

DRAFT

East Bay Regional Park District (EBRPD) Hazard Mitigation Plan (Chapter 7)



February 2017

7.0 Wildland-Urban Interface Fires: DRAFT 2-1-2017

7.1 Introduction

The native vegetation of the East Bay Hills evolved with the presence of occasional wildfires. These wildfires generally promoted the health and regeneration of a mosaic of native grasslands, oak woodlands, and forests (East Bay Regional Park District, 2010). Low intensity and frequent wildfires are generally considered beneficial, leading to an expansion of native grasslands and an increase in the bio-diversity and productivity of chaparral and north coastal scrub ecosystems.

After the arrival of the Europeans, the native vegetation has been substantially and dramatically altered over the last 100 years by human activities that have included livestock grazing, logging, quarrying, road and trail construction, introduction of non-native species (most notably non-native grasses, eucalyptus and pine), and the suppression of wildfires.

In the early 1900s, plantations of eucalyptus and pine were planted for hardwood production and to forest the primarily grass-covered hills in preparation for coming real estate development (East Bay Regional Park District, 2010). As these trees have grown and aged since their initial planting, many of the older pines have begun to fail as they reach the end of their lifespan or are attacked by insect pests or disease (for example, bark beetles and pine pitch canker). The increasing numbers of trees affected by these ailments create an elevated fuel load in the parks. Similarly, eucalyptus trees planted for hardwood production have become dense and flammable woodlands. As the park vegetation ages and less land is grazed or burned

affected by these ailments create an elevated fuel load in the parks. Similarly, eucalyptus trees planted for hardwood production have become dense and flammable woodlands. As the park vegetation ages and less land is grazed or burned by prescribed fire, Park District staff has noted that it is increasingly difficult to cost-effectively manage the vegetation to reduce wildfire hazards.

In 2010, the Park District developed a Wildfire Hazard Reduction and Resource Management Plan that focused on the wildland-urban interface (WUI), the boundary between open space parklands and adjacent residential neighborhoods, between Castro Valley and Richmond. The goal of the plan is to minimize the risk of Diablo wind-driven catastrophic wildfire along the wildland-urban interface while ensuring the protection and enhancement of ecological values and resources within the Park District's jurisdiction. The focus of this chapter is also on WUI fires, as this poses the greatest threat to Park District facilities and parklands located within two highly urban counties of the Bay Area.

7.2 Historical Wildland-Urban Interface Fires

Fire records for the East Bay Hills are incomplete, but historic newspaper articles and old fire planning studies document an active and dangerous fire history for the area going back centuries (East Bay Regional Park District, 2010). Under normal conditions, most fires that start in the East Bay Hills are efficiently controlled by firefighters with no loss of life or structures. During most of the year, temperatures in the East Bay are moderate, and vegetation is relatively moist and fire-safe. Summers bring overnight and morning fog along the hills until around noon, with moist midday winds blowing westerly in from the coast.

However, on occasion, a phenomenon known as “Diablo winds” turns these conditions around. These hot, dry winds blow from the east, often in the early morning when major fires are least expected. They can fan the flames of small sparks into wildfires that have been observed to move down from a ridge top in 30 minutes, expand to one square mile in an hour, and consume hundreds of residences in one day. The few days each year when all of the high fire danger conditions—low humidity, high temperatures, and hot, dry Diablo winds blowing in from the east—are extreme are labeled Red Flag days, and usually occur in the fall months.

During the 75-year period between 1923 and 1998, 11 Diablo wind-driven fires in the Berkeley/Oakland hills burned a total of 9,840 acres, destroyed more than 4,000 homes, took 26 lives, and resulted in over \$2 billion in financial losses. The most significant fire in this period was the October 20, 1991 Tunnel Fire in the Oakland-Berkeley hills, which ranks as one of the worst wildland-urban firestorm disasters to ever strike the United States. The fire resulted in 25 deaths, 150 injuries, and the displacement of over 10,000 persons. With destruction and damage to over 3,400 residential units, losses were in excess of \$1.5 Billion in 1991 dollars (approximately \$2.7 Billion in 2016 dollars).

For this fire, the Park District received 29 grants from the Federal Emergency Management Agency (FEMA) for fire costs, including emergency protective measures and repairs/restoration of parklands and facilities, with total project costs of nearly \$2.5 million. Including costs not eligible for FEMA grants, the total costs to the Park District were likely more than \$3.0 million. Four Park District parks were impacted by this fire: Temescal Regional Recreation Area, Sibley Volcanic Regional Preserve, Claremont Canyon Regional Preserve, and Huckleberry Botanical Regional Preserve. Most of the damage was in the Temescal Regional Recreation Area.

Because the Park District owns and operates hundreds of thousands of acres of open space, including eucalyptus forests in this area, the 1991 Oakland Hills Fire Storm continues to greatly influence Park District planning, mitigation, fire response,

open space, including eucalyptus forests in this area, the 1991 Oakland Hills Fire Storm continues to greatly influence Park District planning, mitigation, fire response, and operational activities.

Table 7.1: significant wildland-urban Interface fires in the Park District’s history.

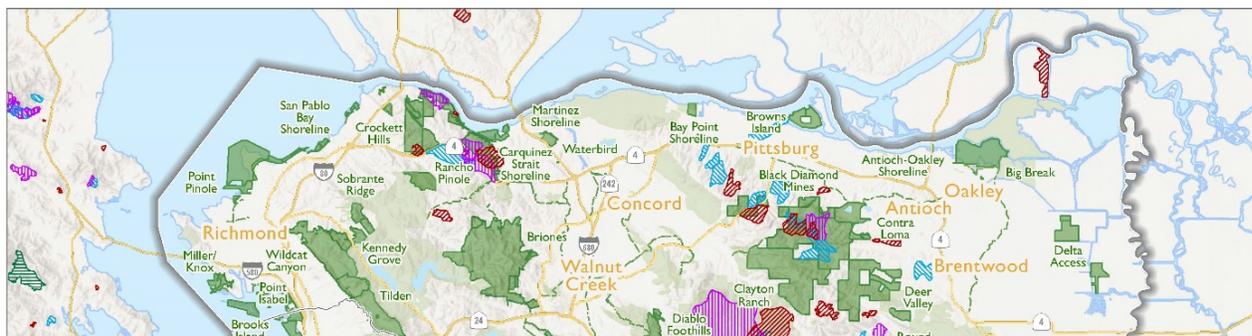
Figure 7.1: major historical wildfire perimeters for wildfires occurring between 1950 and 2014 within the Park District service area.

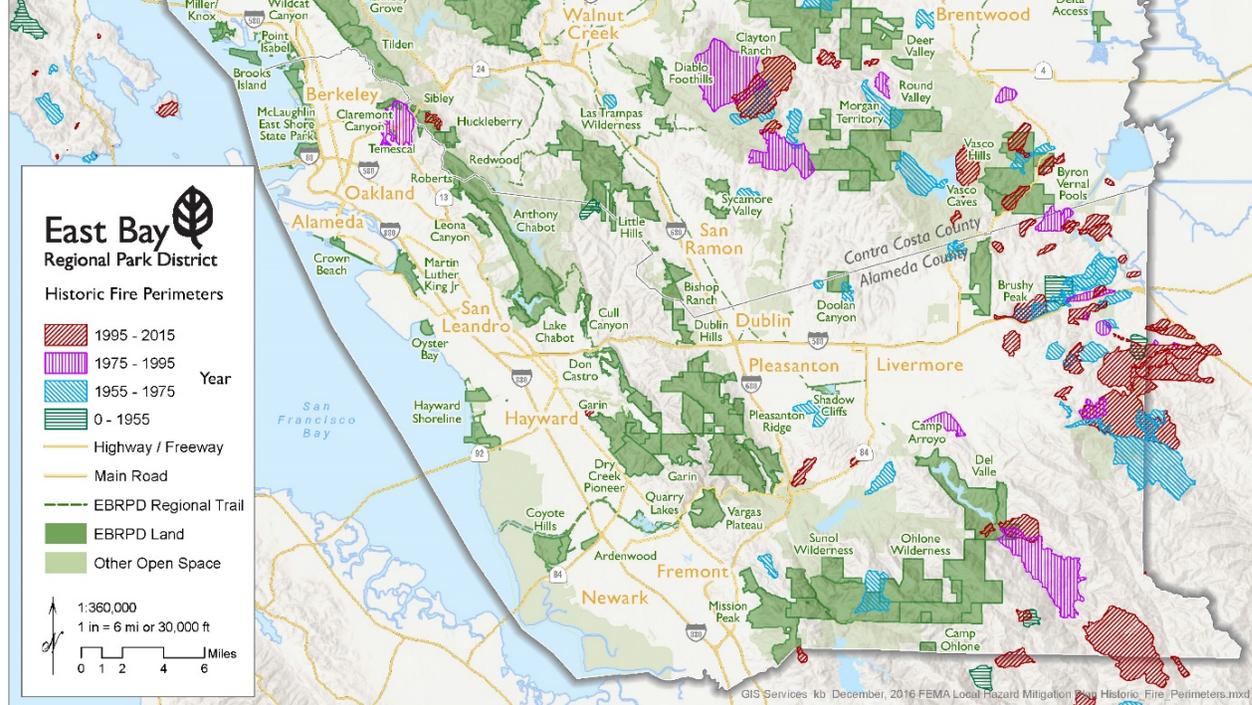
Table 7.1 of Major Wildland-Urban Interface Fires within the Park District

Historical fires within Park District jurisdiction before its creation					
September 1923	North of UC Berkeley Campus	Berkeley	584 homes, 130 acres	Smoker	Diablo wind
June 1929	Lake Temescal	Oakland	300 acres grassland	Unknown	West wind
November 1931	Leona	Oakland	5 homes, 1800 acres	Unknown	Diablo wind
November 1933	Redwood/Joaquin Miller	Oakland	1 life, 5 homes, 1000 acres	Smoker	Diablo wind
Historical fires within Park District jurisdiction since its creation					
September 1937	Broadway Terrace	Oakland	4 homes, 700 acres	Backyard fire	West wind
September 1940	Broadway Terrace	Oakland	30 acres	Unknown	West wind
September 1946	Buckingham/Norfolk	Oakland/Berkeley	1,000 acres	Arson and rekindle	Diablo wind
November 1955	Montclair	Oakland	10 acres	Unknown	West wind
October 1960	Leona	Oakland	2 homes, 1,200 acres	Unknown	Diablo wind
November 1961	Tilden, Briones, Roberts, and Chabot	Berkeley, Martinez, Oakland, Castro Valley	4 fires, 400 acres	Arson	South-west wind
October 1968	Oak Knoll	Oakland	204 acres	Unknown	West wind
September 1970	Fish Canyon Fire	Oakland	37 homes destroyed, 21 homes damaged, 204 acres	Arson	Diablo wind
December 1980	Wildcat Canyon Fire	Berkeley	5 homes, 2 acres	Power line	Diablo wind
October 1990	Leona	Oakland	200 acres	Vehicle accident	West wind
October 1991	Tunnel Fire	Oakland/Berkeley	25 lives, 3,354 homes, 456 apartments, 1,600 acres	Rekindle	Diablo wind

Source: (Diablo Fire Safe Council, 2015) (City of Berkeley, 2014)

Figure 7.1 Fire Perimeters





Source: CalFire, 2014

As shown above, most of the major historical wildland fires have been in the eastern part of the Park District. However, because most of the high density development in high fire risk areas is in the East Bay Hills, the fire risk to people and property is highest in the East Bay Hills.

7.3 Probability of Future Wildland/Urban Interface Fires

The threat of catastrophic wildfires under Diablo wind conditions presents significant risks to public health and safety, homes, and property along the wildland-urban interface (East Bay Regional Park District, 2010). The hot and dry periods of late summer and fall in the Bay Area, the steep topography of the East Bay Hills, seasonal wind patterns, flammable vegetation, dense development patterns adjacent to parklands, and limited firefighting access all contribute to creating a substantial regional fire threat. The continued increase in development along the wildland-urban interface and sustained development of communities in and adjacent to open space areas also put an increasing number of people at risk from wildfires. Beginning in the early 2000s, residential losses in California from wildfire dramatically changed and further demonstrated the increasing risks from wildfires. For the 80-year period between 1923 and 2003, major fires resulted in the loss of 13,600 homes, 73 percent (11,055 homes) of which were destroyed between 1990 and 2003 alone (East Bay Regional Park District, 2010).

The ongoing serious drought has exacerbated and continues to exacerbate the risk of major wildland/urban interface fires in or near the Park District's lands.

Key factors concerning why the 1991 Oakland-Berkeley Firestorm burned so many acres and homes before being extinguished still exist today (East Bay Regional Park District, 2010):

- Major increases in flammable vegetation over the past 70 years have significantly increased wildfire risks. Steep hillsides have been converted from grazed grasslands to brush with hillside and ridge top homes surrounded by flammable vegetation, which is often under or adjacent to groves of unmaintained pine or eucalyptus.
- Unmaintained eucalyptus and pine groves on both private and public lands, especially on ridgetops, represent a serious crown fire and spotting threat to

- Unmaintained eucalyptus and pine groves on both private and public lands, especially on ridgetops, represent a serious crown fire and spotting threat to adjacent residential land uses.
- Unmaintained native brush and invasive, exotic species often cover, without interruption, several canyon areas and slopes above and below many East Bay Hills residential neighborhoods.
- Diablo wind fires under the worst conditions of high wind speed, low humidity, and high temperature move so quickly that positioning fire crews and obtaining air support for rapid containment and control might not be possible given current fuel levels.
- It is impossible for fire agencies to quickly extinguish all Diablo wind fires. Several areas in the East Bay Hills can produce flame fronts that cannot be controlled using water from hydrants, fire engines, helicopter buckets, or retardant drops from airplanes until late in the afternoon when the winds have slowed.

7.4 Wildland and Wildland-Urban Fire Hazard Mapping and Hazard Assessment

The level of fire hazard for wildland-urban interface fires depends on:

- Vegetative fuel load,
- Topography,
- Climate and weather conditions,
- Ignition sources and frequency of fire ignitions, and
- Fire suppression resources (fire agency response time and resources of crews and apparatus, access, and water supplies).

High vegetative fuel loads, especially brush and trees, increase the level of wildland-urban fire hazard. Steep topography increases the level of fire risk by exacerbating fire spread and impeding fire suppression efforts by making access more difficult. The level of hazard in areas prone to wildland-urban interface fires is also substantially increased when weather conditions including high temperatures, low humidity, and high winds greatly accelerate the spread of wildland fires and make containment difficult or impossible.

Climate change is resulting in higher temperatures and longer dry periods over a longer fire seasons, as well as changes in vegetation. These continuing climate changes have led and will continue to lead to an increase in the frequency of wildfires, exacerbate their intensity and rate of spread. Given these factors, future losses from wildland fires are likely to be greater than those in the past.

The California Department of Forestry and Fire Protection (CalFire) maps areas of significant fire hazards (fire hazard severity zones) based on fuels, terrain, weather (temperature, humidity, and wind). These maps represent the likelihood of an area burning over a 30- to 50-year time period.

Figures 7.2 and 7.3 depict the areas within Alameda and Contra Costa Counties that are Federal, State and Local responsibility areas for fire protection.

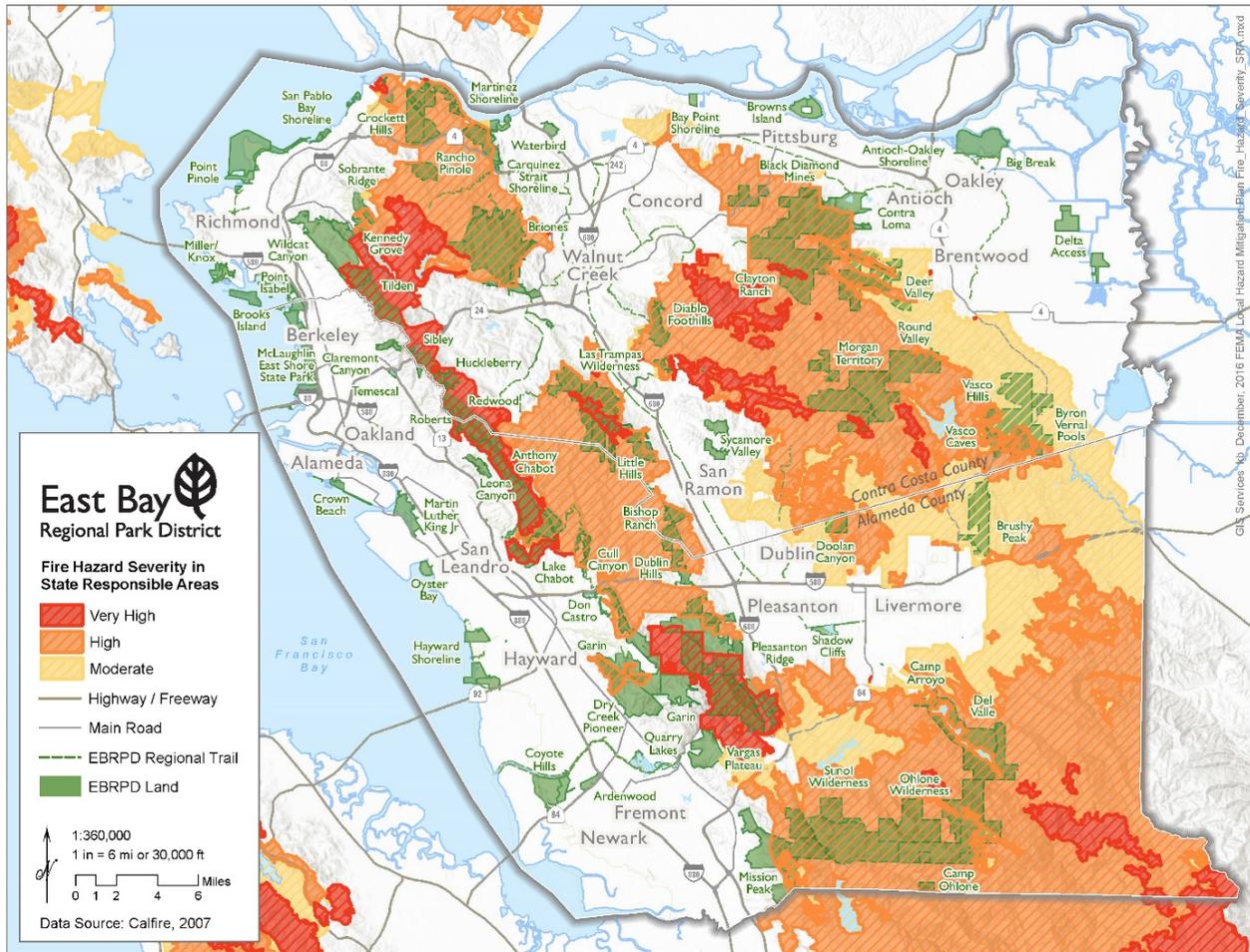
Under designation by the State of California, Park District lands within the wildland-urban interface are predominately State Responsibility Areas (SRAs) for fire protection. CalFire has the legal responsibility to provide fire protection on all SRA lands. Fire hazard severity within SRAs is shown on Figure 7.2.

protection. The map shows fire hazard severity within SRAs is shown on Figure 7.2.

Some areas, such as Point Pinole Regional Shoreline, Wildcat Canyon Regional Park, Claremont Canyon Regional Preserve, Leona Canyon Regional Open Space Preserve and land immediately northwest of Lake Chabot Regional Park, are designated as Local Responsibility Areas (LRAs). Local fire jurisdictions, such as the Richmond, Berkeley, or Oakland Fire Departments, have the legal responsibility to provide fire protection on LRA lands.

In coordination with these firefighting agencies, the Park District Fire Department provides a strong secondary wildland fire response in support of CalFire on SRAs and to the local fire departments on LRAs. In actuality, the Park District fire suppression resources are often the first “on scene” to parkland fires, and many times are the only resources used (East Bay Regional Park District, 2010).

Figure 7.2: Fire Hazard Severity in State Responsibility Areas

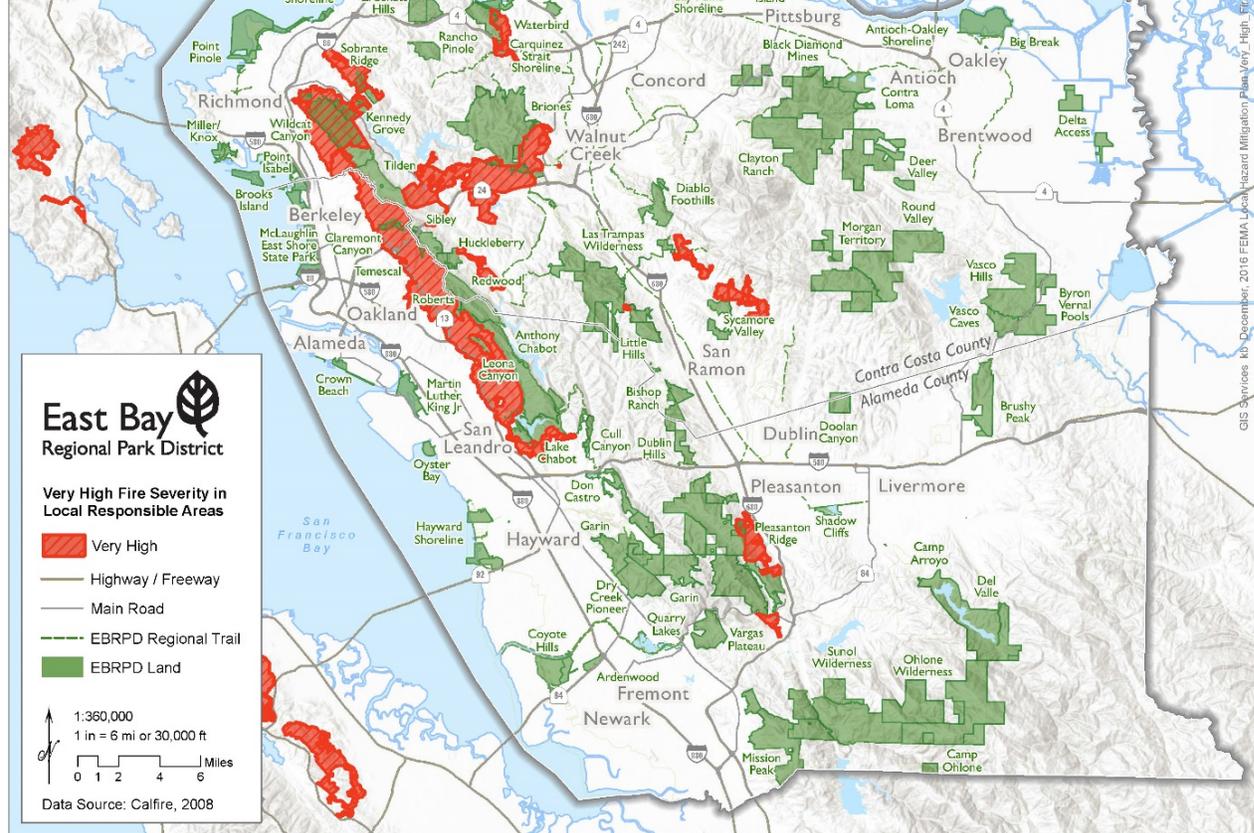


Source: CalFire, 2014

Figure 7.3 maps very high fire severity in LRAs. CalFire does not map lower levels of fire hazard severity in local responsibility areas.

Figure 7.3: Very High Fire Severity in Local Responsibility Areas





Source: CalFire, 2008

The Park District has 27 parks that are entirely or partially designated as High or Very High fire severity areas within local or state fire responsibility areas:

- Anthony Chabot Regional Park
- Black Diamond Mines Regional Preserve
- Briones Regional Park
- Camp Arroyo
- Camp Ahone
- Carquinez Strait Regional Shoreline
- Castle Rock Regional Recreation Area
- Claremont Canyon Regional Preserve
- Crockett Hills Regional Park
- Del Valle Regional Park
- Diablo Foothills Regional Park
- Garin/dry Creek Pioneer Regional Parks
- Huckleberry Botanic Regional Preserve
- Kennedy Grove Regional Recreation Area
- Lake Chabot Regional Park
- Las Trampas Regional Wilderness
- Mission Peak Regional Preserve
- Morgan Territory Regional Preserve
- Pleasanton Ridge Regional Park
- Redwood Regional Park
- Roberts Regional Recreation Area

- Redwood Regional Park
- Roberts Regional Recreation Area
- Sibley Volcanic Regional Preserve
- Sunol Regional Wilderness
- Temescal Regional Recreation Area
- Tilden Regional Park
- Vasco Caves Regional Park
- Wildcat Canyon Regional Park

7.5 East Bay Regional Park District Wildfire Hazard Reduction and Resource Management Plan (2010)

In 2010, The Park District undertook a resource inventory and wildfire hazard assessment to identify wildfire hazards located within the wildland-urban interface and in the vicinity of strategic fire routes and Park District facilities at risk (East Bay Regional Park District, 2010). The assessment was done using a fire behavior prediction model. Fires were modeled under Diablo wind conditions with extremely hot, dry weather to assess worst-case hazards. This wildfire study encompassed 13 parks along the East Bay Hills where the wildland/urban interface fire risk is especially high.

The Park District “facilities at risk” are facilities located on Park District parklands that are considered highly valuable, including structures and other physical improvements; natural and cultural resources; community infrastructure; and economic, environmental, and social values for which the wildland fire protection system is created and funded to protect. Some of these facilities are considered to be “irreplaceable”, for example the Tilden Merry-Go-Round, the Temescal Bath House, and the Chabot Equestrian Center. Table III-1 in the Wildfire Hazard Reduction and Resource Management Plan displays those facilities at risk identified by Park District staff, their respective park locations, and the treatment area in which they are located, if applicable.

Park District staff also identified and mapped strategic fire routes to facilitate and support wildfire response and emergency access as well as evacuation during an emergency incident. Strategic fire routes primarily include those roadways and trails on Park District lands, including unpaved roads and trails within the parks as well as some paved roads that connect and pass through parks.

The following areas are identified on the wildfire hazard assessment map:

- Parklands located within 200 feet of homes and other structures
- Locations of stands that represent significant threats from torching and crown fires that can cause ember flight
- Areas of vegetation with the potential to produce greater than 8-foot flame lengths
- Lands within 200 feet of Park District facilities at risk.

As part of the wildfire hazard assessment, the Park District and its consultant team also conducted a thorough delineation and decision process to identify and characterize recommended treatment areas as either an “Initial Treatment Area” or a “Maintenance Area”. These areas are further discussed and mapped in the Wildfire Hazard Reduction and Resource Management Plan. Figure 7.4 shows the study areas included in this plan.

District's service area and the Park District lands that are within high or very high fire severity areas.

The Park District's wildland/urban interface fire risk is two-fold:

- Risk to the Park District's lands, buildings, and infrastructure, and
- Risk to adjacent lands, especially adjacent lands with high density development.

The level of risk from wildland-urban interface fires for the Park District's buildings, infrastructure, and lands depends on:

- Level of fire hazard as outlined above,
- Environmental importance of the Park District's lands,
- Value and importance of buildings and infrastructure,
- Vulnerability of inventory at risk, including whether fire-safe construction practices and defensible space measures have been implemented, and
- Population at risk and the efficacy of evacuations.

Life safety risk in wildland-urban interface fires arises in large part from delays in evacuations, once a fire has started. For park facilities with significant risk from wildland-urban interface fires, a well-defined, practical and practiced evacuation plan is essential to minimize potential life safety risk.

Under "normal" conditions—without unusually high temperatures, unusually low humidity and high winds—the vast majority of wildland or wildland/urban interface fires are extinguished quickly. The burned acreage is typically small from a fraction of an acre to a few tens of acres. Damage to structures is most often nil. If structures are damaged, the damage is typically limited to one structure for a small number of structures. Life safety risk is minimal, if any. For these "typical" wildland or wildland/urban interface fires the total environmental impacts and property damage are minor.

However, much larger fires with much greater impacts have occurred in the past and will occur again in the future, especially under Diablo wind conditions. The 1991 Tunnel Fire in the Oakland-Berkeley hills burned about 1,500 acres (about 2.5 square miles) of mostly residential areas, with the destruction of about 3,400 buildings, with damages of about \$2.7 billion in 2016 dollars) and 25 deaths.

This catastrophic fire was the most severe fire experienced to date within the Park District's service area of Alameda and Contra Costa Counties. Nevertheless, even larger, more destructive fires are possible.

There are factors which suggest that the fire risk might be higher in future decades than in the past several decades, including:

- The ongoing drought,
- Climate change, which will likely increase the number of days with unusually high temperatures (relative to historical temperatures),
- The regrowth of vegetation from past levels.

The photos below from the Wildfire Hazard Reduction and Resource Management Plan show Wildcat Ridge in 1971 and 2004.

Figure 7.5 Wildcat Ridge Vegetation: 1971 and 2004





Various factors have influenced a vegetative change in the East Bay Hills leading to increased plant densities and fuel volumes in many areas, such as along Wildcat Ridge.

There are also factors that have reduced wildland and wildland/urban interface fire risk, including:

- Fuel reduction and defensible space measures implemented by the Park District, Alameda and Contra Costa counties, cities, and other agencies throughout the two counties.
- Greater awareness, understanding, and modeling of wildland fires that have improved planning for and responses to fire ignitions.
- Gradually improved fire suppression resources and techniques.

The extent to which factors that increase or reduce wildland and wildland/urban interface fire is very difficult to estimate. However, ongoing climate change and limited resources for fire mitigation activities might tip the balance towards increasing fire risk over the next several decades.

7.6.2 Fire Risk for the Park District

Wildland fires can affect any of the park lands. As noted previously, the acreage burned in a fire can range from a fraction of an acre to hundreds or thousands of acres. The severity of consequences depends not only on the size of a given fire but also what vegetation is burned. For example, grassy areas burned might regenerate in a year or two, while forest areas severely burned might take many years to regenerate. The severity of consequences for a given fire also depends on the extent to which environmentally sensitive areas are burned. The Park District's current Wildfire Hazard Reduction and Resource Management Plan includes consideration of such factors.

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Fire risk for the Park District also includes risk to its facilities, including buildings, bridges (especially wood bridges), and infrastructure. Even for very large fires with more acres burned than the 1991 Tunnel Fire, any given fire will impact only a limited number of parks. That is, a District-wide fire is outside the bounds of possibility.

As previously discussed, the repair/restoration costs for the 1991 Tunnel Fire were \$3 million. In 2016 dollars, this amount would correspond to nearly \$6 million.

Based on the fire history, the majority of fires within the Park District would have repair/restoration costs well below \$1 million. Large or very large fires would have repair/restoration costs of several million dollars. Only truly extreme fires could have repair restoration costs of \$10 million or more.

The Park District considers the Headquarters Building, the two Corporate Yard facilities, the seven Visitor Centers/Education Facilities, and three historic buildings (Temescal Beach House, Tilden Carousel and Brazil Room) to be critical buildings based on operational, emergency response or historic criteria.

Of the thirteen District-identified critical facilities, twelve are located in the East Bay Hills, and these sites have a high or very high risk level for wildland/urban interface fires. . The exception is the Big Break Visitor Center that is located in far eastern Contra Costa County, a location with lower wildland fire hazard.

7.7 Mitigation Action Items for Wildland-Urban Interface Fires

7.7.1 Mitigation Goals

The four key wildfire reduction and resource management goals identified in the Wildfire Hazard Reduction and Resource Management Plan are:

- Reduce fire risks on District-owned lands in the East Bay's wildland-urban interface to an acceptable level
- Maintain and enhance ecological values for plant and wildlife habitat consistent with fire reduction goals
- Preserve aesthetic landscape values for park users and neighboring communities
- Provide a vegetation management plan that is cost-effective and both financially and environmentally sustainable for the Park District on an on-going basis.

The most common mitigation measures to address these goals include:

- Defensible space activities,
- Hazardous fuel reduction activities, and
- Ignition resistant construction activities.

7.7.2 Existing Ongoing Mitigation Activities

The Park District is a major participant in wildfire hazard reduction programs, especially in the Oakland-Berkeley hills (East Bay Regional Parks Department, 2013). To provide its firefighting and fuels management services, the Park District has a crew of full-time firefighters and fully-trained employee volunteer firefighters who serve on-call in addition to their other jobs. The Park District also employs Civicorp youth crews and County Correctional Department work crews to perform fuels management work.

Civilian youth crews and County Correctional Department work crews to perform fuels management work.

To help slow the spread of wildfire, the Park District long ago established a fuel break through the East Bay hills between Castro Valley and Richmond. This area is composed of thinned vegetation between parklands and homes, intended to both slow the advance of fire and give firefighters a place to make a stand.

To maintain the fuel break, the Park District uses methods including brush clearing by hand, tree removal by heavy equipment, and prescribed fire under careful control. Conservation grazing has also proved to be an effective technique. Livestock such as sheep, goats, or cattle are seasonally introduced onto Park District property and managed to control plant growth. Cattle conservation grazing, which takes place in about 60 percent of the regional parklands, has a collateral benefit of reducing fire loads.

The Park District's fuels management activities have been ongoing since its inception in 1934, funded largely from the Park District's operating budget and various fire hazard mitigation grants under the Federal Emergency Management Agency (FEMA) and other agencies. In November 2004, voters in western Contra Costa and Alameda Counties approved Measure CC, a parcel tax that provided \$9 million in funding for create a Wildfire Hazard Reduction Plan and continue fuels management activities in the East Bay Hills.

In 2010, the District Board of Directors approved a Wildfire Hazard Reduction and Resource Management Plan (Fuels Plan). The Fuels Plan is specifically directed at the wildland-urban interface between Castro Valley and Richmond.

With a combination of Park District and external funds (such as FEMA grants) some of the high priority fuel reduction projects outlined in the Fuels Plan are either completed or included in the 2016 Capital Improvement Plan. However, there are still approximately 1,550 acres identified in the Fuels Plan that remain untreated. Completing the fuel reduction measures for the remaining 1,550 acres is a high priority for the Park District and will be completed as funding becomes available.

As part of the 2016/2017 mitigation planning process, the Park District is in-process of identifying high priority sites for future fuel reduction projects in high or very high fire severity locations in close proximity to high density development, based on:

- Building inventory data and
- Fire behavior prediction based on the USGS Landfire data that portrays vegetative fuels both inside and outside the Park District's boundaries, including flame lengths, rate of fire spread, crown fire potential, and maximum ember (spotting) distribution distance.

7.7.3 Updated Mitigation Action Items

The Park District's mitigation action items for wildland-urban interface fires are shown in the table on the following page. All of these action items are compatible with and support the goals in the Fuels Plan.

Table 7.2: Wildland-Urban Interface Fire Mitigation Action Items

			Funds	Compatible	Plan
					Year

Hazard	Action Item	Timeline	Source of Funds	Responsible Department	Life Safety
Wildland/Urban Interface Fire Mitigation Action Items					
Short-Term #1	Complete the remaining fuel reduction projects identified in the Fuels Plan, as funding becomes available.	Ongoing	District	Fire	X
Short-Term #2	Continue to review and refine the Park District's fuels reduction strategies to maximize the reduction in fire risk, while minimizing possible negative impacts on the natural environment.	1 Year	District	Fire	X
Short-Term #3	Review and refine emergency response and evacuation planning for locations with high risk for wildland and/or wildland/urban interface fires.	1 Year	District	Fire	X
Short-Term #4	Expand the Park District's existing Fuels Plan Park to other high wildland fire risk areas.	Ongoing	District	Fire	X
Long-Term #1	Pursue additional grants for fuels management and other fire risk reduction projects from FEMA and other agencies including Calfire, US Forest Service and California Fire Safe Council.	Ongoing	District	Grants	X
Long-Term #2	Evaluate and implement mitigation measures to reduce fire risk, including enhancing defensible space around buildings, fuel reduction measures near important facilities and upgrading building elements with materials designed to be fire-resistant, as funding becomes available.	Ongoing	District or Grants	Fire	X
Long-Term #3	Continue and expand the Park District's hazardous tree abatement programs as funding becomes available.	Ongoing	District or Grants	Operations	X
Long-Term #4	Locate new facilities outside of areas with significant wildland/urban interface fire risk, whenever possible.	Ongoing	District or Grants	Design	X

7-19

7.8 References

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7-19

