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Amendment to the Socioeconomic Report

Westside Fire Recovery Project

Happy Camp/Oak Knoll and Salmon/Scott River Ranger Districts,
Klamath National Forest
Siskiyou County, California

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I. Summary of Modifications between Draft and Final EIS

Alterations to unit boundaries, based on public scoping and the consultation process occurred between the draft and final EIS. There were no changes in alternatives 1 through 5 between draft and final EIS that had a noticeable effect on the social and economic analysis. Social and economic analysis and effects cannot effectively be displayed by fire area (Beaver, Happy Camp and Whites) because data and information are measurable and understandable only at the county level. Therefore, this amendment will focus on analyzing the social and economic effects of modified alternatives 2 and 3, and comparing these effects with those of other alternatives.

II. Environmental Consequences of Modified Alternatives

Alternative 2 Modified

Methods

The methods used for this analysis can be found in detail in the Socioeconomic Resource Report for the Westside Fire Recovery project.

Environmental Consequences of Alternative 2 Modified

Direct Effects and Indirect Effects

Social

The social effects of this alternative will include more jobs available for Siskiyou county residents from the 1,076 additional jobs provided and a continuation of the current distribution of jobs among racial and ethnic groups. There will be no disproportionately high or adverse human health or environmental effects on American Indians or the poor.

The lifestyles, values and beliefs of the people in Siskiyou County will include some fulfillment of the desire that resources of the Forest be used to benefit local residents. The concern regarding the fire-safe character of the communities will be addressed through fuels treatments on ridges and near communities.

Treatments will improve safety conditions within the project area including roadside hazard tree treatments, hazardous fuels treatments, and salvage harvest treatments.

Hazard trees along almost 650 miles of roads and other infrastructure, including campgrounds, fire lookouts, trailheads, and bridges would be treated. Since roadside hazard tree treatments are buffered to 250 feet on either side of the road, these treatments incorporate bridges, campgrounds, fire lookouts, and trailheads. Treatments will abate hazard trees along roadways and other infrastructure, improving safety conditions for the public and forest workers. Hazard tree treatments along roadways are critical for providing safe and effective access for the public and forest workers. Treatments are also proposed along utility corridors where needed to protect infrastructure and improve conditions for fire suppression tactics. The removal of fire-killed trees and other hazard trees from around local communities, key infrastructure, and roads would also provide fire managers with improved options for effectively managing potential future wildfires.

Salvage harvest on 7,070 acres within 9,720 acres of salvage units would reduce safety hazards, promoting improved safety conditions for public and forest workers, including but not limited to firefighters, planters, and surveyors. Safety conditions and suppression effectiveness for

firefighters is improved by removing fire-killed trees before they fall and become “jack-strawed;” removing these trees will make foot travel feasible, and remove fuel accumulation.

Hazardous fuels treatments within fuel management zones (i.e. fuel breaks) and the wildland urban interface treatments also improve safety conditions for firefighters and improve suppression tactics around local communities, improving the safety conditions of local residents. Although fire plays an important role in the ecosystem, reducing these fuel loads minimizes the intensity and severity of future fires, thus improving the likelihood of firefighting success.

Proposed treatments decrease the likelihood that forest workers, firefighters, or public users of Forest land will be injured by a fire-killed or hazard tree as time goes on and the trees deteriorate and fall down. Safety for Siskiyou County as a whole will increase since the project area represents about 10% of the Siskiyou County land base.

Economic

Economic effects of this alternative include an economic output of \$178,788,000, labor income value of \$45,474,000, and employment increased by 1,076 jobs. Timber revenues from implementing this alternative are estimated at \$10,820,000 and returns to Siskiyou County at \$2,705,000 based on 25% of timber revenue receipts. Assuming all timber from the project is manufactured into veneers, the wholesale veneer value is estimated as \$84,510,000, logging costs at \$27,166,000 and hauling cost at \$9,000,000. Required costs to restore the project landscape through site preparation, planting and fuels reduction are estimated as \$21,607,000. If all the timber revenue is used to support restoration, this revenue would provide about 40% of the funding required for the fire recovery. The rest of the costs would need to be provided through appropriated funds or other sources.

Cumulative Effects

As noted above, implementation of this alternative will have measureable social and economic effects on Siskiyou County; adding the social and economic effects of the ongoing and reasonable foreseeable future projects identified in alternative 1 to the effects of this alternative will result in noticeable social and economic cumulative effects, especially in the timber sector. Since this sector is such a small part of the economy of Siskiyou County, however, the overall cumulative effects to the county are not expected to be substantial. In terms of safety, projects, especially those with hazard tree and fuels treatments, improve safety conditions for the public and forest workers. Treatments proposed in this project would supplement other present and/or reasonably foreseeable future projects that are planned to improve safety across the landscape. Roadside hazard treatments proposed in this project would provide access to other future projects within or adjacent to the project area, providing access for treatments. Using fire as a management tool in both the planned (prescribed fire) and unplanned settings would meet desired resource objectives due to lower future fuel loading potential and fewer hazards, providing conditions to improve the likelihood of suppression effectiveness. See the Fire and Fuels section of chapter 3 of the final EIS and the Fire and Fuels resource report for details.

Alternative 3 Modified

Methods

The methods used for this analysis can be found in detail in the Socio-economic Resource Report and have not changed. Information on gross acres adjacent to roads that may receive roadside hazard treatments to improve safety and net acres on which such treatments are likely to occur are both presented to more accurately portray the actual treatment acreage.

Environmental Consequences of Alternative 3 Modified

Direct Effects and Indirect Effects

Social

The social effects of this alternative will include more jobs available for Siskiyou county residents from the 887 additional jobs provided and a continuation of the current distribution of jobs among racial and ethnic groups. There will be no disproportionately high or adverse human health or environmental effects on American Indians or the poor.

The lifestyles, values and beliefs of the people in Siskiyou County will include some fulfillment of the desire that resources of the Forest be used to benefit local residents. The concern regarding the fire-safe character of the communities will be addressed through fuels treatments on ridges and near communities. More than two thousand additional acres of fuels treatments on ridges, and near communities and private land, have been added to those proposed in Alternative 2 based on recommendations made by the Karuk Tribe Alternative as discussed in Chapter 2 of the final EIS.

Treatments will improve safety conditions within the project area including roadside hazard tree treatments, hazardous fuels treatments, and salvage harvest treatments.

Hazard trees along almost 320 miles of roads and around other infrastructure, including campgrounds, fire lookouts, trailheads, and bridges would be treated. Since roadside hazard tree treatments are buffered to 250 feet on either side of the road, these treatments incorporate bridges, campgrounds, fire lookouts, and trailheads along roads. Treatments will abate hazard trees along roadways and other infrastructure, improving safety conditions for the public and forest workers. Hazard tree treatments along roadways are critical for providing safe and effective access for the public and forest workers. Treatments are also proposed along utility corridors where needed to protect infrastructure and improve conditions for fire suppression tactics. The removal of fire-killed trees and other hazard trees from around local communities, key infrastructure, and roads would also provide fire managers with improved options for effectively managing potential future wildfires.

Risk-reduction salvage harvest on 5,760 acres within 6,890 acres of salvage units would reduce safety hazards, promoting improved safety conditions for public and forest workers, including but not limited to firefighters, planters, and surveyors. Safety conditions and suppression effectiveness for firefighters is improved by removing fire-killed trees before they fall and become “jack-strawed;” removing these trees will make foot travel feasible, and remove fuel accumulation.

Hazardous fuels treatments within fuel management zones (i.e. fuelbreaks) and the wildland urban interface treatments also improve safety conditions for firefighters and improve

suppression tactics around local communities, improving the safety conditions of local residents. Although fire plays an important role in the ecosystem, reducing these fuel loads minimizes the intensity and severity of future fires, thus improving the likelihood of firefighting success.

Proposed treatments decrease the likelihood that forest workers, firefighters, or public users of Forest land will be injured by a fire-killed or hazard tree as time goes on and the trees deteriorate and fall down. Safety for Siskiyou County as a whole will increase since the project area represents about 10% of the Siskiyou County land base.

Economic

Economic effects of this alternative include an economic output of \$153,153,000, labor income value of \$38,419,000, and employment increased by 887 jobs. Timber revenues from implementing this alternative are estimated at \$10,133,000 and returns to Siskiyou County at \$2,533,000 based on 25% of timber revenue receipts. Assuming all timber from the project is manufactured into veneers, the wholesale veneer value is estimated as \$73,342,000, logging costs at \$23,360,000 and hauling cost at \$7,811,000. Required costs to restore the project landscape through site preparation, planting and fuels reduction are estimated as \$27,487,000. If all the timber revenue is used to support restoration, this revenue would provide about 37% of the funding required for the fire recovery. The rest of the costs would need to be provided through appropriated funds or other sources.

Cumulative Effects

As noted above, implementation of this alternative will have measureable social and economic effects on Siskiyou County; adding the social and economic effects of the ongoing and reasonable foreseeable future projects identified in alternative 1 to the effects of this alternative will result in noticeable social and economic cumulative effects, especially in the timber sector. Since this sector is such a small part of the economy of Siskiyou County, however, the overall cumulative effects to the county are not expected to be substantial. In terms of safety, projects, especially those with hazard tree and fuels treatments, improve safety conditions for the public and forest workers. Treatments proposed in this project would supplement other present and/or reasonably foreseeable future projects that are planned to improve safety across the landscape. Roadside hazard treatments proposed in this project would provide access to other future projects within or adjacent to the project area, providing access for treatments. Using fire as a management tool in both the planned (prescribed fire) and unplanned settings would meet desired resource objectives due to lower future fuel loading potential and fewer hazards, providing conditions to improve the likelihood of suppression effectiveness. See the Fire and Fuels section of chapter 3 of the final EIS and the Fire and Fuels resource report for details.

Comparison of Social and Economic Effects of all alternatives

Table 1: Comparison of Social and Economic Effects of Alternatives

Indicator	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 2 Modified	Alternative 3 Modified
Economic Output (million \$)	\$0	\$210,206	\$185,381	\$189,564	\$83,752	\$178,788	\$153,153

Indicator	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 2 Modified	Alternative 3 Modified
Labor Income (million \$)	\$0	\$53,107	\$46,523	\$47,338	\$21,932	45,474	\$38,419
Employment (Jobs)	0	1,236	1,067	1,074	549	1,076	887
Timber Sale Revenue (million \$)	\$0	\$11,892	\$9,851	\$9,586	\$6,334	\$10,820	\$10,133
Meets local social value for use of resources (potential revenue to county in million \$))	\$0	\$2,973	\$2,463	\$2,396	\$1,583	\$2,705	\$2,533
Fuels Management Zones (acres)	0	4,810	4,810	4,810	6,020	4,990	4,930
Roadside Fuels Treatments (acres)	0	4,420	4,420	4,420	4,420	4,420	5,710
Wildland Urban Interface Treatments (acres)	0	2,220	2,220	2,220	2,220	2,220	2,630
Salvage Harvest Treatments (acres)	0	7,940	6,590	6,910	2,360	7,070	5,760
Roadside Hazard Treatments (maximum and estimated actual acres treated)	0	20,500 9,000	20,500 9,000	19,580 8,000	20,500 9,000	20,500 9,000	14,320 6,290
Total Acres Treated to Improve Safety Conditions	0	28,390	27,040	26,360	24,020	27,700	25,320

All action alternatives will address priority treatment areas for safety. Consequently, effects to safety are only incrementally different among action alternatives, differing primarily by the acres of salvage harvest treatments proposed.

Compliance with law, regulation, policy, and the Forest Plan

All alternatives meet law, regulation, policy and Forest Plan relevant to social and economic factors as displayed in the Forest Plan consistency checklist.

Appendix A of the Amendment to the Economic Report

Table A-1: Expected Timber Harvest Volume in MBF by Alternative, Source Area, and Logging System

Logging System	Beaver Fire	Happy Camp Complex	Whites Fire	Total
Alternative 2				
Roadside hazard ¹	2,000	12,000	6,000	20,000
Ground-based	8,229	8,229	299	16,757
Skyline	3,112	64,722	5,091	72,925
Helicopter	0	61,819	6,718	68,537
Total	13,340	146,770	18,109	178,219
Alternative 3				
Roadside hazard ¹	3,000	12,500	6,500	22,000
Ground-based	0	7,747	299	8,046
Skyline	0	60,478	3,880	64,359
Helicopter	0	55,830	6,718	62,548
Total	3,000	136,555	17,398	156,952
Alternative 4				
Roadside hazard ¹	2,500	12,500	6,500	21,500
Ground-based	7,760	7,369	299	15,429
Skyline	2,187	46,000	4,974	53,161
Helicopter	0	63,577	6,718	70,295
Total	12,447	129,446	18,491	160,384
Alternative 5				
Roadside hazard ¹	2,250	15,000	8,000	25,250
Ground-based	8,229	2,969	195	11,392
Skyline	2,695	11,353	0	14,049
Helicopter	0	19,986	742	20,728
Total	13,174	49,308	8,937	71,419
Alternative 2 Modified				
Roadside hazard ¹	2,250	15,000	8,000	25,250
Ground-based	2,995	7,786	534	11,314
Skyline	2,083	56,637	3,099	61,819
Helicopter	0	48,161	6,002	54,163
Total	7,328	127,584	17,635	152,546
Alternative 3 Modified				
Roadside hazard	2,250	15,000	8,000	25,250
Ground-based	0	8,928	744	9,672
Skyline	0	35,898	6,324	42,222
Helicopter	0	52,080	3,162	55,242
Total	2,250	111,906	18,230	132,386

Source: Forest timber staff

¹Harvesting roadside hazard trees using ground-based equipment has higher average cost than harvesting in forest stands, and is thus considered a separate logging system for logging cost purposes.

Each MBF of logs processed by a Siskiyou County veneer mill produces veneer with an estimated producer value of \$554 (Dennis 2012). Processing the harvest volumes shown in Table A-1 in these mills would produce veneer valued as shown in Table A-2. The log volumes resulting from most project alternatives would exceed these mills' annual processing capacity; in all likelihood, a substantial project log volume would be processed out of Siskiyou County. However, as discussed above, assuming primary log processing occurs at the Siskiyou County facilities is a reasonable approach for estimating the project's economic effects.

Table A-2: Estimated Economic Output from Primary Processing of Project Logs by Alternative

Alternative	Producer Veneer Value
2	\$98,700,000
3	\$87,000,000
4	\$88,900,000
5	\$39,500,000
Modified 2	\$84,510,000
Modified 3	\$73,342,000

Logging activities include felling trees, bucking them into logs, limbing, transporting logs to a landing, and loading logs onto trucks. Unit logging costs were estimated by Forest timber staff as follows:

Table A-3: Estimated Unit Logging Cost by Logging System

Logging System	Logging Cost (Dollars per MBF)
Roadside hazard	\$120
Ground-based	\$80
Skyline	\$140
Helicopter	\$280

Source: Forest timber staff.

Extending the unit costs in Table A-3 to the estimated harvest volumes by logging system in Table A-4 provides the following estimates of total logging cost.

Table A-4: Estimated Total Logging and Log Hauling Cost by Alternative

Alternative	Total Logging Cost	Total Hauling Cost
2	\$33,140,000	\$10,515,000
3	\$29,807,000	\$9,260,000
4	\$30,940,000	\$9,463,000
5	\$11,712,000	\$4,214,000
Modified 2	\$27,166,000	\$9,000,000
Modified 3	\$23,360,000	\$7,811,000

Unit log hauling costs were estimated by Forest timber staff for the following four source areas, assuming shipments went to various mills in northern California and southern Oregon based on historic shipping patterns:

- Beaver Fire: \$58.50/MBF
- Whites Fire: \$60.49/MBF
- Happy Camp Complex (Happy Camp District): \$62.69/MBF, and
- Happy Camp Complex (Oak Knoll District): \$54.77/MBF.

Because of the relatively small range in estimated unit hauling cost among source areas, all log shipments were assumed to cost \$59 per MBF for this analysis. At this rate, total log hauling costs under each alternative would be as shown in Table A-4.

Because of the availability of project-specific information on logging and log hauling costs, modifications were made to the SCFSM to ensure that the project’s economic effects reflect the best available information on the value of logging and hauling activities required by the project. This was done by modeling logging and hauling activities as direct project outputs set at the levels shown in Table A-4. To avoid double counting of logging and hauling services, a further modification to the SCFSM was made by setting the demand for regional logging and hauling services by the veneer manufacturing industry at zero. This approach more reliably estimates the project’s economic effects than using the standard demand for logging and hauling services by the veneer manufacturing industry contained in the SCFSM.

Modeling the Economic Effects of Restoration Service Contracts

Restoring the landscape of the project area will require investments in site preparation, tree planting, hazardous fuels reduction, and road maintenance, among other activities. All such restoration work is expected to be performed by private businesses under contract to the Forest. Forest staff estimated the costs of site preparation, reforestation, and fuels reduction by alternative as follows:

Table A-5: Estimated Required Costs to Restore Project Landscape by Alternative

Alternative	Site Preparation and Reforestation	Fuels Reduction	Total Contract Cost
2	\$14,771,000	\$21,689,000	\$36,460,000
3	\$13,645,000	\$15,664,000	\$29,310,000
4	\$13,835,000	\$15,664,000	\$29,500,000
5	\$9,350,000	\$16,452,000	\$25,802,000
2 Modified	\$12,483,000	\$14,502,000	\$26,985,000
3 Modified	\$11,601,000	\$15,886,000	\$27,487,000

Source: Forest staff.

Restoration costs additional to those shown in Table A-5, such as road maintenance costs, could be required to fully ameliorate damages from the 2014 fires.

Like most national forests, the Forest collects revenues from timber sales to pay for reforestation and other forest management activities. However, for catastrophic wildfires, such as the 2014 fires in the project area, national forests usually require additional funding based on

Congressional appropriations to fund fire recovery activities. Unlike collections of timber sale revenues, such appropriations are uncertain and often insufficient to accomplish all needed restoration work. To avoid overestimating the restoration funding available for the project, and thus the economic impacts of these activities, this analysis assumed that only funds collected from timber sales would be available to fund restoration service contracts. Timber sale revenues were estimated by Forest timber staff based on values for fire-damaged timber determined by the California Board of Equalization for timber yield tax purposes, as shown in Table A-6. To the extent that federal appropriations are forthcoming for restoring the project area, the economic effects of project restoration activities would exceed those estimated in this analysis.

Table A-6: Distribution of Project Timber Harvest Volume and Unit Timber Value by Species

Species	Share of Total Volume	Base Unit Timber Value (Dollars per MBF)¹
Douglas-fir	0.403	\$240
Incense cedar	0.018	\$100
Ponderosa pine	0.110	\$100
Red fir	0.091	\$140
Sugar pine	0.059	\$100
White fir	0.318	\$140
All-species weighted average base unit timber value		\$173

Source: Forest timber staff and California Board of Equalization (2014)

¹Base unit timber value is the per-MBF value of standing fire-damaged timber harvested using ground-based equipment in Timber Tax Value Area 4, which includes the Westside Fire Recovery Project area, as determined by the Board of Equalization for timber yield tax purposes.

Based on the harvest volumes in Table A-1 and unit timber values in Table A-6, adjusted for the logging cost differentials shown in Table A-3, the project alternatives would generate timber revenue as shown in Table A-7. These revenues would partially cover the restoration costs shown in Table A-5, and were assumed to be applied to restoration service contracts.

Restoration work was modeled as a direct project activity conducted by the IMPLAN industry called *support services for agriculture and forestry* at the levels shown in Table A-7.

Table A-7: Estimated Timber Sale Revenues and Share of Total Restoration Cost Fundable by Timber Revenues by Alternative

Alternative	Timber Sale Revenue	Share of Total Restoration Cost
2	\$11,892,000	0.326
3	\$9,851,000	0.336
4	\$9,586,000	0.325
5	\$6,334,000	0.245
Modified 2	\$10,820,000	0.401
Modified 3	\$10,133,000	0.369

Estimating the Fiscal Impact on Siskiyou County

Federal law requires that 25 percent of revenues generated by national forest timber sales be returned to the county of origin primarily to fund roads and schools in lieu of property taxes the county would collect, had national forest lands been in private ownership. The project’s fiscal impact on Siskiyou County was estimated as 25 percent of the timber sale revenue shown in Table A-7.

Results

Implementing the project would generate employment, labor income, and economic output in the four-county region through direct effects on the veneer manufacturing, logging, truck transport, and forestry support services industries. Additional employment, income, and output would be generated through indirect effects in the form of additional purchases made by the directly-affected industries, and through induced effects in the form of additional personal consumption expenditures by workers in the directly- and indirectly-affected industries and their households. Project effects on employment, income, and output estimated using the SCFSM are shown by alternative in Tables A-8 through A-13. These are one-time effects assumed to occur only in 2015, the year in which all planned project timber harvesting would occur. To the extent that project restoration activities are spread over subsequent years, their cumulative effects would be reflected in the results shown below for 2015, but their effects in individual years would be correspondingly smaller.

Table A-8: Economic Effects under Alternative 2

Effect	Employment (Jobs)	Labor Income	Economic Output
Direct	855	\$36,992,000	\$154,247,000
Indirect	152	\$8,913,000	\$29,330,000
Induced	228	\$7,202,000	\$26,629,000
Total	1,236	\$53,107,000	\$210,206,000
Multiplier	1.44	1.43	1.36

Table A-9: Economic Effects under Alternative 3

Effect	Employment (Jobs)	Labor Income	Economic Output
Direct	732	\$32,263,000	\$135,918,000
Indirect	135	\$7,951,000	\$26,136,000
Induced	200	\$6,309,000	\$23,327,000
Total	1,067	\$46,523,000	\$185,381,000
Multiplier	1.46	1.44	1.36

Table A-10: Economic Effects under Alternative 4

Effect	Employment (Jobs)	Labor Income	Economic Output
Direct	731	\$32,717,000	\$138,889,000

Indirect	139	\$8,202,000	\$26,939,000
Induced	203	\$6,410,000	\$23,736,000
Total	1,074	\$47,338,000	\$189,564,000
Multiplier	1.47	1.45	1.36

Table A-11: Economic Effects under Alternative 5

Effect	Employment (Jobs)	Labor Income	Economic Output
Direct	397	\$15,637,000	\$61,760,000
Indirect	57	\$3,320,000	\$10,994,000
Induced	94	\$2,975,000	\$10,998,000
Total	549	\$21,932,000	\$83,752,000
Multiplier	1.38	1.40	1.36

Table A-12: Economic Effects under Alternative 2 Modified

Effect	Employment (Jobs)	Labor Income	Economic Output
Direct	753	\$31,880,000	\$131,496,000
Indirect	127	\$7,427,000	\$24,490,000
Induced	195	\$6,187,000	\$22,803,000
Total	1,076	\$45,474,000	\$178,788,000
Multiplier	1.43	1.43	1.36

Table A-13: Economic Effects under Alternative 3 Modified

Effect	Employment (Jobs)	Labor Income	Economic Output
Direct	613	\$26,823,000	\$112,829,000
Indirect	109	\$8,386,000	\$21,059,000
Induced	165	\$5,210,000	\$19,265,000
Total	887	\$38,419,000	\$153,153,000
Multiplier	1.45	1.43	1.36

As shown in Tables A-8 through A-13, the project’s economic effects on the four-county region would be largest under Alternative 2, roughly 12 percent smaller under Alternatives 3 and 4, 14 percent smaller under Alternative 2 Modified, 25 percent smaller under Alternative 3 Modified, and roughly 50 percent smaller under Alternative 5.

The relative contributions of timber harvesting and landscape restoration to the project’s direct economic effects are given by their relative monetary values: depending on the alternative, 85 to 88 percent of the direct output effect is attributable to timber harvesting, and the remainder to restoration work. The two activities’ relative contributions to indirect and induced economic

effects are in roughly the same ratio. The relative economic importance of restoration work would increase in relation to the amount of federal funds appropriated for the project.

Table A-14 shows the amount of project timber revenue expected to accrue to Siskiyou County. The project's fiscal impact would vary by alternative very similarly to its economic effects.

Table A-14: Estimated Project Revenue Returned to Siskiyou County

Alternative	Revenue
2	\$2,973,000
3	\$2,463,000
4	\$2,396,000
5	\$1,583,000
Modified 2	\$2,705,000
Modified 3	\$2,533,000