

# FUEL REDUCTION AND FOREST RESTORATION PLAN FOR THE LAKE TAHOE BASIN WILDLAND URBAN INTERFACE



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**January 2007**

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*This report was funded by a grant provided by the U.S. Bureau of Reclamation.*

Note: the color photograph on the cover represents a recently treated Jeffrey pine stand, while the black and white photograph represents the desired future condition, based on an unlogged stand, circa 1890-1915, just north of the Lake Tahoe Basin

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**EXECUTIVE SUMMARY**

The threat of catastrophic fire has been identified as the number one public concern in the Lake Tahoe Basin. The cessation of Native American burning practices and over 50 years of fire suppression in the Basin, during which there normally would have been approximately eight natural fire cycles to thin stands and remove hazardous fuels, has resulted in dense forests susceptible to fires that would burn severely and result in a high incidence of tree mortality. The combination of large amounts of hazardous fuels and the Basin having one of the highest ignition rates in the Sierra Nevada, particularly in urban areas, contributes to the risk of a devastating wildfire. Basin-wide fire modeling to evaluate the likely effects of unplanned fires on urban areas has shown that the most severe fires, and therefore effects, would occur in lower elevation pine and mixed conifer forests. Additional modeling focused on sample plots in and adjacent to communities throughout the Basin illustrated that if a fire were to ignite in one of these plots, in the absence of fire suppression 76 percent of the resulting fires would be crown fires. Crown fires are not easily controlled and could result in the loss of private property, significant impacts on natural resources, including lake clarity, and adversely affect recreational opportunities and tourism.

In response to public concern over hazardous fuel conditions, local jurisdictions completed Community Wildfire Protection Plans (CWPP) in 2004 to identify and prioritize hazardous fuel reduction projects in and adjacent to their communities over a ten-year period. Regulatory agencies in the Basin, including the Tahoe Regional Planning Agency (TRPA), Lahontan Regional Water Quality Control Board (LRWQCB), and California Department of Forestry and Fire Protection (CDF), have cooperatively modified regulations and ordinances to facilitate hazardous fuel removal projects. In addition, the Lake Tahoe Basin Management Unit (LTBMU) of the USDA Forest Service, state, and local agencies have reduced fuel hazards on approximately 13,000 acres from 2000-2006.

This report builds upon previous efforts and synthesizes the CWPPs for the seven fire protection districts (FPD) to identify Basin-wide fuel reduction needs and the resources needed to implement a Basin-wide hazardous fuels reduction Plan. The goal of fuel reduction and forest health projects implemented through this Plan would be to protect values at risk by reducing fuel hazards and to restore ecosystem health by mimicking the results of historic disturbance regimes using cost effective vegetation treatments. The primary management objective in the wildland urban interface (WUI) would be fuel hazard reduction to protect communities from wildfire, with forest structure and wildlife habitat as secondary objectives. Outside of the WUI, forest structure and wildlife habitat would be the primary management objectives.

Specifically this report:

- summarizes historic and current forest conditions and associated fire regimes;
- describes the desired condition for future fire behavior throughout the Lake Tahoe Basin based on historical conditions;
- consolidates the individual CWPPs and additional projects into a Basin-wide program focused on reducing fuels and restoring forest health in the WUI;
- identifies operational issues and opportunities associated with implementing a Basin-wide program; and
- provides a cost estimate to implement a 10-year program as outlined in the CWPPs and for projects estimated by other land management agencies.

Although 13,000 acres have been treated in the Lake Tahoe Basin since 2000, increased efforts are needed to protect values at risk and restore forest health. The CWPPs identified projects that would treat approximately 12,500 acres among the seven fire districts between 2007 and 2016 (Table E-1). Of these areas needing treatment, approximately 6,550 acres are on federal (LTBMU) land; 2,300 acres are on California state lands; 75 acres are on Nevada state lands; and 3,550 acres are on local government and private lands. Additionally, preliminary estimates by the LTBMU and Nevada indicate an additional 33,260 acres of federal lands and 3,100 acres of state lands, not identified in the CWPPs, would be treated during the 10-year period. Therefore, if the proposed schedule is met over 61,800 acres will have been treated since 2000 to reduce fuels and restore forest health. Approximately 18,400 acres of previously treated projects would require maintenance treatments to reduce ground fuels and restore desired historic conditions. An additional unknown number of acres in the urban core would be treated through community defense programs that provide chipping services to local residences, but for which no estimates of acres previously treated or needing future treatment are available.

When the CWPP projects were consolidated with projects proposed by the LTBMU and Nevada, the total number of project acres completed annually in the Basin would average approximately 4,800 acres, over twice what was treated from 2000-2005 (Figure E-1). Most projects would require two separate treatments, the first to remove trees and the second to reduce surface fuels. When the two individual treatments and maintenance treatments are considered, the average number of acres treated annually increases to approximately 9,320 acres. As a result of the increased treatment acres the number of resources and annual expenditures will have to increase.

Table E-1. Estimated number of acres needing hazardous fuels reduction treatments and associated costs for fuel reduction and forest restoration treatments in the Lake Tahoe Basin, 2007-2016.

Agency	Acres Requiring Treatment	Estimate of Direct Costs*
North Lake Tahoe FPD	1,888	\$7,212,191
Tahoe-Douglas FPD	3,642	\$14,615,334
City South Lake Tahoe FD	833	\$3,323,418
Lake Valley FPD	2,641	\$9,563,662
Fallen Leaf Lake FD	488	\$1,882,398
Meeks Bay FPD	504	\$1,873,349
North Tahoe FPD	2,482	\$9,675,713
<b>Subtotal CWPPs</b>	<b>12,478</b>	<b>\$48,146,066</b>
<b>Community Defense Program</b>	<b>--</b>	<b>\$9,983,000</b>
<b>Program Leadership/Staffing</b>	<b>--</b>	<b>\$43,088,587</b>
<b>LTBMU Other Acres</b>	<b>33,260</b>	<b>\$96,972,685</b>
<b>Nevada Other Acres</b>	<b>3,100</b>	<b>\$9,028,750</b>
<b>Maintenance</b>	<b>18,403</b>	<b>\$10,283,842</b>
<b>Total</b>	<b>67,241</b>	<b>\$217,502,928</b>

\* Cost estimates include a 3% annual inflation factor.

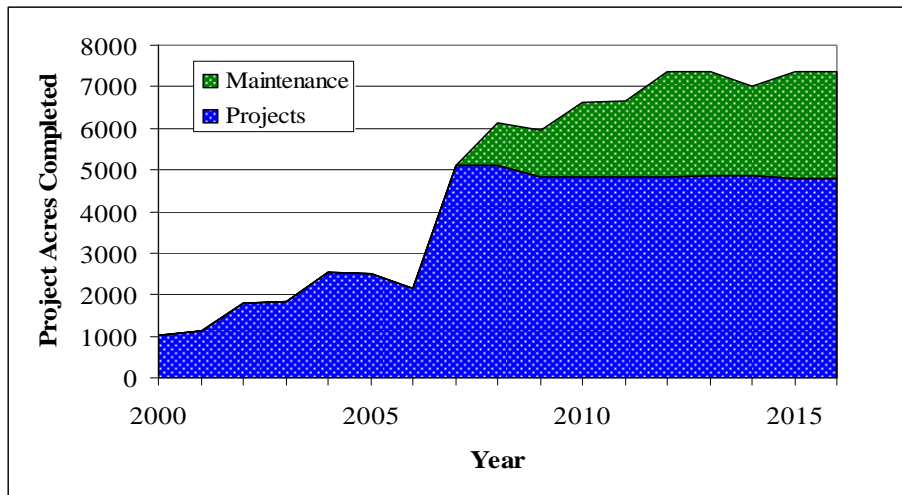


Figure E-1. Recently completed projects and projected acres of future projects in the Lake Tahoe Basin from 2000 through 2016.

Given the projected increase in the number of acres requiring treatment it is recommended two planning zones be established in the Basin, one to implement currently scheduled treatments in the approved CWPPs, the other for the LTBMU and other land management agencies to implement currently approved projects and plan future projects.

Land ownership patterns in the Basin present a challenge to project implementation. Of the 110 projects identified in the CWPPs 92 percent have multiple ownerships (federal, state, local, and private). Approximately 65 percent have a combination of LTBMU and some other ownership. Multiple land ownership patterns will affect environmental compliance and contracting strategies. It is recommended that a programmatic environmental document be prepared for all CWPP projects to standardize survey and mitigation requirements and to address cumulative impacts on the landscape.

Implementing a Basin-wide program will require consistent coordination among land management and regulatory agencies. In response to the increase in number of acres treated annually and the complex land ownership patterns of projects and resulting planning and contracting issues, this report recommends that a new intra-Basin organization with the following capabilities be formed to plan and coordinate implementation of all CWPP projects:

- accept and administer federal and state grants;
- sign a memorandum of understanding or agreement to implement and administer contracts on private, federal, state, and local government lands; and
- maintain financial records of all grants, invoices, and payments.

The Nevada Fire Safe Council has agreed to develop such an organization and has identified the leadership and staffing requirements. The day-to-day activities of the organization would be the responsibility of an executive director. Staff would include a complement of professional natural resource, contracting, and public relations specialists, and administrative assistants. These staff may be new hires, staff detailed from other organizations, or consultants. The program would focus on implementing projects (project design, environmental compliance, contracting, and monitoring) where multiple land owners will affect the efficiency of implementing those projects. The total estimated cost to implement the approved CWPP projects, other projects completed by the LTBMU and Nevada, maintenance treatments, the community defense program, and program administration (salaries and benefits) is \$217,502,928 (Table E-1). Although these costs are high, the benefits: avoidance of fire suppression costs (\$4,500 per acre), replacement of facilities (\$625,000 per acre assessed value), and maintenance of lake clarity are worth the investment.

Additional challenges are currently being addressed by Basin-wide agencies prior to implementation. For example, a biomass initiative is being developed to reduce the amount of thinned fuels that would need to be burned by using forest residue to create a usable commodity (e.g. electricity, heat, ethanol, charcoal, or landscaping materials). This initiative would assist existing biomass facilities in the area and encourage new

facilities and technologies to use biomass provided by the fuel reduction program. Because biomass removal treatments would be feasible on a portion of Basin lands, burning could be reduced approximately 25 percent; however, 3,700 acres would continue to require burning as a fuel removal treatment on an annual basis. This level of burning may require changes in air quality regulations (i.e., allowable burn days) or policies affecting machinery on steeper slopes. Thus, the biomass initiative can serve as an effective catalyst for policy and program changes in the Lake Tahoe Basin. Furthermore, an effective public outreach program should be established to accommodate the number of acres that may require prescribed burning in the future. TRPA, LRWQCB, and CDF are currently working on developing a consolidated permit to simplify the process for private landowners to remove hazardous fuels on their lands. This report also recommends that these agencies continue to work on the development and adoption of new strategies that encourage low impact and cost effective treatments to restore stream environment zones to desired future conditions.

The communities at Lake Tahoe accepted the challenge made by the TRPA Governing Board, Senator Feinstein, Congressman Doolittle, and Assemblyman Leslie to assess the hazardous fuels threats to them and prepare an action plan to tackle the work. This report and the process used to develop it lays out the action framework. It is now time to secure funding for the projects and get the project planning underway for the WUI. These projects are important to goals of resource protection, resource restoration, and public health and safety. Tahoe's communities are ready to act.