

I. INTRODUCTION

This Wildfire Hazard Reduction and Resource Management Plan (Plan) provides sound, long-term strategies for protecting public health and safety by reducing fuel loads and managing vegetation within the East Bay Regional Park District's (EBRPD's) Study Area parks 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 EBRPD's jurisdiction. This Plan is consistent with California Public Resources Code (Article 3, 5500 series) that provides the District with the power to "prevent and suppress fires...and to do all other things necessary or convenient to carry out the purposes of the District," as well as the vision, mission statements and policies contained in the District's 1997 Master Plan. The Plan also builds upon the District's ongoing fuels management activities, as well as the 1982 *Blue Ribbon Report*, the 1995 *Fire Hazard Mitigation Program & Fuel Management Plan for the East Bay Hills* (1995 Plan), and other District plans and policies, including those for individual parks. The focus of the Plan is on specific areas of high hazard fuels and the identification of fuel management methods and actions to be undertaken to meet the goals of the Plan set forth herein. The extensive breadth and depth of the information concerning environmental resources and fire science provided in this Plan will inform and assist District decision-makers and personnel responsible for identifying and implementing the fuel reduction actions described in the Plan on an annual basis.

This Plan is one of a number of EBRPD projects funded through the passing of Measure CC by the voters in EBRPD Zone 1 (which includes nine cities in western Alameda and Contra Costa counties) in November 2004. The Plan serves to assist EBRPD in protecting life and property by managing vegetation to reduce wildfire hazards, and doing so in coordination with protecting and enhancing bio-diversity, providing defensible space near structures, managing invasive plant species, and promoting plant and animal communities with inherently low fuel loads. The primary focus of this Plan centers on reducing wildfire hazards in areas that have been identified through a wildfire hazard assessment process as having a "high wildfire hazard" (i.e., areas with vegetation that would

Problem Statement:

The threat of catastrophic wildfires under Diablo wind conditions, high fuel loads in EBRPD parks, and continued community development in the wildland-urban interface present significant risks to public health and safety, homes, and property if not consistently and adequately addressed.

produce a flame length over 8 feet in height¹ or that would generate a large number of embers and firebrands) that would threaten neighboring homes and property. However, the objective of achieving reasonably stable and fire-safe plant communities is also critical to EBRPD's ongoing management efforts as well as its overall goal of protecting natural resources. Resource management and native plant restoration efforts are included in the Plan where synergies exist between wildfire hazard reduction and resource management objectives.



Vegetation management is essential to maintaining native plant communities and reducing wildfire risks in the East Bay.

EBRPD's fuel management activities have been ongoing for more than 72 years, funded largely from EBRPD's operating budget and from various fire hazard mitigation grants under the Federal Emergency Management Agency (FEMA). Voter approval of Measure CC in 2004 gave EBRPD approximately \$9 million in funding to create this Plan and to continue fuels management activities in the East Bay Hills according to the recommendations and guidelines contained herein. Over the past several years, the EBRPD Fire Department has been planning for and undertaking individual fuel reduction activities in specific areas within the hillside parks under an annual Fuels Treatment



Homes within the wildland-urban interface can quickly become overwhelmed by wildfires and increase the complexity of fire risks.

Plan. These ongoing fuel reduction activities have been primarily funded by FEMA grants, and were identified and evaluated for environmental effects under the National Environmental Policy Act (NEPA) in the Final Environmental Assessment (EA) for the East Bay Regional Park District Vegetation Management Projects in Alameda and Contra Costa Counties, California, prepared by URS in April 2003.²

As discussed further in Chapter II, this Plan contains recommendations, guidelines, and best management practices (BMPs) designed to assist EBRPD in achieving four key goals:

¹ An 8 foot flame length represents a nationally recognized standard over which erratic fire behavior and difficulty in control and suppression is anticipated.

² These FEMA projects and GIS polygons were considered, evaluated and incorporated into the preliminary fuel management recommendations for the specific treatment areas identified in Chapter III of this Plan.

- Reduce fire hazards 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 which is cost-effective and both financially and environmentally sustainable to EBRPD on an on-going basis.

This Plan identifies approximately 3,000 acres of park lands to be treated for various levels of hazardous fuel conditions and maintained in a low-hazard condition using Measure CC and other sources of funding. Efforts required to maintain a managed fuel load continue well after initial treatments have been conducted to reduce fuel loads to acceptable levels. Once vegetation is treated, such as, by thinning highly-flammable eucalyptus stands or removing invasive species, these areas will need to be periodically maintained. Extensive stands of blue gum eucalyptus trees and Monterey pines present specific wildfire threats in the EBRPD parklands due to their fuel characteristics, high ember production, tendency to re-sprout vigorously if not controlled, and continued growth of understory vegetation and thick flammable duff that requires systematic and timely maintenance to reduce ladder and ground fuels. Ongoing maintenance is also needed after fuel reduction treatments to reduce the potential for invasion by aggressive weed species such as French broom. Areas where the ground is disturbed, particularly when opened to sunlight after the shady overstory of trees has been thinned, are susceptible to weed invasion.

Over the course of implementing the vegetation management program included in this Plan, the amount of park land that must be maintained will increase after each initial treatment is completed. Maintenance activities often employ different, and usually cheaper, vegetation management methods and tools than those used for initial treatments. However, to be effective, maintenance activities such as mowing, grazing, or removing invasive plant species, must be conducted on a regular schedule. Therefore, the need to consider future

Blue Gum Eucalyptus: A Wildfire Threat

SAFETY HAZARDS

- The oil in dry leaves, bark and seed pods slow their decomposition and ignites readily and explosively, creating an easy route for fire spread or ember "spotting."
- The bark and leaves of eucalyptus create thick, flammable duff in abundance that releases twice as much heat as a grassland fire when ablaze.
- Their height contributes to convenient fire spread and, when ignited, their tops are very difficult and dangerous for firefighters to extinguish.
- Eucalyptus are called "widow makers" because their limbs tend to break easily, potentially causing injury to those beneath them.

BIODIVERSITY

- Calcium concentrated in the leaves raises soil pH as leaf litter decays, creating an allelopathic effect that allows eucalyptus to outcompete native plants and animals.
- Eucalyptus flowers are deep and filled with gum that clogs the beaks of the local short-beaked birds, leading to suffocation.
- The trees create bird and butterfly sinks by giving them a false sense of security for nesting. They build their nests, which are easily knocked out by the wind. The Point Reyes Bird Observatory reports that in eucalyptus trees the fallout rate of Anna's hummingbird nests is 50% compared to 10% in more stable native vegetation.

budget obligations for ongoing fuel management activities, and the cost-effectiveness of those activities, is paramount to the District when considering and planning for both initial treatment and maintenance activities on an annual basis.

A main premise of the 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, such as areas infested by invasive weed species (e.g., broom) and thick groves of re-sprouting young eucalyptus trees.

The Plan lays out a process of site specific pre-project assessment and post-project monitoring and record-keeping for treating fuel loads as well as for resource management and improving habitat conditions. The District's commitment to resource monitoring and adaptive management will add value by informing future projects with the information collected and experience gained from previous activities, but these processes require an increased budget commitment of both workforce and project funding. The Plan must therefore balance the primary goal of protecting life and property by reducing wildfire hazards with the concomitant goal of enhancing resources, and must achieve both goals in a sustainable and cost-effective manner. When planning for each treatment activity, the District will take into consideration wildfire risk priorities, environmental constraints, required mitigations, potential desired outcomes, stakeholder concerns, and financial constraints and priorities.

To achieve this objective, the fuel treatment methods identified in this Plan (see Chapter IV) can be applied to the vegetation types (see Chapter V) within each recommended treatment area to achieve the fuel-reduction vegetation management goals for that area (see Chapter III). Each vegetation management goal is intended to represent a generally stable plant community with high habitat value and biodiversity, low fire hazard, and the lowest achievable requirement for ongoing maintenance.

The following sections in this chapter provide a description of the history of wildfire in the East Bay Hills that informs the purpose of and need for the Plan, the Plan's Study Area, the planning process and public involvement process used to inform and influence the Plan's development and implementation, and a brief discussion of how this Plan should be used.

A. A HISTORY OF WILDFIRE AND NEED FOR THE PLAN

The topography, vegetation, wildlife, uses and landscape of the East Bay Hills and Bay Shoreline have developed over the millennia through complex physical processes. The native vegetation of the East Bay Hills evolved with the presence of occasional wildfires, both from natural causes and when set by native peoples, and these wildfires generally

promoted the health and regeneration of a mosaic of native grasslands, oak woodlands, and forests. Virtually all of the tribal groups in California actively managed the landscape until the arrival of the Europeans. They used a variety of tools and techniques, but the tool that was most widely used and had the most dramatic effect on the appearance and ecology of the East Bay Hills was fire. Low intensity and frequent wildfires are generally considered “beneficial” leading to an expansion of native grasslands (used to support a seed-based economy) and an increase in the bio-diversity and productivity of chaparral and north coastal scrub ecosystems. While the short-term indirect effects of large high intensity wildfires can be detrimental to wildlife due to loss of food and shelter until the vegetation has had time to regenerate, the effects are less detrimental with smaller fires. In the early years of succession after a fire, burned native shrubland reaches a state of maximum diversity and productivity to the benefit of most wildlife species. A mosaic of different age classes of native brush interspersed with patches of grassland and forest/woodlands provides the highest level of plant and wildlife species diversity and lower fire hazard than in landscapes supporting uniform habitats (such as eucalyptus or pine plantations).

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. 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 (e.g., 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, with some stands maintaining up to 400 trees (12 inches in diameter or larger) per acre. These amounts far exceed the 30 to 50 trees per acre found in maintained fire-safe groves found elsewhere in the East Bay Hills (e.g., groves in Kennedy Grove Regional Recreation Area and Point Pinole Regional Shoreline). In other areas, eucalyptus groves that were treated 30 years ago now contain dense sucker and seedling growth that, in turn, pose a high fire hazard and big challenge for District staff to address. Large, unmaintained groves of eucalyptus are recognized worldwide as high fire-risk areas that produce large fuel loads that present significant fire hazards. Excessive fuel loads mean that these groves would be extremely flammable under any summer or fall high wind condition.

The park vegetation seen today is a mixture of native vegetation and introduced non-native annual grasses, herbs, and tree plantations. The visual significance of these changes to the

landscape within the Study Area are illustrated by photos of Tilden Park's Wildcat Ridge, south of Inspiration Point, that were taken over a 100-year period.

As the park vegetation ages and less land is grazed or burned by prescribed fire, District staff has noted that it is increasingly difficult to cost-effectively manage the vegetation to reduce wildfire hazards.



Upper Wildcat Canyon (Tilden) – circa 1900



Same View Today – About 100 Years Later



Wildcat Ridge – 1971. Vegetation growth in the East Bay Hills has changed dramatically over the past 37 years: note the absence of forest stands along Wildcat Ridge.



Wildcat Ridge – 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.

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. Under normal conditions, 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 mid-day winds blowing westerly in from the coast. 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 3,500 homes, took 26 lives, and resulted in over \$2 billion in financial losses. The 3,500 homes destroyed in the East Bay Hills total almost as many as all of the homes destroyed in the high-risk Southern California counties *combined* during the same period.

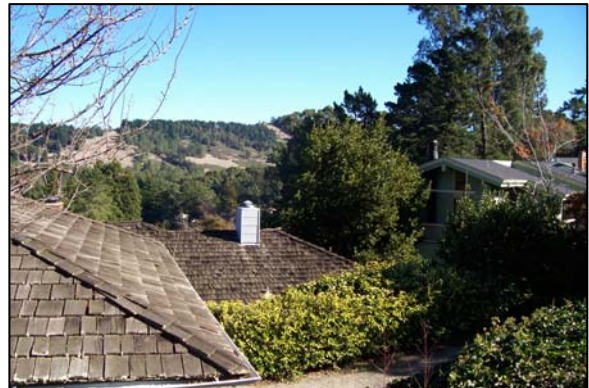
Beginning in the early 2000s, residential losses in California from wildfire changed dramatically and further demonstrated the increasing risks from wildfires. The wildfire season of 2008 was particularly damaging and statistics are still being compiled by CalFire, but we know that over 1,000 homes were burned. In Southern California over a 15-day period in late October 2003, more than 3,700 homes were destroyed, 750,043 acres were burned, and 24 lives were lost. The 14 simultaneous fires that burned during this period resulted in an estimated \$1.2 billion in damages. For the 80-year period between 1923 and 2003, major fires resulted in the loss of approximately 13,600 homes, 73 percent (11,055 homes) of which were destroyed between 1990 and 2003 alone. Even with the increases seen in wildfire damages since that time, the 1991 Oakland-Berkeley Firestorm still ranks as the State's second-largest wildfire according to number of homes lost, and the 1923 Berkeley fire ranks eighth.¹ As of 2007, approximately 20 percent of the residences destroyed in California's 20 largest wildfires (by structures destroyed) were lost in the East Bay Hills.

The increasing rate in home losses from wildfires makes it clear that a dramatic change in fire-safe construction, landscaping and property owner involvement, combined with improved vegetation management practices to reduce available fuels for wildfires, should be made to protect human health and property from wildfire risks. East Bay communities have made some improvements since 2001 in residential and neighborhood safety and fire fighting capability; however the continued increase in development along the wildland-urban interface and sustained development of communities in and adjacent to open space areas put an ever-increasing number of people at risk from wildfires. In spite of concerted efforts at wildland vegetation management on public lands, fuel loads remain high and the most cost-effective ways for dealing with severe Diablo wind-related wildfires remains elusive.

¹ CalFire, 2007. *20 Largest California Wildland Fires (By Structures Destroyed)*. http://www.fire.ca.gov/communications/downloads/fact_sheets/20LSTRUCTURES.pdf

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. 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. Key factors concerning why the 1991 Oakland-Berkeley Firestorm could not be stopped still exist today:

- Major increases in flammable vegetation over the past 70 years have significant 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 adjacent residential 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 may not be possible given current fuel levels.
- Firefighters are as yet unable to stop all Diablo wind fires, and 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.



Homes within the Wildland-Urban Interface are at significant risk of fire due to their proximity to high fuel areas and, often, a lack of defensible space.

As local populations and the housing demands they create continue to increase, ever greater numbers of people are moving into the wildland-urban interface. Coupled with the increased threat of wildfires related to global climate change conditions, these factors translate into a need to do what can be done to efficiently and effectively mitigate wildfire risks in a timely manner. Climate is a significant determinant in wildfire creation and growth; global climate change has the potential to increase the frequency of wildfires, exacerbate their intensity and rate of spread, and may lead to a lengthened fire season. Given the factors identified above and under existing conditions, a Diablo Wind driven wildfire would

consume property, homes and vegetation, and would negate any carbon sequestration benefits that currently exist. Additionally, greater amounts of time and financial resources may be required to respond to increasingly larger and more frequent fires.

Past history has shown that over 95 percent of the wildfires in the East Bay are controlled at a small size and cause little significant damage. However, the wildfires that become large conflagrations cause more than 95 percent of the property damage and account for most of the fire suppression costs. No effort will totally eliminate wildfires in the East Bay Hills; however, with proper planning and preventative maintenance of homes and vegetation, fire fighters can control more fires while they are small, and the likelihood that they will become catastrophic wildfires will be reduced.

A comprehensive and effective plan is necessary to direct future actions taken by EBRPD that will both reduce wildfire risks and improve the ecological health of the Study Area. This Plan provides a process for evaluating the location and adequacy of EBRPD's existing fuel reduction zone (a definition for the term "fuel reduction zone" as well as other terms used in this Plan can be found in Appendix A); identifies options and techniques for fuel management and habitat restoration, and provides vegetation management practices and guidelines aimed at achieving desired results while minimizing potential adverse environmental effects.

Under designation by the State of California, EBRPD lands within the Study Area are predominately State Responsibility Areas (SRAs) for fire protection. The California Department of Forestry and Fire Protection (CAL FIRE) has the legal responsibility to provide fire protection on all SRA lands. Portions of the Study Area, such as Pt. Pinole, Wildcat Canyon, Claremont Canyon, Leona Open Space and land immediately northwest of Lake Chabot, 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 fire fighting agencies, the

Case Study: Angel Island Wildfire, October 2008

Angel Island, the approximately 740-acre State park in the San Francisco Bay once used as an immigration point for the West Coast, experienced a wildfire in 2008 that created flames visible from Marin County, San Francisco, and the East Bay Hills. The fire began on the east side of the island and quickly grew to 100 acres within two hours after it was first reported. Aided by easterly winds blowing from the East Bay Hills, the fire quickly traveled uphill through ground fuels and spread into the canopy, burning across roughly 303 acres (41 percent) of the island's total area. A total of 275 fire-fighters attacked the blaze at its peak, with several crews cutting fire breaks by hand on the southwest and northwest corners of the island.

According to Park Superintendent Dave Matthews, firefighting activities were helped immeasurably by previous vegetation management and fuel reduction efforts that have taken place on the island for the past 12 years. These actions included the removal or thinning of the island's eucalyptus and pine trees. If not removed, these trees produce firebrands able to travel across the Bay and into vegetated areas on the surrounding shores under appropriate wind conditions.

Not destroyed by the blaze were the island's 120 historic buildings, including the immigration station which is undergoing a multi-million-dollar renovation and is due to reopen to the public in February. The vegetation management activities which helped save the buildings from the wildfire included the creation of defensible space around the historic structures. Had these vegetation management activities not occurred, the structures likely would have fared significantly worse given the speed and intensity of the blaze.

Source: LSA Associates. 2008.

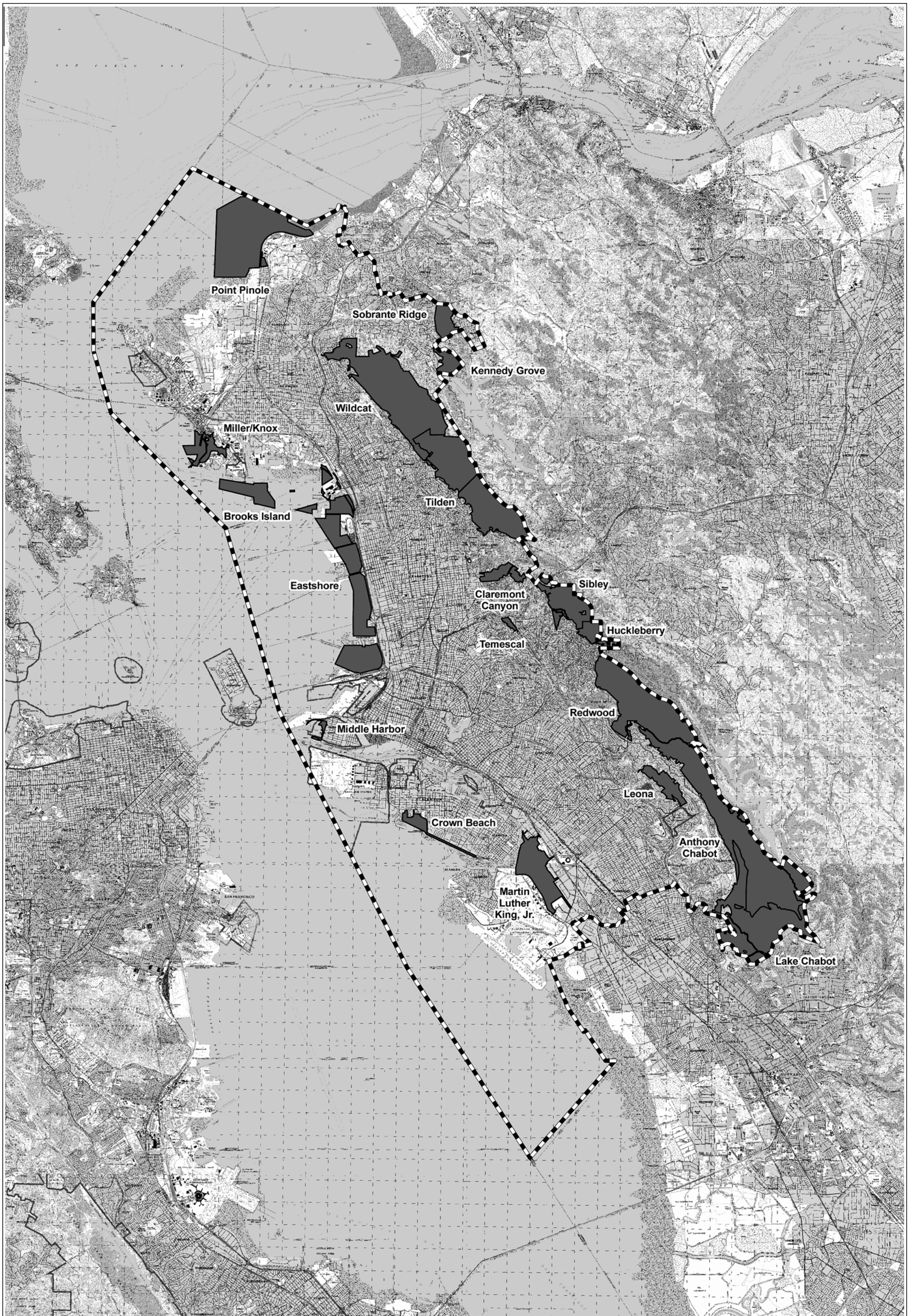
EBRPD Fire Department provides a strong secondary wildland fire response in support of CAL FIRE on SRAs and to the local fire departments on LRAs. In actuality, EBRPD fire suppression resources are often the first “on scene” to parkland fires, and many times are the only resources used. In addition to State regulations regarding fire protection on EBRPD lands within the Study Area, EBRPD enforces District fire ordinances such as those listed in Appendix B of this Plan.

The following section describes the location of the Study Area used for this Plan as well as a brief discussion of the two primary land types under consideration within the Study Area.

B. THE STUDY AREA

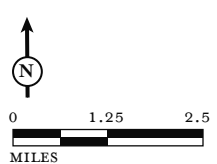
As shown in Figure I-1, the Study Area comprises approximately 19,000 acres of parks and open space within the Measure CC zone in western Alameda and Contra Costa Counties. This zone includes 13 hillside parks (from north to south):



- Sobrante Ridge Regional Preserve
- Kennedy Grove Regional Recreation Area
- Wildcat Canyon Regional Park
- Tilden Regional Park
- Claremont Canyon Regional Preserve
- Temescal Regional Recreation Area
- Robert Sibley Volcanic Regional Preserve
- Huckleberry Botanic Regional Preserve
- Roberts Regional Recreational Area
- Redwood Regional Park
- Leona Canyon Regional Open Space and Preserve
- Anthony Chabot Regional Park, and
- Lake Chabot Regional Park.



LSA

FIGURE I-1



-  STUDY AREA
-  MEASURE CC BOUNDARY

*EBRPD Wildfire Hazard Reduction
and Resource Management Plan
Study Area*

Also included in the Study Area are seven shoreline parks (from north to south):

- Point Pinole Regional Shoreline
- Miller/Knox Regional Shoreline
- Brooks Island Regional Shoreline
- Eastshore State Park
- Middle Harbor Shoreline Park
- Robert W. Crown Memorial State Beach, and
- Martin Luther King Jr. Regional Shoreline.

The Study Area's hillside parks straddle the East Bay Hills in an elongated band of approximately 26 miles in length and up to 2.5 miles in width. Urban uses (primarily residential and institutional) are generally located along the western border of the parks. Open space uses, such as lands owned and managed by the East Bay Municipal Utility District (EBMUD), the University of California (UC Berkeley), and Lawrence Berkeley Laboratory are located to the east and north of the hillside parks. The shoreline parks are located along the San Francisco Bay within the City of Richmond in the north to the City of Oakland in the south. The shoreline parks are generally more developed and managed for higher-intensity recreational uses than the hillside parks, and the land uses adjacent to the shoreline parks are also more urban and built up and include industrial, office, commercial, and residential uses. Based on the wildfire hazard assessment evaluation conducted by the Plan consultants and EBRPD, only two shoreline parks were determined to have high hazard vegetation types that could pose significant wildfire threats and were included and evaluated in detail in this Plan: Point Pinole Regional Shoreline and Miller/Knox Regional Shoreline. The other five shoreline parks do not exhibit high hazard fuel vegetation conditions requiring significant wildfire hazard reduction activities.

Within the Study Area the wildland-urban interface is of particular concern and is generally defined as the mix and adjacency of vegetation and urban development (such as structures, infrastructure, and circulation routes) that engenders complex fire behaviors which further complicate wildfire risks and hazard reduction in the East Bay parklands. Most of the wildland-urban interface areas are located on steep slopes within the East Bay Hills, and many structures that exist within the interface are wood-framed or have wood shingles, further increasing the complexity of wildfire risks and hazard reduction projects within these areas. Homes generally present fires with densities of flammable materials that are much higher than the surrounding wildlands. As tragically demonstrated in the 1991 Tunnel Fire, a home catching fire can greatly intensify a wildfire in its immediate surroundings, including the burning of neighboring homes. Dedication of fire suppression resources to protect these structures can significantly deplete suppression forces needed to detain fire spread in the

wildlands, and can actually lead to larger fires, greater exposure of more structures, and potentially greater losses. It is important to note that State law requires all landowners in areas designated as Very High Fire Hazard (i.e., the East Bay Hills) to create and maintain defensible space for 100 feet from each structure or to the property lines whichever is closer. See Appendix B for more information concerning fire safe regulations and information for property owners.

C. PLANNING PROCESS AND PUBLIC INVOLVEMENT

The planning process and public involvement associated with preparation of this Wildfire Hazard Reduction and Resource Management Plan are described below.

1. 1997 Master Plan

As part of the planning process undertaken to prepare this Plan, the District's 1997 Master Plan and the plans for the individual parks in the Study Area were reviewed to ensure that this Plan is consistent with and implements the stated and adopted vision, mission statements and policies of EBRPD.

The Master Plan includes the following policies that specifically relate to management activities undertaken to reduce the threat of wildfire:

- The District will prepare system-wide plans, as needed, to create strategies for land use, facilities, services, programs, and resource management projects that improve service to the region. The system-wide plans will be consistent with resource protection policies and may establish Land Use Designations for parklands. System-wide plans will be flexible enough to accommodate existing LUPs, which will take precedence unless amended.
- The District will evaluate eucalyptus, pine and cypress plantations, and shrubland or woodland areas occurring along the wildland/urban interface on a case-by-case basis for thinning, removal, and/or conversion to a less fire-prone condition. The District will construct and maintain fuel breaks, as necessary, to manage hazardous fuels and contain wildfires. The District will minimize the widespread encroachment of monotypic stands of coyote brush, poison oak, and broom on park land.
- The District will conserve, enhance, and restore biological resources to promote naturally functioning ecosystems. Conservation efforts may involve using controlled grazing, in accordance with Wildland Management Policies and Guidelines, prescribed burning, mechanical treatments, integrated pest management, and/or habitat protection and restoration. Restoration activities may involve the removal of invasive plants and animals or the reintroduction of native or naturalized species adapted to or representative of a given site.

- The District will maintain, manage, conserve, enhance, and restore park wildland resources to protect essential plant and animal habitat within viable, sustainable ecosystems.
- The District will maintain and manage vegetation to conserve, enhance, and restore natural plant communities; to preserve and protect populations of rare, threatened, endangered, and sensitive plant species and their habitats; and, where possible, to protect biodiversity and to achieve a high representation of native plants and animals.
- The District will participate in efforts to protect scenic or cultural resources, develop larger, multi-agency open space preserves, provide recreational opportunities, protect agricultural use, avoid hazards, and plan for appropriate urban growth boundaries. The District will work with other jurisdictions to develop open space preservation plans and policies that recognize the District's public interests in open space preservation and that are consistent with Board policy.

Consistent with the above policies, this Plan includes detailed analyses and specific recommendations which update, amend, and supersede any earlier and more general statements in individual park land use plans that might appear to conflict with this Plan.

2. Coordination with Previous Efforts

Coordination with the East Bay Hills Emergency Forum (HEF), which was created following the Oakland-Berkeley Firestorm of 1991, was another important step in the preparation of this Plan. The HEF coordinates the collection, assessment, and sharing of information on East Bay Hills fire hazards, and provides a forum for building interagency consensus on developing fire safety standards and codes, incident response and management protocols, public education programs, multi-jurisdictional training, and fuel reduction strategies. The HEF currently includes members from the Cities of Berkeley, El Cerrito, and Oakland; the California Department of Forestry and Fire Protection; the Moraga Orinda Fire District; EBRPD; the East Bay Municipal Utility District; Lawrence Berkeley National Laboratory; and the University of California, Berkeley. The HEF created a Vegetation Management Consortium (VMC) to develop a new fire hazard mitigation program and plan for the East Bay Hills; a draft of the VMC Plan was completed and approved by the HEF in 1995. After a full review and considerable public debate, the EBRPD board accepted the principles described in the VMC Plan in 1996. The informal group known as the "Temescal Working Group" who met in 1992-1993 was also instrumental in the identification of the need for a comprehensive fuel reduction plan and the preparation of Measure CC.

3. Planning Process and Public Meetings

Once Measure CC was passed in November 2004, EBRPD began working with a consulting team of planners and scientists, and under advisement from the HEF, to engage in a planning process focused on achieving the desired outcomes of EBRPD's wildfire hazard reduction and resource management goals and the preparation of this Plan. The planning

process for this Wildfire Hazard Reduction and Resource Management Plan also included a substantial public involvement component to incorporate community and other stakeholder interests. The planning process included the following steps:

- **Project Initiation:** Background materials were collected, goals and issues were identified, GIS mapping efforts were reviewed and updated, and technical advisors were identified.
- **Resource Inventory and Wildfire Hazard Assessment:** Baseline conditions were inventoried and mapped, areas at greatest risk along the wildland-urban interface were identified, and high hazard areas for priority fuel reduction were located.
- **Resource Analysis:** Resource and Hazard Assessment maps were overlaid to determine potential resource conflicts within areas of high wildfire hazard to further inform and direct vegetation management goals and treatment recommendations.
- **Fuel Management Recommendations:** A menu of treatment options for fuel reduction was developed, taking into consideration vegetation and wildlife resources, topography, and available fuel reduction methods.

Results from these steps were integrated into this Plan to identify overall benefits, potential environmental effects, and general costs associated with the wildfire hazard reduction and resource management activities that were identified. Recommended hazard reduction actions and resource management prescriptions for treatment and ongoing maintenance activities were also prepared according to the information collected and analysis conducted throughout this process.

The planning process included six public meetings to solicit public input and inform agencies, stakeholders, and other interested parties of the Plan's progress, potential environmental resources and effects, and mitigation measures undertaken to address potential adverse environmental impacts that could occur as a result of implementing the Plan. These meetings are described below:

- **Public Meeting #1 (April 2006)** covered project initiation, including collecting background materials; identifying goals, objectives, and guidelines; initiating the GIS mapping program; and identifying technical advisors.
- **Public Meeting #2 (June 2007)** provided a review of preliminary fire and resource data, identified baseline conditions and potential primary treatment areas, and examined potential resource conflicts.
- **Public Meeting #3 (December 2007)** described the Wildfire Hazard Assessment process (see Appendix C for additional information and a copy of the Wildfire Hazard Assessment), included a preliminary review of fuel management recommendations as provided by the team's technical advisors and participants, identification of potential

treatment areas, development of a menu of fuel reduction options, and discussion of the Plan's Vegetation Management Program.

- Public Meeting #4 (May 2008) provided a brief overview of the proposed work program; an overview of the Plan, including the Vegetation Management Program and the Plan implementation process; and a project scoping session for the Plan's environmental impact report (EIR) in accordance with the California Environmental Quality Act (CEQA).

Public Meetings #5 and #6 will be conducted as part of the EIR process, where additional comments on both the Plan and the draft environmental documents will be solicited. Summaries and information from all of the public meetings can be found on the EBRPD website (www.ebparks.org).

D. HOW TO USE THIS PLAN

The primary purpose of this Plan is to assess the needs and recommend priorities for vegetation management in order to protect lives, property and natural resources from catastrophic wildfire. At the same time, it provides necessary information and recommends Best Management Practices (BMPs) and guidelines intended to protect environmental values and enhance habitat. The Plan provides specific goals, objectives, guidelines, and BMPs to guide wildfire hazard reduction and resource management activities that will be carried out by EBRPD and its contractors over time and in a manner that blends ecological and resource considerations with current fire science methodology and practices to achieve the desired results.

As further described in Chapter VI. Plan Implementation, this Plan should be used as part of an overarching management process by which treatment areas and fuel reduction/resource management actions are selected, monitoring and reporting activities are identified, and all activities are planned for, budgeted, and executed on a yearly basis.

This Plan includes the following key sections to provide program-level guidance and background information necessary for successful execution of the program:

- **Chapter II. Goals, Objectives, and Guidelines.** This chapter identifies the Plan's goals and objectives for reducing wildfire hazards and managing natural and cultural resources within the Study Area, and provides key guidelines to be used in achieving EBRPD's goals and objectives.
- **Chapter III. Wildfire Hazard Assessment and Preliminary Recommendations.** For defined and mapped treatment areas, this chapter provides resource information and recommendations for preliminary vegetation treatment goals and guidelines to be used by EBRPD staff when selecting and implementing future site specific fuel reduction treatment actions and best management practices (BMPs) for reducing wildfire hazards

while protecting environmental resources in the Study Area. The tables and figures in this section constitute specific recommendations for addressing wildfire hazards at identified treatment areas within the Study Area. Also included is a discussion of strategic fire routes and facilities at risk, two factors external to fire science modeling that informed the hazard reduction recommendations in the treatment areas.

- **Chapter IV. Fuel Reduction Methods.** In this chapter, five treatment method types are described – hand labor, mechanical treatment, chemical treatment, prescribed burning, and grazing – as well as techniques for implementing these treatment methods, where appropriate. This information is included to assist EBRPD in identifying, assessing and implementing, with reasonable consistency, those treatment methods that provide the greatest cost-benefit given site-specific factors. This chapter also includes BMPs, where applicable, that can be used to promote successful fuel reduction actions and ensure effective hazard reduction while promoting the highest environmental benefit for costs incurred. See Appendix D for additional detailed information on fuel reduction methods.
- **Chapter V. Vegetation Management Program.** Included in this chapter is a vegetation management program (VMP) that identifies and describes the various vegetation types found within the East Bay parklands, including their associated fuel characteristics; describes treatment considerations for invasive plants; outlines goals and objectives of vegetation management activities within the EBRPD’s jurisdiction; and delineates recommended treatment performance standards for each vegetation type to meet EBRPD’s vegetation management goals. Coupled with the information presented in Chapter IV, Fuel Reduction Methods, the District can use the VMP to determine the site specific wildfire hazard reduction and vegetation management projects that will achieve the Plan goals and objectives over time. Additional information concerning Keystone and Indicator Species can be found in Appendix E; examples of field survey worksheets are included in Appendix F; and detailed invasive plant control information is included in Appendix G.
- **Chapter VI. Plan Implementation.** This chapter describes the program- and project-level processes by which EBRPD will implement the necessary actions to reduce wildfire hazards and maintain and enhance environmental resources within the Study Area. This chapter also includes a process for feedback and incorporation of lessons learned from completed projects. This feedback and incorporation will occur in a manner similar to that found in adaptive environmental management systems and will enable EBRPD to create and implement increasingly successful and cost-effective vegetation management projects as new information is collected and experience gained about the long-term success of treatment techniques and objectives.
- **Chapter VII. Preparers and Acknowledgements.** This chapter contains information concerning those parties involved in the development and completion of this Plan.