

Little Hogback - Meyers Fire Salvage

Economic Specialist Report

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For:

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Introduction

The management of the natural resources on the Beaverhead Deerlodge National Forest (BDNF) has the potential to affect local economies. Use of timber, and other ecosystem goods and services including visits to the national forests contribute income and support employment in surrounding communities. In addition, national forest system resource sales and other land contracts generate revenues that can be returned to the Federal treasury or used to fund additional land and forest improvements targeting ecosystems, watersheds and forest health.

This report identifies the affected economic area, and analyzes the economic effects of the Little Hogback - Meyers Fire Salvage project, including the project feasibility, financial efficiency, and economic impacts. The project feasibility and financial efficiency analysis provide a detailed review of the revenues and costs associated with the actions described. The economic impact analysis separately estimates the potential impacts to the affected area.

The proposed action in this project may include multiple commercial timber sales as well as non-commercial activities. Activities can have market (financial) as well as non-market attributes which may be considered benefits or costs. Non-market attributes associated with proposed activities which cannot be placed into a quantitative economic analysis are generally documented in the resource-specific sections of an EA.

Regulatory Environment

The preparation of NEPA documents is guided by CEQ regulations for implementing NEPA [40 CFR 1500-1508]. NEPA requires that consequences to the human environment be analyzed and disclosed. The extent to which these environmental factors are analyzed and discussed is related to the nature of public comments received during scoping. NEPA does not require a monetary benefit-cost analysis. If an agency prepares an economic efficiency analysis, then one must be prepared and displayed for all alternatives [40 CFR 1502.23].

OMB Circular A-94 promotes efficient resource use through well-informed decision making by the Federal Government. It suggests agencies prepare an efficiency analysis as part of project decision making and prescribes “present net value” as the criterion for the efficiency analysis.

The development of timber sale programs and individual timber sales is guided by agency direction found in Forest Service Manual (FSM) 2430. Forest Service Handbook (FSH) 2409.18 guides the financial and, if applicable, economic efficiency analysis for timber sales.

Many of the costs and benefits associated with a project are not quantifiable in financial terms. For example, the benefit to wildlife from habitat improvement from a project is not quantifiable in financial terms. These costs and benefits are described qualitatively in the indicated resource sections of the Environmental Assessment. Title 40, Code of Federal Regulations for NEPA (40 CFR 1502.23) indicates:

For the purposes of complying with the Act, the weighing of the merits and drawbacks of the various alternatives need not be displayed in a monetary cost-benefit analysis and should not be when there are qualitative considerations.

Executive Order 12898, issued in 1994 orders Federal Agencies to identify and address any adverse human health and environmental effects of agency programs that disproportionately impact minority and

low-income populations. The Order also directs agencies to consider patterns of subsistence hunting and fishing when an agency action may affect fish or wildlife.

The Civil Rights Act of 1964 provides for nondiscrimination in voting, public accommodations, public facilities, public education, federally assisted programs, and equal employment opportunity. Title VI of the Act, Nondiscrimination in Federally Assisted Programs, as amended (42 U.S.C. 2000d through 2000d-6) prohibits discrimination based on race, color, or national origin.

Additionally, the 2009 Beaverhead Deerlodge Forest Plan includes the following forest-wide goals and standards pertinent to economics:

- Contribute to the social and economic well-being of local communities by promoting sustainable use of renewable natural resources. Provide timber for commercial harvest, forage for livestock grazing, exploration and development opportunities for mineral resources and recreation settings consistent with other resource goals.

Analysis Area: County region

Timber management activities within the project area have the potential to impact the economic conditions of local communities. To estimate the potential effect on jobs and income, a zone of influence (or economic impact area) was delineated. The impact area was chosen based on commuting data suggesting a functioning economy and where the timber is likely to be processed (log flows) (METI Corp 2010). The Little Hogback - Meyers Fire Salvage Project is located on the Pintler Ranger District of the BDNF within Granite County, Montana. There are three counties, listed in Figure 1 (Missoula, Granite, and Powell) that were identified in the analysis as the appropriate County region to include in the economic impact analysis area. The actual project area is located in center of Granite County.

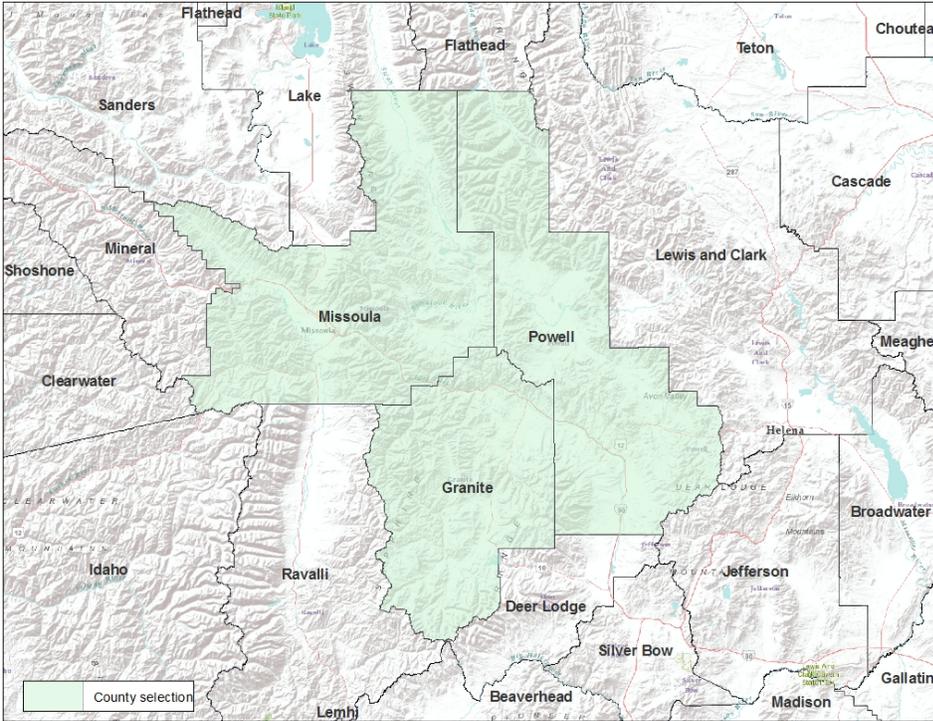


Figure 1. County region, economic analysis area

Affected Environment: Population, Employment and Land Ownership

Socioeconomic measures used to describe the affected environment were obtained from the Headwaters Economics Economic Profile System (EPS 2017), which is a repository for primary demographic and economic data from a variety of government sources. Key measures used in this report include land ownership, population, income, natural resource commodity dependency and economic diversity.

Summary measures of the affected environment include population, income and employment, commodity sectors, and county region land ownership patterns. These summary measures are provided in Table 1.

Table 1. Summary of the affected environment in the county region

	Missoula County, MT	Granite County, MT	Powell County, MT	County Region	U.S.
Population, 2016	116,130	3,368	6,858	126,356	323M
Population % change, 1970-2016	98.6%	23.4%	2.9%	86.2%	58.6%
Employment % change, 1970-2016	225.8%	49.3%	45.5%	202.7%	112.2%
Personal Income % change, 1970-2016	296.5%	149.1%	100.3%	274.6%	201.1%
Unemployment rate, 2017	3.5%	5.7%	4.3%	3.6%	4.4%
Average earnings per job, 2016 (2017 \$s)	\$44,322	\$29,432	\$38,022	\$43,762	\$59,598
Per capita income, 2016 (2017 \$s)	\$45,061	\$37,642	\$37,735	\$44,466	\$50,280
Non-Labor % of total personal income, 2016	44.9%	55.5%	54.1%	45.5%	36.8%
Services % of total employment, 2016	75.5%	22.4%	42.7%	73.0%	72.9%
Government % of total employment, 2016	13.7%	15.6%	30.3%	14.5%	12.5%
Timber % of total private employment, 2015	1.1%	6.5%	25.7%	1.7%	0.7%
Mining % of total private employment, 2015	0.1%	0.3%	0.1%	0.1%	0.6%
Fossil fuels (oil, gas, & coal), 2015	0.0%	0.0%	0.0%	0.0%	0.5%

Other mining, 2015	0.1%	0.6%	0.1%	0.1%	0.3%
Agriculture % of total employment, 2016	0.8%	10.6%	10.4%	1.4%	1.4%
Travel & Tourism % of total private employment, 2015	20.7%	36.9%	22.4%	20.9%	15.6%
Federal Land % total land ownership	51.4%	63.3%	50.2%	54.1%	28.2%
Forest Service %	50.2%	59.8%	43.5%	50.4%	8.4%
BLM %	1.2%	3.5%	6.3%	3.6%	10.6%
Park Service %	0.0%	0.0%	0.1%	0.0%	3.4%
Military %	0.0%	0.0%	0.0%	0.0%	1.0%
Other %	0.0%	0.0%	0.3%	0.1%	4.9%
Federal land % Type A**	20.1%	10.5%	37.9%	23.0%	41.8%
Federal payments % of gov. revenue, FY2012	2.1%	17.4%	25.7%	4.5%	

Data Sources: U.S. Department of Commerce. 2016. Bureau of Economic Analysis, Regional Economic Accounts, Washington, D.C.

Commodity sectors are industrial sectors that have the potential to use Federal public lands for the extraction of commodities. Commodity sectors include timber, mining (including oil, gas, and coal), and agriculture. Public lands can play a key role in stimulating local employment by providing opportunities for commodity extraction. It is important to understand the relative size of these sectors to put the economy related to commodity extraction in perspective. For example, a county with the majority of its employment in the commodity sectors has a higher chance of being impacted by decisions that permit (or restrict) timber, mining, and grazing activities on public lands than a county with very small percentage of the workforce is in these sectors.

In 2015, timber private employment in the impact area, accounting for 1.7 percent of total employment. In comparison, timber accounts for only 0.7 percent of jobs in the U.S.

Decisions made by public land managers may influence the local economy and lifestyles of residents, particularly if public lands represent a large portion of the land base. Agency management actions that may affect water quality, access to recreation, scenery (as well as other quality of life amenities), and the extent and type of resource extraction are particularly important in areas where much of the land is managed by public agencies. The vast majority of the land area within the county area is managed by various public agencies. Federally managed lands represent 54.1%.

National and regional trends in industry sectors influence the ability of communities to adapt to changing circumstances. Timber being an important commodity in the affected area, timber employment has declined from 5.8% in 1998 to 1.7% in 2016 (EPS 2018). Although the differences between today's national forest timber sale program and the program that was in place a decade or so ago have changed, the role that timber production from NFS lands plays in national and regional economies through logging and related activities has existed for a considerable time period and is integral to local communities and individuals directly employed by them.

A major concern about the Little Hogback - Meyers Fire effects is economics. The economy in County region depends largely on natural resources, especially timber. The 2017 Little Hogback - Meyers Fire provided some immediate employment opportunities in suppression efforts, and current employment through rehabilitation activities as well as mushroom picking. These activities are relatively short-term. More long-term opportunities for jobs and income earned through wood product manufacturing and restoration activities would be made available through salvaging timber of the burned area.

Environmental Consequences

The analysis conducted for environmental consequences includes project feasibility, financial efficiency, economic impacts, and environmental justice. These measures, including methodologies, are described below.

Project Feasibility

Project feasibility is used to determine if a project is feasible, that is, is it expected to sell, given current market conditions. The determination of feasibility relies on a residual value (stumpage = revenues - costs) feasibility analysis that uses local delivered log prices and stump to mill costs to determine if a project is feasible. The appraised stumpage rate from this analysis is compared to the base rate (in this case, the base rate is the minimum stumpage rate, which is the lowest rate for which the Forest Service may sell timber). The project is considered to be feasible if the appraised stumpage rate exceeds the base rates. If the feasibility analysis indicates that the project is not feasible, the project may need to be modified. Infeasibility indicates an increased risk that the project may not attract bids and may not be implemented.

Financial Efficiency

Financial efficiency provides information relevant to the future financial position of the program if the project is implemented. Financial efficiency considers anticipated costs and revenues that are part of Forest Service monetary transactions. Present net value (PNV) is used as an indicator of financial efficiency and presents one measure to be used in conjunction with many other factors in the decision-making process. PNV combines benefits and costs that occur at different times and discounts them into an amount that is equivalent to all economic activity in a single year. A positive PNV indicates that the alternative is financially efficient.

Costs for restoration activities are based on recent experienced costs and professional estimates. Non-harvest related costs are included in the PNV analysis, but they are not included in appraised timber value. Costs for sale preparation, sale administration and fuel treatments are included. The NEPA planning costs are sunk costs at the time of decision and are not included in the PNV analysis.

Financial efficiency analysis is not intended to be a comprehensive analysis that incorporates monetary expressions of all known market and non-market benefits and costs. Many of the values associated with natural resource management are best handled apart from, but in conjunction with, a more limited financial efficiency framework. These non-market benefits and costs associated with the project are discussed throughout the various resource sections of the Environmental Assessment.

Economic Impacts (Jobs and Labor Income)

Economic impacts are used to evaluate potential direct, indirect, and cumulative effects on the economy. Economic impacts are estimated using input-output analysis. Input-output analysis is a means of examining relationships within an economy, both between businesses and between businesses and final consumers. It captures all monetary market transactions for consumption in a given time period. The resulting mathematical representation allows one to examine the effect of a change in one or several economic activities on an entire economy, all else constant. This examination is called impact analysis. The IMPLAN modeling system allows the user to build regional economic models of one or more counties for a particular year. The model for this analysis used the 2015 IMPLAN data in conjunction with response coefficients that relate timber harvest quantity to direct jobs and income (Sorenson et al. 2016). IMPLAN translates changes in final demand for goods and services into resulting changes in economic effects, such as labor income and employment of the affected area's economy.

The economic impact effects are measured by estimating the direct jobs and labor income generated by (1) processing the timber volume from the project, and (2) Forest Service expenditures for contracted restoration activities included as part of the proposed treatments. The direct employment and labor income benefit employees and their families and, therefore, directly affect the local economy. Additional indirect and induced multiplier effects (ripple effects) are generated by the direct activities. Indirect effects are felt by the producers of materials used by the directly affected industries. Induced effects occur when employees of the directly and indirectly affected industries spend the wages they receive. Together, the direct and multiplier effects comprise the total economic impacts to the local economy.

Data used to estimate the direct effects from the timber harvesting and processing were provided by the University of Montana's Bureau of Business and Economic Research (BBER) (Sorenson et al. 2016). This national dataset is broken into multi-state regions and is considered more accurate than that which is available from IMPLAN. The Northern Rockies BBER Region (Montana and Idaho) is used for this analysis. The BBER data represents the results of mill censuses that correlate production, employment, and labor income. The economic impact area for this analysis consists of Lincoln and Flathead County. Potential limitations of these estimates are the time lag in IMPLAN and the uncertainty of where the timber will ultimately be processed. The analysis assumes the harvested timber volume Lincoln and Flathead County impact area for the project. However, if some of the timber were processed outside the region, then a portion of the jobs and income would be lost by this regional economy.

Environmental Justice

As stated in Executive Order 12898, it is required that all federal actions consider the potential of disproportionate effects on minority and low-income populations in the local region. The principals of environmental justice require agencies to address the equity and fairness implications associated with Federal land management actions. The Council on Environmental Quality (CEQ) (1997) provides the following definitions in order to provide guidance with the compliance of environmental justice requirements:

- “Minority population: Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis...”
- “Low-income population: Low-income populations in an affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty. In identifying low-income populations, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.”

Effects Analysis

Project Feasibility

The estimation of project feasibility was based on the Region 1 sale feasibility model, which is a residual value timber appraisal approach that takes into account logging system, timber species and quality, volume removed per acre, lumber market trends, costs for slash treatment, and the cost of specified roads,

temporary roads and road maintenance. The appraised stumpage rate from the feasibility analysis was compared to base rates. In this case the minimum rate of \$3.00 per hundred cubic feet (CCF) was used. The appraised stumpage rate and base (minimum) rates for each alternative are displayed in Table 2. For Alternative 2, the appraised stumpage rates is higher than the base rate, indicating that Alternative 2 is feasible (likely to sell).

Financial Efficiency

The financial efficiency analysis is specific to the timber harvest and restoration activities associated with the alternatives (as directed in Forest Service Manual 2400-Timber Management and guidance found in Forest Service Handbook 2409.18). Costs for sale preparation, sale administration, regeneration, and restoration activities are included. All unit costs, quantities, and timing of activities were developed by the specialists on the project's interdisciplinary team. If exact costs were not known, the maximum of the cost range was used to produce the most conservative PNV result. If actual costs are lower, all else equal, PNV would be higher than the estimates in Table 2. The expected revenue for each alternative is the corresponding predicted high bid from the sale feasibility analysis multiplied by the quantity of timber to be harvested. The predicted high bid is used for the expected revenue (rather than the appraised stumpage rate) since the predicted high bid is the best estimate of the high bid resulting from the timber sale auction. The PNV was calculated using a 4% real discount rate over the project lifespan. For more information on the values or costs, see the project file.

This analysis is not intended to be a comprehensive benefit-cost or PNV analysis that incorporates a monetary expression of all known market and non-market benefits and costs that is generally used when economic efficiency is the sole or primary criterion upon which a decision is made. Many of the values associated with natural resource management are best handled apart from, but in conjunction with, a more limited benefit-cost framework. These values are discussed throughout the Environmental Assessment, for each resource area.

Table 2 summarizes project feasibility and financial efficiency, including the base rates, appraised stumpage rate, predicted high bid, total revenue, and PNV for each alternative. Because not all costs of the project are related to the timber sales, two PNVs were calculated. One PNV indicates the financial efficiency of each alternative, including all costs and revenues associated with the timber harvest and required design criteria. A second PNV includes all costs for each alternative with the required design criteria and for the timber harvest and all other resource activities. The cost of sale preparation (\$12.50 per CCF) and sale administration (\$8.50 per CCF) are considered in PNV for all alternatives.

Results shown in Table 2 indicate that Alternative 2 is financially efficient (positive PNVs) for the timber harvest with designed criteria. Some of the costs associated with Alternative 2 include road maintenance, amount of temporary roads and obliteration.

Table 2 also indicates that alternative 2, the action alternatives are financially efficient (positive PNV) for timber sale with designed criteria and other resource activity. The No Action Alternative has no costs or revenues associated with it.

A reduction of PNV in any alternative as compared to the most efficient solution is a component of the economic trade-off, or opportunity cost, of achieving that alternative. The no action alternative would not harvest or take other restorative actions and, therefore, would incur no costs. As indicated earlier, many of the values associated with natural resource management are non-market benefits. These benefits should be considered in conjunction with the financial efficiency information presented here. These non-market values are discussed in the various resource sections found in this the environmental assessment.

When evaluating trade-offs, the use of efficiency measures is one tool used by the decision maker in making the decision. Many things cannot be quantified, such as safety, effects on wildlife and the restoration of watersheds and vegetation. The decision maker takes many factors into account in making the decision.

Table 2. Project Feasibility and Financial Efficiency Summary (2017 dollars)

Measure	Alt 1 (No Action)	Alt 2
Acres Harvested	0	1,415
Volume Harvested (CCF)	0	21,227
Base Rates (\$/CCF)	\$0.00	\$3.00
Appraised Stumpage Rate (\$/CCF)	\$0.00	\$47.05
Predicted High Bid (\$/CCF)	\$0.00	\$52.70
Total Revenue (Thousands of \$)	0	\$1,118
PNV (Thousands of \$)	\$0	\$288

Economic Impact Effects

This analysis calculated the jobs and labor income associated with the processing of the timber products harvested and conducting other resource activities not tied to commercial sales. Timber products harvested from the proposed project and the non-timber activities would have direct, indirect, and induced effects on local jobs and labor income. To estimate jobs and labor income associated with timber harvest, this analysis assumed only sawtimber would be harvested from this project. In order to estimate jobs and labor income associated with reforestation and restoration activities, expenditures for these activities were developed by resource specialists experienced with each type of activity. Only the expenditures associated with the contracted activities are included in the impact analysis.

A job (as defined in IMPLAN) is an annual average of monthly jobs. This is a standard convention and consistent with methods used by the U.S. Bureau of Labor Statistics. When jobs are counted this way, one cannot tell from the data the number of hours worked or the proportion that are full or part-time or anything about seasonality; only that they are yearlong. These jobs are different than full time equivalent (FTE) jobs.

Table 3 displays the direct, indirect and induced, and total estimates for employment (part and full-time) and labor income that may be attributed to each alternative. Since the expenditures occur over time, the estimated impacts of jobs and labor income would be spread out over the life of the project. It is important to note that these may not be new jobs or income, but rather jobs and income that are supported by this project. These impacts are shown both in total (over the life of the project) and on an annual basis. It is anticipated that the timber harvest would occur over a two-year period, with the other resource activities spread out over seven years. This means that the impact of timber harvest to jobs and labor income would occur over a shorter time period than those associated with other resource activities. This can be attributed to the short time period in which fire salvage trees are economically viable for sawtimber use due to rapid deterioration. However, implementation could take longer than anticipated due to unforeseen circumstances.

Table 1. Estimated Average Annual Economic Impacts

	Alt 1	Alt 2
Direct Jobs	0	35
Indirect and Induced	0	28
Total	0	63
Direct Labor Income (\$T)	\$0	\$1,707
Indirect and Induced (\$T)	\$0	\$1,048
Total (\$T)	\$0	\$2,755

Environmental Justice

The CEQ’s Environmental Justice Guidelines for NEPA (1997), “minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis.” Table 4 shows that the total share of all minority populations represented less than 10 percent of the population within each county, the combined county affected area, as well as in the state. Thus, the U.S. Census data suggest minority populations within the analysis area do not meet the CEQ’s Environmental Justice criterion.

Table 2. County region population by Race, 2016.

	Missoula County, MT	Granite County, MT	Powell County, MT	County Region	U.S.
White alone	92.1%	96.5%	91.9%	92.2%	73.3%
Black or African American alone	0.4%	0.1%	0.4%	0.4%	12.6%
American Indian alone	2.5%	0.6%	4.2%	2.5%	0.8%
Asian alone	1.3%	0.1%	1.0%	1.2%	5.2%
Native Hawaiian & Other Pacific Is. alone	0.2%	0.0%	0.1%	0.2%	0.2%
Some other race alone	0.2%	0.0%	0.1%	0.2%	4.8%
Two or more races	3.4%	2.7%	2.3%	3.3%	3.1%

Poverty is an important indicator of economic well-being. For public land managers, understanding the extent of poverty is important for several reasons. First, people with limited income may have different needs, values, and attitudes as they relate to public lands. Second, proposed activities on public lands may need to be analyzed in the context of whether people who are economically disadvantaged could experience disproportionately high and adverse effects.

Poverty rates are often reported in aggregate, which can hide important differences. Table 5 shows poverty for various types of individuals and families. This is important because aggregate poverty rates (for example, families below poverty) may hide some important information (for example, the poverty rate for single mothers with children).

This project is not expected to have any economic negative effect on the population within the affected area.

The Executive Order also directs agencies to consider patterns of subsistence hunting and fishing when an action proposed by an agency has the potential to affect fish or wildlife. The project is not expected to

negatively impact wildlife species traditionally depended on for subsistence hunting/fishing activities (see Wildlife section).

Table 3. County region poverty, 2016

	Missoula County, MT	Granite County, MT	Powell County, MT	County Region	U.S.
People	110,001	3,156	5,293	118,450	310,629,645
Families	26,516	851	1,514	28,881	77,608,829
People Below Poverty	17,671	456	555	18,682	46,932,225
Families below poverty	2,366	71	113	2,550	8,543,087
People Below Poverty %	16.1%	14.4%	10.5%	15.8%	15.1%
Families below poverty %	8.9%	8.3%	7.5%	8.8%	11.0%

Summary of Effects

Alternative 1 – No Action

The No Action alternative would not harvest timber, implement BMPs on haul routes, or take other restorative actions and, therefore, incurs no financial costs. It would also produce no revenue and have no effects on jobs or income. The public would not incur costs, nor realize benefits of timber harvest in this area. However, a significant NEPA planning cost for this alternative will have already been incurred, representing a sunk cost.

The No Action alternative has the potential to continue the decline of timber-related employment in the rural communities of the economic impact area. Continued decline in timber harvest from National Forest System lands could potentially impact wood product employment and associated indirect and induced employment. Cumulative loss in timber-related jobs could affect the remaining infrastructure and capacity of the local rural communities, and could disrupt the dependent local goods and service industries.

Alternative 2

Implementation of alternative 2 will harvest timber and provide commodity generated revenue and would expend government funds to conduct restoration work. The action alternative will recover the economic value of forest products in a timely manner and contribute income and employment within the county region.

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