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## Alternatives Including the Proposed and Connected Actions

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### 3.4.1.2 Oakland

Oakland would continue to participate in the Hills Emergency Forum and continue to conduct basic fire reduction activities, including removal of hazardous vegetation from roadsides.

### 3.4.1.3 EBRPD

EBRPD would continue to maintain areas where vegetation reduction has already been completed. EBRPD would continue to participate in the Hills Emergency Forum.

EBRPD is already implementing elements of the connected actions using funds from sources other than FEMA. However, most sections of this EIS analyze the relative impacts of the no action alternative and the proposed and connected actions as if the no action alternative (existing conditions) did not include any part of the connected actions. This results in a slight overstatement of the negative impacts of the proposed and connected actions relative to the no action alternative.

### 3.4.2 Proposed and Connected Actions

The proposed action consists of the vegetation management work included in four grant applications submitted to Cal OES by UCB, Oakland, and EBRPD (the subapplicants), plus additional vegetation management work proposed in the same areas but not eligible for FEMA funding. As described in Section 3.4.2.1, the vegetation management proposed in several areas in the UCB and Oakland applications has been modified to implement a unified methodology that is more consistent with the methodology proposed in the EBRPD grant applications. The four grant applications are listed in Table 3-1.

The selection of treatment areas for consideration was based on the need to protect life and property and an elevated hazard potential resulting from the following factors:

- Proximity of ember-generating vegetation to homes and other structures
- Proximity of vegetation with the potential to produce greater than 8-foot flame lengths

Each of the proposed and connected project areas was selected by the subapplicants because it is in a high fire risk area. The proposed and connected project areas have not been prioritized in terms of fire hazard level in this EIS. All of the recommended treatment areas (RTAs) submitted for grant funding or identified as connected areas need to be treated to achieve substantial reductions in hazards. Each subapplicant identified its own proposed treatment areas. Together, the proposed and connected actions would provide more effective protection over a larger area by creating a continuous firebreak along the most vulnerable wildland-urban interfaces.

The proposed action is intended to reduce hazardous fire risk to people and structures in many areas in the East Bay Hills and Miller/Knox Regional Shoreline. This EIS also addresses vegetation management projects planned by EBRPD in many connected areas, as explained in Section 1. The connected project areas total 1,061 acres. The proposed activities associated with each grant application and the connected actions are described in the following sections. The proposed and connected project areas are shown in Figures 3-1a through 3-1j and summarized in

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Table 3-1. The overall area in which the proposed and connected actions would occur is shown in Figure 1-1 in Section 1.

FEMA may decide to fund one or several of the grant applications but not all of them. This decision would be based on an analysis of the ability of each grant to meet the purpose and need and on its feasibility, cost-benefit ratio, and environmental impacts. This EIS analyzes the environmental impacts of funding all four of the grant applications. Should FEMA decide not to fund all four applications, a supplement to the EIS would have to be prepared to assess the positive and negative effects of the decision.

Each subapplicant reviewed the lands that it manages and has identified a subset of areas of high risk where treatment would be effective in reducing hazards. These areas are defined as the proposed and connected action areas as described in the EIS. The rest of the land would not be treated. For example, the EBRPD areas proposed for treatment are less than 20 percent of the vegetation under EBRPD management. There are approximately 3,370 acres proposed for treatment under the WHRRMP (this includes the proposed and connected action areas and additional areas described in the plan). The WHRRMP study area comprises approximately 19,000 acres of parks and open space. The areas proposed for treatment are either close to structures or were identified through fire modeling to be the most effective areas for treatment. Proposed treatment areas on both the City of Oakland and UCB managed lands are prioritized in regard to their potential for reducing flame lengths and ember production. Additionally, proposed treatments are focused in areas near structures and roads. Areas have been prioritized for treatment as a way to more cost effectively achieve the purpose and need for the project.

The goal of the project is to reduce the fuel loading and fire intensity. The primary vegetation types that would be thinned are trees and shrubs that are more fire prone; have fine, dry, or dead material such as needles or loose papery bark; and tend to accumulate dead, dry material around them. Removal of these types of vegetation would open up areas, allowing less fire prone species that have higher moisture content and lower fuel loads to develop, including grassland and shrub islands. The combination of litter build-up (limbs, leaves, stringy bark) and extensive ladder fuels with the heavy forest fuels seen in eucalyptus stands contributes to high-intensity fires and increased potential for fires laddering up into the crowns, which allows fires to spread farther. Heavy accumulations of forest litter under mature pine canopy lead to similar fire behavior. Longer flame lengths and greater heat output are associated with increased fire intensity. Oak-bay woodlands or grassland with shrub islands produce less accumulated dead fuels and ladder fuels over time as compared to eucalyptus and pine communities. When fires do occur, the project is designed to result in fires that would be less intense and with shorter flame lengths that result in reduced risks for people and property.

The proposed and connected actions would involve removing many fire-prone trees and vegetation to reduce wildfire hazard. The subapplicants have estimated the number of trees that might be removed in the following sections; however, the final numbers may vary due to field conditions. The impact analysis is based on acreage of the areas to be treated rather than on the numbers of individual trees affected.

Targeted trees would be cut down and processed by trained, qualified subapplicant staff or contractors using methods consistent with the California Forest Practice Rules. If a timber

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harvest plan is required by § 4581 of the California Public Resources Code (Z'berg-Nejedly Forest Practice Act), the plan would be prepared by a registered professional forester and would contain detailed information on the timber operations. The California Forest Practice Rules and the Z'berg-Nejedly Forest Practice Act are available at [http://calfire.ca.gov/resource\\_mgt/downloads/2012\\_California\\_Forest\\_Practice\\_Rules.pdf](http://calfire.ca.gov/resource_mgt/downloads/2012_California_Forest_Practice_Rules.pdf).

The proposed and connected actions would include best management practices (BMPs) identified by the San Francisco Bay Regional Water Quality Control Board to control erosion during and after vegetation management activities (see Section 5.3.2.3).

The proposed and connected actions involve use of herbicides. Herbicides would be applied by a licensed State of California Qualified Applicator or by staff under their supervision.. No spraying of foliage would occur within 60 feet of standing or flowing water or where herbicide might drift to water courses. Within this 60-foot buffer, herbicides would only be applied directly to stumps, and use of herbicides would be restricted to Garlon 3A or another triclopyr formulation approved for use near water. Within the 60-foot buffer, herbicides would be applied to stumps within 60 minutes of cutting down the tree. Herbicides would not be used in the 60-foot buffer within 24 hours after rain or when the chance of rain within 24 hours is greater than 40%. To prevent airborne drift of herbicide mist through the 60-foot buffer, herbicides would not be applied to foliage outside the buffer when wind speed is greater than 10 mph or less than 2 mph. Very low wind speeds are conducive to drift because very light winds are associated with inversion conditions in which mists and vapors tend to stay near the ground rather than dispersing upward.

The frequency of maintenance and follow up treatment would depend on the effectiveness of the initial treatment. Treatment of pine stumps is not necessary because pine does not produce sprouts from cut stumps. For long-term maintenance, sprouts from stumps would be treated annually. Up to twice a year, herbicides would be applied with a hand-sprayer on leaves or by cutting sprouts and hand-spraying the cut stubble. As during the initial treatment, herbicide application would be conducted in accordance with the instructions on the product label, guidance from the California Department of Pesticide Regulation, and the conditions on herbicide application developed through consultation on listed species (as described in Section 5.1).

Seedling growth is highly variable because it is influenced by rainfall, temperature, chip depth, shading by other vegetation, and other factors. It is expected that seedlings would be pulled up to twice a year. In addition, eucalyptus sprouting from seeds would be managed over time. The subapplicant's experience has demonstrated that most pine and eucalyptus seeds are exhausted within 5 to 7 years of initial tree removal if no mature trees of these species remain nearby. Therefore, the 10-year maintenance period should be sufficient to address most re-sprouting.

The development of mitigation and monitoring plans (MMPs) are a requirement of grant funding, and they would outline the mitigation, monitoring, and maintenance activities to be conducted over the 10-year duration of the project. Maintenance activities are described in the following sections and are included in the analysis of effects.

Monitoring would be conducted annually, and the results would be addressed in an annual report, submitted to appropriate agencies, including the USFWS, by March 31 of each year. The reports

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would include a summary of the maintenance and monitoring activities, recovery, percent cover of federally listed species habitat, measures implemented at each site to aid in the recovery of the habitat towards the vegetation management goal outlined in the plan, and a summary of the proposed follow-up action for the upcoming year.

Implementation of the MMPs would include an assessment of project progress and success in meeting project goals throughout the 10-year timeframe of the project. As described above, ongoing maintenance activities following tree removal would include herbicide treatment of sprouts emerging from stumps or foliage and the removal of eucalyptus seedlings to prevent recolonization of treated sites.

At the conclusion of the 10-year timeframe of the project, ongoing maintenance activities by the subapplicants would include the annual removal of grass and light fuels (such as twigs, needles, and grasses that ignite and burn rapidly) from roadsides, turnouts, and within 100 feet of structures and adjacent private residences.

**Table 3-1. Summary of Proposed and Connected Project Areas**

Project Area	Proposed Action Acres	Connected Action Acres	Total Acres
<b>UCB</b>			
Strawberry Canyon-PDM	56.3	0	56.3
Claremont-PDM	42.8	0	42.8
Subtotal	99.1	0	99.1
<b>Oakland</b>			
North Hills-Skyline-PDM	68.3	0	68.3
Caldecott Tunnel-PDM	53.6	0	53.6
Frowning Ridge-PDM (UCB project)	185.2	0	185.2
Tilden Regional Park-PDM (EBRPD project)	34.3	0	34.3
Sibley Volcanic Regional Preserve-PDM (EBRPD project)	3.9	0	3.9
Claremont Canyon-PDM (EBRPD project)	13.7	0	13.7
Subtotal	359.0	0	359.0
<b>EBRPD</b>			
Sobrante Ridge Regional Preserve	4.1	0	4.1
Wildcat Canyon Regional Park	65.6	46.6	112.2
Tilden Regional Park	97.7	194.2	291.9
Claremont Canyon Regional Preserve	21.6	130.4	152.0
Sibley Volcanic Regional Preserve	43.6	118.4	162.0
Huckleberry Botanic Regional Preserve	17.8	0.3	18.1
Redwood Regional Park	58.4	92.8	151.2
Leona Canyon Regional Open Space Preserve	4.6	0	4.6
Anthony Chabot Regional Park	200.0	478.2	678.2
Lake Chabot Regional Park	4.8	0	4.8
Miller-Knox Regional Shoreline	22.2	0	22.2
Subtotal	540.2	1,060.7	1,600.9
<b>TOTAL</b>	<b>998.3</b>	<b>1,060.7</b>	<b>2,059.0</b>

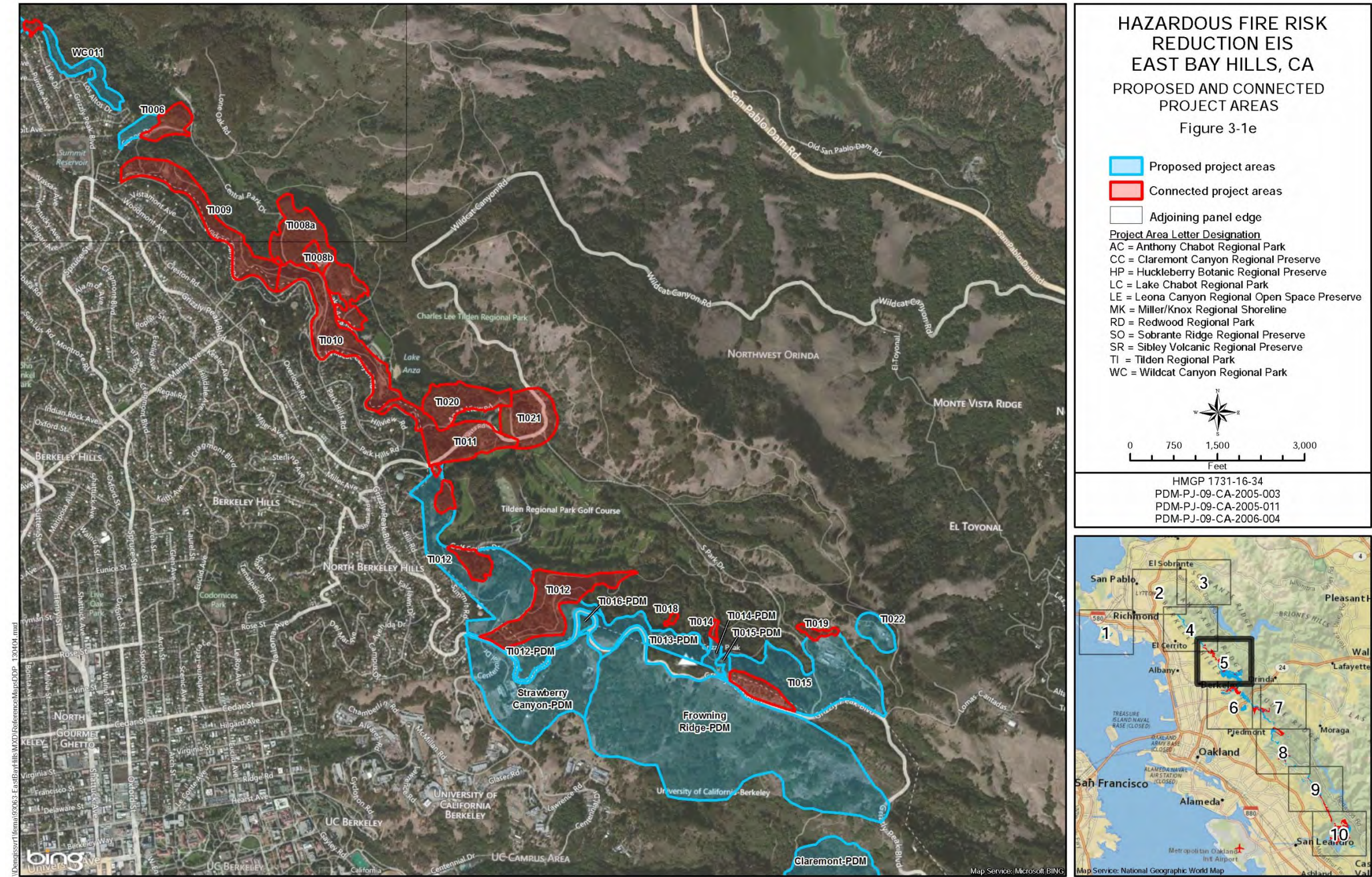


Figure 3-1e. Proposed and Connected Project Areas

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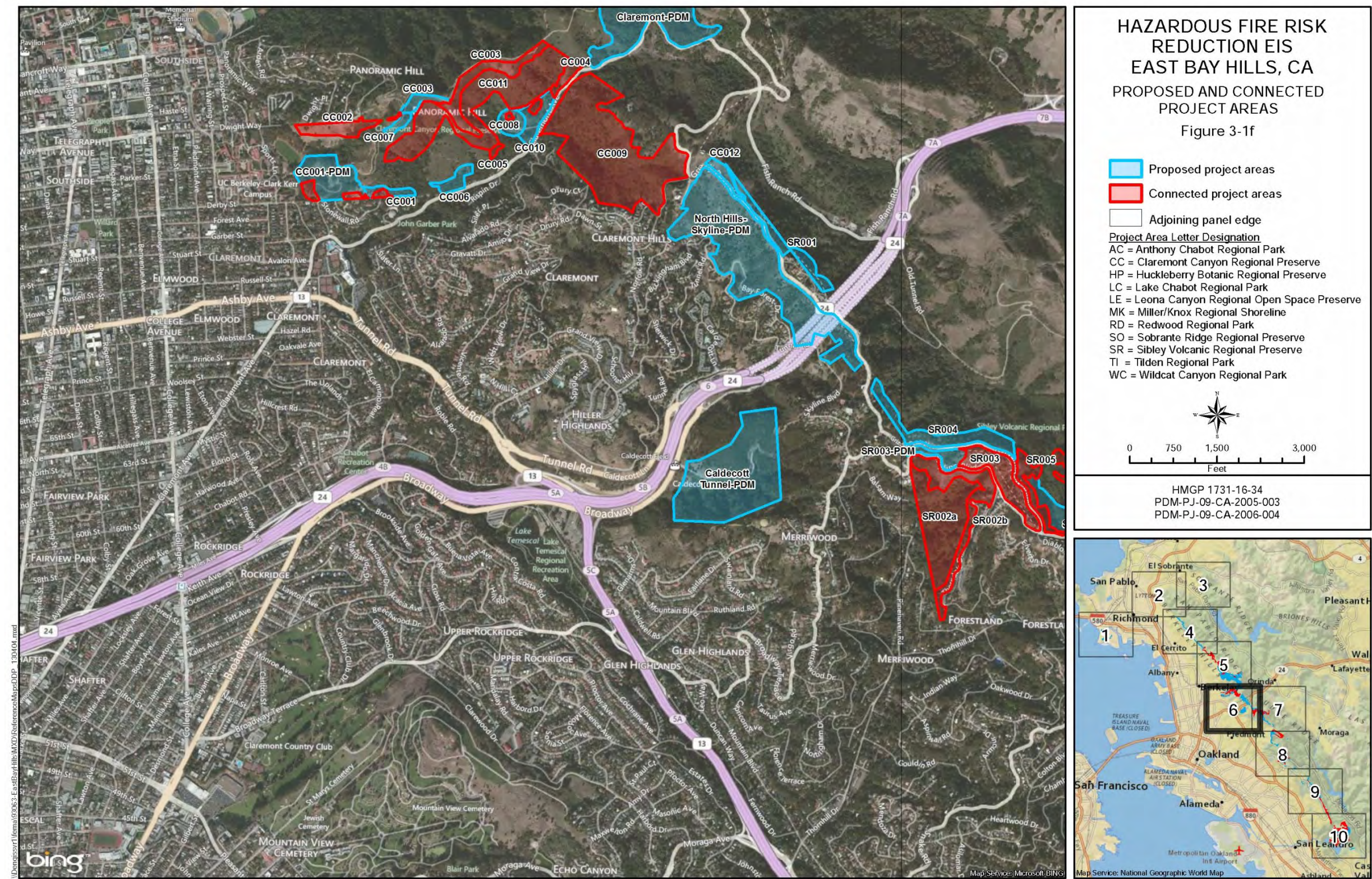


Figure 3-1f. Proposed and Connected Project Areas

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### 3.4.2.1 Application of Unified Methodology

The fuels reduction methodology presented in the draft EIS was revised to more closely align implementation of the project with the purpose and need and in response to a number of public comments received on the draft EIS. This unified methodology was developed in coordination with the subapplicants to apply the methods and approaches described for EBRPD on the UCB and Oakland project areas.

The unified methodology would be applied to portions of four of the treatment areas discussed below: Strawberry Canyon (UCB), Claremont Canyon (UCB), North Hills-Skyline (Oakland), and Caldecott Tunnel (Oakland). The subareas where the unified methodology would be applied were identified as high fire risk sections of the project area that are in close proximity to structures. These subareas are shown on Figure 3-2a through Figure 3-2d. These areas were identified as places where the unified methodology would allow for wildfire hazard reduction that is equivalent in its effectiveness to that previously described in the draft EIS. In these areas, there would be a greater emphasis on thinning rather than complete removal in order to achieve the fire risk reduction goals.

This vegetation management approach will result in fewer trees removed in any single year but the same total fuels reduction would be accomplished by the conclusion of the project. The herbicides proposed to be used and the proposed application rates and BMPs are the same as described in the draft EIS; although, the acreage treated in any one year may be less than previously described. All treatment would still occur over the 10-year time frame. There would be no change in the total area treated or in the location of the treatment areas.

Implementation of the unified methodology would not trigger a supplemental EIS because it would not make a substantial change in the proposed action that is relevant to environmental concerns, nor are there significant new circumstances. The implementation of the unified methodology does not change the areas or acreage treated, and it does not change the final outcomes in each area where it would be applied. The unified methodology applies the approaches described for the EBRPD parcels to several subsets of the UCB and Oakland parcels. The analyses in the final EIS have been updated to account for the proposed unified methodology, but generally, there is either no change in described effects or there is a lesser intensity of those effects in the locations where the methodology would be applied.

The following sections describe the unified methodology for the UCB and Oakland areas. Table 3-2 summarizes the acreage of each project area where the unified methodology would be applied compared to the total area of the four project areas.

**Table 3-2. Unified Methodology Subarea Acres**

Project Area	Total Polygon Area (acres)	Unified Methodology Subareas (acres)
Strawberry Canyon PDM	56.3	12.4
Claremont-PDM	42.8	9.7
North Hills-Skyline (Oakland)	68.3	3.5
Caldecott Tunnel Ballfields	53.6	2.9

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### 3.4.2.1.1 UCB: Strawberry Canyon and Claremont Canyon

UCB proposes to use the unified methodology in three subareas of Strawberry Canyon (see Figure 3-2a) and one subarea in Claremont Canyon (see Figure 3-2b) to be consistent with the EBRPD approach of selective removal and thinning of trees in some areas with complete tree removal still proposed in other areas. The treatments described in the draft EIS for each of the three UCB project areas: Strawberry Canyon, Claremont Canyon, and Frowning Ridge, remain largely unaltered (see Section 3.4.2.2 and Section 3.4.2.3). The unified methodology would only be applied in small subareas as shown in Table 3-2 and Figures 3-2a through 3-2d. The general strategy for these areas would be to convert the existing high-fire risk eucalyptus-dominated canopy to a lower fire-risk forest of California bay, coast live oak, and other native grass and shrub species that currently exist beneath the canopy. The techniques and equipment proposed are the same as described in the draft EIS. All treatments would be contingent upon consistency with a timber harvest plan to be prepared.

In subareas of Strawberry Canyon and Claremont Canyon located within 100 feet of structures, vegetation treatment will focus on achieving an 8-foot predicted flame length. In the middle of the three subareas in Strawberry Canyon, trees will be thinned and the understory removed during the initial phase of treatment (see Figure 3-2a). In the northern and southern subareas and in the Claremont Canyon subarea, some tall trees would remain following treatment during the initial phase (see Figure 3-2a and Figure 3-2b). The unified methodology would not be applied to the Frowning Ridge project area.

#### *Strawberry Canyon-PDM*

Strawberry Canyon-PDM is located near several residences and contains several University-owned structures. Because of the immediate proximity to these structures the need to reduce fire-hazards is paramount. The treatments would remove high-volume vegetation and create discontinuity in the fuel so that the rate of fire spread is slowed and flame lengths meet the project goal.

The unified methodology would be applied to three subareas of Strawberry Canyon totaling 12.4 acres (see Figure 3-2a). Instead of complete removal of all eucalyptus within the first 2 years, the focus would be to reduce fire fuels within 100 feet of structures. In these subareas, the lower branches of all trees would be limbed to a minimum height of 8 feet, and understory vegetation would be removed. Shrubs would be thinned to a minimum spacing of 6 feet. Oak and bay trees will be retained, and all shrubs under them removed. Eucalyptus trees will remain, at an average spacing of 35 feet, with a clear understory.

Tall trees prone to torching would be removed. No understory would remain near trees that are retained. Under the unified methodology, and as described for EBRPD project areas, trees meeting the following conditions would remain intact in the initial phase:

- Located low on the slope
- Healthy
- Structurally sound
- Larger than 24 inches in diameter

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- Have lower branches that start no lower than 20 feet from the ground
- Separated from other tall trees prone to torching by 35 feet

Based on the results of monitoring for accumulation of fuel volume and potential for torching to occur, additional trees would be removed based on an assessment to be made 5 years after the initial implementation of treatment activities. Progress toward meeting the goals for fire hazard reduction and habitat creation for listed species would be evaluated and treatment efforts may be adjusted accordingly.

The unified methodology would result in removal of most of the eucalyptus canopy in the first 5 years of the 10-year project timeframe of the project to be conducted with FEMA funding. This is similar to the outcome described in the draft EIS. Of the approximately 36 acres of eucalyptus and fire-prone coniferous forest cover in the Strawberry Canyon project area, about 6 acres would contain tall trees during this phase. Additional tree removal after year 5 may be conducted in order to reach goals for fire hazard reduction and habitat creation for listed species. UCB's activities will create 167.9 acres of suitable habitat for the Alameda whipsnake, consisting of at least 32.9 acres of core scrub habitat. This is the minimum goal that must be achieved by UCB for Alameda whipsnake habitat creation within 10 years as required by the Biological Opinion (Appendix P).

### *Claremont Canyon-PDM*

Claremont-PDM is in a location that can shower embers on structures in Claremont Canyon. The proposed treatment would address that problem by removing fuel structures that can produce embers and result in long-range ember distribution. The unified methodology would be applied to a 9.7-acre subarea (see Figure 3-2b) of the 42.8-acre Claremont Canyon project area. The focus in this subarea would be to remove tall trees, especially near the ridge top, reducing the volume of dead fuel on the ground and in tree canopies. In thinned locations, understory vegetation and woody material would be removed, and remaining trees would be limbed to a minimum height of 10 feet.

Similar to other areas, under the unified methodology, trees meeting the following conditions would remain intact in the initial phase:

- Located low on the slope
- Healthy
- Structurally sound
- Larger than 24 inches in diameter
- Have lower branches that start no lower than 20 feet from the ground
- Separated from other tall trees prone to torching by 35 feet

It is expected that approximately 20 tall trees will remain after the first few years of treatment. Based on the results of monitoring for accumulation of fuel volume and potential for torching to occur, additional trees may be removed. Information collected through monitoring conducted as part of the MMP would be used to determine the need for additional treatment approximately 5 years after the initial implementation of treatment activities. Treatment efforts will be adjusted

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based on progress towards achieving the goals of fire hazard reduction and habitat creation for listed species.

The unified methodology would result in removal of most of the eucalyptus canopy in the first 5 years of the 10-year project timeframe of the project to be conducted with FEMA funding. This is similar to the outcome described in the draft EIS. Of approximately 34 acres of eucalyptus and fire-prone coniferous forest cover in the Claremont Canyon project area, about 3 acres would remain during this phase. Additional tree removal after year 5 would be implemented based on the results of monitoring under the MMP.

### 3.4.2.1.2 Oakland: North Hills Skyline and Caldecott Tunnel

Oakland would use the unified methodology in selected subareas to be consistent with the EBRPD approach described in Section 3.4.2.4. In some locations, trees would be thinned and understory removed in the first entry to the stand, and in other locations, larger areas of trees would be removed as previously described in the draft EIS. City property adjacent to homes would be treated to achieve an 8-foot flame length within 100 feet of structures. The treatment type to be used in specific areas would be determined by an evaluation of effectiveness of fire behavior reduction, operational ease, and costs of implementation rather than a goal of native plant restoration. All treatments would be contingent upon consistency with a timber harvest plan to be prepared.

Implementation of the MMP would include an assessment of project progress and success in meeting project goals throughout the 10-year timeframe of the project. Implementation of the proposed action would create 40.8 acres of suitable habitat for the Alameda whipsnake, consisting of at least 18.2 acres of core scrub habitat. This is the minimum goal that must be achieved by Oakland for Alameda whipsnake habitat creation within 10 years as described in the Biological Opinion (Appendix P).

The unified methodology would be applied to two areas, North Hills-Skyline and Caldecott Tunnel, which are described below.

#### *North Hills-Skyline-PDM*

Areas within North Hills-Skyline where the unified methodology would be used are shown in Figure 3-2c. The unified methodology would result in three fire risk reduction outcomes in North Hills-Skyline area, including:

- Creation of a fuel break within 100 feet of structures in these three subareas totaling 1.2 acres. North coastal scrub would be managed to ensure flame lengths would be less than 8 feet at the property boundary. Shrubs may be thinned to create shrub islands or trimmed and all dead material removed. Trees located more than 100 feet from structures with a height of 80 feet or taller would be cut down and material lopped and scattered.
- Thinning of Monterey pine trees in a 0.9-acre area to an average spacing of 25 feet with a clear understory. Oak and bay trees would be retained as described and all shrubs under them removed. Lower limbs of all trees would be pruned to a minimum height of 8 feet.

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Trees outside of these subareas with a potential height of 80 feet or taller would be cut and material lopped and scattered.

- Thinning of eucalyptus trees in the first few years of the project to an average spacing of 25 feet within a 1.4-acre area located above a privately held grove and below the proposed fuel break along Grizzly Peak Boulevard. Within this area, all shrubs and understory vegetation would be removed. Lower limbs of all trees would be pruned to a minimum height of 10 feet. Further tree removal would occur 5 years after initial treatment, depending on monitoring results from predicted flame lengths and potential for torching and on progress towards habitat creation goals in those thinned areas.

Within the rest of the North Hills-Skyline area, all eucalyptus and Monterey pine trees would be removed as described in Section 3.4.2.3.1.

The unified methodology would result in the removal of most of the eucalyptus canopy in the first 5 years of the 10-year project timeframe of the project to be conducted with FEMA funding. Of the approximately 10.5 acres of eucalyptus and fire-prone coniferous forest cover in the North Hills-Skyline project area, approximately 1.4 acres would contain tall trees during this phase. Additional tree removal after year 5 may be conducted in order to reach goals for fire hazard reduction and habitat creation for listed species.

### *Caldecott Tunnel-PDM*

The unified methodology would be applied to the treatment of eucalyptus trees in two locations in the 53.6-acre Caldecott Tunnel totaling approximately 2.9 acres: a 1.0-acre area south of the Caldecott Tunnel near the fire road and a 1.9-acre area at the entrance to the tunnel on the lower portion of the slope (see Figure 3-2d). Within these two locations, selected eucalyptus trees would be thinned to a spacing of 25 feet in the initial phase. All trees would be examined for health and structural integrity. Those trees with poorly attached stems (as may be the case with multiple stems) or with poor balance or other characteristics would be removed during the first year. Larger, healthy, and structurally sound trees nearest the tunnel would be retained. In thinned locations, all understory vegetation and woody material would be removed, and remaining trees would be limbed to a minimum height of 10 feet. At year 5, the thinned area would be evaluated for additional tree removal based on tree crown expansion, accumulation of understory material, and progress towards habitat creation goals.

The unified methodology would result in removal of most of the eucalyptus canopy in the first 5 years of the 10-year project timeframe. This is similar to the outcome described in the draft EIS. Of the approximately 22.5 acres of eucalyptus in the Caldecott Tunnel project area, about 1 acre would remain at the end of this phase. Additional tree removal after year 5 may be conducted in order to reach goals for fire hazard reduction and habitat creation for listed species.

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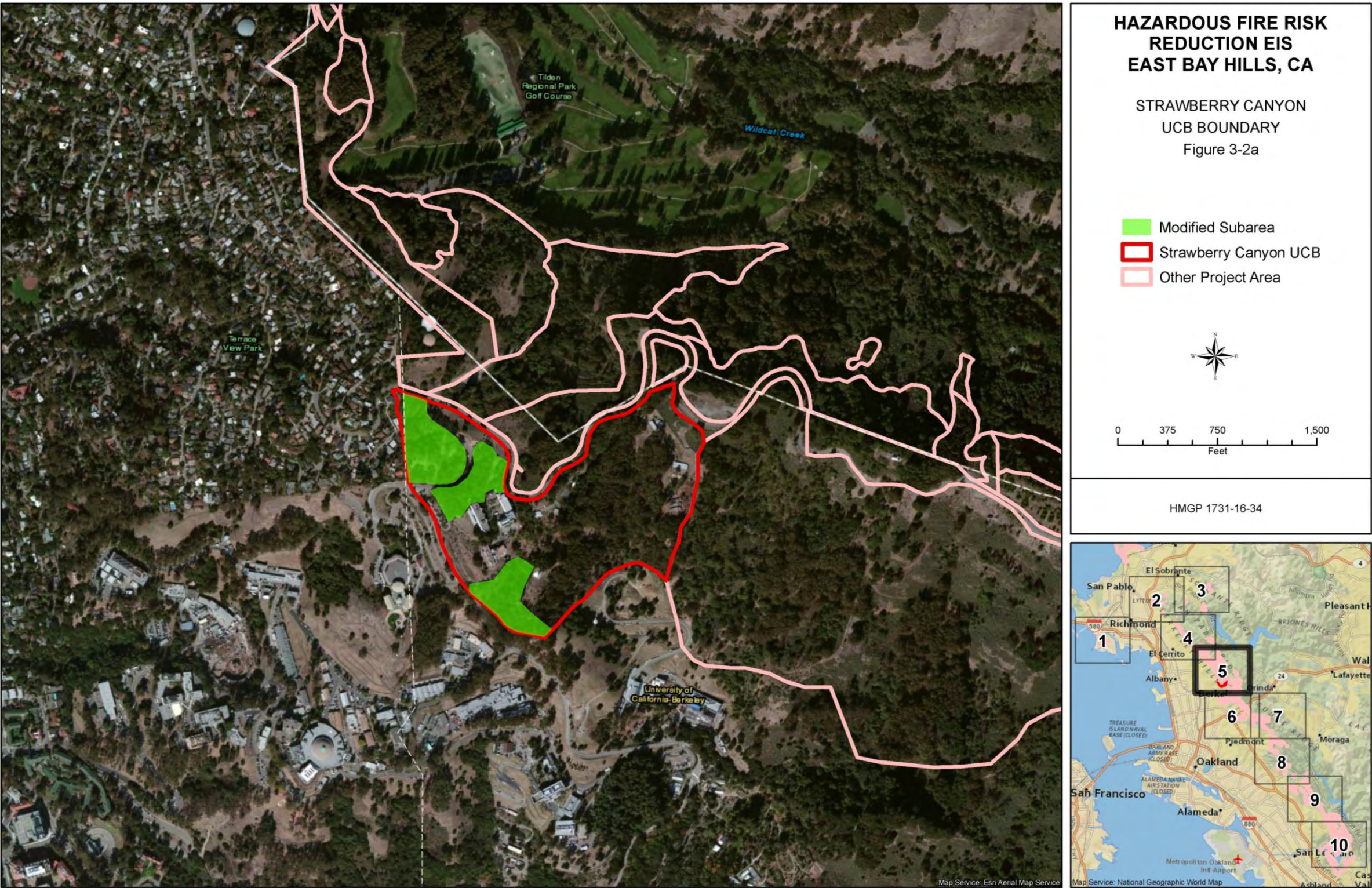
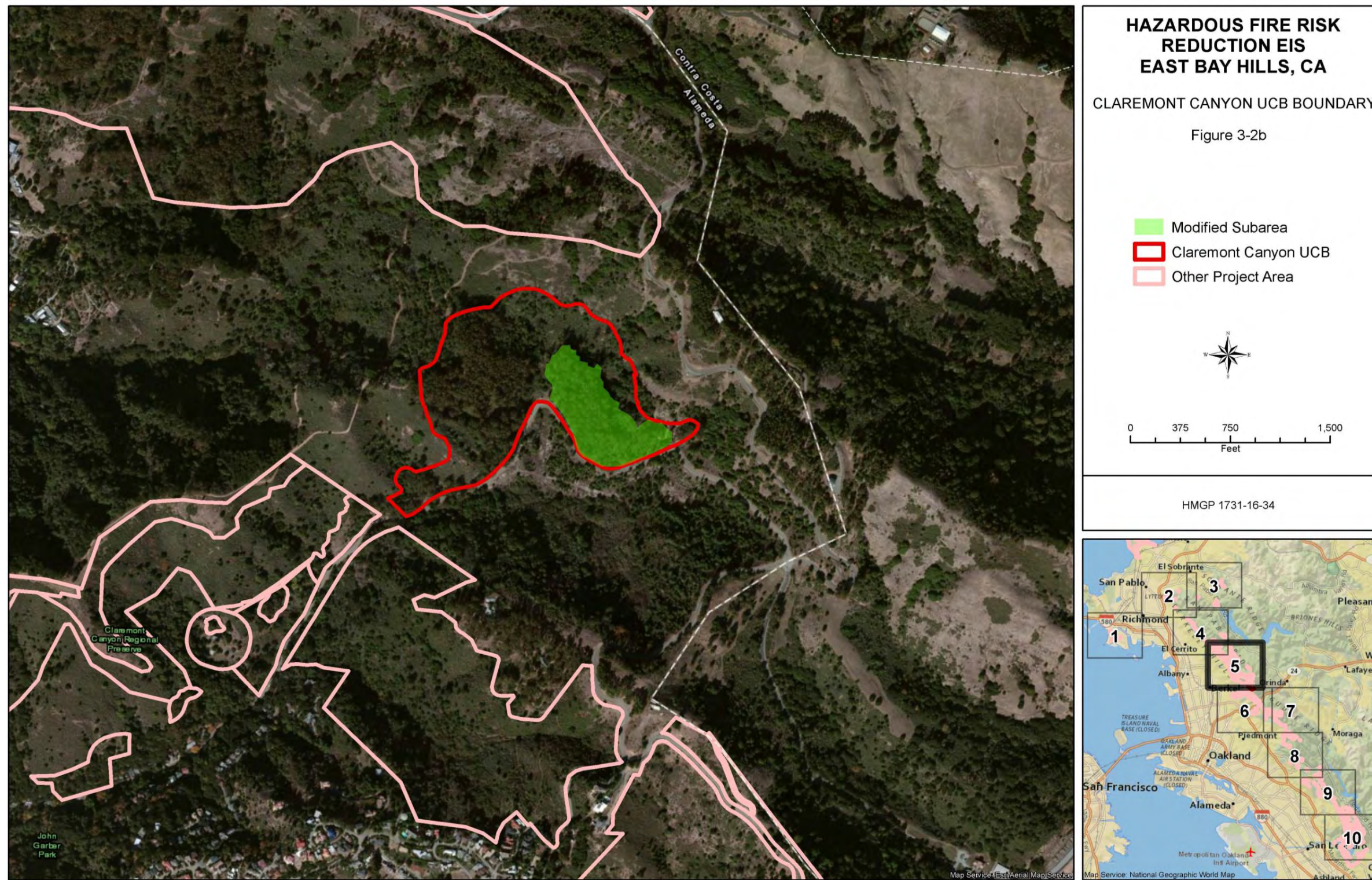


Figure 3-2a Strawberry Canyon UCB Boundary

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**Figure 3-2b Claremont Canyon UCB Boundary**

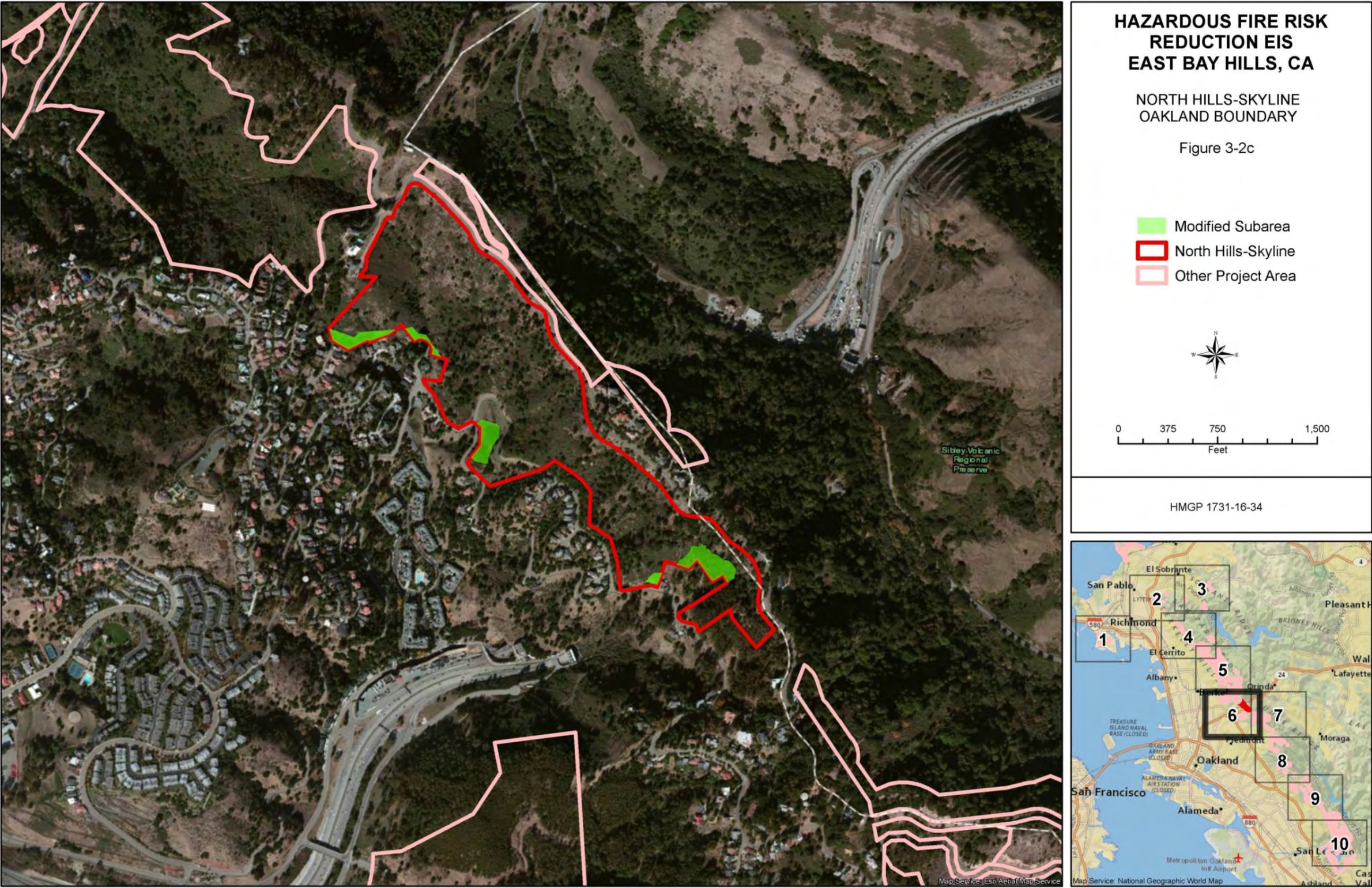


Figure 3-2c North Hills-Skyline Oakland Boundary

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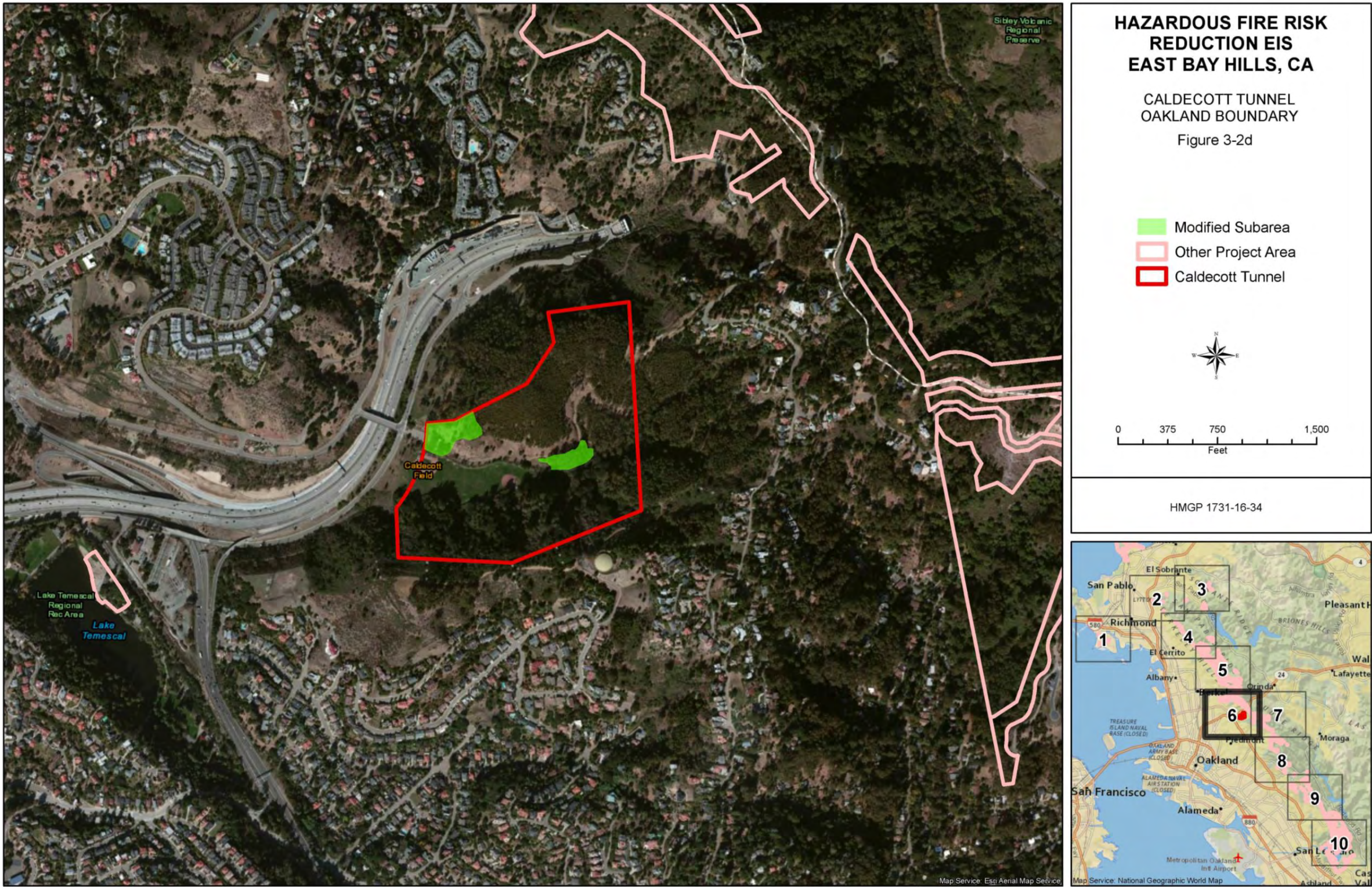


Figure 3-2d Caldecott Tunnel Oakland Boundary

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### 3.4.2.2 UCB

The proposed action includes two projects proposed in two PDM grant applications submitted by UCB. Application PDM-PJ-09-CA-2005-11 covers a 56-acre area designated Strawberry Canyon-PDM, and application PDM-PJ-09-2005-003 covers a 43-acre area designated Claremont-PDM. Both applications focus on removing non-native, fire-promoting trees. The proposed activities are described in the following subsections.

#### 3.4.2.2.1 Strawberry Canyon-PDM

Fire-promoting trees, including most eucalyptus, Monterey pine, and acacia, would be cut down. Eucalyptus and acacia would be prevented from resprouting by application of herbicides to the stumps. This is not necessary with pine because pines do not sprout from stumps. The goal is to reduce the amount of fuel on the site by allowing the forest to convert from a eucalyptus-dominated forest to a forest of California bay laurel, oak, big-leaf maple, California buckeye, California hazelnut, and other native tree and shrub species currently present beneath the eucalyptus and other tall fire-prone trees. The bay laurel and oak species would provide less fuel to potential wildfires than the other species currently provide. Since the draft EIS was published, the approach in three subareas of this project area has been refined and is discussed in detail in Section 3.4.2.1.

Approximately 12,000 eucalyptus, pine, and acacia trees would be cut down. Trees would be cut using hand tools and a mechanized feller-buncher. Hand cutting would involve a pair of workers using chain saws and wedges to fell the tree in a direction that facilitates processing. The feller-buncher is a tracked vehicle with a self-leveling cab that mechanically grasps the standing tree, cuts it with a hydraulically powered chain saw, and arranges cut trees in bunches to facilitate dragging the tree out of the forest (skidding). Use of the feller-buncher is limited to slopes of less than approximately 45%. Trees on steeper slopes or growing within 50 feet of watercourses would be cut down using hand-held equipment only; no heavy equipment would be used for cutting or chipping. The Strawberry Canyon-PDM project may involve closure of Centennial Drive for a few hours at a time to allow cutting and skidding of trees growing close to the road.

To prevent resprouting, an herbicide solution would be applied by a licensed California Qualified Applicator to the cambium ring of eucalyptus and acacia stumps within 60 minutes of felling. The herbicide mixture would likely consist of a combination of Garlon<sup>1</sup> 4 or Garlon 3A (triclopyr) and Stalker<sup>2</sup> (imazapyr) in a solution of methylated seed oil, water, and marking dye. Garlon 3A would be used within 60 feet of running or standing water. A typical tree requires 1 to 2 ounces of diluted solution. Treatment of pine stumps is not necessary because pine stumps do not produce sprouts.

Felled trees up to approximately 24 inches in diameter at breast height (DBH) would be dragged (skidded) by rubber-tired or tracked vehicles along paths called skid trails to open areas called landings. A cable system may also be used to move logs to the landings without use of vehicles. When possible, UCB would use landings and skid trails from previous logging instead of

<sup>1</sup> Garlon is a registered trademark of Dow AgroSciences.

<sup>2</sup> Stalker is a registered trademark of BASF.

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constructing new ones. Nine landings are adjacent to fire trails or paved roads in the Strawberry Canyon-PDM area. Equipment would be staged, fueled, and maintained at these landings while contractors are mobilized. Additional landings may be created when the distance from a tree patch to an existing landing exceeds 600 feet. Environmentally sensitive areas would be avoided.

At the landings, trees would be chipped using a grapple-fed chipper or a tracked chipper. Whole trees would be fed into the chipper and pulled through the blades by a conveyor belt and feed wheel. Alternatively, the tracked chipper may be driven to downed trees on gentle slopes. The wood chips are expected to be between 1 and 4 inches long and would be spread on up to 20% of the site to a maximum depth of 24 inches. UCB would use some of the wood chips to create sediment traps. The maximum depth of chips would be used for the sediment trap to increase both the length of time the traps function and the amount of sediment that can be retained. Chips may also be spread to the maximum depth over uneven terrain and around stumps. Chips would be spread on skid paths to reduce disturbance of soil. UCB expects the chips to decompose in approximately 5 years, restoring the original contours of the portion of the site in which they would be spread and reducing the evidence of skid road creation.

Branches from trees greater than 24 inches DBH would be cut up and scattered on the site (lopped and scattered). The trunks of these trees would typically be cut into 20- to 30-foot lengths. The lop-and-scatter method also would be used when it is impractical to skid a tree to the chipper, such as when the tree is surrounded by vegetation to be preserved or when the tree is on a steep slope. In these cases, the downed tree would be cut by chain saws such that all portions of the tree would be within 24 inches of the ground. Some tree trunks would be placed to help control sediment and erosion or support wildlife habitat.

The objective is to leave all downed material on site. However, if the site yields a large number of large tree trunks, some may be moved to an adjacent portion of the hillside or shipped for use as fuel, a source of paper pulp, or horse bedding. The potential to obtain funds from the sale of salvaged wood materials is not part of the current project although that may result indirectly in those cases where there are too many large tree trunks to leave on site. With the application of the unified methodology, which reduces the number of trees removed during the first few years of the project, the potential need to move some large tree trunks off site would be somewhat reduced.

Completion of the proposed vegetation removal at Strawberry Canyon-PDM is expected to require 20 to 40 weeks spread over 3 to 6 years. In general, work would be conducted from August through November to avoid the wet season and the bird nesting and fledging season. Skidding would not be performed after a heavy rain. Cutting would begin in the northern section of the site and proceed south. Initial work contracts may be issued for several noncontiguous areas, for example, several 5-acre areas adjacent to Grizzly Peak Boulevard. Subsequent work areas would be contiguous to those already completed, each with a clear path to the existing landing areas.

Twice a year, herbicides (Garlon 4, Garlon 3A, Stalker, or Roundup<sup>3</sup> [glyphosate]) would be applied to any sprouts emerging from stumps. Eucalyptus seedlings emerging from seeds would

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<sup>3</sup> Roundup is a registered trademark of Monsanto.

## Alternatives Including the Proposed and Connected Actions

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be managed to prevent recolonization of the site by this invasive species. Follow-up treatments twice a year would include a low-volume herbicide spray applied to resprouted foliage between 3 and 6 feet in height. Follow-up treatments may also include a basal bark application or cutting the sprout and treating the cut surface with herbicide. On some resprouts and seedlings, Roundup may be applied to foliage in combination with Stalker. Use of herbicides would be subject to the restrictions described on the first page of this Section 3.4.2. UCB anticipates that eradication of all eucalyptus resprouts and seedlings on the Strawberry Canyon-PDM site would take 7 to 10 years after the mature trees are cut.

### 3.4.2.2.2 Claremont-PDM

Claremont-PDM is largely a eucalyptus forest. The proposed vegetation management activities and mitigation measures are the same as for Strawberry Canyon-PDM. About 10,000 trees would be cut down, mainly eucalyptus with some pine and acacia. As with Strawberry Canyon-PDM, the goal is removal of fire-prone eucalyptus, Monterey pine, and acacia. Since the draft EIS was published, the approach in one subarea of this project area has been refined and is discussed in detail in Section 3.4.2.1.

Three temporary access roads are anticipated to be required for this project. The three roads would be 12 feet wide and total approximately 2,600 feet long. The roads would mainly follow existing logging roads created during work done in 1974 and 1975 when the site was last cleared. Earth moving would be required at the end of each trail and at switchbacks. Five landings are adjacent to existing fire trails or paved roads in the Claremont-PDM area.

UCB anticipates that completion of the proposed work would extend over a period of 2 to 6 years, with 20 to 35 weeks of actual vegetation removal work. In general, work would be conducted in August through November to avoid the wet season and avian nesting and fledging seasons. Temporary closure of Claremont Avenue may be required during cutting and skidding of trees that are close to the roadway.

### 3.4.2.3 Oakland

Oakland's grant application (PDM-PJ-09-CA-2006-004) includes six proposed projects in Alameda County near the Contra Costa County border. The projects would be implemented by Oakland, UCB, and EBRPD. The six projects are Oakland's North Hills-Skyline-PDM and Caldecott Tunnel-PDM projects; UCB's Frowning Ridge-PDM project; and EBRPD's Tilden Regional Park-PDM (Tilden-Grizzly), Sibley Volcanic Regional Preserve-PDM (Sibley Triangle and Island), and Claremont Canyon-PDM (Claremont Canyon-Stonewall) projects. The six proposed projects are described in the following subsections.

#### 3.4.2.3.1 North Hills-Skyline-PDM (Oakland)

This proposed 68-acre proposed project area is on the southwest side of Grizzly Peak Boulevard north of State Route (SR) 24 and above the Caldecott Tunnel. It includes eucalyptus, pine, and brush. The 1991 Tunnel Fire began at the northwestern end of this site, and the entire site burned. The proposed action would extend the fuel break created by previous UCB and EBRPD projects. Oakland's goals are to remove eucalyptus and Monterey pine and to convert brush to grassland along Grizzly Peak Boulevard to create a ridgeline fuel break. In the southeastern portion of the proposed project area, removal of eucalyptus would promote emergence of a forest of California

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## Alternatives Including the Proposed and Connected Actions

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### 3.4.2.3.3 Frowning Ridge-PDM (UCB)

UCB owns the 185.2-acre Frowning Ridge proposed project area. UCB proposed to remove fire-prone vegetation, including all eucalyptus, Monterey pine, and acacia. The goal of this project is to reduce the amount of fuel on the site by allowing the forest to convert from a eucalyptus-dominated forest to a forest of California bay laurel, oak, and native grass and shrub species currently present beneath the tall, fire-prone trees. The bay laurel and oak species would provide less fuel for potential wildfires than the other tree species currently provide. Portions of the site would convert to coastal scrub or coyote brush scrub.

Approximately 25,000 eucalyptus and pine trees up to 48 inches DBH would be cut down. Many of the trees are more than 100 feet tall. The same procedures described for the Strawberry Canyon-PDM project in Section 3.4.2.2.1 above would be used for tree removal, management of cut material, suppression of resprouting from stumps, and suppression of seedlings at Frowning Ridge-PDM.

Closure of Grizzly Peak Boulevard for a few hours at a time may be required during cutting and skidding of trees close to the roadway. The Upper Jordan Fire Trail, an unimproved road on UCB land, would be closed to the public as necessary during logging. UCB would coordinate with local fire departments to permit emergency access or alternative access to the land served by the fire trail.

When possible, UCB would use landings and skid trails from previous logging instead of constructing new ones. UCB anticipates that one additional temporary access road approximately 200 feet long and 12 feet wide would be needed and that earth moving would occur along the entire length of the temporary road.

Twelve landings exist adjacent to fire trails or paved roads in the project area. Equipment would be staged, fueled, and maintained at these landings while contractors are mobilized. Additional landings may be created when the distance from a tree patch to an existing landing exceeds 600 feet. Environmentally sensitive areas would be avoided.

Completion of the proposed vegetation removal at Frowning Ridge-PDM is expected to require 40 to 60 weeks spread over 2 to 3 years. In general, work would be conducted from August through November to avoid the wet season and the bird nesting and fledging season. Skidding would not be performed after a heavy rain. Cutting would begin in the northern section of the site and proceed south. Initial work contracts may be issued for several noncontiguous areas, for example, 8 acres of cutting adjacent to each of the two lower landings in the first year. Subsequent work areas would be contiguous to those already completed, each with a clear path to the existing landing areas.

In August 2014, UCB undertook environmental treatment measures on approximately 7.5 acres of the 185.2-acre parcel at Frowning Ridge. According to UCB, they felled 150 eucalyptus, Monterey pine, and acacia trees and applied an herbicide to eucalyptus and acacia stumps. In undertaking these actions prior to issuance of the final EIS, UCB failed to comply with both the specific conditions of the grant and also NEPA requirements, which limit applicant action during the NEPA process under 40 CFR 1506.1. Both required UCB to refrain from action until FEMA

## Alternatives Including the Proposed and Connected Actions

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had completed its environmental review. As a result, the Frowning Ridge parcel is no longer eligible for PDM grant funding.

Nonetheless, the environmental analysis of the impacts of the proposed action at Frowning Ridge has not been removed from the final EIS because it is part of the review and consideration that FEMA has undertaken in concluding whether to fund the proposed actions. FEMA will continue to work with USFWS and NMFS to determine whether UCB's unauthorized work at Frowning Ridge negatively affects UCB's other projects at Strawberry Canyon and Claremont Canyon and will make further decisions regarding these projects in the ROD.

### 3.4.2.3.4 Tilden Regional Park-PDM (EBRPD)

This proposed EBRPD project includes five proposed project areas in Tilden Regional Park on the opposite side of Grizzly Peak Boulevard from Strawberry Canyon-PDM and Frowning Ridge-PDM. The proposed project areas are designated TI012-PDM through TI016-PDM and total 34.3 acres. The most abundant types of vegetation are eucalyptus forest and oak-bay woodland. EBRPD would convert the majority of the eucalyptus and smaller amounts of coyote brush scrub and coastal scrub to successional grassland. The oak-bay woodland and the small amounts of riparian woodland and redwood forest in these project areas would be preserved.

EBRPD's approach to implementation of its proposed and connected projects is described in Section 3.4.2.4.

### 3.4.2.3.5 Sibley Volcanic Regional Preserve-PDM (EBRPD)

This proposed EBRPD project would occur on a 3.9-acre site designated SR003 at the southwestern edge of the preserve in the western portion of a narrow strip of land between Grizzly Peak Boulevard and Skyline Boulevard. This area is referred to as the Sibley Island. The most abundant types of vegetation in this project area are oak-bay woodland and coastal scrub, with smaller amount of successional grassland and eucalyptus forest. EBRPD would convert the eucalyptus and most of the coastal scrub to successional grassland. The oak-bay woodland would be preserved.

EBRPD's approach to implementation of its proposed and connected projects is described in Section 3.4.2.4.

### 3.4.2.3.6 Claremont Canyon Regional Preserve-PDM (EBRPD)

This proposed EBRPD project is also referred to as Claremont Canyon-Stonewall. It would occur in a 13.7-acre proposed project area designated CC001-PDM at the western end of the preserve. The dominant type of vegetation is eucalyptus forest. EBRPD would thin existing dense eucalyptus stands, favoring retention of the larger trees, to create an open eucalyptus stand with minimal understory. Elsewhere, oak-bay woodland and California annual grassland on the site would be preserved.

No more than 25% of the cut material, with a 6-inch maximum diameter, would be left on site in piles. The other 75% of the cut material would be removed from the site. The cut woody material left on site would later be disposed of by burning under prescribed weather and fuel conditions. EBRPD would use hand labor and/or animal grazing to maintain the site.

## Alternatives Including the Proposed and Connected Actions

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EBRPD's approach to implementation of its proposed and connected projects is described in Section 3.4.2.4.

### 3.4.2.4 EBRPD

EBRPD's grant application (HMGP 1731-16-34) proposes hazardous fire risk reduction measures on 540 acres in 11 regional parks. This EIS also addresses connected hazardous fire risk reduction measures planned by EBRPD on 1,061 acres in seven of the same parks. EBRPD's priority is to reduce fuel load and sources by suppressing the density of fire-prone plant species within the proposed and connected project areas. EBRPD would accomplish this through implementation and long-term maintenance of tree and brush removal (mechanical and hand), herbicide treatment, and, although not funded by FEMA, animal grazing, pile burning, and broadcast burning.

EBRPD utilized the WHRRMP to identify proposed and connected project areas. The plan is available at <http://www.ebparks.org/stewardship/fuelsplan/plan>, and the process used to define project areas can be found in Appendix C of the WHRRMP.

The majority of the vegetation management work would focus on reducing the amount of fire-prone species of trees and shrubs, such as eucalyptus, Monterey pine, acacia species, and French broom. French broom is a shrub that is a component of brush and coastal scrub. Quantities of native shrubs, such as coyote brush and sage, would also be reduced in some areas to further reduce the amount of fuel available to a wildfire.

EBRPD would seek to increase the amount of successional grassland, which is grassland with islands of shrubs. Vegetation, such as oak-bay woodland, would be protected and promoted through reduction of eucalyptus, pine and acacia. To further reduce fuel available to a wildfire, woody debris would be removed from oak-bay woodlands, and low branches would be cut off. In areas where oaks and bays are overly dense, these trees may be thinned, favoring retention of healthy, larger oaks and bays to increase the fire resilience of the residual stand. Native redwood forests would be left as they are.

Brush would be thinned to reduce the amount of fuel available to a fire and to create gaps in the available fuel. Brush habitat would be maintained and increased in quality where possible.

Perennial and annual grasses would be managed to maintain open grassland habitat, reduce brush encroachment, increase native species diversity, reduce fuel loads, and maintain travel corridors for native wildlife. Aquatic, wetland, and riparian habitat would be managed to protect and encourage expansion of these habitats. Measures would be implemented to prevent erosion or sedimentation into these habitats.

EBRPD's vegetation management methods are based on its WHRRMP (EBRPD 2009b). The plan recommends selective thinning of areas dominated by plant species that contribute fuel to wildfires. Eucalyptus, Monterey pine, and acacia trees would be targeted to reduce the number of trees per acre or remove entire groves. Lower limbs would be removed from remaining trees and woody debris would be removed from under the trees.

In most cases, desirable vegetation growing beneath eucalyptus would be protected and promoted to replace eucalyptus over time. Logs would be placed and retained as a component of

## Alternatives Including the Proposed and Connected Actions

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the sediment and erosion control measures and to improve wildlife habitat and promote long-term soil productivity. Trees would be removed from the project areas or, in some cases, chipped and left on site. Wood chips left on site would be spread over up to 20% of each site to an average depth of 4 to 6 inches. In addition, although not funded under the HMGP, pile burning and in a few cases area burning would be used under prescribed and permitted conditions to dispose of some of the cut woody material.

EBRPD would use area burning only under prescribed conditions. Prescribed fires are planned events and are not conducted unless trained fire personnel are on scene and fire apparatus and equipment are available. Existing roads or prepared control lines are established to help contain the fire to the project area. Prescribed fire is only applied when weather conditions are safe and within the pre-established parameters. Surrounding fire agencies and dispatch centers are notified prior to burning. A Safety Officer is designated at every prescribed burn operation to ensure firefighters are conducting the burn safely.

In areas where trees are removed, eucalyptus and acacia stumps would be treated with herbicide to prevent or reduce resprouting. Pine stumps do not require treatment because they do not produce sprouts. The herbicide application would include Garlon 4 Ultra or Garlon 3A, a colorant, and an approved carrier agent, such as methylated seed oil, Hasten oil, water, or other product indicated as acceptable on the product label. EBRPD would apply herbicides in accordance with the instructions on the product label, guidance of the California Department of Pesticide Regulation, and restrictions described on the first page of this Section 3.4.2.

Trees within 50 feet of the high water mark of a continuous or intermittent stream would be cut using hand-held equipment. No self-propelled equipment would enter the 50-foot buffer to be used for either removal or processing of vegetation.

Seedlings of eucalyptus, Monterey pine, and acacia would be hand-pulled or chemically treated depending on size. Seedlings 3 to 6 feet tall that are too difficult to pull out would be treated by hand-spraying their leaves with herbicide. Seedlings over 6 feet in height would be cut no more than 18 inches above the ground and herbicide would be hand-sprayed on the cut stubble. Weedy species, such as poison oak, would be treated by spraying their leaves if this could be done without affecting non-targeted plants. If the sprayed herbicide would drift onto non-targeted plants, the weeds would be cut and herbicide would be sprayed on the cut stubble. No spraying of foliage would occur within 60 feet of standing or flowing water or when wind speed is greater than 10 miles per hour (mph) or less than 2 mph (see explanation on the first page of this section 3.4.2).

Best management practices for erosion control would be implemented during and after vegetation removal.

In the maintenance phase, sprouts growing from cut stumps would be treated by hand-spraying herbicide on their leaves or by cutting them and hand-spraying the cut stubble. Poison oak may be selectively treated as required for worker safety in accordance with California Occupational Safety and Health Administration guidelines. No spraying of foliage would occur within 60 feet of standing or flowing water or when wind speed is greater than 10 mph or less than 2 mph.

## Alternatives Including the Proposed and Connected Actions

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Frequency of maintenance treatment would depend on the effectiveness of initial treatment. Stumps would be treated with herbicide up to two times a year until the stump no longer produced sprouts. This typically requires two treatments. Growth of seedlings is highly variable because it is influenced by rainfall, temperature, chip depth, shading by other vegetation, and other factors. It is expected that seedlings would be pulled up to twice a year.

For long-term maintenance, sprouts from stumps would be treated annually. In addition, eucalyptus sprouting from seeds would be managed over time. Experience has demonstrated that most pine and eucalyptus seeds are exhausted within 5 to 7 years of cutting down the trees if no mature trees of these species remain.

For each of the eleven parks in which EBRPD's proposed and connected actions would occur, the locations of the project areas and EBRPD's vegetation management goals are described in the following subsections.

### 3.4.2.4.1 Sobrante Ridge Regional Preserve

Sobrante Ridge Regional Preserve contains proposed project area SO001, a 4.1-acre area on the western edge of the preserve, opposite the eastern end of Rain Cloud Drive. The dominant type of vegetation is oak-bay woodland. EBRPD would convert 0.56 acres of northern maritime chaparral to successional grassland to enhance growing conditions for pallid Manzanita, a federally designated threatened species (see Section 4.2.3). The oak-bay woodland would be preserved.

### 3.4.2.4.2 Wildcat Canyon Regional Park

Eight proposed and connected project areas totaling 112 acres are located in Wildcat Canyon Regional Park. Proposed project areas WC003 and WC004 are adjacent to the Hasford Heights community, and connected project areas WC005 and WC006 are south of Hasford Heights in Alvarado Park, a section of Wildcat Canyon Regional Park. Proposed project areas WC009, WC010, and WC011 and connected project area WC011 extend along the western border of the park and the eastern borders of El Cerrito and Kensington. The principal vegetation types in the Wildcat Canyon Regional Park project areas are oak-bay woodland, eucalyptus forest, and coastal scrub. EBRPD would convert most of the coastal scrub, almost half of the eucalyptus forest, and smaller amounts of coyote brush scrub and fire-prone pine forest to successional grassland, except that in proposed project area WC004, 2.4 acres of coastal scrub would be converted to California annual grassland. Oak-bay woodland would be preserved in all project areas. Riparian woodland would be preserved in the project areas where it occurs: WC009-proposed and WC011-connected. Redwood forest would be preserved in the only project area in which it occurs, WC005-connected.

### 3.4.2.4.3 Tilden Regional Park

Tilden Regional Park contains four proposed project areas totaling 97.7 acres that are included in EBRPD's grant application. In addition, the park contains 13 connected project areas totaling 194 acres. The project areas are near Grizzly Peak Boulevard or residential areas on the east side of Grizzly Peak Boulevard and extend from near the southeastern corner of Kensington to Vollmer Peak. The most abundant vegetation types are eucalyptus forest and oak-bay woodland. EBRPD would convert about half of the eucalyptus forest and smaller amounts of coastal scrub,

## Alternatives Including the Proposed and Connected Actions

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coniferous forest (trees that produce cones), and coyote brush scrub to successional grassland. Oak-bay woodland, redwood forest, riparian woodland, and California annual grassland would be preserved.

### 3.4.2.4.4 Claremont Canyon Regional Preserve

Claremont Canyon Regional Preserve contains seven proposed project areas totaling 21.6 acres that are included in EBRPD's grant application. In addition, the park contains eight connected project areas totaling 130 acres. The project areas are throughout the preserve on both sides of Claremont Avenue in Oakland. The dominant vegetation type is coastal scrub, followed by oak-bay woodland. EBRPD would convert most of the coastal scrub and smaller amounts of coyote brush scrub, eucalyptus forest, California annual grassland, and broom scrub to successional grassland. Oak-bay woodland would be preserved.

### 3.4.2.4.5 Sibley Volcanic Regional Preserve

Sibley Volcanic Regional Preserve contains four proposed project areas totaling 43.6 acres that are included in EBRPD's grant application. In addition, the park contains six connected project areas totaling 118 acres. The project areas are in the southern section of the preserve on both sides of Grizzly Peak Boulevard. A section of the preserve in Oakland called the Sibley Triangle is included in connected project areas. The two most abundant vegetation types are eucalyptus forest and oak-bay woodland. EBRPD would convert about two-thirds of the eucalyptus forest and smaller amounts of coastal scrub, fire-prone pine forest, broom scrub, and coyote brush scrub to successional grassland. Oak-bay woodland would be preserved. Riparian woodland would be preserved in the project areas where it occurs: SR005-proposed and SR005-connected.

### 3.4.2.4.6 Huckleberry Botanic Regional Preserve

Huckleberry Botanic Regional Preserve contains proposed project areas HP001 through HP004, which total 17.8 acres, and also contains a 0.3-acre connected project area designated HP004. The project areas extend along the southern edge of the preserve, adjacent to a residential area on the north side of Skyline Boulevard. The majority of these project areas are oak-bay woodland. EBRPD would convert about two-thirds of the northern maritime chaparral, about half of the eucalyptus, and a portion of the coastal scrub to California annual grassland and successional grassland. The oak-bay woodland would be preserved. Pallid Manzanita would be protected and encouraged to expand.

### 3.4.2.4.7 Redwood Regional Park

Redwood Regional Park contains eight proposed project areas totaling 58.4 acres and five connected project areas totaling 92.8 acres. Most of these areas extend along the east side of Skyline Boulevard at the northwest end of the park, adjacent to single-family homes, or extend eastward from that area along trails into the park. Other project areas are on Redwood Road and Skyline Boulevard in the south-central section of the park. The principal vegetation types in the Redwood Regional Park project areas are Monterey pine forest, eucalyptus forest, and oak-bay woodland. Most eucalyptus in the East Bay Hills is blue gum eucalyptus, but most of the eucalyptus in Redwood Regional Park is red gum eucalyptus.

## Alternatives Including the Proposed and Connected Actions

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EBRPD would convert substantial portions of the Monterey pine forest and smaller amounts of coyote brush scrub, coastal scrub, other coniferous forest, and broom scrub to successional grassland. In addition, two small areas of coyote brush scrub would be converted to California annual grassland. More than 30 acres of red gum eucalyptus would be retained as thinned eucalyptus forest with a sparse understory. Riparian woodland would be preserved in the two project areas where it occurs: RD003-proposed and RD003-connected.

### 3.4.2.4.8 Leona Canyon Regional Open Space Preserve

Leona Canyon Regional Open Space Preserve contains proposed project area LE005, a 4.6-acre area on the eastern edge of the preserve adjacent to a residential area off Skyline Boulevard. This project area is dominated by coastal scrub. EBRPD would convert most of the coastal scrub and a small area of pine forest to successional grassland. A small area of oak-bay woodland would be preserved.

### 3.4.2.4.9 Anthony Chabot Regional Park

Anthony Chabot Regional Park contains nine proposed project areas totaling 200 acres and eight connected project areas totaling 478 acres. Because the relative abundance of different types of vegetation varies greatly among the project areas in the park, the project areas are discussed in four groups in the paragraphs that follow.

Proposed and connected project areas designated AC001, AC002, AC003, and AC006 are in the northern half of the park, north of Keller Avenue. These project areas total 47.7 acres. The most abundant vegetation types in these project areas are oak-bay woodland and coastal scrub, and less than 4% of these areas are eucalyptus forest. EBRPD would convert most of the coastal scrub and smaller amounts of coyote brush scrub, pine forest, and eucalyptus forest to successional grassland. In proposed project area AC002, coastal scrub and a small amount of pine forest would be converted to California annual grassland. Oak-bay woodland would be preserved.

The project areas designated AC007-proposed and AC007-connected extend south-southeast along Skyline Boulevard from Keller Avenue. These project areas total 97.6 acres. The principal types of vegetation in these project areas are successional grassland, eucalyptus forest, and California annual grassland. EBRPD would convert half of the eucalyptus forest and smaller amounts of coastal scrub, pine forest, and coyote brush scrub to successional grassland. The California annual grassland, 7.2 acres of oak-bay woodland, and a small amount of redwood forest would be preserved.

Connected project area AC014 and proposed and connected project areas designated AC010 through AC013 are north of Lake Chabot. These project areas total 440 acres, of which 384 acres is eucalyptus forest. EBRPD would convert half of the eucalyptus and much smaller amounts of coyote brush scrub, coastal scrub, and California annual grassland to successional grassland. The small amount of oak-bay woodland in these project areas, 1.9 acres, would be preserved.

Proposed project area AC014 is also north of Lake Chabot, among the project areas discussed in the previous paragraph. The 92.5 acres of this project area include 58.1 acres of coyote brush scrub. EBRPD would convert the coyote brush scrub to successional grassland. Oak-bay

# Hazardous Fire Risk Reduction Record of Decision

East Bay Hills, California

*February 2015*



**Federal Emergency Management Agency**  
**Department of Homeland Security**  
500 C Street, SW  
Washington, DC 20472

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## RECORD OF DECISION

### East Bay Hills Hazardous Fire Risk Reduction

The California Governor's Office of Emergency Services (Cal OES) submitted to the Department of Homeland Security's Federal Emergency Management Agency (FEMA), four grant applications under their Hazard Mitigation Grant Program (HMGP) and Pre-Disaster Mitigation Program (PDM). These proposals intend to cumulatively reduce risk imposed by vegetation fuel in the East Bay Hills of California. This Record of Decision (ROD) documents the decision to proceed with the proposed action, which constitutes vegetation management work, and recommends funding the four grant applications.

As described further, below, FEMA is selecting<sup>1</sup> the proposed action alternative for all four grants, with the exception of the Frowning Ridge. The proposed action with the required mitigation measures is the environmentally preferable alternative. Reduction of hazardous fire risk would reduce the need for future disaster relief and the risk of repetitive suffering and damage. The no action alternative's slow paced risk-reduction would still pose a risk of hazardous wildfire resulting in significant environmental impacts, and therefore would fail to meet the purpose and need for the action.

### 1.0 Background

The University of California (UCB), City of Oakland (Oakland), and East Bay Regional Park District (EBRPD) submitted a total of four grant applications to FEMA through Cal OES for federal financial assistance to implement hazardous fire risk reduction projects in the East Bay Hills of Alameda and Contra Costa counties, California, and at the Miller/Knox Regional Shoreline in Contra Costa County. The proposed action would be implemented on land owned by UCB and Oakland and within 11 parks owned and maintained by EBRPD.

UCB submitted two grant applications under the PDM program: one for a 56.3-acre area designated Strawberry Canyon-PDM and one for a 42.8-acre area designated Claremont-PDM.

Oakland submitted an application under the PDM program for six projects in Alameda County near the Contra Costa County border. The projects would be implemented by Oakland, UCB, and EBRPD. The six projects are Oakland's North Hills-Skyline-PDM and Caldecott Tunnel-PDM projects; UCB's Frowning Ridge-PDM project; and EBRPD's Tilden Regional Park-PDM (Tilden-Grizzly), Sibley Volcanic Regional Preserve-PDM (Sibley Triangle and Island), and Claremont Canyon-PDM (Claremont Canyon-Stonewall) projects. These six project areas total 359.0 acres.

As noted in the above Summary, the UCB Frowning Ridge project is no longer eligible for FEMA funding. Although FEMA analyzed Frowning Ridge throughout the EIS, this parcel has been rendered ineligible for funding by FEMA under the PDM grant program. In August 2014, UCB was found to have implemented extensive fuel reduction measures prior to the issuance of the final EIS,

<sup>1</sup> In accordance with the Council on Environmental Quality's (CEQ's) NEPA implementing regulations in Title 40 Code of Federal Regulations (CFR) Part 1505.2, FEMA's NEPA procedures in 44 CFR Part 10, and the U. S. Department of Homeland Security (DHS) Directive and Instruction 023-01 "Implementation of the National Environmental Policy Act."

## Record of Decision

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## 2.0 Purpose and Need

The purpose of the project is to substantially reduce hazardous fire risk to people and structures in the project area and consequently reduce the need for future disaster relief and the risk of repetitive suffering and damage. The need for the project arises from the severity and repetitive nature of wildfires in the East Bay Hills area and the proximity of residential areas to open spaces that are susceptible to fires<sup>7</sup>.

## 3.0 Alternatives Considered

The alternatives considered including the no action alternative and alternatives considered but eliminated from further study are summarized briefly, below.<sup>8</sup>

### 3.1 No Action Alternative

Under this alternative, FEMA would not fund any of the proposed grant applications. However, all three subapplicants would continue their own, ongoing vegetation management activities including participation in the Hills Emergency Forum. Ongoing vegetation management activities include annual removal of grass and fuels from roadsides, turnouts, and adjacent to structures, continued maintenance of previous fuel reduction project areas, and other hazardous fuels reduction projects in accordance with each entity's long range plans and funding opportunities.

However, these activities would not result in effective hazardous fire risk reduction along the wildland-urban interface of the East Bay Hills. Therefore, this alternative does not meet the purpose and need.

### 3.2 Proposed Action

The proposed action consists of both the hazardous fuel reduction by vegetation management work as described in the four grant applications, and the connected actions comprising additional vegetation management activities that are not part of the grant applications but are selected by the subapplicants as the best way to manage their high fire risk lands considering the relationship of those lands to other proposed or connected areas<sup>9</sup>. Together, the proposed and connected actions would provide more effective protection over a large area by creating a continuous firebreak along the most vulnerable wildland-urban interfaces.

All three subapplicants propose to reduce fuel loads and fire intensity, primarily by thinning plant species that are prone to torching, and by promoting conversion to vegetation types with lower fuel loads. In many areas the proposed and connected actions would preserve oak and bay trees and convert dense scrub, eucalyptus forest, and non-native pine forest, to grassland with islands of shrubs.

The proposed and connected actions involve the use of herbicides, which would be applied during initial treatment and certain follow-up maintenance activities. The application of best management practices, compliance with state regulations, and adherence to the mitigation measures described in the EIS and the U.S. Fish and Wildlife Service's Biological Opinion (BO) will govern how herbicides can be applied.

<sup>7</sup> Described in detail in Section 2 of the EIS, *Purpose and Need for Action*

<sup>8</sup> Described in detail in Section 3 of the final EIS, *Alternatives Including the Proposed and Connected Actions*.

<sup>9</sup> The Proposed Action is defined in Section 3.4.2 of the EIS, *Proposed and Connected Actions*.

The development of mitigation and monitoring plans (MMPs) are a requirement of grant funding, and will outline the mitigation, monitoring, and maintenance activities to be conducted over the 10-year duration of the project. Maintenance activities were included in the analysis of effects in the EIS. Ongoing maintenance activities following tree removal would include herbicide treatment of sprouts emerging from stumps or foliage, and the removal of eucalyptus seedlings to prevent re-colonization of treated sites.

At the conclusion of the 10-year timeframe of the project, ongoing maintenance activities by the subapplicants would include removing grass and light fuels (such as twigs, needles, and grasses that ignite and burn rapidly) from roadsides, turnouts, and within 100 feet of structures and adjacent private residences on an annual basis.

The fuels reduction methodology presented in the draft EIS was revised in the final EIS for portions of the four UCB and Oakland treatment areas, and extended to those treatment areas the methods and approaches described for EBRPD. This “unified methodology” was developed to more closely align implementation of the project with the purpose and need for the project, and responded to a number of public comments on the draft EIS. The wildfire hazard reduction in the unified methodology is equivalent in effectiveness to the methodologies described in the draft EIS.

The unified methodology would be applied to portions of four high fire risk treatment areas that are in close proximity to structures: Strawberry Canyon (UCB), Claremont Canyon (UCB), North Hills-Skyline (Oakland), and Caldecott Tunnel (Oakland). The emphasis in these areas under the unified methodology focuses on thinning rather than complete removal to achieve the fire risk reduction goals.

Implementation of the unified methodology does not trigger the need for a supplemental EIS because the proposed action is not substantially changed and no significant new circumstances are created by its implementation. Specifically, implementation of the unified methodology does not change the areas or acreage treated, and it does not change the final outcomes where applied. The final EIS concluded that no increase in the described effects would result from the unified method.

### **3.3 Other Alternatives Considered but Eliminated**

#### **3.3.1 Alternative Hazardous Fuel Reduction Program**

These alternative approaches to hazardous fuel reduction were considered (both separately and together as a cohesive program): removal of brush and surface fuels; removal of lower tree limbs; in areas where trees are thick, species-neutral removal of small trees and in some cases understory trees to remove ladder fuels and to create space between trees while maintaining shade to suppress growth of shrubs and grass; removal of eucalyptus debris that falls off the trees after a freeze; keeping grass short by mowing or grazing, especially along roads.

These alternative fuel reduction programs were found to be less effective, more expensive, and likely to result in greater environmental impacts than other alternatives considered. These alternatives would therefore not meet the purpose and need and were not considered in further detail.

### 3.3.2 Broadcast Burning

Broadcast burning alone was found to be ineffective and dangerous to implement in the vegetation types and intermixed wildland-urban interface setting of the project area. This alternative would not meet the purpose and need and was eliminated from further study.<sup>10</sup>

### 3.3.3 Additional Specific Wildfire Hazard Reduction Measures

Also considered but eliminated from further study were: creation of defensible space around structures; improvement of firefighting capacity, equipment, and tactics; exterior sprinkler systems; roof replacement; and management of resprouts from stumps without using herbicides (including manual removal, covering stumps with opaque plastic sheeting, coating stumps with natural tar).

These measures are not full alternatives to the proposed and connected actions, and would not meet the purpose and need for the project.

## 3.4 Environmentally Preferred Alternative

In this case, the environmentally preferable alternative<sup>11</sup> is determined to be the proposed and connected actions alternative. This is because of the proposed and connected action alternatives' ability to significantly reduce the potential for major wildfires. The no action alternative fails to provide a similar reduction. Under the no action alternative, a major wildfire in the East Bay Hills would have significant environmental effects on the natural, historic, and cultural resources and would not offer an opportunity to improve habitat conditions for listed species. The summary of potential effects in the Executive Summary of the EIS shows that there would be the potential for greater significant impacts from a major wildfire than there would be from the mitigation identified in the proposed and connected actions.<sup>12</sup>

## 4.0 Agency and Public Involvement

The agency and public involvement processes are summarized below<sup>13</sup>.

### 4.1 Cooperating Agencies

Cooperating agencies<sup>14</sup> included the U.S. Forest Service (USFS), the National Park Service (NPS), the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS), Cal OES, UCB, Oakland, and EBRPD. These federal, state, and local agencies were involved in the EIS process because they have special expertise in or knowledge of environmental issues, they have

<sup>10</sup> This technique may be used by EBRPD in certain areas under certain conditions, as part of the proposed and connected actions.

<sup>11</sup> The identification of an environmentally preferred alternative is required by NEPA (40 CFR 1508.2(b)). The environmentally preferred alternative is the alternative that has the least impact on the physical and biological environment and that best protects, preserves, and enhances historic, cultural, and natural resources. Economic, social, technical, and agency mission factors are not considered in the identification of this alternative.

<sup>12</sup> Section 5 of the final EIS contains a more detailed evaluation of impacts associated with the various alternatives, including the no action alternative.

<sup>13</sup> Described in detail in the EIS in Section 1, *Introduction*, and in Section 7, *Public Participation and Coordination*. Agency and public involvement activities

<sup>14</sup> Cooperating Agencies pursuant to Section 102(2)(c) of the National Environmental Policy Act (NEPA) and the Council of Environmental Quality Regulations for Implementing NEPA (40 CFR Parts 1500-1508),

jurisdiction by law, or they must approve a portion of the proposed action. The cooperating agencies assisted with the preparation of the EIS by providing comments, information, and analysis.

## 4.2 Consultation

### 4.2.1 Government to Government Consultation

No federally recognized tribes were identified with an interest in or a cultural affiliation to the proposed and connected project areas. Therefore, no government to government consultations were conducted.

### 4.2.2 Section 106 Consultation

FEMA initiated formal Section 106 consultation under the National Historic Preservation Act (NHPA) with the California State Historic Preservation Officer (SHPO) on February 4, 2011, in accordance with 36 CFR Part 800. FEMA notified the Advisory Council of Historic Preservation (ACHP) and the California SHPO. Consulting parties included federal agencies involved in the undertaking, the ACHP, SHPO, local governments, and individuals with a demonstrated interest in the undertaking.

FEMA consulted with the SHPO on the Area of Potential Effect (APE) for the proposed project. A cultural resources survey of the APE was conducted as part of the analysis for the EIS. Consultation was completed in April 2013 when the SHPO concurred with the findings of no adverse effect from the East Bay Hills Fire Risk Reduction Project.

### 4.2.3 Section 7 Consultation

FEMA consulted formally with the USFWS, and informally with the NMFS, under Section 7 of the Endangered Species Act (ESA)<sup>15</sup>. Participation letters were sent to USFWS on June 11, 2010, and NMFS on October 15, 2010, to notify them that FEMA would be developing a biological assessment (BA) to determine if the proposed action would have the potential to adversely affect listed species and/or their critical habitat. FEMA informally consulted with USFWS and NMFS during preparation of the BA, including through requests for species lists, and by confirming the breadth of analysis, topics to be analyzed, and refinement of the action description for consultation.

On September 5, 2012, FEMA transmitted the BA to USFWS and NMFS, initiating formal consultation<sup>16</sup> on the proposed hazardous fire risk reduction methods. NMFS issued a letter of concurrence in April 2013 that the proposed and connected actions were not likely to adversely affect listed species under its jurisdiction. USFWS issued Biological Opinion (BO) on May 10, 2013 addressing adverse effects to listed species. The BO required FEMA and subapplicants to implement conservation measures for both proposed and connected actions starting from the date of its issuance.

Due to pre-decisional actions undertaken in August 2014 by UCB in the Frowning Ridge proposed action parcel and subsequent FEMA decision on ineligibility of the Frowning Ridge parcel, FEMA informally consulted with USFWS and NMFS relative to ESA compliance. . On November 17, 2014, it was determined that the previously issued concurrence letter from NMFS to FEMA on April

<sup>15</sup> Compliance with the California Endangered Species Act (CESA) may be necessary. Compliance with state regulations is the responsibility of the subapplicants.

<sup>16</sup> Section 7(a)(2) of the ESA.

26, 2013, and the BO issued by the USFWS on May 10, 2013, are valid for the remainder of the proposed and connected actions. Likewise, they confirmed that the terms and conditions still apply to all three grant applicants for both proposed and connected actions.

### 4.3 Public Involvement

#### 4.3.1 Public Comments

The official comment period on the draft EIS was from May 3, 2013, to June 17, 2013. The Notice of Availability (NOA) of the final EIS was published in the Federal Register on December 5, 2014. The final EIS addressed comments received on the draft EIS and contained two appendices related to the public review of the draft EIS: Appendix Q, which provides responses to comments received on the draft EIS; and Appendix R, which presents the comments that were received during the public comment period on the draft EIS.

#### 4.3.2 Inputs received on Final EIS

FEMA received several comments between the release of the final EIS and the issuance of this ROD. However, while informative, these comments did not alter the agency's decision or require any modification to the proposed action to be selected.

Comments received from the public on the final EIS were predominantly related to concerns with potential impacts from the use of herbicides (particularly during maintenance activities), information about the removal of trees from UC Berkeley properties, and the recommendation that treated areas be replanted. These comments mirror those raised on the draft EIS or do not identify significant new circumstances or information relevant to environmental concerns. As stated in EIS Sections 5.1, *Biological Resources*, and 5.10, *Human Health and Safety*, all of the mitigation measures related to the use of herbicides would apply to the maintenance phase as well as the initial treatment.

A summarization of additional significant comments received, and explanations as to why changes to the EIS were not warranted, follow here:

EPA expressed concerns with the perceived presumption that the project areas would be able to naturally revegetate. The FEIS and BO require monitoring and reporting, and specifically require FEMA to ensure that each grant applicant perform revegetation activities where the natural succession is not successful. EPA recommends that the ROD clearly identify which herbicide products would be approved for use in which areas. However, the approval of specific herbicide use is subject to federal and state regulatory requirements beyond FEMA control.

Several people commented that the introduction of the unified methodology might pose a procedural issue for the review of the EIS. However, as noted above in section 3.2 of this ROD, implementation of the unified methodology would not trigger a supplemental EIS because it does not substantially change the proposed action in a way that is relevant to environmental concerns, or create significant new circumstances.

While the final EIS and ROD were still under development, FEMA was also notified of minor, ongoing maintenance operations in areas of the connected action. However, as stated in the final EIS, regular maintenance operations are required and included in the effect analysis as part of the cumulative or connected actions, therefore no new circumstances were introduced nor was the proposed action changed.

In addition, the public raised concerns about the effect of Frowning Ridge work on the cumulative effects analysis in the EIS and BO. In addition to the proposed and connected actions, the EIS considered other vegetation management activities by each of the subapplicants. Therefore no significant new circumstances were introduced and the proposed action remained unchanged. In addition, FEMA removed Frowning Ridge from a proposed action under the grants, to a connected action to be funded by UCB as part of its ongoing maintenance activities. Thus, the work does not change the total impacts that could potentially occur as a result of the proposed action.

Finally, some commenters were concerned that the work at Frowning Ridge created a procedural issue for the NEPA process, consequently requiring revision to the analysis in the EIS. The final EIS acknowledged that work was completed on a portion of the Frowning Ridge proposed project area. The NEPA process was still followed because the overall impact to resources by the proposed and connected actions was considered and determined to have been reduced by the removal of the entire Frowning Ridge parcel from grant eligibility.

All inputs and comments received on the final EIS were carefully reviewed to determine if they identified significant new circumstances or information relevant to environmental concerns that could bear upon the proposed action. However, FEMA determined that none of the information presented by the commenters required additional NEPA analysis or affected FEMA's ability to complete the NEPA process with the issuance of this ROD.

## 5.0 Significant Issues and Findings.

Throughout the NEPA process, the public and other agencies assisted FEMA in identifying potential issues to consider in the environmental analysis. The EIS identified unavoidable adverse impacts that would occur with respect to vegetation, wildlife and habitats, protected species, soils, water quality, aesthetics, community character, human health and safety, recreation, and noise. Implementation of required best management practices (BMPs) and mitigation measures would reduce potential adverse impacts on most resources to a less than significant level<sup>17</sup>. Significant adverse impacts remain only with respect to wildlife, aesthetics, community character, and noise.

Significant wildlife impacts would be short-term and limited to common wildlife species, which would be disrupted during implementation and until vegetation communities recover. In the long-term, the proposed and connected actions may benefit wildlife species by providing more habitats composed of native plant species.

Significant adverse visual impacts would occur in two areas in Tilden Regional Park: the area of the Herschell-Spillman merry-go-round and on the Selby Trail near the access point on Summit Road in Berkeley.

Two neighborhoods would experience significant alteration of community character; although the implementation of the unified methodology would lessen the severity of this effect somewhat because the action is spread over 10 years.

At times, when several pieces of heavy equipment are operating simultaneously, significant noise impacts would occur within project areas and at the homes closest to many of the project areas. These impacts would be of relatively short duration and limited to normal working hours.

<sup>17</sup> BMPs and Mitigation measures described in the EIS are described in detail, below, in section 7 of this ROD.

## 5.1 Findings under relevant Statutes and Executive Orders

Several federal laws, regulations, and executive orders apply to the project. Specific findings are described below for each of the relevant laws or executive orders.

**NEPA:** FEMA finds that the EIS is compliant with the procedural and analytical requirements of NEPA. The EIS was prepared in accordance with CEQ's NEPA implementing regulations in 40 CFR Parts 1500 through 1508, FEMA's NEPA procedures in 44 CFR Part 10, and DHS Directive and Instruction 023-01 "Implementation of the National Environmental Policy Act." The EIS development and public involvement processes are described in Section 1.2 of this ROD.

**Endangered Species Act:** As described in Section 4.2.3 of this ROD, FEMA conducted an informal consultation with NMFS and concluded that the proposed action would not likely adversely affect listed salmonids. FEMA also conducted a formal consultation with USFWS on several species that may occur within the project area. USFWS issued a BO with an incidental take statement, required terms and conditions, and a finding that the project would not result in the jeopardy of a listed species. The project is in compliance with ESA.

**National Historic Preservation Act:** As described in Section 4.2.2 of this ROD, FEMA finds that the proposed project is in compliance with the NHPA and that consultation with the SHPO was completed in April 2013. There would be no adverse effect on historic and cultural resources from the East Bay Hills Fire Risk Reduction Project.

**Migratory Bird Treaty Act:** With implementation of the migratory bird mitigation measures described in Section 7.2 of this ROD, the proposed action, which includes connected actions, would avoid impacts to migratory birds and the proposed action would be in compliance with the Migratory Bird Treaty Act.

**Executive Order 13112 Invasive Species:** The proposed action would not contribute to the spread of invasive species. Implementation of the MMPs and the mitigation measures described in Section 7.2 of this ROD would control the spread of invasive species as defined by Executive Order 13112.

**Clean Air Act:** Potential emissions from the proposed and connected actions would not exceed the General Conformity *de minimis* threshold, including emissions from heavy equipment used to remove vegetation, trucks used to transport trees from the project areas, and emissions from burning of vegetation on-site. Therefore, the proposed action is in compliance with the Clean Air Act.

**Clean Water Act:** Many of the required BMPs and avoidance and minimization measures are directly related to protection of water quality in conformance with the Clean Water Act. There would be no placement of fill material in waters of the U.S. BMPs and mitigation measures to control erosion and prescribe herbicide use as described in Section 7.2 of this ROD would be implemented. With these measures, the proposed action is in compliance with the Clean Water Act.

**Executive Order 11990 Protection of Wetlands:** Vegetation and hydrology observed during vegetation mapping suggest that potential small wetlands occur in the proposed and connected project areas generally associated with "riparian woodland" vegetation types primarily in proximity to Wildcat, Strawberry, Claremont, San Leandro, and Redwood Creeks. FEMA followed the 8-step decision making process as follows: 1) FEMA determined that a portion of the project area could be within wetlands; 2) FEMA provided public notice of the proposed action through early scoping and again during the public review of the draft EIS; 3) the EIS identified and evaluated alternatives to

conducting the work as initially proposed in wetland and riparian areas; 4) FEMA identified potential impacts of the proposed action on wetlands in the EIS; 5) through the EIS evaluation process and with consideration of public input, FEMA developed mitigation measures to modify the proposed action and avoid and minimize impacts on aquatic habitats including wetlands; 6) FEMA has determined that the proposed action is practicable as it would not fill wetlands; 7) FEMA provided the public with an explanation of the findings in the final EIS and also in this ROD; 8) implementation of the project is conditioned upon the application of mitigation measures to avoid and minimize impacts from erosion, sedimentation, turbidity, and herbicides.

***Executive Order 11988 Floodplain Management:*** One project area includes a portion of a 100-year floodplain and 14 others are near (less than ½ mile) a 100-year floodplain. FEMA followed the 8-step decision making process as follows: 1) FEMA determined that a portion of the project area is within floodplains; 2) FEMA provided public notice of the proposed action through early scoping and again during the public review of the draft EIS; 3) the EIS identified and evaluated alternatives to conducting the work as initially proposed in floodplains; 4) FEMA identified potential impacts of the proposed action on floodplains in the EIS; 5) through the EIS evaluation process and with consideration of public input, FEMA developed mitigation measures to modify the proposed action and avoid and minimize impacts on floodplains; 6) FEMA has determined that the proposed action is practicable as it would not expose people to flood hazards and would not facilitate development in the floodplain; 7) FEMA provided the public with an explanation of the findings in the final EIS and also in this ROD; 8) implementation of the project is conditioned upon the application of mitigation measures to avoid and minimize impacts from erosion, sedimentation, turbidity, and herbicides.

***Executive Order 12898 Environmental Justice:*** As described in the EIS, the proposed action would not have disproportionately high adverse effects on any minority or low-income populations. Therefore, the proposed action is in compliance with the Executive Order on Environmental Justice

## 6.0 Decision

The East Bay Hills are subject to repetitive, severe wildfires that kill people and destroy homes. The proposed action would meet the purpose and need to mitigate these hazards. FEMA's decision, based on factors including economical and technical considerations, and the agency's statutory mission aimed at addressing fire risk hazard in the study area, is to proceed with the proposed action, consisting of the proposed vegetation management work. FEMA recommends funding the four grant applications, with the exceptions noted below, and will provide funding for eligible activities through the PDM program and the HMGP.

**PDM-PJ-09-CA-2005-011:** Strawberry Canyon – UCB is the subapplicant for the proposed work in the Strawberry Canyon project area. This application meets FEMA's Office of Environmental and Historic Preservation (OEHP) requirements for NEPA compliance and is therefore eligible for funding from the PDM program. The proposed work meets the purpose and need for the project. Approval of grant funding will be subject to implementation of an Maintenance and Monitoring Plan (MMP) and the BMPs and mitigation measures described in Section 7 of this ROD and other programmatic requirements.

**PDM-PJ-09-CA-2005-003:** Claremont Canyon – UCB is the subapplicant for the proposed work in the Claremont Canyon project area. This application is eligible under OEHP requirements and therefore eligible for funding from the PDM program. The proposed work meets the purpose and need for the project. Approval of grant funding will be subject to implementation of an MMP and

the BMPs and mitigation measures described in Section 7 of this ROD and other programmatic requirements.

**PDM-PJ-09-CA-2006-004:** Under this application, the City of Oakland is the subapplicant for several project areas. The following project areas are eligible under OEHP requirements and therefore eligible for funding from the PDM program: North Hills-Skyline-PDM (Oakland), Caldecott Tunnel-PDM (Oakland), Tilden Regional Park-PDM (EBRPD), Sibley Volcanic Regional Preserve-PDM (EBRPD), and Claremont Canyon-PDM (EBRPD). The proposed work in the eligible project areas meets the purpose and need. Approval of grant funding will be subject to implementation of an MMP and the BMPs and mitigation measures described in Section 7 of this ROD and other programmatic requirements. This grant may be considered for partial funding.

In August 2014, UCB undertook vegetation treatment measures on approximately 7.5 acres of the 185.2-acre UCB Frowning Ridge project identified in the Oakland PDM grant application.. In undertaking these actions prior to issuance of the final EIS, UCB failed to comply with both the specific conditions of the PDM grant program and also NEPA requirements, which limit applicant action during the NEPA process under 40 CFR 1506.1. Both required UCB to refrain from action until FEMA had completed its environmental review. Therefore, the Frowning Ridge project area is ineligible for PDM grant funding.

**HMGP 1731-16-34:** Under this application, EBRPD is the subapplicant for work proposed on selected project areas in 11 regional parks. This application is eligible under OEHP requirements and therefore eligible for funding from the HMGP program. The proposed work meets the purpose and need for the project. Approval of grant funding will be subject to implementation of an MMP and the BMPs and mitigation measures described in Section 7 of this ROD and other programmatic requirements.

In reaching a decision, FEMA considered the extensive environmental analysis, including alternatives, the environmental impacts of this project, agency and public comments, and compliance with pertinent federal laws and policies. The mitigation measures identified in the EIS and compiled in this decision, below, in Section 7, will ensure that adverse impacts are avoided and minimized to the maximum extent practicable. In addition, each subapplicant must finalize a MMP that includes annual monitoring, reporting, and adaptive management if performance goals are not met.

Any lack of compliance with the MMPs, the agreed upon measures contained in such MMPs, the Terms and Condition of the Biological Opinion issued by USFWS, the terms and conditions established by NMFS in their No Likely to Adversely Affect (NLAA) concurrence, or with any other measure established in the FEIS, may affect grant eligibility if not properly addressed by corrective measures. The potential for reopening consultation(s) may also arise in certain situations. Ultimately, any violation of the above conditions may jeopardize funding for the grants.

## 6.1 Monitoring and Enforcement

Following the issuances of the ROD, and once funding for a specific grant is awarded, if a Grantee or subgrantee fails to comply with the terms of a grant award, including the environmental conditions (whether stated in a Federal statute or regulation, an assurance, a State Administrative Plan or application, a notice of award, or elsewhere) and based on prescribed monitoring and reporting as established in the BO and other sections of the EIS, FEMA may take one or more of the following actions: withhold payments pending correction of the deficiency by the Grantee or subgrantee, disallow all or part of the cost of the activity or action not in

compliance, wholly or partly suspend or terminate the current award, withhold further awards for HMA grants, or take other available legal or remedial action.

## 7.0 Mitigation

As a condition of grant funding, the subapplicants must implement all of the BMPs and project-specific mitigation measures (identified in Section 5 of the EIS) which are compiled below. In addition, as a condition of grant funding, the subapplicants must comply with the terms and conditions identified in the BO, including , requirements for habitat creation and conservation, as well as required studies, management plans, and reporting requirements outlined in the BO.

The subapplicants must finalize MMPs that identify vegetation goals and habitat performance standards for the 10-year monitoring period. During the 10-year project monitoring period, should success criteria not be achieved at the projected rate, adaptive management practices and additional measures must be implemented to improve progress toward the vegetation management goals. Monitoring will be conducted annually, and the results should be addressed in an annual report, submitted to appropriate agencies including USFWS, by March 31 of each year.

### 7.1 Best Management Practices

Standard BMPs that are included in the conditions for grant eligibility and that must be utilized by the subapplicants in conducting the proposed work, include the following:

- Minimize soil disturbance during and following fuel reduction treatments and inspect disturbed areas for evidence of severe erosion as a result of vegetation management. If severe erosion is occurring at a site, only native plant seeds or stock would be used for erosion control unless otherwise approved by USFWS. If necessary, fencing, signs, maintenance, access control, jute fabric, sediment traps, mulch, straw wattles (without plastic monofilament netting), vegetation management, exotic species control, or any other commonly used erosion control technique may be used to promote the ecological health of the sites.
- BMPs, as identified by the California Regional Water Quality Control Board, would be implemented to control erosion during and after vegetation removal. Erosion control BMPs would include but may not be limited to:
  - Leaving tree stumps and/or root systems in place until vegetation becomes re-established in logged areas
  - Installing storm drain protection prior to vegetation management for project sites near storm drains
  - Placing a deep bed of chips around tree stumps to allow mechanical skidders to travel above the chip bed
  - Using wood chips and tree trunks retained behind stumps to create sediment traps roughly following the slope contour
  - Avoiding operation of heavy equipment on slopes steeper than 35% and developing specific measures to minimize effects of erosion if such areas are unavoidable

- Stabilizing all entrances and exits to control erosion and sediment discharges from the sites
- Cleaning and maintaining streets and roads in such a manner as to prevent unauthorized non-stormwater discharges from reaching surface water or MS4 drainage systems
- Selecting mechanical treatments according to a site's topography, access, vegetation type and potential for environmental impacts
- Vehicle and heavy equipment refueling and maintenance would only be permitted in designated disturbed/developed areas where accidental spills can be immediately contained. All project-related heavy equipment would be regularly maintained to avoid fluid leaks (e.g., gasoline, diesel fuel, hydraulic fluid). All leaking fluid would be stopped or captured in a container until such time that the equipment can be immediately moved off site and repaired. Storage of hazardous materials would not occur within 500 feet of any pond or creek drainage. A plan would be prepared for immediate containment and clean-up of hazardous material spills within or adjacent to each site. Further water quality BMPs may include but would not be limited to:
  - Avoiding crossing drainage areas with running or standing water with mechanical equipment while water is present
  - Complying with the National Pollutant Discharge Elimination System (NPDES) stormwater permitting requirements and preparing Stormwater Pollution Prevention Plans (SWPPP)
  - Applying herbicide to tree stumps and re-sprouts by hand during dry weather and low wind conditions
  - Using hand-fellers for trees within 50 feet of a drainage channel; these trees would be felled perpendicular to ephemeral drainages and processing would be done by a skidder if the skidder could safely handle stems at 50-foot distance from drainage, otherwise, the trees would be lopped and scattered by hand fellers
  - Locating landings to accommodate skidding distances of up to 1,000 feet; for landings near streams, residue piles (sawdust, wood chips, etc.) would be placed away from drainages where runoff could wash residue into streams or wetlands
  - Avoiding skidding across dry or running streams; when that is not possible, temporary crossings would be used during the dry season while ephemeral creeks are dry
  - Taking all necessary safeguards to prevent sedimentation into watercourses during all phases of vegetation management activities
  - Avoiding operating mechanical equipment within the stream buffer zone and, where such impact is unavoidable, employing standard BMPs to mitigate disturbance

## 7.2 Mitigation Measures

In addition to BMPs, the EIS described required mitigation measures to avoid and minimize potential impacts of the proposed and connected actions on a variety of resources. These mitigation measures (described in Section 5 of the final EIS) are compiled below.

In addition to the conservation measures and terms and conditions described in the BO, the following mitigation measures must be implemented by the subapplicants. Please note that with respect to federally threatened or endangered species, if there is a conflict between the measures described

below and the measures described in the BO (contained in Appendix P of the final EIS), those in the BO control.

### **Migratory Birds**

- To avoid and minimize disturbance to active nesting or fledging, work during avian nesting and fledging season (February 1 through July 31) would only be undertaken if the treatment area was cleared by an avian biologist.
- If active bird nests are present, a 50-foot non-disturbance zone would be maintained, unless adjustment is approved by the biological monitor (see below). If an injured bird is found, the USFWS and the nearest wildlife rehabilitation center would be called.

### **Protection of Common Wildlife**

- Project-related vehicles would observe a 15 mph speed limit in all project areas, except on city or county roads and state and federal highways. Off-road traffic outside of designated project areas would be prohibited.
- To avoid and/or minimize attracting predators to the site, all food-related trash items, such as wrappers, cans, bottles, and food scraps, would be disposed of in a securely covered container. These containers would be emptied, and debris removed from the project site at the end of each working day.

### **Wildlife Habitat**

- Existing strategic fire roads will be used to the maximum extent possible. The access routes would avoid scrub habitat, primary constituent elements for the designated critical habitat of the Alameda whipsnake, and stream and riparian habitats.
- All material stockpiling and staging areas would be located within designated disturbed/developed areas that are outside of sensitive habitat areas as determined by the USFWS and/or NMFS-approved biological monitor(s) and/or USFWS/NMFS.

### **Exotic Plant Species**

- The spread or introduction of exotic plant species would be reduced in compliance with EO 13112 by minimizing soil disturbance to areas during and following fuel reduction treatments.

### **Herbicide Use**

- A 60-foot buffer zone adjacent to standing or flowing water would be established within which there would be no foliar application of herbicides. Within the 60-foot buffer, as well as areas greater than 60 feet from surface waters but where there is potential for herbicides to reach aquatic habitats via runoff or drift, only cut stump application of USFWS and/or NMFS-approved, aquatic-safe formulations of herbicides would be used (e.g., Garlon 3A), and the more toxic Garlon 4 Ultra would not be used.
- Herbicides would be applied directly to stumps, and foliar application will not be used in any areas subject to potential drift to surface water bodies. Stump application of all herbicides would be conducted by a State of California Qualified Applicator or by staff under their supervision. Within the 60-foot stream buffer, cut stump application of approved herbicides would be applied within 60 minutes of felling.
- Herbicides would not be applied within 24 hours of predicted rain events (40% or greater chance for rainfall) to reduce the potential for runoff of herbicides into surface water bodies.

- Foliar application of herbicides or other spray application methods would not be applied when wind speeds exceed 10 mph or are less than 2 mph to reduce likelihood of drift into surface water bodies. Chemical treatment shall be conducted in accordance with a USFWS- and NMFS-approved treatment plan.
- Contractors must have all necessary licensing by the California Department of Pesticide Regulation (CDPR) for herbicide application. Use of herbicides shall be consistent with label instructions, and Material Safety Data Sheets documents shall be maintained.
- Integrated Pest Management Approaches: Applicants would also use nonchemical methods, such as hand pulling or chip deposition, on seed stock to prevent seedling germination, thus, reducing the need for herbicides.
- A liquid herbicide would be applied to each cut tree stump within 60 minutes of felling; a typical tree requires 1 to 2 ounces of diluted solution, which must be applied to the cambium layer, directly beneath the bark. The cut stump formulation may be diluted or adjusted when, at the judgment of the project manager, the rate of material used may exceed the amount allowable per acre per year, by EPA regulations.
- Drift from foliar application will be avoided by implementing measures, such as avoiding windy days (e.g., avoid spraying when wind speeds are more than 10 mph or less than 2 mph) and using proper spraying techniques, and following all CDPR regulations. Herbicide would only be applied by hand during dry weather and low wind conditions, and a back sprayer would be used to selectively apply herbicide to the young foliage of re-sprouted eucalyptus.
- Herbicide applications would be rotated for best impact during the growing season. The lowest effective concentration needed for effectiveness would be used, typically specified as a range on the product label. Note that concentration is dependent on method of application; cut stump mixtures are more highly concentrated than foliar mixtures.
- No herbicides would be intentionally applied to non-target species.
- All containers would be labeled according to CDPR regulations.
- All containers would be disposed of according to CDPR regulations.
- All materials would be stored according to CDPR regulations.
- All materials used would be recorded and reported per CDPR regulations.
- To protect workers, the subapplicants will comply with state and federal OSHA standards for exposure to hazardous materials in the workplace.
- To minimize potential exposure of workers and the public, the amount of herbicide used will be the minimum amount required to achieve the needed results.
- The Applicators will be required to maintain accurate and calibrated application equipment to ensure that the amounts of herbicides applied are as proposed.
- Herbicides will be formulated in accordance with the product label, as approved by EPA.
- All personnel involved with the herbicide application will receive safety training specific to the formulated herbicide product that will be used and will follow the site safety and health plan developed for the project that will prevent exposure to proposed herbicide formulations and other formulation constituents at concentrations that could be expected to affect health.

- The subapplicants will follow procedures for public notification and education, including posting the timing, location, and approximate amounts and types of pesticides or other chemicals to be applied at least 24 hours in advance. Trails and campgrounds would be closed prior to vegetation management activities. Trails and campgrounds and other public use areas would be re-opened when safety risks no longer exist.
- Because the restrictions on use are numerous and species/application dependent, the label instructions or CDPR website would be consulted for a complete (and evolving) set of use guidelines and restrictions.

### **Biological Monitor Requirements**

- At least 20 working days prior to the date the project is initiated in the field, the subapplicant would submit the names and credentials of the onsite project biological monitors to USFWS and/or NMFS for review and approval. The biological monitors would have demonstrated knowledge of the biology and ecology of the Alameda whipsnake (AWS) and California red-legged frog (CRLF) and field experience identifying these species as well as botanical knowledge in regards to the federally listed plants. No project activities would begin until the subapplicant or project proponents have received written approval from USFWS and/or NMFS that the biological monitor(s) are qualified to conduct the work. Information included in a request for authorization as a USFWS and/or NMFS-approved biological monitor should include, at a minimum: (1) relevant education; (2) relevant training on species identification, survey techniques, handling individuals of different age classes, and handling of different life stages by a permitted biologist or recognized species expert authorized for such activities by USFWS and/or NMFS; (3) a summary of field experience conducting requested activities (to include project/research information); (4) a summary of BOs under which they were authorized to work with the listed species and at what level (such as construction monitoring versus handling), including the names and qualifications of persons under which the work was supervised as well as the amount of work experience on the actual project; (5) A list of federal recovery permits [10(a)1(A)] held or under which are authorized to work with the species (to include permit #, authorized activities, and name of permit holder); and (6) any relevant professional references with contact information. USFWS and/or NMFS would provide written approval within 10 business days of receipt of the provided information.
- A USFWS and/or NMFS-approved biological monitor would be on site during implementation of project activities that may result in take of federally listed species. Additionally, the biological monitor would be given the authority through communication with the project manager or the project manager's designee to stop any work that may result in take of the CRLF, AWS, and/or other listed species. If the USFWS and/or NMFS approved biological monitor exercises this authority, USFWS and/or NMFS would be notified by telephone and electronic mail within 1 working day. The USFWS contact is Coast Bay/Forest Foothills Division Chief, Endangered Species Program, at the Sacramento Fish and Wildlife Office at telephone (916) 414-6600. The NMFS contact is the Protected Resources Division Chief, North Central Coast Office/ Santa Rosa National Marine Fisheries Service at telephone (707) 575-6050.
- The USFWS and/or NMFS-approved biological monitor(s) would be on site to monitor the initial vegetation removal and/or ground disturbance activities. The USFWS and/or NMFS-approved biological monitor(s) would perform a clearance survey for listed species immediately prior to the initial ground disturbance.

- An employee education program on the federally listed species would be completed prior to the date of initial groundbreaking or vegetation clearing (whichever date comes first) at the project. The program would consist of a brief presentation by the USFWS and/or NMFS-approved biological monitor(s) to explain endangered species issues to all contractors, their employees, and agency personnel involved in the implementation of the project. The program would include a description of the federally listed species and their habitat needs, an explanation of the status of these species and their protection under the ESA, associated consequences of non-compliance with this opinion, and a description of the measures being taken to reduce effects to these species during project implementation.
- Based on training from the biological monitor, all contractors, their employees, and agency personnel involved in the implementation of the project would check for the presence of snakes or frogs next to stationary vehicles, prior to operating the vehicles. If found, the biological monitor would be contacted prior to operating the vehicle. The biological monitor would contact USFWS immediately if an injured snake or frog is found to determine necessary steps.
- If the USFWS and/or NMFS-approved biological monitor(s) observed either of the two listed species in the work area, they would stop work and move the CRLF to a safe location within walking distance of the location where it was found; or if possible, AWS or CRLF would be allowed to disperse on its own. The individual animal would be monitored by the USFWS and/or NMFS-approved biological monitor until it has been determined that it is not imperiled by predators or other dangers. Neither of these two listed species would be moved to laboratories, holding facilities, or other facilities without the written authorization of the USFWS and/or NMFS.
- The USFWS and/or NMFS-approved biological monitor(s) may use nets or their bare hands to capture CRLF at the project site. The USFWS and/or NMFS-approved biological monitors(s) would not use soaps, oils, creams, lotions, repellents, or solvents of any sort on their hands within 2 hours before and during periods when they are capturing and relocating either of these two listed species. The USFWS and/or NMFS-approved biological monitors(s) would limit the duration of handling and captivity of individuals of the listed amphibian. The USFWS and/or NMFS-approved biological monitor would minimize the potential for infecting CRLF with amphibian diseases when capturing and relocating these species by implementing the measures in *The Declining Amphibian Task Force Fieldwork Code of Practice* (available at the Ventura Fish and Wildlife Office's website at [http://www.fws.gov/ventura/species\\_information/protocols\\_guidelines/docs/DAFTA.pdf](http://www.fws.gov/ventura/species_information/protocols_guidelines/docs/DAFTA.pdf)). While in captivity, individuals of the CRLF would be kept in a cool, moist, aerated environment, such as a bucket containing a damp sponge. Containers used for holding or transporting adults of the amphibian would not contain any standing water. The AWS would be placed in a pillowcase or similar container for transport to the release site.
- If the USFWS and/or NMFS-approved biological monitor exercises stop work authority, USFWS and/or NMFS would be notified by telephone and electronic mail within 1 working day. The USFWS and/or NMFS-approved monitor would be the contact for any employee or contractor who might inadvertently kill or injure a CRLF and/or an AWS or anyone who finds a dead, injured, or entrapped individual of these two listed species. The USFWS and/or NMFS-approved biological monitor would possess a working cellular telephone whose number would be provided to the USFWS and/or NMFS.

- Sensitive habitat areas, including AWS and CRLF habitat, known populations of pallid manzanita, and wetlands on the project plans, would be clearly indicated. These plans would be submitted to USFWS and/or NMFS for review prior to project implementation.
- Following approval of plans identifying sensitive habitat by USFWS and/or NMFS, sensitive areas would be delineated with high visibility, temporary, orange-colored fence at least 4 feet in height, flagging, or other barriers. These areas would be avoided to the maximum extent practicable.
- During work activities, ground burrows, holes, and tunnels that provide shelter for small animals would be avoided to the maximum extent practicable.

### **Species-Specific Work Windows**

- In coordination with USFWS and NMFS, work windows have been developed during which the treatment activities would be implemented to avoid effects to federally listed species. Minor vegetation removal activities that are unlikely to injure CRLF or AWS could be implemented during the course of the year with proper BMPs in place. Major ground disturbing activities and use of heavy machinery would require consideration of appropriate work windows for each species, resulting in an open work window to occur between August 1 and November 30. This time frame would also address the work windows for avoiding nesting migratory birds (February through July), hibernating AWS (November 1 to March 31), and the wet season for the CRLF (October 15 to May 15). Although November 1 is typically the start of the wet season, the potential for injuring dispersing CRLF would be minimized by installing exclusion fencing prior to the start of the wet season and avoiding work in dispersal habitat on days with 40% or greater chance for rainfall. Additionally, because AWS begin hibernating in November, any activities that may crush burrows would be avoided by not allowing the use of heavy equipment from November 1 through March 31. Additional considerations for species and work windows are provided in the paragraphs below.

### **Additional Measures Specific to California Red-legged Frog**

- All rules, regulations, best practices, and restrictions as imposed by CDPR would be followed during herbicide application. In addition, all instructions, restrictions, use limitations disposal methods, and spill remediation methods described on each herbicide label would be followed. The recommended 60-foot no-use zone is based on information obtained from the website [http://www.cdpr.ca.gov/docs/endspec/rl\\_frog/index.htm](http://www.cdpr.ca.gov/docs/endspec/rl_frog/index.htm). This no-use zone was imposed over certain areas by the U.S. District Court for the Northern District of California. Some of these no-use zones intersect with the project area and are intended for the protection of CRLF. CRLF habitat may occur throughout the project area; therefore, it is reasonable to apply similar conditions on herbicide application throughout the project area. The implementation of the 60-foot no-use zone required for protection of CRLF is assumed to be adequately protective of all aquatic receptors that may occur in project area surface waters, including special status species (e.g., salmonid fish) and aquatic prey items important for the survival of special status species.
- To the extent practicable, treatment activities involving heavy equipment and/or significant ground disturbance would not occur between April 15 and August 1 within any areas determined to be suitable CRLF breeding habitat (aquatic habitat plus a 60-foot linear buffer) or where the species is deemed present by the biological monitor to avoid potential disturbance to breeding CRLF.

- In areas where herbicides would be applied within 60 feet of the ordinary high water mark of areas determined to be suitable CRLF breeding habitat, only aquatic-safe formulations of herbicides (e.g. Garlon 3A) would be used, and they would be applied only by brushing directly onto stumps. Herbicide use in these areas would be limited to August 1 to October 31 to avoid potential impacts to CRLF tadpoles, egg masses, and dispersing adults. No foliar application of herbicides would occur within 60 feet of breeding habitat for the CRLF or in any areas subject to potential drift to breeding habitat for the CRLF. Species-specific BMPs for the protection of CRLF and associated habitats are also discussed in Appendix F and Appendix L, and these are based on application restrictions imposed by the injunction issued on October 20, 2006 by the U.S. District Court for the Northern District of California.
- In areas with potential or known occurrences of CRLF, exclusion fencing would be installed (prior to the start of the wet season) to prevent frogs from entering an active vegetation treatment area. The exclusion fencing would consist of geotextile fabric with one-way exit funnels every 100 feet. The geotextile fabric would be ERTEC-E or equivalent as approved by the USFWS prior to installation. The lower portion of the fence would be buried to a depth of 4 to 6 inches, and the top of the fence would extend at least 36 inches above ground level. Shrubs within approximately 3 feet of the outside of the fence would be trimmed to prevent access via the shrubs over the fence. The fence would be secured to metal posts and/or wooden stakes to ensure it remains upright and does not fall over. Posts/stakes would be placed on the inner side of the fence to ensure AWS do not enter the work site by climbing the posts/stakes. A USFWS-approved biological monitor would be on site during installation of the fencing to relocate any listed species to outside the treatment area. The biological monitor would survey the work area daily to ensure the fencing is secure and that no listed species are trapped inside. The fencing would be continuously maintained until all construction activities are completed. Following project implementation, fencing would be removed.

#### **Additional Measures Specific to Alameda Whipsnake (Alameda Stripe Racer)**

- To the extent practicable, treatment activities involving heavy equipment and or significant ground disturbance within any areas determined to be suitable AWS habitat would not occur between November 1 and March 31 to avoid potential disturbance to hibernating snakes. Treatments involving hand crews, light mechanical equipment, or prescribed burning can be implemented during the course of the year with proper BMPs in place.
- Exclusion fencing would be installed around all areas where heavy equipment is operated, including landing areas, access roads, and staging areas. Following project implementation, fencing would be removed. See BR-5 above for details on exclusion fencing.
- Skid trails would be sited a minimum of 10 feet away from core AWS habitat and rock outcrops.
- Rock outcroppings and native shrubs within 50 feet of rock outcrops would be maintained and protected from vehicles using orange construction fencing.
- Wood chips and landings would not be placed within 50 feet of rock outcrops.
- EBRPD would develop, implement, and fund a USFWS-approved study of the effects of the proposed treatment activities (e.g., shrub thinning) on the Alameda whipsnake.
- EBRPD would compensate at a 2:1 ratio for the permanent loss of 193.1 acres of core scrub habitat for AWS by purchasing, preserving, and managing in perpetuity under a conservation

easement at least 386.2 acres of suitable core scrub habitat for AWS at USFWS-approved location(s) within its designated critical habitat. The preserved habitat will be managed for the benefit of the AWS under a USFWS-approved compensation plan with a long-term endowment to provide funding for management of these areas in perpetuity. Currently, EBRPD is considering purchasing and preserving in perpetuity under a conservation easement high quality core scrub habitat within an important dispersal corridor within AWS designated critical habitat Unit 6.

### **Avoidance Measures to be Implemented During Pile Burning**

The following is a list of avoidance measures for pile burning that would be implemented when burning piles at all sites with potential AWS habitat that are not isolated and are connected to known sites or quality sites with rock outcroppings:

- Check for burrows before building pile. Avoid placing piles on rodent burrows.
- Light pile from one end (generally the uphill side on slopes) to allow snakes to escape, rather than lighting the whole pile at once.
- Limit material in pile to 4 inches in diameter or less to limit heat penetration into the ground and provide short escape distance.
- Pile burning would not occur in suitable AWS habitat during the hibernation season (e.g. November 1 to March 31).
- No heavy equipment that could collapse burrows within suitable habitat for AWS during the hibernation period (November 1 – March 31).

### **Special Status Species Protocol Surveys**

- Pre-implementation surveys would be conducted to determine the presence of special-status plants within the project areas where vegetation management activities would be conducted. Botanists would conduct a botanical survey for the listed species during the blooming period for each species before vegetation management activities start. All special-status plants would be clearly flagged with high visibility flagging and avoided.

### **Additional Measures Specific to Pallid Manzanita**

- Prior to conducting activities within recommended treatment areas (RTAs) that support *Arctostaphylos* spp., a USFWS-approved biologist familiar with identifying *Arctostaphylos* spp. and their hybrids would train all project staff regarding habitat sensitivity, identification of pallid manzanitas and their hybrids, and these minimization, avoidance, and compensation measures.
- No *Arctostaphylos* spp., within any project area, would be removed without verification from the USFWS-approved biologist that the *Arctostaphylos* spp. in question is not a pallid manzanita.
- No living pallid manzanitas, as determined by the USFWS-approved biologist and the presence of any photosynthesizing leaves, would be removed or damaged.
- No pallid manzanita branches supporting photosynthesizing leaves would be cut, removed, or damaged.
- All shrubs and trees that are not a component of the maritime chaparral vegetation type within 20 feet of pallid manzanita plants and all shrubs or trees that are excessively shading

pallid manzanita plants (i.e., pines, acacias, eucalyptus, oak, bay, madrone, etc.) would be cut and treated to reduce competition with pallid manzanitas and to reduce fuel loads.

- Prior to any fuel reduction activities within pallid manzanita stands, the stand would be surveyed for mature and seedling (less than 5 years of age) pallid manzanitas except within 25 feet of where *P. cinnamomi* has been identified. All adults and seedlings would be flagged with high visibility flagging and avoided.
- Herbicide use within 300 feet of pallid manzanitas would be applied through direct application to the stump only.
- Goat grazing is prohibited within treatment areas containing pallid manzanitas.
- EBRPD Pallid Manzanita Management Plan: Prior to implementing any activity within any RTA containing pallid manzanitas, EBRPD will develop a USFWS-approved long-term adaptive management plan for all stands of pallid manzanitas that occur on EBRPD lands (nearly 75 percent of pallid manzanita plants range-wide occur on EBRPD lands and thus will be covered under this management plan) (ESA 2013). The plan would be designed to ensure the long-term persistence of the pallid manzanita stands and to guide future management actions in and around this species, including (1) managing and expanding existing pallid manzanita stands in such a way as to maximize individual plant health, maintain species genetic integrity and diversity, and promote stand regeneration in perpetuity; (2) establishing or restoring additional pallid manzanita stands in areas that are not subject to fuel management or other incompatible uses; and (3) controlling the spread of the fungal pathogen, *P. cinnamomi*, within and between pallid manzanita stands.
- To reduce the spread of *P. cinnamomi* within the RTAs containing pallid manzanita plants, the following minimization and avoidance measures would be implemented:
  - Each year or prior to any wildfire hazard reduction activities within a watershed supporting pallid manzanitas, an appropriately timed survey of the site to be treated would be conducted by a qualified person approved by the USFWS to identify areas infected with *P. cinnamomi*.
  - Work within 100 feet of any area known to be infected with *P. cinnnamomi* would be scheduled to occur after all other areas within 500 feet of the infection have been treated.
  - A specific ingress/egress route that minimizes the potential spread of *P. cinnamomi* would be identified by a USFWS-approved biologist when working within watersheds that support pallid manzanitas.
  - A wash station would be established at the ingress/egress location. Prior to entering or exiting the ingress/egress location, any potentially contaminated material would be removed from all boots, hand tools, clothing, and other equipment, then these items would be disinfected using 70% isopropanol (rubbing alcohol) or another USFWS-approved substance known to disinfect *P. cinnamomi* contaminated equipment.
  - All work within 300 feet or upslope of pallid manzanitas would be conducted using hand-tools only.
  - Vehicles are prohibited off of service roads within 200 feet of pallid manzanitas.
  - No treatment activities, except for pile burning, would be conducted during the wet season (October 15 to May 15) within RTAs containing pallid manzanitas.

- Pile burning would not occur within 100 feet of any area infected with *P. cinnamomi* during the wet season (October 15 to May 15).
- Within watersheds that support pallid manzanitas, the transportation of wood, slash, and other debris would only be conducted under the guidance of a USFWS-approved biologist and in a manner that minimizes the potential spread of *P. cinnamomi*.
- Prior to conducting any activities within watersheds that support pallid manzanitas, all personnel would attend an environmental awareness training session designed to inform workers about the long-term effects of *P. cinnamomi*, how it is spread, and these minimization and avoidance measures.

### **Reasonable and Prudent Measures and Conditions.**

The following measures and conditions are part of this ROD:

1. Applicants will implement the BMPs and Conservation Measures in the *Description of the Proposed Project* in the biological opinion issued by the USFWS on May 10, 2013.
2. Each applicant has a final Service-approved 10-year MMP prior to their initiation of the proposed project. The MMPs shall include interim and final success criteria for the cover of native and invasive plant species, the cover of suitable listed species habitat, and the decomposition of wood chips within all proposed treatment areas.
3. Each applicant develop and implement Service-approved contingency plans in case the interim and final success criteria are not achieved.
4. UCB to create at least 167 acres of suitable habitat for the Alameda whipsnake consisting of at least 32 acres of core scrub habitat.
5. Oakland will create at least 40 acres of suitable habitat for the Alameda whipsnake consisting of at least 18 acres of core scrub habitat.
6. EBRPD creates at least 62 acres of suitable habitat for the Alameda whipsnake.
7. EBRPD will have a compensation plan finalized and approved by the Service for the purchase, preservation, and management in perpetuity of at least 386.2 acres of core scrub habitat for the Alameda whipsnake at a Service-approved location within its designated critical habitat prior to EBRPD initiating any vegetation management activities within Alameda whipsnake habitat. The conservation easement will be recorded by EBRPD within nine months of EBRPD initiating the proposed project. The long-term endowment funding for the compensation areas will be in place within nine months of EBRPD initiating the proposed project. The endowment will be Service-approved and will provide funding for management of these areas in perpetuity.
8. EBRPD to develop and initiate a Service-approved study analyzing the effects of the proposed shrub thinning on the Alameda whipsnake prior to the initiation of any vegetation management activities within Alameda whipsnake habitat.
9. EBRPD is required to have a Service-approved long-term management plan for all stands of the pallid manzanita that occur on EBRPD lands prior to the initiation of any vegetation management activities within areas that contain the pallid manzanita.

### **Conservation Recommendations.**

1. UCB, Oakland, and EBRPD should incorporate into their projects the creation of suitable aquatic breeding habitat for the California red-legged frog while eradicating non-native species such as bullfrogs, non-native fish, and non-native tiger salamanders that threaten this listed species.

2. UCB, Oakland, and EBRPD should promote the eradication of non-native eucalyptus, Monterey pine, Monterey cypress, and French broom within and near suitable habitat for the Alameda whipsnake and Presidio clarkia.
3. UCB, Oakland, and EBRPD should encourage or require the use of appropriate California native species in revegetation and habitat enhancement efforts.
4. UCB, Oakland, and EBRPD should avoid the use of rodenticides in suitable habitat for the California red-legged frog and Alameda whipsnake and other listed species that rely on small mammals for creating burrows or as a prey source.
5. UCB, Oakland, and EBRPD should manage scrub, grassland, and oak woodland habitats for the benefit of the Alameda whipsnake. EBRPD should re-route trails away from suitable Alameda whipsnake and pallid manzanita habitat.
6. Oakland should develop and implement a Service-approved long-term management plan for the pallid manzanita similar to the one being developed by EBRPD.
7. EBRPD should acquire, preserve, and manage lands containing the pallid manzanita that are currently unprotected on private lands. EBRPD should educate and work with adjacent landowners to minimize the potential for the introduction and spread of *P. cinnamomi* into areas containing the pallid manzanita.
8. Oakland should persuade private landowners in the Oakland Hills (e.g., Oakland Hills Tennis Club, Sunrise Assisted Living Facility, and the proposed Crestmont development) to monitor the Presidio clarkia subpopulations on their lands and control invasive species as required under their management plans that were developed during the California Environmental Quality Act process (e.g., Center for Biological Diversity 2007; Kanz *in litt.* 2009; EBRPD 2009; Oakland 2006).
9. Oakland should increase education of Oakland road maintenance and vegetation and fire management teams in how to avoid and minimize impacts to the Presidio clarkia including delaying their activities (e.g., mowing and weed-whacking) in areas with Presidio clarkia (Chadbourne Way, Old Redwood Road, and Redwood Regional Park subpopulations) until after the Presidio clarkia have set seed (late summer, early fall). The Center for Biological Diversity, California Native Plant Society, and local residents have documented on multiple occasions in recent years vegetation management activities conducted by Oakland in the Crestmont neighborhood that resulted in the disturbance of Presidio clarkia plants within the Chadbourne Way, Kimberlin Heights Drive, Colgett Drive, Crestmont Drive, and Old Redwood Road subpopulations before the plants had released and dispersed their seeds (Kanz *in litt.* 2006; Augustine *in litt.* 2006; Baker *in litt.* 2009; Baker, pers. comm. 2009; Kanz, pers. comm. 2009; Naumovich, pers. comm. 2009).
10. Oakland should persuade private landowners in the Oakland Hills (e.g., Colgett Drive, Kimberlin Heights Drive, and Crestmont Drive) to remove trees where they have been planted in suitable Presidio clarkia habitat as is being done at Redwood Regional Park and the San Francisco Presidio.

### Measures to Prevent the Spread of Sudden Oak Death Syndrome

- If sudden oak death syndrome (SOD) is present in a portion of a treatment area: (a) schedule all landscaping and construction operations to occur first in the SOD-free area and utilize paved and rocked roads and landings to the extent possible; (b) inform personnel that they are working in an area with SOD disease, unauthorized movement of plant material is prohibited, and the intent of mitigation measures is to prevent disease spread; (c) ensure equipment and personnel shoes and boots are cleaned prior to leaving the site after work in the SOD-infested area.

- Conduct operations during the dry season. Utilize paved and rocked roads and landings to the extent possible.
- If property is downwind and down slope from a dense mixed forest with significant infestation, ensuring that water runoff is properly channeled may be beneficial to avoid spread of the disease by water.
- Bay laurels need to be treated with systemic herbicides at least a couple of weeks before being cut down to minimize re-sprouting.
- It is beneficial to attempt to eliminate the pathogen in plants killed or infected by the disease by following these guidelines:
  - Bay and tanoak leaves on the ground will be less conducive to the pathogen than on the tree; thus, simply removing infected foliage and small twigs and mixing them in the top layer of the soil may be beneficial.
  - Composting following EPA guidelines will effectively kill the pathogen.
  - For infected wood, it is best to cut the wood in small logs and allow it to dry without tarping in a sun-exposed and breezy area not far from where the tree was standing.
  - Chipping is effective as long as chips are broadcasted only locally near the area where the tree was growing in a thin layer exposed to sunlight.
  - Burning infected wood is very effective, but do not move firewood from the property where the tree was growing.

### **Measures to Minimize Landslide Risk**

- Prior to implementation of any proposed vegetation removal activity, the recommended treatment area must be screened for landslide activation risk using the following procedure:
  - 1. Subapplicants must refer to:
    - a. The most current available landslide mapping from the U.S. Geologic Survey (USGS) or the California Geological Survey for the proposed or connected project area (for example, the USGS 1997 Summary Distribution of Slides and Earth Flows in the San Francisco Bay Region, California. OFR 97-745c).
    - b. Geographic information systems slope steepness mapping for the proposed or connected project area.
  - 2. If all of the following criteria are satisfied, no further action to address potential landslide activation would be required:
    - a. The area to be treated is in an area listed as “stable,” “few landslides,” or equivalent.
    - b. The average slope steepness of the area to be treated is less than 10° (about 18%).
    - c. There is no visible evidence of landslide activity (e.g., scarps, crooked trees, landslide generated debris piles) within the area to be treated, as documented by field reconnaissance.
    - d. No habitable structures are within 100 feet of the toe of the slope downgradient of the area to be treated.

- 3. Subapplicants must determine on a case-by-case basis whether to retain a qualified professional (e.g., engineering geologist or geotechnical engineer) to conduct a geotechnical reconnaissance to evaluate the potential impacts of fuel reduction activities on future landslide potential if:
  - a. A habitable structure is located within 100 feet of the toe of the slope downhill of the treatment area.
  - b. The prescribed treatment would include the use of heavy equipment and significant ground disturbing activities (i.e., this requirement would not apply to methods such as hand treatment, weed-eating, or chemical treatment), and one or more of the following conditions is identified:
    - i. The treatment area is listed as “unstable” or “many landslides” on applicable slope stability mapping.
    - ii. The average slope steepness of the treatment area is greater than 10° (about 18%).
    - iii. There is visible evidence of landslide activity (e.g., scarps, crooked trees, and landslide generated debris piles) within the treatment area, as documented by a field reconnaissance.

#### **Measures to Minimize Erosion**

- Apply BMPs listed in Section 10.1 of this ROD.
- Existing strategic fire roads will be used to the maximum extent possible.
- New skid trails will be on firm, well-drained soils and grades will typically be less than 15%. Where steep grades are unavoidable, grade breaking techniques and soil-stabilization practices would be implemented.
- Any new temporary access routes and skid trails constructed will be scarified to allow vegetation to reestablish following implementation of the proposed and connected actions.
- Conduct a post-assessment survey for evidence of severe erosion as a result of vegetation management annually for the first 10 years. Survey information will be used to modify, if needed, the maintenance and treatment methods to correct erosion and to achieve vegetation goals. In the event that natural recruitment does not occur as anticipated, additional introduction of native plant species will be implemented. Species introduced would include an assemblage of woody shrubs, forbs, and tree seedlings expected to thrive in the newly opened canopies.
- Hydroseeding may be used as an erosion control adaptive management technique in areas at risk of surface erosion from surface rainwater runoff, or in some cases, in areas that fail to establish native vegetative cover under natural recruitment.
- Unless more stringent application restrictions apply, treatments occurring within or under the jurisdiction of Oakland would be consistent with the City of Oakland Creek Ordinance. Based on this ordinance, trees within 50 feet of watercourses would be cut by hand felling only; no mechanized equipment is intended to be used for either removal or mastication in this 50-foot buffer. If feasible, heavy machinery may be used to end line material out of the buffer area, as long as the machinery itself does not enter or drive inside the buffer zone. Oakland would implement chemical applications per the CDPR pesticide guidance adjacent to water features.

### **Measures to Protect Air Quality**

- All burning would be performed in conformance with Bay Area Air Quality Management District rules and regulations including “Burn Day” requirements.
- Construction sites will be watered twice per day during access road construction on the sites requiring new or repaired access roads.

### **Measures to Protect Cultural Resources**

- During ground disturbing activities (e.g., construction of temporary access roads) the subapplicants will employ a cultural resource monitor to check for the presence of any artifact or burial. The monitor will notify the subapplicant for next steps if any item is encountered.
- EBRPD BMPs will be implemented to ensure avoidance of adverse effects.

### **Measures Related to Recreation and Transportation**

- If trails require temporary closure due to implementation of the proposed and connected actions, the subapplicants will notify the public of any scheduled closures with as much advance notice as possible.
- Adequate warnings to motorists, pedestrians, and bicycle riders will be provided whenever a road or trail is blocked, partially blocked, or closed.
- Flag control warning crews will be used whenever trucks enter or exit public roadways onto adjacent fire trails and landings, large pieces of debris nearby would potentially affect a roadway, or equipment is placed at the project area sites.


### **Measures To Minimize Noise Impacts**

- Each subapplicant will develop a noise control plan for its portion of the proposed and connected actions. The noise control plan will identify procedures for predicting construction noise levels at sensitive receptors prior to beginning work and describe noise reduction measures required to reduce the increased noise levels to the maximum extent possible.
- Equipment will be maintained to reduce noise levels to the maximum extent possible (e.g., exhaust mufflers).
- Hours of work will be limited to 7:00 a.m. to 7:00 p.m. Monday through Friday and 8:00 a.m. to 5:00 p.m. on Saturday. No work will be completed on Sundays.
- Noise complaints will be addressed promptly by the subapplicant and alternate means of project implementation used when feasible, as determined during monitoring as well established reporting.

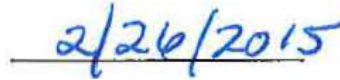
## **8.0 Appeal**

The Regional Administrator’s decision to approve this project constitutes the final decision by FEMA in accord with the regulations at 44 CFR 10. Any challenge of this decision, including the authorization of grant funding must be brought in federal district court.

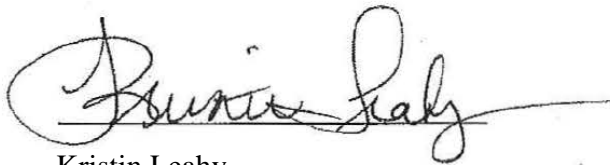
## 9.0 Issued



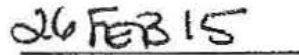
Karen Armes  
Acting Regional Administrator  
FEMA, Region IX



Date



Kristin Leahy  
Environmental Officer  
Office of Environmental Planning and Historic Preservation  
FEMA



Date

## 10.0 Addresses and Further information

The final EIS and ROD are available at <http://www.fema.gov/environmental-historic-preservation-documents>. Additionally, copies will be available at the following locations:

Oakland Main Library, 125 14th Street Oakland, CA

Oakland Rockridge Library, 5366 College Avenue Oakland, CA

Berkeley Main Library, 2090 Kittredge Street Berkeley, CA

San Leandro Main Library, 300 Estudillo Avenue San Leandro, CA

Richmond Main Library, 325 Civic Center Plaza Richmond, CA

FEMA Region IX Headquarters, 1111 Broadway, Suite 1200, Oakland, CA

East Bay Regional Park District, 2950 Peralta Oaks Court, Oakland, CA

City of Oakland, Office of the City Clerk, Oakland City Hall, 2nd Floor, 1 Frank H. Ogawa Plaza, Oakland, CA

California Office of Emergency Services, 10390 Peter A. McCuen Blvd., First Floor, Sacramento, CA

For further information contact: Alessandro Amaglio, Regional Environmental Officer, Region IX, FEMA, 1111 Broadway, Suite 1200, Oakland, CA 94607-4052 (510) 627-7222.

## 11.0 Acronyms

APE	Area of Potential Effect
AWS	Alameda whipsnake
BA	Biological Assessment
BMP	Best Management Practice
BO	Biological Opinion
Cal OES	California Office of Emergency Services
CD	Compact Disk
CDPR	California Department of Pesticide Regulation
CESA	California Endangered Species Act
CEQ	Council on Environmental Quality
CLRF	California Red-Legged Frog
DHS	Department of Homeland Security
EA	Environmental Assessment
EBRPD	East Bay Regional Park District
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
HMGP	Hazard Mitigation Grant Program
MMP	Mitigation and Monitoring Plan

NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NPS	National Park Service
Oakland	City of Oakland
PDM	Pre-Disaster Mitigation program
ROD	Record of Decision
SHPO	California State Historic Preservation Officer
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
UCB	University of California – Berkeley