Toolbox Fire Recovery Project
Developing Alternative E

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Introduction:

The ID Team developed the concept for alternative E as the "economic" alternative. In general the team expected Alternative E to emphasize economic efficiency with a focus on the most cost effective harvest units. The anticipated result was:

- a salvage acreage somewhat less than Alternative C,
- potentially some salvage in RHCA's,
- some helicopter logging in high return areas,
- no thinning in plantations,
- reforestation with the potential for delays in areas not harvested,
- retention of snags and snag areas to meet 100% population potential,
- no prescribed fire outside of salvage units,
- limited road construction,
- temporary roads only where economic efficiency is improved,
- no prescribed burning for wildlife, and
- protection activities necessary to met INFISH and other requirements – only.

The purpose of this paper is to describe the analytical process used to develop timber harvest units for Alternative E and the results of applying that process.

Analytical Process:

Since this alternative is to represent a more economic approach to management than the others, it will exclude units that generate a negative return. This approach improves efficiency from the point of view of potential purchasers. In addition, Alternative E will exclude activities that are not required for mitigation and delay, to the extent possible, activities that are required yet do not produce a positive net return. These factors relate to the long-term economic efficiency of Forest Service management.

The typical timber sale involves units that cost more to log than the value of timber removed. These sales have other units where the timber values are larger than the costs. As a whole, these sales remain attractive to purchasers and more acres can be treated to meet the objectives of management. Alternative E reduces the number of acres to be treated and may increase long-term Forest Service (taxpayer) costs. The relative effects of this will be evaluated in the economic comparison of the alternatives.

Timber Value. Data from a series of stand exams were run through a cruise analysis to define parameters critical to valuation of harvested timber. These parameters were then used to estimate timber value. It is assumed that trees of 13" dbh (10" dib) or larger will be harvested. Live timber values were reduced by 35% to account for degradation during the time required for NEPA compliance and sale preparation. Timber values ranged from $255 to $318 per mbf as noted in the following table.

ESTIMATING TIMBER VALUES

STAND DESCRIPTION	MBF/ACRE	SPECIES %	SPECIES VALUE	WEIGHTED VALUE
LP – Silver Area Low Volume	2.9	PP 60% LP 40%	$306.38 $178.74	$255.85
PP – Silver Area High Volume	9.1	PP 67% WF 33%	$325.33 $175.58	$275.89
WF – Toolbox Area High Volume	7.8	PP 72% WF 28%	$324.87 $172.99	$283.07
PP – Silver Area Moderate Volume	5.4	PP 75% WF 21% LP 4%	$326.80 $174.78 $178.76	$288.88
PP – Toolbox Area Very High Volume	11.9	PP 85% WF 14% LP 1%	$322.80 $176.85 $178.75	$301.56
WF – Silver Area Very High Volume	10.7	PP 82% WF 18%	$333.46 $168.34	$304.27
LP – Toolbox Area High Volume	9.3	PP 82% WF 4% LP 14%	$335.95 $181.97 $178.76	$306.88
Toolbox Helicopter Area High Volume	7.3	PP 100%	$315.16	$315.16
PP – Toolbox Area Low to Moderate Volume	2.8	PP 100%	$317.92	$317.92
PP – Silver Area Low Volume	2.0	PP 100%	$317.95	$317.95

Given the range of timber values listed above, an understanding that evaluations developed from the early data available here are very rough, and a general knowledge of the types of harvestable timber seen across the study area, a value of $300/mbf for ground based systems and $315/mbf for helicopter logging are used in the remainder of this analysis.

Production Costs. Costs were developed for harvest involving tractor yarding. These costs include everything from stump to truck, plus haul, road maintenance, temporary road construction, and other miscellaneous costs typical of this area. Brush disposal and road reconstruction costs are not included. These costs vary by the volume per acre harvested. For example, scattered timber in low volume areas increased costs while concentrated timber in high volume areas reduced logging costs. The study area has been divided into units on the basis of harvestable timber volume. This volume excludes the estimated volume of snags and other trees that will be left in the woods for a variety of reasons. The logging costs were estimated on the basis of these volumes, as follows:

HARVESTABLE VOLUME CLASS MBF PER ACRE	TRACTOR LOGGING COSTS $ PER MBF
1	$450
2	$315
4	$215
8	$171
9	$159

In addition to the costs discussed above. There is an estimated cost of $30 per acre for brush disposal.

Assessing Net Unit Values. Given the information presented above, each of the 297 units that had potential for tractor harvest were evaluated. Unit 6 is used below as an example of the calculation that was applied to each of these units.

UNIT 6 – CALCULATION OF TIMBER COSTS

MBF/AC	ACRES	COST/MBF	COST PER ACRE	TOTAL COST
1	0.37	$450	$450	$166
2	0.00	$315	$630	$0
4	15.08	$215	$860	$12,969
8	15.27	$171	$1,368	$20,889
9	6.76	$159	$1,431	$9674

The total cost of harvesting this unit is $43,698 or $43,698/37.48 = $1,166 per acre.

UNIT 6 – CALCULATION OF TIMBER VLAUE

MBF/AC	ACRES	VALUE/MBF	VALUE PER ACRE	TOTAL VALUE
1	0.37	$300	$300	$111
2	0.00	$300	$600	$0
4	15.08	$300	$1,200	$18,096
8	15.27	$300	$2,400	$36,648
9	6.76	$300	$2,700	$18,252

The total value of harvesting this unit is $73,107 or $73,107/37.48 = $1,951 per acre.

The net value of harvesting this unit is $1,951 - $ 1,166 = $785 per acre. The cost of brush disposal, $30 per acre, is then subtracted leaving a net value of $755 per acre in this case. Values calculated in this manner varied from -$93 (Unit 78) to $1239 (several units with very high volumes per acre).

Selecting Harvest Units for Alternative E. All potential tractor harvest units with a calculated net value of $0 or less were removed from the harvest proposal for Alternative E. This leaves 11,010 out of 13,975 total acres of tractor ground available for harvest.

All of the potential helicopter units had disproportionately high to very high timber volumes and could be expected to be profitable on that basis. This, however, disregards the need for landings and service areas for helicopters and their cost of construction. This cost is minimized when larger harvest areas can be accessed from the same landings and service areas. The layout of units was examined to identify isolated small units that would have high costs associated with helicopter yarding. This exercise eliminated 12 of the 15 potential helicopter units and 160 of the 468 acres of potential helicopter yarding.

Conclusions

The first cut analyses described above identified about 11,317 acres of timber harvest (11,010 acres tractor and 308 acres helicopter). Based upon the harvestable volume classes as noted above, the total harvest from this alternative is estimated at 65.8 MMBF with 2.7MMBF of that harvested by helicopter.

Following the first cut at identifying potential units for Alternative E, the roadside hazard removal portions of dropped units were added back to the alternative. Approximately 324 acres of roadside hazard removal resulted in a total of 11,641 acres.

In addition, isolated units and units only slightly above $0.00 net value were removed to further improve the economics of the alternative. Logical units to remove totaled approximately 150 acres for a final acreage of 11,491 and a tentative volume of 66.1 million board feet. (63.4 ground based and 2.7 helicopter).

Use of This Report

This Toolbox Fire Recovery Project specialist report was prepared during March, April and May of 2003. It will be used, along with specialist reports from multiple resource areas, to prepare a Draft Environmental Impact Statement (DEIS) for the Toolbox Fire Recovery project. This specialist report will become a part of the planning record for the project, filed under:

"Toolbx/ Planning Record/ E_Specialists_reports_data_inventory_and_collection"

This report will be filed both in the 'hard-copy' planning record binders, on file at the Silver Lake Ranger District, and on the Fremont National Forest "K-Drive". In the interest of planning process efficiency, particularly in light of time and budget constraints, editing that occurs to the content of this report during the preparation of the DEIS will be reflected in the DEIS and will not necessarily be entered back into the content of this report. To insure the accuracy of such edits, I will review the content of both the DEIS and the (Final) FEIS and certify that their content is consistent with the analytical conclusions in this report. If during DEIS or FEIS editing, substantially different conclusions or interpretations are reached or substantial additional analysis is prepared from that displayed in this report, an addendum to this report will be prepared.

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