incident command system
LRA	Local responsibility area (for fire protection)
LHMP	local hazard mitigation plan
MTC	Metropolitan Transportation Commission
NEPA	National Environmental Policy Act
NIMS	National incident management system
NOAA NWS	National Oceanic and Atmospheric Association - National Weather Service
NPS	National Park Service
PG&E	Pacific Gas and Electric
PSPS	Public safety power shut off
RACES	Radio amateur civil emergency service
RAWS	Remote automated weather stations
SF RWQCB	San Francisco Regional Water Quality Control Board
SEMS	State (California) emergency management system
SRA	State responsibility area (for fire protection)
USFS	US Forest Service
USFWS	US Fish and Wildlife Service
VHFHSZ	Very high fire hazard severity zone
WCCUSD	West Contra Costa Unified School District
WUI	wildland urban interface

# Appendix B

## Fire Hazard Severity and WUI Area Map





89

Total Responses

Date Created: Tuesday, August 06, 2019

Complete Responses: 89 as of November 18, 2019

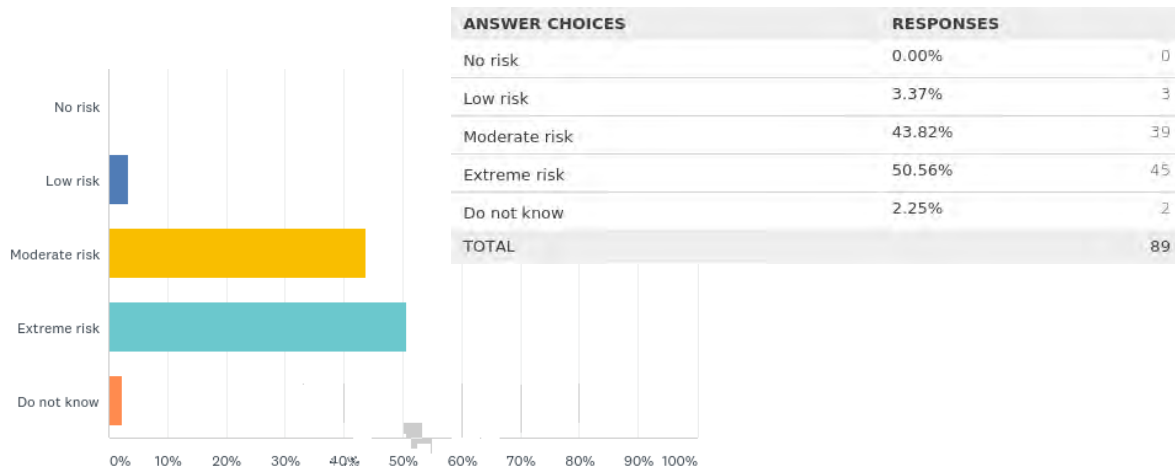
# 2019 Contra Costa CWPP Update Stakeholder Survey – Final Results

Monday, November 18, 2019

Powered by  SurveyMonkey

## Q1: How great a risk do you think wildfire poses to your community

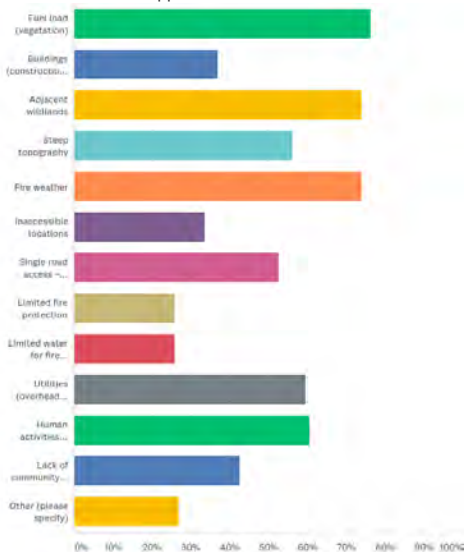
Answered: 89 Skipped: 0

Powered by  SurveyMonkey



## Q2: Check those factors you think add to your neighborhood's risk of wildfire(check as many as applicable)

Answered: 89 Skipped: 0

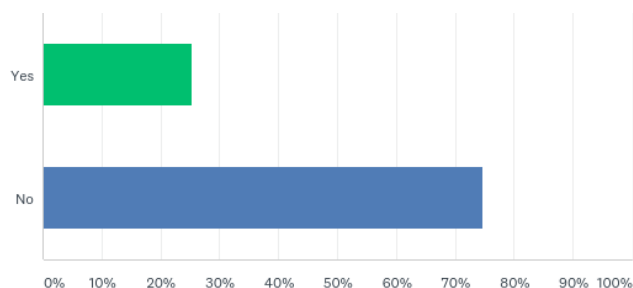


ANSWER CHOICES	RESPONSES	
Fuel load (vegetation)	76.40%	68
Buildings (construction, materials, location or design)	37.08%	33
Adjacent wildlands	74.16%	66
Steep topography	56.18%	50
Fire weather	74.16%	66
Inaccessible locations	33.71%	30
Single road access - limited evacuation routes	52.81%	47
Limited fire protection	25.84%	23
Limited water for fire fighting	25.84%	23
Utilities (overhead electric wires)	59.55%	53
Human activities (potential ignition sources)	60.67%	54
Lack of community preparedness	42.70%	38
Other (please specify)	26.97%	24
Total Respondents: 89		

## Q3: Do you think your neighborhood is currently prepared to deal with wildfire

Answered: 87 Skipped: 2

ANSWER CHOICES	RESPONSES	
Yes	25.29%	22
No	74.71%	65
TOTAL		87

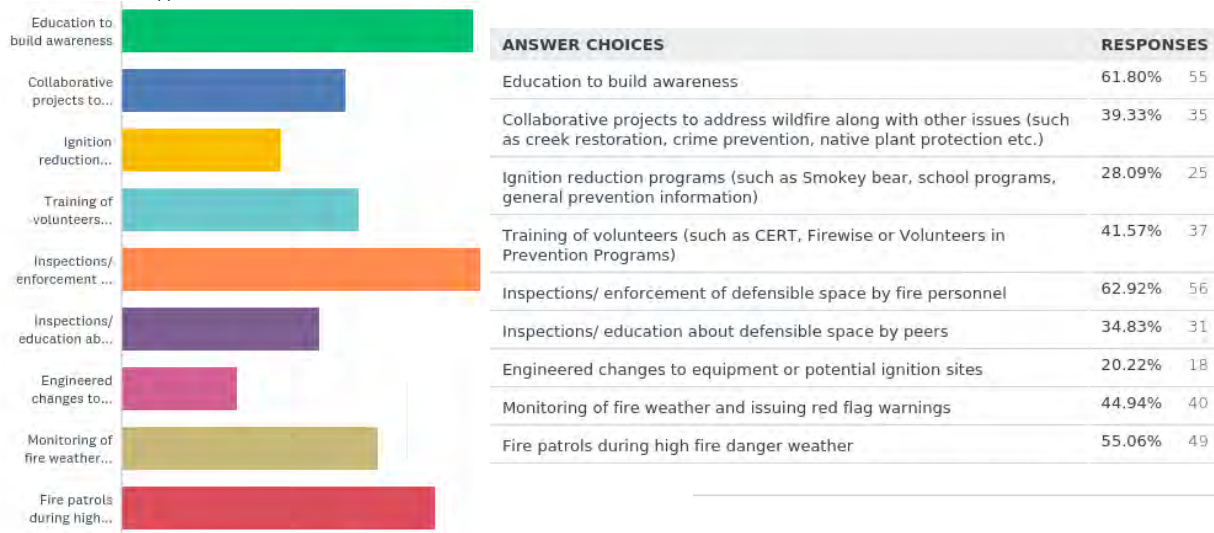


Powered by SurveyMonkey

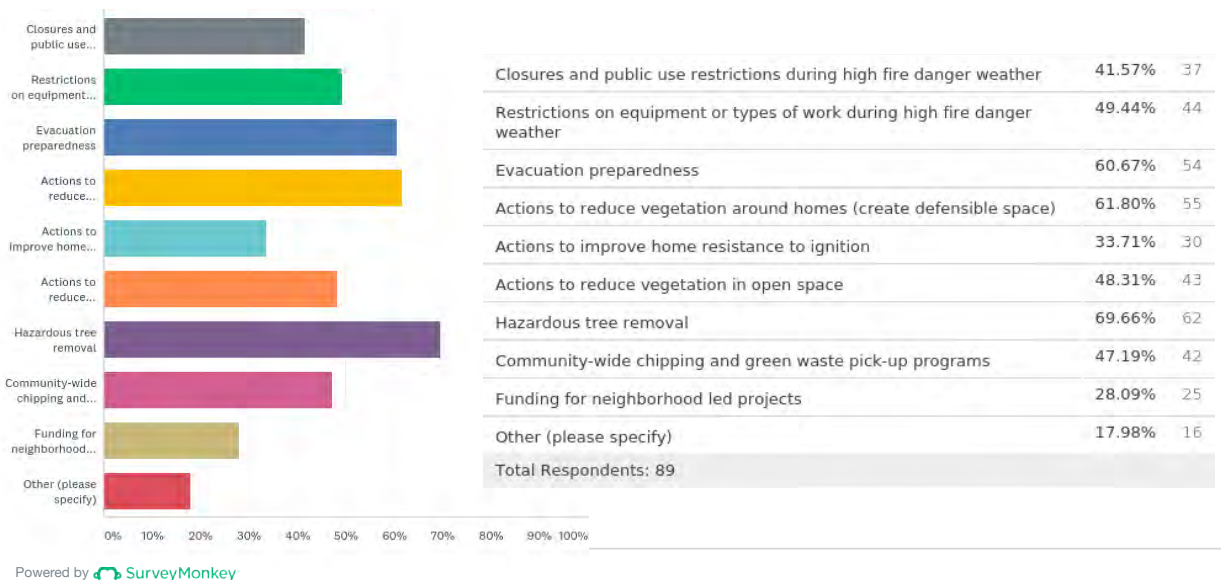
*In updating the Contra Costa County Community Wildfire Protection Plan we are exploring a variety of actions to reduce the risk of wildfire to neighborhoods in Contra Costa County.*

**Q4: Which of the following recommendations do you think would be effective for your neighborhood? Check as many as apply**

Answered: 89 Skipped: 0

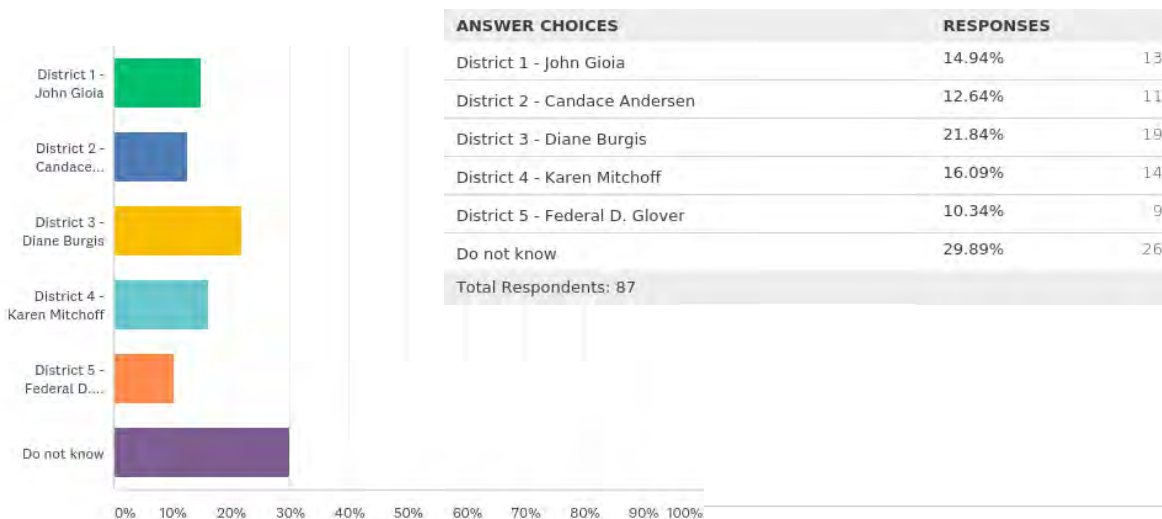


**Q4: Which of the following recommendations do you think would be effective for your neighborhood? (continued)**



### Q5: Select the Contra Costa County Supervisorial District in which you live

Answered: 87 Skipped: 2



### Q6: Select the Fire District or Fire Department that provides service to your home

Answered: 88 Skipped: 1

