

VI. PLAN IMPLEMENTATION

This chapter describes a general implementation program and framework for accomplishing the fuel reduction actions recommended in this Plan to reduce wildfire hazards while protecting and maintaining environmental resources within the Study Area. Plan implementation takes place on two levels: a program-wide level where macro-scale decisions regarding the identification and budgeting of treatment actions takes place, and the project-specific level where year-to-year fuel treatment and vegetation management, monitoring, and data collection activities are conducted. To assist the District in making strategic decisions at both levels regarding future actions within given budgetary and staffing constraints, this chapter identifies considerations for District organization and staffing and a summary of estimated relative costs to implement the recommended actions.

In addition to preparing this Plan, District staff currently undertake other wildfire hazard reduction efforts that will be incorporated into this implementation effort, as described below:

Ongoing fuel reduction planning and treatment projects. Over the past several years the EBRPD Fire Department has been planning for and accomplishing fuel reduction projects in specific GIS polygons under an annual “Fuels Treatment Plan.” These ongoing vegetation management actions were primarily funded by Federal Emergency Management Agency (FEMA) grants and the U.S. Fish and Wildlife Service through its National Fire Plan Wildland Urban Interface Initiative Projects and were evaluated for environmental effects under the National Environmental Protection Act (NEPA) in the Final Environmental Assessment (EA) for the East Bay Regional Park District Vegetation Management Projects in Alameda and Contra Costa Counties, California, prepared by URS Corporation in April 2003.¹ Funding provided by Measure CC has been used where existing land use plans and environmental clearances permitted fuel reduction work consistent with that ballot measure.

Organization of a multi-department group to consider wildfire hazard issues. Beginning in 2007, representatives from EBRPD’s Fire Department, Planning, Stewardship, and Operations departments organized a “Fuels Group” that meets monthly to review fuels management projects and coordinate on fuels treatment prescriptions, and environmental restoration, management and monitoring actions.

¹ These FEMA projects and GIS polygons were considered, evaluated and incorporated into the preliminary recommendations for the Recommended Treatment Areas identified in Chapter III of this Plan. They are identified as EBRPD Fuels Treatment Plan Units/Polygons in Table III-2 of that chapter.

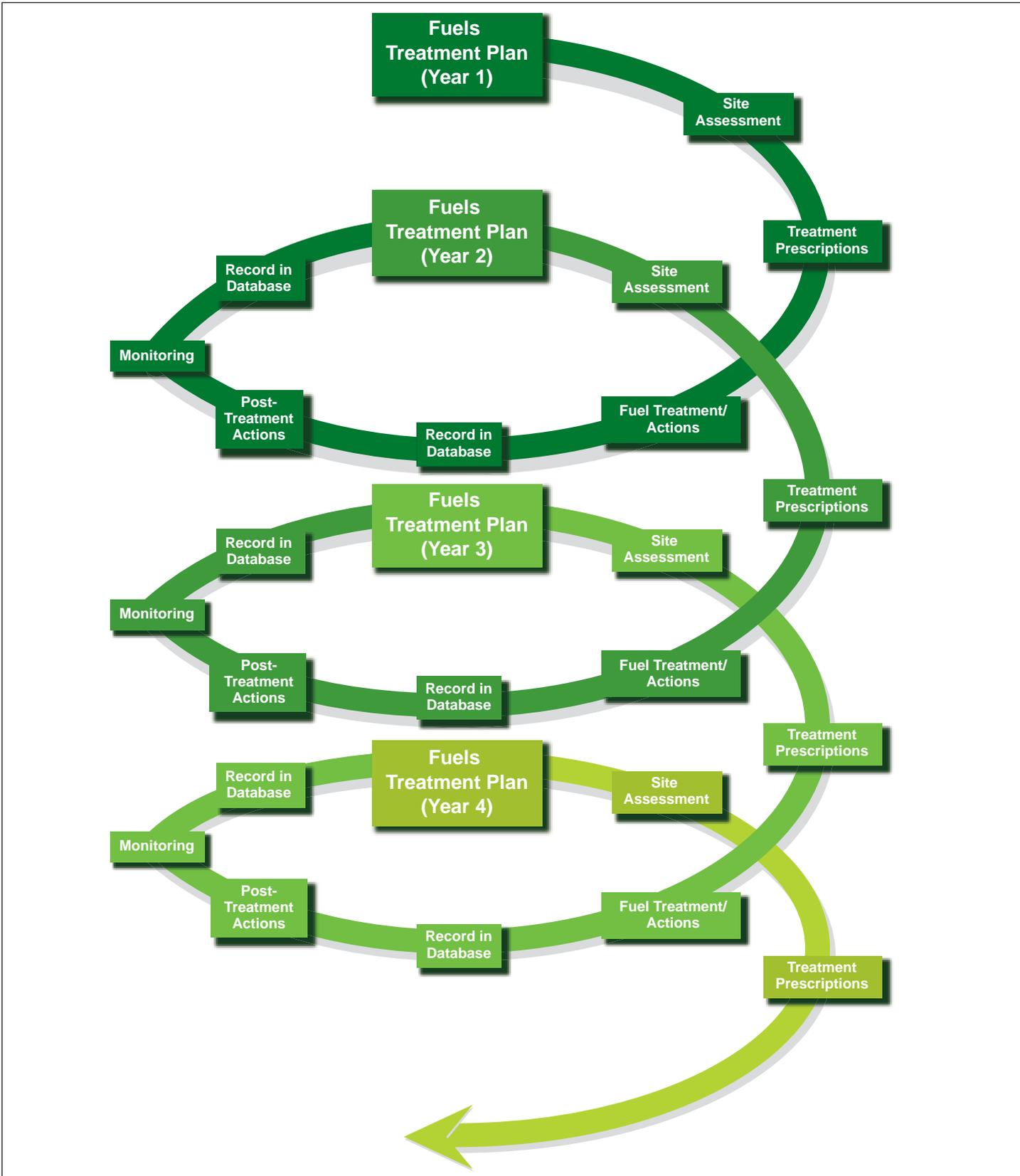
To successfully integrate and implement the fuels reduction and resource management goals of this Plan, the District will need to establish a cross-departmental structure that identifies budgetary, planning, and operational responsibilities.

It is important to note that what can actually be accomplished by the District in any given year will be contingent upon budgetary and workforce constraints. However, implementation of this Plan will enable the District to work more efficiently and effectively toward achieving the vision of low fuel hazard parklands, with the least-cost ongoing maintenance by establishing stable and sustainable plant and animal communities with high habitat values, native species, and biodiversity.

A. PLAN IMPLEMENTATION OVERVIEW

The Plan is designed to provide EBRPD with needed information (e.g., recommended treatment areas, vegetation mapping, locations of known sensitive resources, per Chapter III.) and recommendations (e.g., treatment performance standards and considerations, per Chapter V) to guide decision-making on single- and multi-year District actions as the resources to undertake fuel reduction activities become available. The result is a framework that enables EBRPD to better prioritize and schedule fuels treatment actions within current and anticipated future constraints to the program.

As shown in Figure VI-1, the program-level implementation framework relies upon information and lessons learned from prior treatment actions and monitoring results to inform decision-making regarding future-year actions. EBRPD is committed to applying adaptive management principles to wildfire hazard reduction and resource management activities throughout Plan implementation. Adaptive management allows for the incorporation of post-treatment project review and monitoring information so that lessons learned from completed treatment projects can be used in ongoing management as well as future treatment prescriptions. This integrated feedback loop, as shown in Figure VI-1, coupled with the incorporation of new data, will enable the District to implement increasingly successful and cost-effective vegetation management projects as new information is learned, recorded in the database, and used to inform future decisions regarding costs and long-term success of treatment techniques and objectives. As a result, implementation of the Plan is intended to be a dynamic process, where adjustments can be made as needed to continually improve EBRPD's progress toward the goals and objectives identified in this Plan.



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FIGURE VI-1

*EBRPD Wildfire Hazard Reduction
and Resource Management Plan
Program Level Implementation Framework*

SOURCE: LSA ASSOCIATES, INC., 2008.
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At the project level, overarching goals, objectives, guidelines, and program-level information will be used to identify potential actions and evaluate known constraints as part of preparing Fuels Treatment Plans. EBRPD will use this project-level framework to carry out wildfire hazard reduction and vegetation management actions in order to achieve the goals, objectives, guidelines and performance standards discussed in Chapter II and throughout the Plan.

Yearly Plan implementation comprises three main interrelated and overlapping activities (each activity is described in greater detail below):

- Prepare and prioritize projects for inclusion in annual Fuels Treatment Plans
- Conduct individual treatment actions and post-treatment monitoring
- Update the treatment area database (which includes GIS and hard-copy files)

These activities occur at the project level, with treatment actions, maintenance, monitoring and database updating occurring as often as needed. Feedback from post-treatment monitoring will be used to determine ongoing management needs, which would be incorporated into future Fuels Treatment Plans.

B. PREPARE ANNUAL FUELS TREATMENT PLANS

To implement the Plan, the District will need to take the technical information, treatment methods and vegetation management guidelines contained in the Plan and apply them to varying sites over a multi-year fuels management program. Essentially the District will be undertaking a strategic planning process each year that results in the identification of and budgeting for specific fuels treatment projects within the Study Area. To prepare annual “project-level” work plans, the District must first identify the specific areas to be treated. The Plan recommends that a Fuels Treatment Plan (which includes the criteria and priorities resulting from the decision-making process described below) be prepared on an annual basis and taken to the Board for adoption during the annual budget process. The project-level process for preparing Fuels Treatment Plans is shown in Figure VI-2.

1. Decision-making Criteria

The wildfire hazard assessment, conducted as part of the planning process, resulted in the identification and mapping of recommended treatment areas that are described in Chapter III of this Plan. The first step toward preparing a Fuels Treatment Plan is to identify the treatment areas that should be given priority for treatment in any given year and included in the annual Fuels Treatment Plan. This step is critical for identifying where fuel reduction and vegetation management activities should occur. Treatment areas will be the focus of the

data collection, treatment, monitoring, and reporting actions that follow as part of the implementing actions. To refine and prioritize treatment areas, the District will use information contained in the Plan, the following decision-making criteria, data collected as part of the wildfire hazard assessment (see Appendix C), and GIS mapping data undertaken by the District and updated as part of developing the Plan.

Protecting human lives and public and private property from wildfire danger is the highest priority for the District while undertaking Plan implementation efforts. The District will use the professional judgment of District staff in all departments (e.g., Fire, Stewardship, Operations), the information contained in the Plan, and the following decision-making considerations, to support, prioritize, balance competing objectives and determine which treatment actions or “projects” will be incorporated into the annual Fuels Treatment Plan for any given year and their relative priority to receive funding. The District’s decision-making considerations follow:

Main Objectives and Priorities:

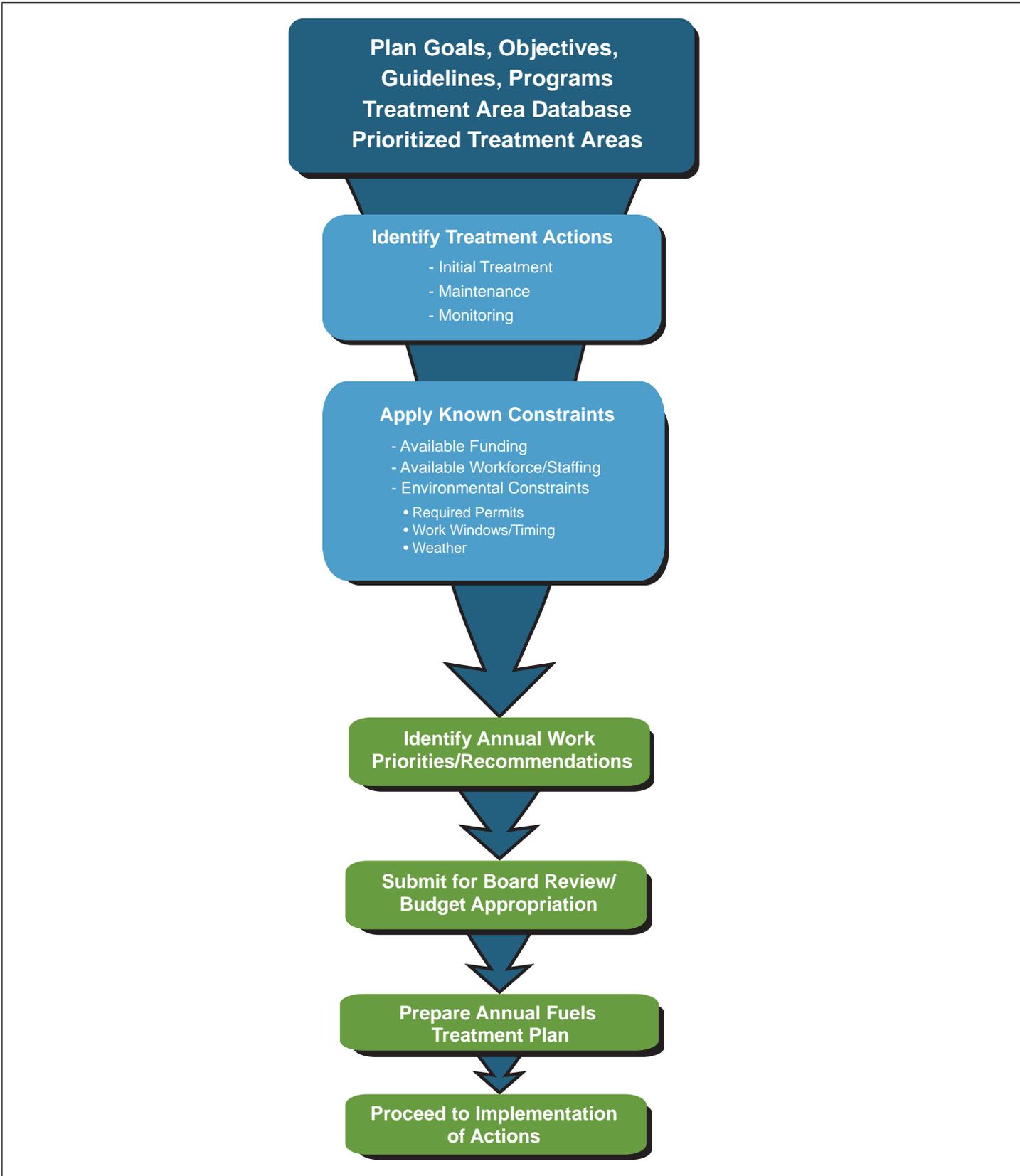
- Protect life and property
- Protect long-term environmental resource values (e.g., native vegetation communities such as oak woodlands, riparian corridors, redwood forests)
- Protect short-term resource values (e.g., grasslands requiring annual mowing or grazing)

Wildfire Hazard Assessment: Identification of Recommended Treatment Areas (from Chapter III):

- Parklands within 200 feet of homes and other structures within and outside park boundaries
- Locations of eucalyptus stands that represent significant threats from torching and crown fires that can cause ember flight
- Areas of vegetation with the potential to produce flames greater than 8-feet in height
- Strategic Fire Routes
- Professional judgment

Criteria for Prioritization of Treatment Areas to be Included in Annual Fuels Treatment Plan:

- Must be treated to reduce a very high fire hazard threat to public safety
- Required strategic fire-fighting access, public safety areas
- Work required to maintain previously treated fuels treatment areas



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FIGURE VI-2

*EBRPD Wildfire Hazard Reduction
and Resource Management Plan
Fuels Treatment Plan Process*

SOURCE: LSA ASSOCIATES, INC., 2008.
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- Treatment is required by law, regulation or ordinance (e.g., weed abatement notices or State law pertaining to maintenance of fire-safe clearance)
- Project has been jointly planned in coordination with other local and adjacent jurisdictions
- Project fulfills both fuels management and resource stewardship objectives, and planning has been coordinated to meet those objectives
- Adequate funding and staffing is available
- Funding has been allocated and will be lost if project is not implemented in a timely manner.

2. Fuels Treatment Plan Preparation Process

Figure VI-2 provides a diagram of the primary steps to be undertaken as part of a program-level decision-making process that would result in the preparation of annual Fuels Treatment Plans to direct and guide specific District fuel reduction actions, as outlined below:

- Review Plan recommendations, recommended treatment areas, Plan and treatment area database (both GIS and hard copy files)
- Prepare a list of potential actions or projects including but not limited to: initial treatment actions in high priority treatment areas, on-going maintenance actions, vegetation management goals, secondary treatment actions, monitoring activities, environmental enhancement and restoration activities
- Apply known “constraints” or limitations to potential action list, including: available funding, available workforce, environmental constraints, contracting constraints
- Create a “short list” of recommended projects to be undertaken on an annual basis and identify preliminary costs and staffing associated with each project
- Set priorities for, and submit recommended projects to the Board for review and consideration during the annual budget process
- After acceptance of priorities and appropriation of funds, finalize the Fuels Treatment Plan and proceed with implementation of the recommended actions.
- Obtain authorization from both the Fire Chief (or Assistant Fire Chief) and the Stewardship Manager who shall sign off on all fuels treatment prescriptions to certify that they meet the District’s standards for fuels management, natural resource protection, and achievement of best management practices according to the Wildfire Hazard Reduction and Resource Management Plan and is consistent with the mitigation measures contained in the EIR.

3. Fuels Treatment Plan Contents

The Fuels Treatment Plan for the targeted treatment areas will identify, prioritize, and assign staff and costs to the fuel modification projects for the following year's budget cycle. The treatment plans may include the following area-specific information:

- Fuels management objectives and prescriptions
- Resource management goals, objectives and prescriptions
- Data and/or maps to identify where targeted treatment areas are located
- Any potential sensitive species and the protective actions and mitigations required to be taken to ensure their protection
- Recreation or operational conflicts and actions to be taken to ensure park visitor and staff safety
- Prescribed treatment methods, including BMPs to be used by field personnel when preparing for and undertaking initial and follow-up treatment actions
- Follow up treatments and maintenance from previous years' work
- Timelines for follow-up treatment and monitoring activities
- Treatment responsibility (District staff, contractors, or other sources)
- Projected treatment costs
- Any other information EBRPD determines appropriate to achieve reduced wildfire hazards and maintain and enhance the onsite natural and cultural resources.

As mentioned previously, EBRPD will apply adaptive management principles to the information gathered and recorded over the previous cycles to prepare the new Fuels Treatment Plans.

C. CONDUCT TREATMENT ACTIONS

The actual performance of treatment actions, monitoring, and follow-up actions identified in the annual Fuels Treatment Plans is the second important strategy of the implementation program. Key activities that may be undertaken to implement the treatment plans—pre-treatment site assessment, developing treatment prescriptions, and conducting follow-up actions such as post-treatment monitoring and record-keeping—are discussed below.

Ongoing activities and actions will need to be scheduled to meet vegetation, resource management and fuel characteristic performance standards identified in the Plan (see Chapter V. Vegetation Management Program) to promote the most efficient and effective

treatments possible. It is also important to note that recording data and managing the treatment area database (the third implementation component) will take place prior to, during, and following treatment actions. To allow for the preparation of more informed and cost-effective treatment plans, field personnel will record site-specific data and other details concerning the nature and execution of the specific treatment methods performed as well as the immediate and long-term results seen at the site.

1. Site Assessment and Data Collection

Regardless of vegetation type, each treatment area must be assessed by a team of qualified personnel (e.g., those with botanical, wildlife, and fuels management expertise) before finalizing prescriptions for specific treatment areas identified in the Fuels Treatment Plan. Verifying vegetation, wildlife habitat, and wildland fuel conditions is required in order to prescribe appropriate treatments, including protective measures for special-status species and other natural resources and native species restoration. Site reconnaissance is especially important, as conditions within any particular treatment area may be different than shown in the GIS database or may have changed over time due to plant succession, pest infestation, disturbance, and other factors.

Treatment considerations and guidelines provided in Table III-2, the District's GIS Plan database, and the following factors should be considered and noted during the pre-treatment site assessment. (see example field survey worksheets that have been provided in Appendix F):

- Fuel characteristics;
- Plant species composition, including cover estimates of dominant, sub-dominant, invasive, and any special-status plant species;
- Wildlife habitat features and any wildlife observations;
- Evidence of nesting (possible, probable, and confirmed nesting locations) generally in accordance with breeding bird atlas methodology;²
- General size class of trees and occurrence of any specimen trees.
- Other site characteristics and resource parameters such as slope, aspect, soil conditions, hydrologic features, vegetative cover and the presence of archaeological, scenic, and recreational resources.

According to the results of the assessment, a predictive analysis based on existing District GIS data, habitat requirements and home ranges should be conducted to determine the potential for occurrences of special-status plants and animals. Depending on the outcome of

² An example of this methodology can be found in the *Contra Costa County, California Breeding Bird Atlas*, 2007.

this analysis, follow-up surveys may be recommended to determine if the potential habitat is actually occupied by special-status species. If this is the case, best management practices and treatment guidelines, as described in chapters IV and V of this Plan, or avoidance and protection measures, as identified in the EIR associated with this Plan, should be prescribed and implemented. Examples of worksheets for pre- and post- treatment site assessments and monitoring are included in Appendix F. Onsite observations will confirm the preliminary treatment recommendations for a specific treatment area or may indicate that different treatments should be implemented to best meet current fuel and resource management conditions and objectives. Slope steepness or obvious signs of mass wasting or surface soil erosion may dictate additional mitigation (such as using smaller ground-based equipment, cable or aerial material removal systems, or installation of more extensive post-treatment soil coverings) to protect onsite soil resources, water quality, and roads, trails, and other improvements.

In addition to the pre-assessment surveys described above, EBRPD will also collect and evaluate the GIS and wildfire hazard assessment fuels data associated with each treatment area that was assembled as a result of this planning process and through any additional or follow-up pre-assessment surveys and onsite data collection. The existing conditions identified in the pre-treatment assessment can be documented in a standardized report along with photographs of existing onsite conditions. As implementation of the Plan progresses beyond the first year(s), additional data collected from previous years as well as lessons learned from treatment actions will be included in this action and used in the District's adaptive management decision making process.

2. Develop Treatment Prescriptions

The pre-treatment site assessment will provide information to be used with the Plan Goals, Objectives, and Guidelines (Chapter II) to develop treatment prescriptions for each treatment area (see Chapter III. Wildfire Hazard Assessment and Preliminary Recommendations).

The development and refinement of treatment prescriptions should be shared by EBRPD's Fire and Stewardship and Park Operations Departments. These departments will coordinate closely in developing the appropriate treatment prescriptions and performing post-treatment fuels and resource monitoring. Implementation of the treatment prescriptions would be performed by the Fire Department or by contractors under its direction. Once this has been completed, the treatment cycle can continue with the monitoring phase and repetition of the process until the vegetation management goals refined as part of the prescription have been achieved.

3. Post-Treatment Monitoring, Maintenance and Updating Plan Database

Following initial fuels treatment, continuing monitoring, maintenance and reporting actions will also be necessary. Vegetation re-growth and the potential for exotic weeds to invade treated areas will require follow-up treatments and maintenance actions. Where these follow-up actions are necessary, they should be documented as part of the treatment area database and inform the next Fuels Treatment Plan.

After a treatment action has been conducted, post-treatment monitoring may be necessary to assess whether identified vegetation goals for that treated area have been met. The following characteristics shall be considered for periodic monitoring to ensure success toward attaining the goals, objectives and performance standards of the individual Fuels Treatment Plans and the Vegetation Management Program of the Plan:

- Erosion and soil stability
- Fuel characteristics
- Residual tree sprouting and vigor
- Native plant composition
- Invasive non-native plant species
- Wildlife habitat characteristics
- Special-status species
- Presence or absence of the Sudden Oak Death pathogen fungus (SOD)

The results of post-treatment monitoring activities should be included in the Plan database for future reference and adaptive management. The District will continue to maintain treatment areas as necessary (and revise their status from “Initial Treatment” to “Maintenance” using updates to Table III-2) to achieve the goal of a fire-resistant or low hazard and otherwise desirable and primarily native plant communities on District lands.

D. UPDATE TREATMENT AREA DATABASE

The third implementation component is the updating of the treatment area database to ensure that mitigation measures are accomplished successfully and inform follow-up treatments and future Fuels Treatment Plans. The results from the treatment actions as well as data collected during monitoring and maintenance activities will need to be recorded, documented and incorporated into the treatment area database to be maintained by the District. The resulting data and reports will be used to guide the development and budgeting of future treatment actions and allow for adaptive management over time. Additional maintenance activities may be identified during this phase once monitoring is conducted and

the resulting data are analyzed. Where necessary and feasible, EBRPD will add these additional maintenance activities as an amendment to the annual Fuels Treatment Plan for that year, and the results noted for inclusion in the following year's monitoring and analysis phase.

At the end of the annual Fuels Treatment Plan cycle (see Figure VI-1), EBRPD should review the Plan to assess its effectiveness in achieving the fuels and habitat management objectives, and the efficacy of BMPs included in the treatment action and any follow-up actions taken. By so doing, EBRPD closes the feedback loop and ensures improvement in future fuels management actions. In this manner, lessons learned from each year's treatment actions can be included as part of EBRPD's adaptive management process to ensure the most efficient and effective wildfire hazard reduction and vegetation management actions are conducted and consistent progress toward EBRPD's goals and objectives is made.

E. IMPLEMENTATION COSTS

This section discusses the general sources of funding for implementing this Plan, provides a summary of estimated relative costs for various vegetation management activities, and discusses options for reducing costs. As noted previously, the District's implementation objective is to move over time from conducting expensive initial treatment and ongoing maintenance actions to monitoring and maintenance activities that result in ecologically sustainable, low fire hazard plant communities with high habitat values that are also more economically sustainable and require decreased funding levels.

1. Sources of Funding

EBRPD's ongoing fuel management activities are currently funded largely from the District's operating budget and from various fire hazard mitigation grants provided by the Federal Emergency Management Agency (FEMA) and other sources. Voter approval of Measure CC in 2004 provided funding to create this Plan and to continue fuels management activities in the East Bay Hills. It is expected that the operating budget, Measure CC funds, and potential, future FEMA grants will continue to be the primary sources of funding for fuel reduction activities.

2. Cost Estimates

This section provides a summary of estimated relative costs for various vegetation treatment methods as provided by EBRPD staff. These are estimated costs only; actual costs and an annual budget will be refined and identified for specific treatment areas each year in the annual Fuels Treatment Plan, as noted above.

These costs are generally stated as ranges, as the actual cost for such actions will depend on a number of site specific factors, including:

- Height, density, species, and arrangement of existing vegetation to be treated and retained
- Physical site conditions, including, accessibility, steepness, soil stability
- Specific desired vegetation end-states and management objectives
- Applicable regulatory requirements and resource restrictions
- Method of treatment prescribed (e.g., hand labor, machines, grazing)
- Workforce required (e.g., District staff, contract labor, volunteer, grazing)
- Pre-treatment planning and post-treatment assessment and monitoring required
- Anticipated frequency of required maintenance

The cost estimates provided in Table VI-1 include relative costs for contract administration where relevant. Relative costs for site assessment and post-treatment monitoring and remediation are still being developed, and are therefore not included. In the cases of hydro-seeding and erosion control, EBRPD did not have verifiable cost estimates for these activities at the time this Plan was prepared. Cost information for these activities is anticipated to be collected and available by summer 2009 because EBRPD anticipates conducting several of these types of projects during the Spring 2009 timeframe.

Table VI-1: Treatments, Contract Administration and Site Monitoring Costs (2008 \$)

Vegetation Treatment	Estimated Cost per acre (2008 \$)
Mature Tree Removal	\$5,000-70,000
Mechanical Tree/Brush Reduction	\$800-1,400
Manual (Hand Crew)/Brush Reduction	\$,1500-2,500
Grass Mowing	\$100-500
Weed-eating	\$500-3,000
Herbicide Application	\$200-2,000
Hydro-seeding	N/A
Erosion Control	N/A
Animal Grazing	\$300-600
Prescribed Burning	\$400-4,000
Administration	\$300-1,000
Site Monitoring/GIS Data Collection	\$300-1,000

Source: EBRPD 2008, Wildland Resource Management, Inc. 2008.

3. Staff Augmentation Options to Reduce Costs

In the interest of efficiency, EBRPD augments the work of staff by contracting with private companies where specialized work or heavy equipment is required for a short-term project, coordinating volunteers and coordinating with other agencies.

Private Contractors. The District uses contractors to perform specialized vegetation management treatment activities such as tree falling, when specialized, heavy equipment is required, or when a workforce is required for a short (seasonal or less) duration, and when contracting would be less costly and more practical than using EBRPD staff. In some instances, the District contracts with other governmental agencies such as the California Department of Corrections and Rehabilitation or with non-profits like CiviCorps Charter School, to perform vegetation management and treatment activities.

Volunteers and Non-Profit Organizations. Although the District uses volunteers extensively, volunteers have not been widely used on vegetation management projects, largely because of the demanding and often dangerous nature of the work and limitations on the use of power tools by people who are not District employees. However, supervised volunteers from conservation organizations (e.g., California Native Plant Society, Audubon Society, Sierra Club), local schools and colleges, and community groups (e.g., Claremont Conservancy, Hills Conservation Network) can be used in conjunction with EBRPD staff and professionals to implement some treatments, and hand maintenance and habitat restoration activities, as well as monitoring and data collection. Stakeholder participation can be encouraged as part of the ongoing volunteer programs established by the District (see www.ebparcs.org for a list of programs) or similar education and volunteer service programs. EBRPD can continue to realize both educational and operational benefits by encouraging local participation and partnership in park and resource stewardship, while also saving on certain capital and maintenance costs. In addition, the further development and enhancement of existing partnerships between EBRPD and non-profit organizations to carry out selected stewardship, monitoring, planting, and maintenance activities would facilitate more meaningful outreach and communications with the public in relation to the environmental values that EBRPD is committed to protect and/or enhance.

Additionally, persons conducting research at universities and colleges or for other agencies may be interested in data collection, research, and analysis related to certain mitigation monitoring programs, such as monitoring Alameda whipsnake populations within the Study Area.

Agency Coordination/Partnerships. Cooperating actions and partnerships between EBRPD and other agencies with adjacent and similar fire hazard reduction and land management responsibilities is essential in planning to reduce wildfire hazard. The Park District coordinates with other local land management and fire fighting agencies through the

Hills Emergency Forum (HEF). The efforts of local cities to enforce local vegetation ordinances and maintain defensible space on private property on the urban side of the Wildland/Urban Interface is an essential complement to the District's efforts to manage fuels on parklands. The District also coordinates efforts with adjacent public land managers, including EBMUD, UC Berkeley, Lawrence Berkeley National Laboratory. These types of partnerships offer a means of sharing staff and technical resources and information. Examples of inter-agency cooperation and coordination that may be appropriate for the administration of the Plan include combining programs or adjoining areas for prescribed burning, grazing, roadside clearance, and weed control.

