3.18 ECONOMICS

3.18.1 Summary

The economic effects resulting from each action alternative would be almost identical; the benefit/cost ratios resulting from each action alternatives span between 0.22 and 0.26. These ratios reflect high costs of plantings associated with the non-harvest restoration units proposed under each action alternative. Revenue figures do not include the benefits that are difficult to quantify, such as recreational opportunities, wildlife habitat, visual quality, and the value of old-growth. Because Alternative 1 (the No-Action alternative) proposes that no management activities be implemented, there would be no resulting economic benefit or cost, except for the expenses of project development and documentation.

3.18.2 Introduction

The Glacier Project Area is a fraction of the Superior National Forest (which is part of a large economic impact area). This analysis tiers to the social and economic analysis for the Superior National Forest found in the Environmental Impact Statement (EIS) prepared for the Forest Plan (FEIS Ch 3.9-1 through 3.9-58). The Forest Plan EIS addresses the economic sustainability of the local communities including employment, income, present net value and also considers recreation and tourism and commercial wood products and suitable timber lands. A local project such as Glacier is unlikely to have measurable economic effects on the local communities since it would comprise a small fraction of the total economic activity affecting these communities. Therefore, it is appropriate to tier to the Forest Plan EIS analysis for effects to tourism and timber industry. The effects of the project on resources such as scenery and recreation are disclosed throughout Chapter 3.

This section addresses the financial efficiency of this project and shows how this project would contribute to the local government through returns to the US Treasury and the 25% payments to local counties. This type of analysis helps determine whether the proposed activities represent a prudent means of achieving the resource objectives outlined in the Forest Plan. The Forest Service's policy is to implement timber sales in the most cost efficient manner to achieve objectives outlined in forest plans and facilitate a program where long-term benefits exceed costs (FSM 2432).

3.18.3 Analysis Methods

The economic analysis for the Glacier Project uses two indicators to compare the effects of the alternatives. One indicator measures cost effectiveness through the financial efficiency analysis, and the second indicator is used to disclose each alternative's return to the US Treasury.

The indicator selected to compare the financial efficiency of each alternative is the benefit/cost ratio for proposed activities. This indicator highlights the difference between the alternatives because it displays the benefits and costs of the project which are quantifiable and vary by alternative.

The main assumption in the financial efficiency analysis is all vegetation management activities identified in the action alternatives would be accomplished through timber harvest to the extent practicable. A four percent discount rate was used for discounting in the analysis. Discounting is the process of determining the present value of a series of future cash flows.

Revenues, listed as "Present Value (benefits)", are based on potential timber sale receipts. Revenue figures do not include the benefits that are difficult to quantify, such as recreational opportunities, wildlife habitat, visual quality, and the value of old-growth. People place values on ecosystems and

are willing to pay for their recreational opportunities, old growth characteristics, wildlife, fish habitat regardless of their plans for current and future use. Such values are called option and existence values (Swanson and Loomis 1996). See additional sections of Chapter 3 for ecological values of the project.

As in all financial efficiency analyses, assumptions were applied in order for the analyses to result in assessments which could be compared. For the Glacier Project analysis it was assumed that the proposed activities resulting from each alternative would be implemented by the year 2008.

The Quick Silver PC version 5.004.45 (Forest Investment Analysis Program) was used in the efficiency analysis of the Glacier Project to calculate the return on each dollar spent. Quick Silver was also used to calculate the present net worth of each alternative. The costs calculated by Quick Silver included environmental assessment preparation, timber sale layout and administration, road planning, planting, and site preparation, and non-harvest restoration activities.

The second indicator is the measure of return to the US Treasury and local governments. The return to the US Treasury consists of the total returns from potential timber sales, less the costs associated with all reforestation activities (both natural and artificial regeneration), other approved activities identified in the Knutson-Vandenberg Sale Improvement Plan, and salvage sale funds.

The Knutson-Vandenberg Act (K-V) is the authority for requiring purchasers of National Forest timber to make deposits to finance sale area improvement activities needed to protect and improve the future productivity of the renewable resources of forest lands within timber sale areas.

The returns to local governments are payments in lieu of taxes and are based on receipts from federal land. These payments would be made by the federal government to state agencies and would be distributed to local schools. Payments would equal twenty-five percent of the total timber receipts (gross revenues).

3.18.4 Analysis Area

The geographic area considered for the economics analysis is the Glacier Project Area boundary. Only activities proposed within the action alternatives would be considered for the direct and indirect effects. The time period analyzed for direct and indirect effects is approximately seven years. The main purpose of this analysis is to display cost effectiveness of the proposed activities and to determine if the action alternatives propose prudent means of achieving the resource objectives outlined in the Forest Plan. There will be no cumulative effects because there are no other revenue producing projects within the Glacier Project Area.

3.18.5 Affected Environment

The Glacier Project Area is located within northern St. Louis and Lake Counties. The centers of development located nearest the project area include the small towns of Ely, Tower, Babbitt, Silver Bay, Isabella, Cook, Tower, Embarrass, Aurora, Hoyt Lakes, Biwabik, and Finland. All of these communities are home to many people involved in the forest products industry.

3.18.6 Environmental Consequences

3.18.6.1 Direct and Indirect Effects

Alternative 1 (No-action)

If Alternative 1 is chosen by the deciding official for implementation, no revenue producing activities would take place. (See Tables 3.18-1, 3.18-2, and 3.18-3) The cost of planning the Glacier Project is the same under all of the alternatives. Planning expenses are based on a five-year average of expenses incurred for analysis, documentation and compliance for applicable environmental laws on the Superior National Forest. If Alternative 1 is chosen, no other costs would be incurred and no revenues would be generated to offset the costs. The benefit to cost ratio would be zero. Table 3.18-4 summarizes activity costs.

Alternatives 2, 3 and 4

Financial Efficiency

Revenues, listed as "Present Value (benefits)", are only based on timber sale receipts. The benefits (revenues) realized through timber harvests depend on market value and costs at the time of sale. For this analysis, the values of harvesting timber were calculated using the base period prices effective October 15, 2007. Based on past and recent trends there has been a drop in stumpage prices.

Tables 3.18-1 and Table 3.18-2 provide a comparison of the costs and benefits of the project. Table 3.18-1 includes the cost of all of the related to NEPA documentation, proposed activities, including planting, site preparation, and non-harvest restoration. Table 3.18-2 includes only the costs of the timber harvest and associated roads and planning costs.

Table 3.18-1 shows that the cost of the project exceeds the benefits of the project. This results in a benefit/cost ratio of less than one. There are three main reasons why the costs are greater than the benefits. One reason is current low stumpage prices. The second is the high costs associated with reforestation activities such as planting both for conversion to a new forest type such as jack pine or white pine and for increasing the diversity of stands through planting. Planting is generally not needed to adequately regenerate a harvested stand; however, planting is needed to ensure success in attaining the desired tree species composition. The third reason for high costs is the 5,000 acres of non-harvest restoration activities. These activities have costs associated for surveys, planting, release, and burning but there would be no income generated through timber sales.

Table 3.18-2 shows the benefit cost ratio when the costs related to NEPA documentation, non-harvest restoration, fuels reduction and planting activities are not included. Although the proposed diversity planting, conversion to jack and white pine, and non-harvest restoration activities are needed in order to meet Forest Plan objectives and purpose and need described in chapter 1, this table reflects only natural regeneration of harvested areas to illustrate how planting costs can influence the benefit cost ratio. The cost generated through harvest would help pay for some of the reforestation and non-harvest restoration activities. Alternative 4 generates more income and therefore would cover the costs of more of the planting and non-harvest activities. The other ecological benefits of the project are described throughout Chapter 3.

Table 3.18-1. Financial Efficiency Summary* Based on All Actions				
Description	**Alt. 1**	**Alt. 2**	**Alt. 3**	**Alt. 4**
Present Value (cost)	$639,357	$5,874,502	$4,897,945	$6,792,655
Present Value (benefits)	$0.00	$1,497,648	$1,073,521	$1,771,333
Benefit/Cost Ratio**	0.00	**0.25**	**0.22**	**0.26**

* At 4% discount rate

** A value greater than 1.0 indicates benefits exceed costs

Table 3.18-2 Financial Efficiency Summary* Based on Timber Harvest with Natural Regeneration Only				
Description	**Alt. 1**	**Alt. 2**	**Alt. 3**	**Alt. 4**
Present Value (cost)	$639,357	$1,385,235	$998,763	$1,627,544
Present Value (benefits)	$0.00	$1,497,648	$1,073,521	$1,771,333
Present Net Worth	-$639,357	$112,413	$74,758	$143,789
Benefit/Cost Ratio**	0.00	**1.08**	**1.07**	**1.09**

* At 4% discount rate

** A value greater than 1.0 indicates benefits exceeds costs

Returns to Federal and Local Governments

Timber sold on federal land would result in measurable revenues to the US Treasury and local county governments. Table 3.18-3 shows the estimated volume for each alternative, in addition to the estimated total revenue that would go the US Treasury and the estimated amount that would go to the counties. Of the action alternatives, Alternative 4 would return more to the US Treasury and the local counties than Alternatives 2 or 3.

Table 3.18-3. Returns to Local Government and the US Treasury.				
Description	**Alt. 1**	**Alt. 2**	**Alt. 3**	**Alt. 4**
Total Estimated Volume Harvested (MMBF)	0	46	33	55
Total Revenue	0	$1,497,648	$1,073,521	$1,771,333
Return To US Treasury	0	$23,199	$16,561	$27,400
25% Payment To Counties	0	$374,412	$268,380	$442,833

Table 3.18-4 displays the various costs of implementing the project. All costs are estimates.

Table 3.18-4. Glacier Project Summary of Investment of Action Alternatives.

Dependent Factors		**Alt 2**	**Alt 3**	**Alt 4**
Total Treatment Acres		8,094	5,668	9,236
Stand Conifer Conversion Acres		1,640	1,192	2,310
Fuel Management / Fuel Reduction	Crushing and prescribed burn	344	492	344
	prescribed burn	228	228	228
	hand and / or pile burn	40	40	40

Activities:		**Costs: Expected Project Expenses**		
NEPA / EIS	**Unit Cost**	**Alt 2**	**Alt 3**	**Alt 4**
Analysis / Documentation (3yr.avg.costs)	$639,357	$639,357	$639,357	$639,357
TIMBER RELATED ACTIVITIES ONLY				
Sales Preparation (per mbf)	$18.04	$837,020	$597,521	$988,610
Sales Administration (per mbf)	$10.47	$485,787	$346,787	$573,766
Reforestation – conifer conversion plantings (per acre)	$405.00	$664,200	$482,760	$935,550
Reforestation –diversity plantings (per acre)	$405.00	$699,840	$447,930	$890,595
Release (per acre)	$165.00	$555,720	$379,170	$716,430
Stand and Stocking Exams (per acre)	$6.00	$33,402	$24,180	$41,472
Temporary Roads (per acre)	n/a	$54,741	$49,093	$54,741
Total Costs **(minus documentation costs)**		$3,330,710	$2,327,441	$4,201,164
NON-TIMBER RELATED	**Unit Cost**	**Alt 2**	**Alt 3**	**Alt 4**
Fuels Management / Reduction				
Crushing and prescribed burn	$800	$275,200	$393,600	$275,200
prescribed burn	$450	$102,600	$102,600	$102,600
hand and / or pile burn	$253	$10,100	$10,100	$10,100
Non-harvest Restoration Activities				
Stand and Stocking Exams (per acre)	$3.00	$19,686	$20,370	$19,686
diversity underplantings (per acre)	$405.00	$455,220	$475,065	$455,220
Release (per acre)	$165.00	$269,115	$278,025	$269,115

*****At 4% discount rate.
******A value greater than 1.0 indicates benefits exceed costs

This page intentionally blank.