

Hume Roadside and Recreation Site Hazard Tree Project Revised Socioeconomics Report

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7/2/13

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Table of Contents

Introduction	3
Regulatory Direction	3
Issue	4
Methodology for Analysis	4
Affected Environment	5
Federal Land	6
Tri-County Economic Profile	6
Societal Values	11
Environmental Consequences	14
Alternative A - No Action	15
Alternatives B, C, and D	17
References	20
Appendix A-Economics Data Sheets	21

Introduction

This report analyzes current census and other socioeconomics data applicable to the Hume Roadside and Recreation Site Hazard Tree (Hazard Tree) Project. The report outlines current regulatory direction, which guides the development of management activities and the issues addressed. It discusses the methodology of analysis, summarizes the existing condition, and discloses the direct, indirect, and cumulative effects of Alternative A (No Action), Alternative B (Proposed Action) Alternative C, and Alternative D while relating to current society and economy in the vicinity of the project area.

Regulatory Direction

The 2012 Giant Sequoia National Monument Management Plan (Monument Plan) desired conditions, strategies and objectives, and standards and guidelines provide general direction for socioeconomics and transportation management.

Applicable Desired Conditions from the Monument Plan, by resource are:

Human Use: The Monument provides wide and varied public use of Monument resources and opportunities while protecting sensitive resources and the objects of interest. Recreation use throughout the year is promoted. Visitors find a rich and varied range of sustainable recreational, educational, and social opportunities enhanced by giant sequoias and the surrounding ecosystems... The Monument provides a wide variety of visually appealing landscapes, such as oak woodland, chaparral, a variety of mixed conifer forest, and giant sequoia groves, for the public to enjoy within the places they prefer to visit (Monument Plan p.26).

Transportation System: Roads are safe and fully-maintained to minimize adverse resource effects, while providing public and administrative access to National Forest System lands and facilities within the Monument. The road system is properly sized to provide needed access to the objects of interest for their proper care, protection, and management, as well as visitor enjoyment of the Monument. Roads that are no longer needed have been decommissioned to restore natural drainage and vegetation or converted to other uses (Monument Plan p. 27).

Applicable strategies from the Monument Plan, by resource are:

Transportation Management (Monument Plan p. 58)

Size and maintain the road and trail system to minimize adverse resource effects, while providing appropriate public and administrative access to National Forest System lands and facilities within the Monument (Strategy 1).

Maintenance Strategies from the Monument Transportation Plan (Monument Plan pp. 127-128)

The following strategies would be used to prioritize needed maintenance and to improve the ability to complete all needed maintenance:

- Public safety and natural resource protection would be the highest priorities for maintenance (Strategy 1).
- Maintenance levels 3 through 5 roads would be higher priority for maintenance than maintenance levels 1 and 2 roads, due to the higher potential loss of investment, generally higher traffic volumes and speeds, and resulting safety risks and liabilities (Strategy 2).
- Consider closing roads not currently needed for resource management activities or significant recreation access to reduce maintenance costs, while retaining the road prism for expected future access needs (Strategy 7).

Applicable standards and guidelines from the Monument Plan, by resource are:

Vegetation Management (Monument Plan pp. 82-83)

- For all projects that include a proposal for tree removal from within the Monument, except for personal use fuelwood, conduct an evaluation to document the clear need for removing trees for ecological restoration and maintenance or public safety (Standard 1). (The Clear Need Determination can be found in Appendix A of the environmental assessment).
- Incidental removal of trees that present safety hazards may deviate from vegetation management standards and guidelines (Standard 3).
- Fall and remove hazard trees along Maintenance Level 3, 4, and 5 roads and within or immediately adjacent (tree falling distance) to administrative sites. Review by an appropriate resource specialist is required prior to falling hazard trees along Maintenance Level 1 and 2 roads. Retain felled trees, where needed, to meet down woody material standards (Standard 4).
- Make dead and down woody material available for firewood gathering (Standard 9).

As stated earlier, the purpose of this project is to provide safe public access so Standards 1, 3 and 4 are key elements in the determination of clear need for removal of trees (See Appendix A of the EA). Also, for this project it means that the diameter limit of 12 to 20 inches for Ecological Restoration in the Monument (Monument Plan p. 77, Table 46) is *not* applicable to this public safety project.

Scenery (Monument Plan pp. 103-104)

- Design management activities to meet and exceed when practical the specified Scenic Integrity Objective (SIO) (Standard 1).
- Meet scenic integrity objectives with the following exceptions: (1) accept occasional short-term departure from adopted minimum scenic integrity that will lead to long-term desired scenic character if disclosed in a site-specific NEPA decision, and (2) temporary drops of one minimum scenic integrity level may be made during and immediately following project implementation providing they do not exceed 3 years in duration (Standard 2).

Transportation (Monument Plan p. 104)

Maintain developed trailhead access roads and primary access routes to developed facilities at a minimum of maintenance level 3 (Standard 2).

Issue

Issue Statement: Concern that hazard tree cutting has more to do with commercial timber sale opportunities than public safety, so more trees would be cut than are necessary for public safety or ecological restoration.

Methodology for Analysis

For this project, an economic analysis was completed in 2013 to show the monetary costs and benefits of implementing this project, including the potential sale of forest products in Alternatives B and D. The indicators used are described in more detail below in terms of Economic Viability, Benefit/Cost Ratio, and Present Net Value (See Appendix A).

Economic viability of the commercial timber harvesting: Economic viability is a measure of project economics from the point of view of a timber purchaser. An assessment of economic viability considers whether a purchaser could cover all costs of logging and milling with the revenues generated from the sale of the timber at the advertised bid rate. Economic viability is determined by conducting an

appraisal (Transaction Evidence Appraisal) of the timber sale which compares the current stumpage prices (which are based on timber markets) and logging costs. This measure is used as an assessment of the risk to a potential purchaser or the real contribution of timber sale value to assist in funding other project elements, or obtaining overall project goals as stated in the purpose and need.

Benefit/Cost Analysis and Present Net Value of the commercial timber harvesting: These indicators are a measure of project economics often from the point of view of the Forest Service. They may be developed and displayed for other entities such as Federal, state, county, and local governments, as well as the larger society as a whole. The figures are based on comparisons of the present value of the estimated revenues and costs of implementing the project. Revenue includes the money paid to the government for purchase of the timber, taxes based on timber severance, employment, and retail sales. The value based on harvest does not include additional benefits derived from increased growth and yield of residual stands. The direct costs to the government include sale preparation, sale administration, road survey and design, road construction and additional slash treatment in the project area. The benefit/cost ratio is calculated as the revenues divided by the costs, while the present net value is calculated as the revenues minus the costs.

A negative present net value or a benefit/cost ratio less than one indicates that the project is below cost. This means that the costs to the government of implementing the project exceed the revenues that would be returned to the government. However, unlike a profit oriented business, the Forest Service is a multiple-use steward of the public land. As such, land management activities are often conducted for resource enhancement or protection, not necessarily for the greatest dollar return or the greatest unit output. If a commercial timber sale can be used to complete resource management objectives, it is a more cost efficient method of completing work (by recovering some costs) than a direct payment from the government to pay for the work to get done. Appendix A contains the timber sale analysis worksheets used to determine the Benefit/Cost Ratio and Present Net Value for each action alternative.

Affected Environment

The Economic Profile System-Human Dimensions Toolkit (EPS-HDT) was used to provide detailed socioeconomic reports for this project. This toolkit was designed by Headwaters Economics, an independent, nonprofit research group whose mission is to improve community development and land management decisions in the West (www.headwaterseconomics.org). The Bureau of Land Management and Forest Service have made significant financial and intellectual contributions to the operation and content of EPS-HDT. EPS-HDT uses published statistics from federal data sources, including Bureau of Economic Analysis and Bureau of the Census, U.S. Department of Commerce; and Bureau of Labor Statistics, U.S. Department of Labor.

The indicators used for the Hume Roadside Hazard Tree Removal (Hazard Tree Removal) Project socioeconomic analysis are described in more detail below in terms of socioeconomic measures, timber and wood products, and federal land payments to states. For the Hazard Tree Removal Project, Headwaters Economics, Economic Profile System Analyst (EPSA) was used to produce an economic profile of the Socioeconomics (Headwaters 2013a) and specifically the Timber and Wood Products industry (Headwaters 2013b) in Tulare, Kern, and Fresno Counties. The Hazard Tree Removal Project is located in the mountains of southeastern Fresno County and northeastern Tulare County.

Federal Land

There are a number of different land owners in the project area, of which over 60 percent are privately held 38 percent is federal and just over 1 percent is state, tribal or county land. There are different management intents for portions of the federal lands. Of the federal lands in the tri-county area, approximately 50 percent is in National Parks and Preserves (NPS¹), Wilderness (NPS, FWS², FS³, BLM⁴), National Conservation Areas (BLM), National Monuments (NPS, FS, BLM), National Recreation Areas (NPS, FS, BLM), National Wild and Scenic Rivers (NPS, FS, BLM), Waterfowl Production Areas (FWS), Wildlife Management Areas (FWS), Research Natural Areas (FS, BLM), Areas of Critical Environmental Concern (BLM), and National Wildlife Refuges (FWS). Another approximately 49 percent is in Public Domain Lands (BLM), O&C Lands (BLM), National Forests and Grasslands (FS). The final approximately 1 percent of federal lands is in Wilderness Study Areas (NPS, FWS, FS, BLM), Inventoried Roadless Areas (FS). The Hazard Tree Project is entirely within Giant Sequoia National Monument, or the first 50 percent of federal lands in the tri-county area.

The management type designations are relative degrees of management priority, categorized by land designation. The Monument is generally more likely to be managed for conservation and recreation, even though the proclamation that established it allowed for commodity uses including tree removal under specific circumstances. Note that the acreage in particular land types may not be the only indicator of quality. For example, Wild and Scenic Rivers may provide amenity values far greater than their land acreage would indicate.

Studies have shown that areas managed for conservation and recreation can be associated with above average economic growth. While these classifications by themselves do not guarantee economic growth, when combined with other factors, such as an educated workforce and access to major markets via airports, they can be statistically significant predictors of growth. In fact, Headwaters Economics conducted research on the economic performance in the surrounding communities since the Giant Sequoia National Monument was established (Headwaters 2011). The study found that the communities in Fresno and Tulare counties neighboring the Monument experienced strong growth between 2000 and 2008. However, though service jobs increased by 23 percent, non-service jobs shrank by 9 percent.

Tri-County Economic Profile

In the past 40 years the population and personal income rates in the tri-county area has grown at a higher rate (137 percent, and 226 percent, respectively) than the national average (52 percent, and 164 percent, respectively). However, since the recession in 2001, the unemployment rate in the tri-county region has been more severe (15.9 percent) than the national average (8.9 percent) (Headwaters 2013a).

The number of timber industry jobs that would be supported by implementation of one of the action alternatives is an important factor to consider in the socioeconomics analysis. Additional jobs would be supported by sale preparation activities, and fuelwood sales. Jobs that would be supported by this project are directly related to logging and milling and do not include the indirect "multiplier" effect on associated industries and services.

¹ NPS-USDI, National Park Service

² FWS-USDI, Fish and Wildlife Service

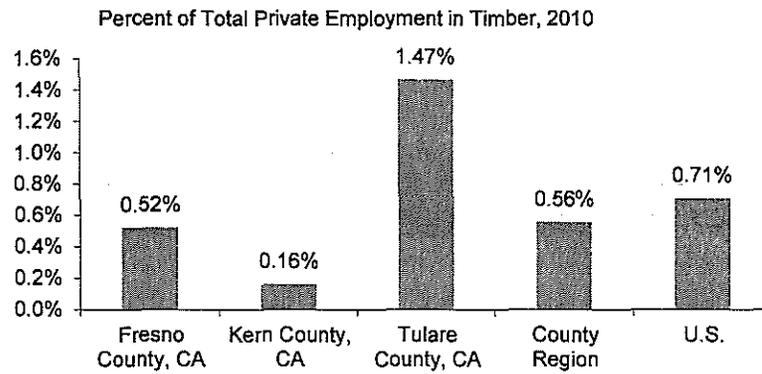
³ FS-USDA, Forest Service

⁴ BLM-USDI, Bureau of Land Management

According to the Socioeconomics Report for the Giant Sequoia National Monument Final Environmental Impact Statement, on a county-wide scale, the primary economic sectors associated with public lands include: timber-related, mining, and travel and tourism. The total share of these sectors is consistent with those in the state and the nation except for Kern County, where the share of mining (3 percent) is higher than Tulare or Fresno Counties (0 percent), the state (0 percent), or the nation (0 percent) (USDA Forest Service 2012a). The major economic sectors related to public lands combined represent a small proportion of jobs (6 percent) in the tri-county area compared to all other jobs (94 percent). This combined percentage of major economic sectors related to public lands is consistent with both the state (6 percent) and the nation (5 percent).

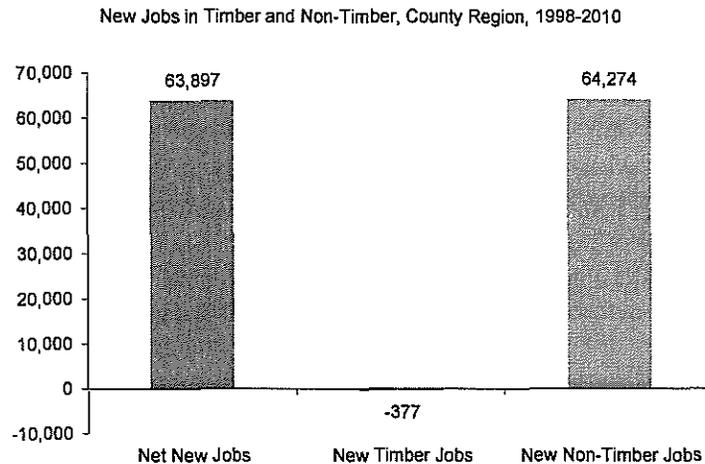
The Profile of Timber Industry and Wood Products for the tri-county area discloses that private sector timber employment in the tri-county region is slightly lower than the nation, with the exception of Tulare County. As shown in figure 1, Tulare County provides about double the private sector timber industry employment as the nation.

Figure 1



As displayed in Figure 2, from 1998 to 2010, timber employment shrank by 377 jobs, and during the same time period, non-timber employment grew by 64,274 jobs.

Figure 2



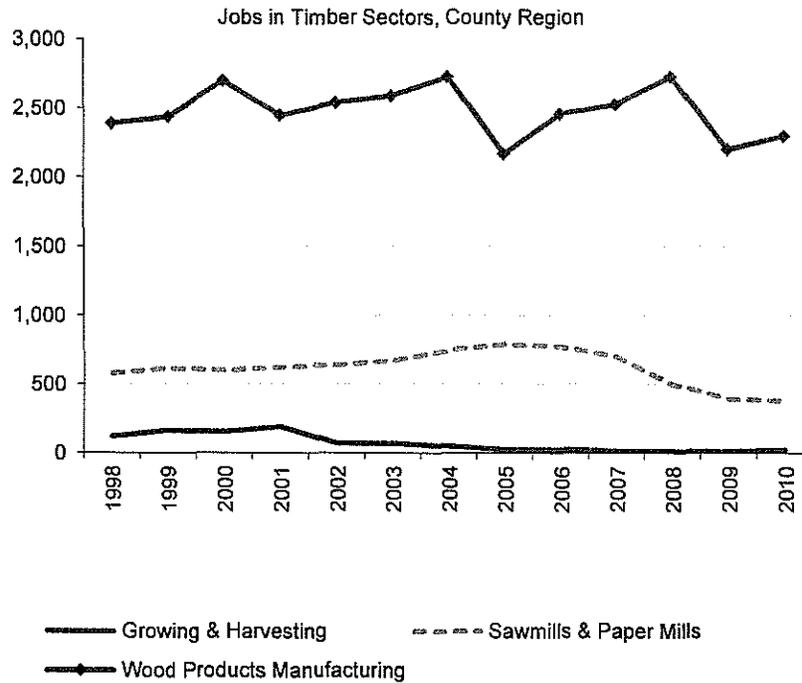
By the nature of the business, there is year-to-year volatility of the timber industry compared to the rest of the economy. A potentially important factor for the Hazard Tree Project is the trend in timber-related employment in the vicinity. In the Fresno, Tulare and Kern tri-county area, timber-related employment is a small sector of the job market. As a result, changes in timber-related employment are not likely to affect the overall economy in any of the three counties.

To look at differences within the timber-related employment, the profile also shows the break out in the three employment categories. The Profile of Timber Industry and Wood Products describes the number of jobs (full and part-time) and the share of total jobs in the timber industry, broken out by three major categories: growing and harvesting, sawmills and paper mills, and wood products manufacturing. These categories are defined as follows:

- **Growing and Harvesting:** These are jobs associated with growing and harvesting of trees on a long production cycle. It includes people employed in forest nurseries, as well as those involved in the cutting of trees and transportation of timber.
- **Sawmills and Paper Mills:** These are jobs associated with converting logs into lumber, boards, poles, shingles, and similar milled products. It includes those involved in the conversion of logs and chips into pulp and paper as well as the creation of veneer and plywood.
- **Wood Products Manufacturing:** These are jobs associated with manufacturing. It includes the production of corrugated boxes, gum and wood chemical products, cabinets, furniture, and other wood manufactured products.

Currently (2013) most of the timber provided by the Sequoia National Forest is processed by the Sierra Forest Products (SFP) facility in Terra Bella. The SFP mill is the last remaining sawmill in California south of Yosemite National Park. As of 2010 SFP was approximately 80 percent dependent upon raw material from Federal Lands. Conversely, the Sierra, and Sequoia National Forests are almost 100 percent dependent upon the SFP milling infrastructure to process and give value to excess tree inventories in the woods when considering fuels and fire management, forest health maintenance, and wildlife habitat restoration. Since 1990, three sawmills in the Sierra/Sequoia Market Area have closed, resulting in significant changes in the timber industry composition, Forest timber program, and the timber market situation within the Sierra/Sequoia Market Area. Figure 3 reflects the result of this change.

Figure 3



From 1998 to 2010 all three employment categories showed decreases in jobs, with growing and harvesting showing the steepest decline from 120 to 25 jobs (79.2 percent decrease). Sawmills and paper mills showed a moderate decline going from 577 to 382 jobs, which is a 33.8 percent decrease. The least decline in jobs was in wood products manufacturing, going from 2,391 to 2,304 jobs, which is a 3.6 percent decrease.

Federal Land Payments to Counties

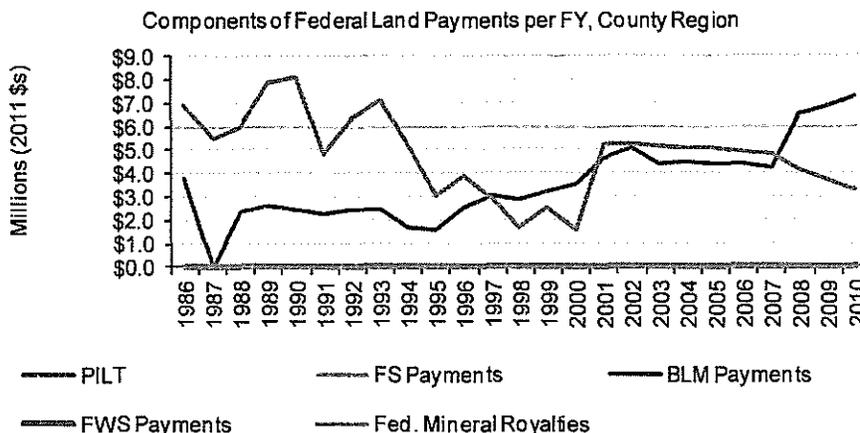
As described in the Profile of Federal Land Payments (2013c), Federal Land Payments to Counties describes all federal land payments distributed to state and local governments by the geography of origin. State and local government cannot tax federally owned lands the way they would if the land were privately owned. Therefore there are a number of federal programs that exist to compensate county governments for the presence of federal lands. These programs can represent a significant portion of local government revenue in rural counties with large federal land holdings (i.e. the Tri-county area), or based on the permitted use.

There are two main methods that Forest Service uses to pay counties: Payments in Lieu of Taxes (PILT), and Forest Service Revenue Sharing. Payments are funded by federal appropriations (e.g., PILT) and from receipts received by federal agencies from activities on federal public lands (e.g., timber, grazing, and minerals). The PILT payments compensate county governments for non-taxable federal lands within their borders. PILT is based on a maximum per-acre payment reduced by the sum of all revenue sharing payments and subject to a population cap. Forest Service Revenue Sharing is a payment based on Forest Service receipts and must be used for county roads and local schools. Payments include the Secure Rural Schools and Community Self-Determination Act.

Over the past 25 years Forest Service revenue sharing payments shrank from \$6,952,412 to \$3,324,041, a decrease of 52 percent as less timber was harvested off the national forests in this area. However as

shown in Figure 4, from FY 1986 to FY 2010, the amount county governments received in federal land payments grew from \$7,241,819 to \$8,941,428, an increase of 23 percent.

Figure 4



In 2010 PILT and Forest Service Payments still provided almost all the Federal Payments to the counties. These payments are also well above the national average for the Tri-county area and Fresno County in particular. In FY 2010, PILT made up the largest percent of federal land payments in tri-county area (68.3 percent), and Federal Mineral Royalties made up the smallest (0 percent).

County governments can incur a number of costs associated with activities that take place on federal public lands within their boundaries. In the tri-county area, the counties must maintain the county roads used by logging trucks and recreational traffic traveling to and from federal lands, and they must pay for law enforcement and emergency services associated with public lands. Several federal land payment programs, particularly those from the Forest Service, are specifically targeted to help pay these costs in the vicinity of the Hazard Tree Project. These programs include:

- Unrestricted--Consist of (1) PILT, (2) U.S. Fish and Wildlife Service Refuge Revenue Sharing, and (3) any distribution of federal mineral royalties from the state government.
- Restricted--County Roads: Consist of Secure Rural Schools and Community Self-Determination Act (SRS) Title I. Federal law mandates payments be used for county roads and public schools. Each state determines how to split funds between the two services.
- Restricted--Special County Projects: Consist of (1) SRS Title III funds that are distributed to county government for use on specific projects, such as Firewise Communities projects, reimbursement for emergency services provided on federal land, and developing community wildfire protection plans.

The tri-county area receives Federal revenues to augment their tax sources. In the past, one quarter of the revenues from the Forest's timber, grazing, mining and recreation programs were returned to the counties in which the Forest is located. The share of the payment was based on Forest acreage within the county. These payments were divided evenly between county roads and schools. On July 6, 2012, the Secure Rural Schools and Community Self-Determination Act of 2000 was reauthorized for federal fiscal year (FY) 2012 as part of Public Law 112-141 (<http://www.fs.fed.us/srs/>). All three counties recently received payment under this act for fiscal year 2012.

Societal Values

There have been a number of projects that remove hazard trees on the Hume Lake Ranger District in the past 20 years. The documentation has evolved over time with the changes in public perception and regulatory direction. Since 1993 there have been at least eleven projects that were designed specifically to remove hazard trees, and which used the direction provided by Forest Service Handbook 1909.15, Chapter 30 for repair and maintenance of roads, trails, and recreation sites. The decision memos often identified the opportunity to salvage material from these maintenance projects, citing the applicable categories of the time. This direction has evolved as the categories for exclusion have changed over time due to changes in law, regulation or policy:

- Early-mid 1990s: Section 31.2, Category No. 4, "...Salvage which removes 1,000,000 board feet or less"
- Late 1990s-early 2000s: 31.1b.4 "Repair and maintenance of roads, trails and landline boundaries."
- Mid 2000s-present: 31.12.4 "Repair and maintenance of roads, trails and landline boundaries," 31.12.5 "Repair and maintenance of recreation sites and facilities," and 31.2.13 "Salvage of dead and/or dying trees not to exceed 250 acres requiring no more than ½ mile of temporary road construction."

The majority of the past projects used a decision memo or letter to the file to document that hazard trees were being removed and sold, usually as a salvage sale. The earlier projects were more general in nature, "cut trees that could be hazardous to humans in recreation areas, and along roads and utility lines throughout the Hume Lake District" (1995 Hazard Tree Salvage DM). A number of the projects were specific to certain areas such as the 1996 Eshom Campground Hazard Tree Removal, and due to insect or disease outbreaks, or severe weather events. In the 1990s, as now, scoping letters are sent to numerous individuals; approximately 235 individuals and organizations for the 1995 Hazard Tree project, which goes on to state:

Nine responses were received, seven of which supported the project. One had numerous questions regarding hazard trees, and requested copies of our various publications. One respondent just wanted a copy of the Decision Memo. One raised the concern that some snags need to be left for wildlife. One respondent suggested expanding the proposal to harvest unhealthy old growth trees and trees away from the proposed area to improve overall beauty and health of the forest. Another respondent wanted hazard trees removed within the cabin tract.

Over the past 20 years there have also been other projects including timber sales (focused on management of live trees), fuels reduction, and administrative site maintenance on the district that have included removal of hazard trees as necessary during implementation of those projects. Public comments on these projects have generally not centered on removal of the hazard material.

Since the presidential proclamation establishing Giant Sequoia National Monument went into effect on April 15, 2000, there have continued to be hazard tree removal projects on the Hume Lake Ranger District. As in the past, each has focused on a number of roads or specific locations based on insect or disease outbreaks, or severe weather events. As shown by the project names, these have all generally been limited in scope and scale to alleviate falling hazards from specific events. The hazard tree projects that have been implemented since 2000 are:

- Tussock Moth Public Safety (DN 2001) (USDA 2001a)
- Highway Fire Roadside Hazard Trees (DM 2001) (USDA 2001b)
- Big Generals Roadside Hazard Trees (DM 2004) (USDA 2004)

- Princess Campground Fuelwood Removal (2006) (USDA 2006)
- Roadside Hazard Tree Salvage (DM 2007) (USDA 2007)
- Montecito Lake Resort Hazard Tree Log Decks (2008) (USDA 2008)
- Eshom Campground Maintenance-Storm Damage (DM 2010) (USDA 2010)
- Montecito Lake Resort Danger Tree Abatement (February 2012) (USDA 2012b)

In 2007 the societal values situation changed. The scoping letter was sent to over 100 addresses, and there six respondents. Three of the respondents were supportive as usual, however, this time three were not in support of the project. Though the 2007 Roadside Hazard Tree Salvage was also limited in scope and scale, it was appealed by two of the respondents and eventually litigated by one. The focus of the appeal and litigation was the concern that trees would be removed as a timber product from within the Monument, and negatively affect wildlife habitat. The lawsuit was withdrawn, and the project was implemented as planned.

The current Hazard Tree Project scoping letter was sent to 146 individuals or organizations, four people responded, all of which raised concerns. Most of these concerns were variations on the other respondents. As shown on page 4 of this document, one issue raised on the Hazard Tree Project is partially a social one. It is the concern that hazard tree cutting has more to do with commercial timber sale opportunities than public safety, so more trees would be cut than are necessary for public safety or ecological restoration. Specific statements received during the scoping period include:

- We continue to be concerned about over-zealous hazard tree removal in the Giant Sequoia National Monument. We believe that plan[ned] hazard tree cutting have more to do with business opportunities than with safety. The scoping notice discusses the felling of about 1 MMBF of trees along these roads and terms the project a “salvage” project. The use of the language suggests a commercial timber sale operation, which is also prohibited by the Monument proclamation.
- We are not opposed to the felling of genuine roadside hazard trees, but we do oppose the *removal* of larger trees--instead such trees (those over 20 inches in diameter) should be left on the ground to provide habitat for small mammals, reptiles, amphibians, and invertebrates.
- Once felled, there is simply no sound ecological reason to remove such trees, and the scoping notice fails to provide any such rationale. If the goal of this project is purely to protect human safety, hazard trees should be cut down and left in place.
- Leaving felled trees in the Giant Sequoia National Monument would resolve the conflict of interest in selecting trees as hazards, thereby removing a cloud of suspicion from the Forest Service.

As shown in Figure 3, geographies with economies that focus on resource extraction and commodity production can be subject to boom-and-bust cycles; as well as other economic challenges, such as slower long-term economic growth. In the case of timber and wood products, mechanization, rising transportation costs, volatile prices, competition from abroad, shifting public values related to the management of public lands, the restructuring of timber companies as Real Estate Investment Trusts, and other factors have led to business and employment declines in many communities.

The responses during public scoping reflect the values of a portion of the public that do not support tree removal as a commercial by-product from the Giant Sequoia National Monument. Across the Forest Service and other federal agencies, there is a lack of trust in the agency to conduct resource

management appropriately. Since the 1960s there has been public disenchantment with and distrust of the traditional top-down, expert-driven decision-making in the government. The attempt to give the public a voice in government decision-making resulted in the National Environmental Protection Act of 1969 and the National Forest Management Act of 1976. These laws mandate public involvement in natural resource planning and establish a timeline for public involvement procedures, such as scoping meetings and comment periods, in the decision-making process. Although these efforts to formalize and standardize public involvement were intended to make agencies more accountable and agency decisions more deliberate and transparent, they also have sparked controversy, especially in communities in proximity to federally protected areas (Davenport et.al. 2007).

Research regarding public trust in management of natural resources is not new, in part because the effects of public distrust can be destructive. Davenport et al. goes on to explain that distrust long has been recognized as one of the biggest obstacles to effective natural resource management, and as many researchers have observed, distrust continues to plague managers today. Fear, skepticism, and opposition are among the most notable consequences of a lack of public trust in agencies. Their quote from Nie (2003) explains that distrust can be both a driver and a byproduct of natural resource conflict:

[Distrust] often plays a primary and vicious role by undermining constructive debate and public inquiry. It is certainly a major obstacle in finding common ground or working compromises and in advancing innovative and experimental approaches to problem-solving (p. 332).

The statements in response to scoping “over-zealous hazard tree removal” and “a cloud of suspicion” show that there is distrust on the part of the scoping respondent to the Forest Service proposed action.

Davenport et al. discusses the social psychology of trust, specifically that trust is essential to every social relationship or social system, because trust reduces disorder and facilitates goal attainment. At the same time, it has been argued that trust is never entirely realized and once granted, trust must be actively maintained. In the context of natural resource management, building trust is a process similar to creating a “social contract” or a binding agreement that addresses the values and objectives of the administering agency and the public. In their case study, Davenport et al. focused on local communities and trust of the local Forest Service unit. They found several constraints to building trust including:

- **Unclear communication**, in particular, agency vernacular, also has been a source of confusion and, in some cases, distrust in the past.
- **Limited community engagement** occurs in two main ways: little knowledge or interest in programs and activities at the local site, and sometimes participation in formal public involvement processes may be difficult because of the extensive time commitment that is required.
- **Limited community power** which shows up as skepticism about the validity of the process, and that the agency is merely going through the motions when gathering public input because their plan is already in place.
- **Historical resentment** which is generally based on past events that have left a deep-seated distrust of government among some community members.

Several of these factors can be applied to the Hazard Tree project area. The continued changes in management direction through various sources (e.g. laws, policies and new designations) can alter how actions are described in one location versus another within a forest or across national forests. This makes clear communication difficult, even without the use of agency acronyms.

There are real and perceived limitations in community engagement and power. This is often dependent on the type of management action proposed on a specific site and the direction governing that action.

In this area the mix of management direction that the interested public needs to know and understand between the Sequoia National Forest, Giant Sequoia National Monument, and Sequoia and Kings Canyon National Parks can be daunting.

In recent years there have been a number of changes in the comment and appeal process, as well as the introduction of an objection process. These changes can also change the perceived power and engagement that interested parties may feel they have in specific projects.

There are incidences of historical resentment on Sequoia National Forest. One of the most relevant for this project is the cutting of non-sequoias to promote sequoia regeneration in several naturally-occurring sequoia groves in the 1970s and 1980s. This led to a mediated settlement agreement in 1990; a presidential proclamation to protect, preserve and restore sequoia groves by President George H.W. Bush in 1992; several attempts to transfer the sequoia grove areas to the National Park Service throughout the 1990s; and eventually to the designation of Giant Sequoia National Monument by President Clinton in 2000.

The distrust over management of resources in the Giant Sequoia National Monument, particularly timber management, has resulted in the specifications in the Monument Plan to disclose the rationale supporting a “clear need” for removal of trees from within the Monument (Monument Plan pp. 76-82).

Environmental Consequences

Limited funds are available for forest health management efforts on federal lands and must be used as efficiently as possible to achieve the greatest benefit. There is a need to use economically-efficient methods to implement projects and achieve restoration objectives. This economic effects analysis considers three major factors: 1) the value of the proposed harvest or logging of trees to be removed for public safety as stated in the Purpose and Need, 2) project costs associated with the alternative formulations, and 3) a simplified Cost/Benefit analysis, which considers the current financial aspects of the alternatives.

Value of the Proposed Harvest

There is value in the trees within the Hazard Tree project area, which are proposed for removal for public safety. There is a relatively accurate methodology in determining the converted value of the trees to lumber for market. The Forest Service uses standard methodologies to determine minimum rates that the government will accept for the fiber value of the timber. There are values of the trees, both proposed for retention and for removal, in terms of their ecological and social benefits as well. The ecological values of the trees, and the stands within which they exist, are discussed in the other effects analysis by resource for this project. The social benefits are discussed in this document and in the recreation specialist report in terms of scenic integrity and visitor use.

Project Costs associated with the Alternative Formulations

Limited funds are available for management efforts on federal lands and must be used as efficiently as possible to achieve the greatest benefit. There is a need to use economically-efficient methods to implement projects.

For this analysis, the following costs were considered:

- Project Planning – The cost of preparing the environmental analysis (common to all alternatives).
- Felling and Moving - The costs for felling and moving material from one location to another (Alternative C).
- Contract Preparation – The costs of layout and contracts for sale products and services requested
- Contract Administration – The costs of administering tree felling and removal operations and services rendered to ensure project objectives are met
- Post-felling Fuel Reduction Treatments – The costs of fuel treatments to meet project objectives, including planned Forest Service burning or chipping.

Trees have value both in terms of their ecological and social benefits. The ecological value of the trees in the Hume Hazard Tree Project area, and the forest stands in which they exist, is discussed in the effects analyses by resource area in this chapter. There is also economic value in the trees which need to be removed for public safety. The Forest Service uses standard methodologies to determine minimum rates that the government will accept for the fiber value of trees.

The economic effects of the alternatives include the cost to the government for their implementation. The analysis includes an appraisal of timber values, the costs of the prescribed treatments by alternative, and calculation of the cost/benefit ratio of each alternative. The project values are approximate and are used to estimate relative cost/benefit between alternatives.

Since the presidential proclamation establishing Giant Sequoia National Monument went into effect on April 15, 2000, hazard tree removal projects on the Hume Lake Ranger District have continued to occur when deemed necessary. As in the past, each project was developed to meet the need to maintain roads, administrative or recreation sites to provide safe public access.

There is an expectation by the recreating public that the roads and recreation sites are being maintained for safe public access. The Monument Plan, and Forest Service handbook and manual direction specify the need to maintain safe public access where feasible.

Simplified Cost/Benefit Analysis

The economic impact of the project alternatives includes the cost to the government for implementation of each alternative. The analysis includes an appraisal of the timber values, costs of the prescribed treatments by alternative, and calculation of the cost/benefit ratio of each alternative. The project values are approximate and are used to estimate relative cost/benefit, between alternatives. They are not intended to be a finite appraisal. Values will vary by market and budget conditions at the time of implementation. It is important to note that only a portion of the Hazard Tree project area has been marked to date.

Alternative A - No Action

Direct and Indirect Effects

This alternative would have the lowest initial cost. In this alternative only trees that are imminent hazards would be felled and moved as needed to meet public safety needs..

The costs for Alternative A are primarily those associated with planning and hiring contractors to fall and move imminent hazards. (see Table 1). Alternative A addresses hazard tree felling that occurs annually

to keep roads and recreation areas safe from high-priority hazard trees. The costs do not reflect future costs to deal with low-and moderate-priority hazard trees that may soon become high-priority hazard trees.

Table 1: Estimated Project Costs by Alternative

Cost Description	Alternative A	Alternatives B	Alternative C	Alternative D
Estimated Forest Service Force Account Costs				
NEPA Analysis	\$70,000	\$70,000	\$70,000	\$70,000
Contract Preparation	\$26,000	\$84,000	\$105,000	\$105,000
Sale/Contract Administration	\$10,000	\$34,000	\$41,900	\$41,900
Fuel Treatments – Burn Piles Cost	\$1,400	\$1,400	\$1,770	\$2,690
Forest Service Force Account Costs	\$107,400	\$189,400	\$218,670	\$219,590
Estimated Service Costs				
Hazard Tree Felling Cost	\$7,600	\$0	\$30,600	\$0
Directional Fell Hazards Cost	\$70	\$0	\$290	\$0
Traffic Control Cost	\$330	\$0	\$1,340	\$0
Stump Treatment Cost	\$20	\$0	\$80	\$0
Reposition Material for Safety	\$2,350		\$4,350	\$0
Hand Pile Cost	\$1080	\$0	\$1,340	\$0
Tractor Pile Cost	\$0	\$0	\$0	\$0
Total Service Costs	\$11,450	\$0	\$38,000	\$0
Total Estimated Project Costs	\$118,850	\$189,400	\$256,670	\$219,590

The social effect of Alternative A is double-edged. In one way it responds well to the interested parties who do not want trees removed from the Monument as a timber product. These individuals and the groups they represent would clearly have power to influence decisions. Choosing Alternative A may lead to less resentment over past actions and begin building trust with the groups in question.

However, since the lack of tree removal may have an effect on recreationists and the areas they can access, they may feel powerless and begin to lose trust in Forest Service management of this area. The selection of Alternative A in this project could result in more public scrutiny and more community engagement by recreation groups if they feel their recreation opportunities would be threatened.

Cumulative Effects

Alternative A would incur the lowest initial costs but would leave low- and medium-priority hazard trees to be dealt with later. As these trees become high-priority hazard trees, the need for action and costs for mitigation would continue to rise, which would not meet the purpose and need for the Hume Hazard Tree Project. Roads and recreation sites with low- and medium-priority hazard trees would not be maintained to agency standard for public safety in the long term, and therefore could be closed to public access to address these trees when they become high-priority hazards.

Primary industrial manufacturing is a leading source of economic improvement following the recession of 2008 and 2009. Job loss can have a large impact in the small rural communities of high endemic unemployment, such as the southern San Joaquin counties, and where alternative employment is almost non-existent. Every job loss equates to additional support by all government levels in terms of unemployment compensation, followed by potential increased welfare demand. In addition, adverse effects, especially in this locality, seem to be borne by minorities and the already poor.

Implementing Alternative A has the potential to lead to temporary or permanent closure of the mill and associated growing-harvesting and primary manufacturing jobs. Mill closures may result in the potential for a cumulative effect on the local economy, in particular in the community of Terra Bella. On the tri-county scale, the potential loss of up to 35 primary timber-related jobs may have a negligible cumulative effect.

There is a limited potential that the local society would change in the long term. The people who express interest in projects such as this are expected to change as the larger public land policy and management issues change. However, if this project led to a precedent that trees could never be removed on the Monument, there would be more likely to lead to closure of the mill and the potential negative cumulative effect to the economy described above.

Alternatives B, C, and D

Direct and Indirect Effects

Costs for Alternatives B, C, and D include the costs of the proposed piling and chipping or burning (see Table 1, Appendix). The Forest Service is responsible for funding and preparing, or contracting, project activities. The Forest Service generally performs most fire ignition requirements (burning), and is required to verify that all contract requirements are being met (including service contracts and work the concessionaire completes), and that the NEPA decision is being properly implemented.

Under Alternative B or D, the value of the trees sold would be used to pay for tree felling and removal, as well as any necessary fuel treatments. The value of any fuelwood sold by permit is sent to the U.S. Treasury, or retained in a trust fund to assist the local Forest Service office in conducting further hazard tree removal.

Other “stakeholders” of interest might include the local county and state government entities, themselves, which could be assisted by a new source of revenue to tax, and for which the local governments are organized to monitor and collect. These taxes include, but may not be limited to: 1) a yield tax on all timber harvest within the state, regardless of the property ownership from which it is obtained, including Federally managed lands, 2) Retail taxes on lumber at the point of sale (almost all timber generated in California is consumed within the state) (California is a net importer of lumber products), and 3) employment income tax to the State for all employment, including a) logging, b) mill processing, c) service contracting, and d) government employment. This analysis considers items 1, 2 and subsections a) and b) of item 3 as they are potentially relevant to the Hazard Tree Project.

An assessment of “clear need” for tree felling and removal, and determination of the most appropriate tool to use (fire or mechanical) has been conducted for this project in accordance with the Giant Sequoia National Monument Plan (See Appendix A of the environmental assessment). Both of these documents describe the rationale used in coming up with Alternatives B, C, and D. There are clear needs for tree removal, mainly for public safety, but also for resiliency of the forested area surrounding the treatment sites:

- The trees proposed to be felled and removed have been identified as hazards to the public along roads and in organizational camps, campgrounds, and recreation residence tracts. At these locations, the felled trees need to be removed from the sites to enable proper function of these sites, and avoid fuels buildups. Leaving the downed trees on site could create a fire hazard or an attractive nuisance in these areas frequented by the public. Downed or piled trees could hamper the operation and maintenance of recreation sites, and

would not meet the high scenic integrity objective in these areas. Large down logs adjacent to roadways would add to existing fuel loads, could make fire control and emergency evacuation more difficult, and could provide hiding cover for wildlife, which can increase the potential for vehicle accidents.

- The trees identified as falling dangers to people are dead or dying and, if left on the ground as down wood, would continue to provide a vector for insects (current infestation of bark beetles) and disease (annosum). It is expected that removing portions of these trees would make these forest stands more resilient to these and other forest stressors.

As summarized at the beginning of this document, the Monument Plan provides direction to maintain safe public access, and promote year-round recreational use. This direction is based on multiple laws, regulations and policies that recommend or require that public safety hazards to be abated when feasible. As a result, the potential for direct and indirect effects to the local society from implementing any of the action alternatives is beneficial over all because the public safety hazard is abated.

As shown in Appendix Table , the timber sale generated by Alternative B or D is estimated to continue to support jobs within the local timber industry (mainly growing-harvesting, and primary manufacturing categories).

Alternative C is designed to respond to the issue raised during scoping suggesting that more trees than necessary to abate the hazard would be cut and removed. Commercial timber sales and tree removal are not prohibited by the Monument Proclamation if they are clearly needed for ecological restoration and maintenance or public safety. According to the Monument FEIS Volume 2, Appendix L, "Salvage harvesting is not planned in the Monument. Any treatments that involve the removal of trees from within the Monument area, including both standing trees and downed logs, will only be permitted following a determination that removal of the trees is 'clearly needed for ecological restoration and maintenance or public safety'" (PC #312). Only those trees that are identified as hazards under current direction would be felled and some of them removed. The Forest Service manages and disposes of timber and forest products under the authority of 7 CFR 2.60 and 36 CFR Part 223 (FSM 1233 and 1234).

Alternative C would require appropriated funds to pay someone to complete the work, without the option of using the tree value to pay for the felling, removal, and fuel treatments. Funding is uncertain and may or may not be adequate to treat the low- to moderate-risk hazard trees in the near future. A delay in starting and completing the project would increase the likelihood that roads and recreation sites would need to be closed to provide for public safety.

Fuelwood removal and fuel reduction activities are limited in scope and intensity under Alternatives B, C, and D. Most of the hazard trees identified to date are red or white fir, neither of which are preferred by fuelwood cutters. Therefore there is likely to be limited economic return from fuelwood permits associated with the Hume Hazard Tree Project. Alternative C is estimated to support a few jobs within the local timber industry, mainly in the form of several small commercial fuelwood sales.

The cost to treat the remaining fuels under Alternative C may be slightly higher than for Alternatives B and D because none of the material would be removed and sold. Alternative C also depends more on appropriated funding than Alternatives B and D for felling and moving hazard tree material. As a result, implementing Alternative C may be inconsistent due to a lack of funding, and slow progress toward meeting the purpose and need of reducing safety hazards in the Hume Hazard Tree Project area.

The direct and indirect effect of implementing Alternative B or D would result in continued support for timber-related employment in the local communities. The direct and indirect effect of implementing Alternative C would result in minimal continued support for timber-related employment in the local communities. Implementation of Alternative C would generate limited funds to conduct other resource enhancement work when compared to Alternative B or D. Although when compared to Alternative A, Alternative C would be an improvement by generating funds of any level.

Cumulative Effects

The fuels reduction activities are limited in scope and intensity under Alternatives B, C, and D. The piling and burning or chipping proposed are expected to have negligible beneficial cumulative effects in the long term.

The small fuelwood sales allowed under Alternative C would not necessarily be sold to the current purchaser, Sierra Forest Products in Terra Bella. Instead these small sales could be sold to another purchaser since fuelwood is not generally processed at a sawmill. Also, fuelwood sales would most likely support only the growing-harvesting category of the timber-related job sector. As a result, the potential for a cumulative effect on the local economy could still be positive overall, but negative for the community of Terra Bella by not helping to maintain the mill and associated jobs.

Implementation of Alternative B or D should result in a beneficial cumulative effect on the local economy, in particular in the community of Terra Bella in Tulare County, by helping to maintain the mill and associated jobs. In considering potential for cumulative effects of the Hazard Tree Project the costs and benefits to other “stakeholders” of interest is necessary. These include the sub-regional economies of the southern and central San Joaquin California counties: Kern, Tulare, and Fresno. These, along with Kings County are some of the most economically depressed counties in the United States, following the Appalachian counties of the middle deep southern US. Therefore on the tri-county scale, implementation of Alternative B or D and the continued support for timber-related jobs, mainly in the growing-harvesting and primary manufacturing categories could have a negligible, and positive cumulative effect.

In contrast to Alternative B or D, there is no guarantee of any raw industrial material pond value being produced under Alternative C that would benefit Tulare County (Terra Bella) and the state of California. Therefore on the tri-county scale, implementation of Alternative C and the continued support for timber-related jobs, mainly in the growing-harvesting category could have a negligible and slightly positive cumulative effect.

Reasonably foreseeable actions such as the Boulder Creek Fuels Restoration Project and Eshom Campground Maintenance may result in incidental felling of hazard trees in the next several years. These projects will improve public safety while maintaining roads, and recreation sites to management standard in the long term. The Hume Hazard Tree Project implements the Monument Plan by maintaining safe public access and promoting year-round recreational use. Implementing the Monument Plan over the next decade through site specific projects to maintain safe public access, and promote year-round recreational use would not set a precedent since it follows decades of similar direction. This direction is based on multiple laws, regulations and policies that recommend or require that public safety hazards to be abated when feasible. As a result, the cumulative effects from abating public safety hazards in the Hume Hazard Tree Project are expected to be beneficial.

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Appendix A-Economics Data Sheets

Hume Roadside Hazard

7/02/2013

MJP

Value Received Stumpage Calculations

Alternative	(A) No Action - Priority 1 Hazards Only	(B) Original Proposed Action Tractor	(D) Proposed Action Tractor w/Campgrounds	(C) Non Commercial w/Campgrounds
Acres Commercial Timber	0	853	1066	0
Sawlog Mb/acre Harvest Avg.	0	1.25	1.25	0.00
Ccf Volume	0	1530	1910	0.00
Mbf Volume	0	1,067	1,334	0
Harvest Cost Center	(A) No Action - Priority 1 Hazards Only	(B) Original Proposed Action Tractor	(2) Proposed Action Tractor (20% Vol. Reduction) (30" max DBH)	(C) Non Commercial w/Campgrounds
Woods Logging Cost (Ccf)	0	101.60	101.60	0
Haul Cost (Ccf)	0	82.26	82.26	0
Other costs (Ccf)	0	29.56	29.56	0
Temp Road Costs (Ccf)	0	0.00	0.00	0
Surface Replacement (Ccf)	0	0.00	0.00	0
Sub-Total Stump to Mill Cost (Ccf)	0	213.42	213.42	0
Risk & Overhead (Ccf)	0	4.49	4.49	0
Total Stump to Mill Cost (Ccf)	0	217.91	217.91	0
Avg. Delivered Log Price (Ccf)	0	243.08	243.08	0
Indicated Stumpage (Ccf)	0	28.18	28.18	0
Total Delivered Log Value	0	371,912.40	464,282.80	0.00
Appraised Value	0	43,115.40	53,823.80	0.00
Total Stumpage Value	0	\$43,115	\$53,824	\$0

Project Costs

Cost Description	(A) No Action - Priority 1 Hazards Only	(B) Original Proposed Action Tractor	(D) Proposed Action Tractor w/Campgrounds	(C) Non Commercial w/Campgrounds
NEPA Analysis	\$ 70,000	\$ 70,000	\$ 70,000	\$ 70,000
Contract Preparation	\$ 26,000	\$ 84,000	\$ 105,000	\$ 105,000
Sale/Contract Administration	\$ 10,000	\$ 34,000	\$ 41,900	\$ 41,900
Fuel Trmnts- Burn Piles (Ccf)	475	92	512	590
Fuel Treatments - Burn Piles Cost	\$1,400	\$ 1,400	\$2,690	\$1,770
Forest Service Force Account Costs	\$ 107,400	\$ 189,400	\$ 219,590	\$ 218,670
Service Costs				
Road ReConstruction (miles)	0.0	0.0	0.0	0.0
Road ReConstruction Cost	\$0	\$0	\$0	\$0
Hazard Tree Felling (Ccf)	475	0	0	1910
Hazard Tree Felling Cost	\$7,600	\$0	\$0	\$30,500
Directional Fell Hazards (Ccf)	475	0	0	1,910
Directional Fell Hazards Cost	\$70	\$0	\$0	\$290
TrafficControl (Ccf)	475	0	0	1,910
TrafficControl Cost	\$330	\$0	\$0	\$1,340
Stump Treatment (Ccf)	475	0	0	1,910
Stump Treatment Cost	\$20	\$0	\$0	\$80
Reposition Material For Safety (Ccf)	235	0	0	435
Reposition Material For Safety (cost)	\$2,350	\$0	\$0	\$4,350
Hand Pile (Ccf)	475	0	0	590
Hand Pile (cost)	\$1,080	\$0	\$0	\$1,340
Total Services Cost	\$11,450	\$0	\$0	\$38,000
Forest Service Force Account Costs	\$107,400	\$189,400	\$219,590	\$218,670
Total Project Cost	\$118,850	\$189,400	\$219,590	\$256,670

Summary Costs

Alternative	(A) No Action - Priority 1 Hazards Only	(2) Proposed Action Tractor	(D) Proposed Action Tractor w/Campgrounds	(C) Non Commercial w/Campgrounds
Total Project Cost	\$299,418	\$367,964	\$398,453	\$353,942
Total Contract Services Cost	\$11,456	\$0	\$0	\$37,954
Agency Reforestation Cost	\$0	\$0	\$0	\$0
Agency Cost NEPA, Prep, Admin	\$286,537	\$367,688	\$396,917	\$314,219
Agency Cost Burning	\$1,425	\$276	\$1,536	\$1,769
Summary Total	\$299,418	\$367,964	\$398,453	\$353,942

USFS Benefit/Cost Analysis

Cost/Benefit	(A) No Action - Priority 1 Hazards Only	(B) Original Proposed Action Tractor	(D) Proposed Action Tractor w/Campgrounds	(C) Non Commercial w/Campgrounds
Benefit-Timber Sale Revenue	\$0	\$43,115	\$53,824	\$0
Benefit - Road Investment (Hazard Removal-closure avoidance)	\$7,600	\$24,480	\$30,560	\$30,560
Cost-Project Implementation	\$299,418	\$367,964	\$398,453	\$353,942
Present Net Value (Not Including Watershed, Wildlife, Fuels/Fire, or Recreation Benefits)	-\$291,818	-\$300,368	-\$314,069	-\$323,382
USFS Benefit/Cost Ratio	0.0254	0.1837	0.2118	0.0863

Societal Benefits

Raw Material Pond Value Total	\$0	\$371,912	\$464,283	\$0
CA & Tulare Co. Yield Tax ¹	\$0	\$4,881	\$6,093	\$0
CA & Local Gov. Retail Tax ²	\$0	\$51,408	\$64,176	\$0
CA Employment Income Tax ³	\$3,672	\$45,900	\$57,300	\$13,770
Total Local Tax Generation	\$3,672	\$102,189	\$127,569	\$13,770
US Employment Tax Generation ⁴	\$6,242	\$78,030	\$97,410	\$23,409
Total Benefits (Revenue+Roads+LocalTax+USTax+Raw Material)		\$619,727	\$773,646	\$67,739
Total Cost Benefit - Society	-\$299,418	\$251,763	\$375,192	-\$286,203
Societal Benefit/Cost Ratio (PNV)	0.0000	\$1.68	\$1.94	\$0.19
CA Economy Raw Material only PNV	\$0.00	\$1.01	\$1.17	\$0.00
CA Governments only PNV	\$0.01	\$0.28	\$0.32	\$0.04
US Government Taxation Return PNV	\$0.02	\$0.21	\$0.24	\$0.07

¹ @ \$110/Mbf @ 2.9%

² @ Lowes \$0.42/bf *8.0%

³ @10 people/MMbf @ \$30,000/Yr (\$14.5/hr) @ 10% tax rate

or 3 people/MMbf @ \$3000/Yr (\$14.5/hr) @ 10% tax rate

⁴ @10 people/MMbf @ \$30,000/Yr (\$14.5/hr) @ 17% tax rate

or 3 people/MMbf @ \$3000/Yr (\$14.5/hr) @ 17% tax rate

Roads are considered both a cost and a benefit (investment) in terms of PNV

Producing costs

Service Costs = those used in TEA stumpage calculations

Fuels Treatment born by Purchaser under TSC, whereas born by Gov't otherwise

Stump to truck = R5 Spreadsheet TEA avg. or R5 LogCost Spreadsheet derived

Haul = R5 Spreadsheet TEA avg. or Haul R5 Spreadsheet derived

Temp Road construction = \$10,000 mile/5,280ft = \$1.89/ft x 1,500ft = \$2840.90

Surface Replacement =

Delivered log price (October'08 indices)=

NEPA = FS Interdisciplinary Team (Biologist, Hydrologist, Archaeologist, Botanist, etc.) and/or contract price

Sale Prep = salary for 20 days (GS-11, GS-9, GS-7(2), & GS-5)

Fuel Treatment = District estimates

Nursery, Planting, Release 1 & 2 costs based on FY2010 SNF experience