

CHAPTER II
ALTERNATIVES INCLUDING THE PROPOSED ACTION

A. OVERVIEW

This chapter describes and compares the range of alternatives analyzed in the Forest planning process, including the Proposed Action (Composite Alternative). The section titled, Alternative Development Process explains the NEPA and NFMA regulations that govern alternative development. It discusses how alternatives were formulated, the range of alternatives, and the set of management prescriptions in each alternative. The section also discusses the role of economics in alternative formulation. The section titled, Role and Use of Benchmarks describes benchmark levels and their quantitative analysis. This is used to define the decision space used in formulating alternatives. "Alternatives Considered and Eliminated from Detailed Study" describes three alternatives and the reasons for eliminating them from detailed study. The section "Alternatives Considered in Detail" displays the eight alternatives considered in detail. This includes the Proposed Action. The alternatives are summarily described with goals, objectives, and a description of the future condition of the Forest. The chapter concludes by comparing the eight alternatives considered in detail. This comparison includes land use allocations by management prescription, average annual outputs of selected resources, and detailed comparison of resources for a selected time period. The comparison also displays social and economic effects of implementing the alternatives.

B. ALTERNATIVE DEVELOPMENT PROCESS

NEPA regulations require an evaluation of an array of reasonable alternatives to the Proposed Action, including a "no action" alternative. The regulations require the Forest to analyze alternatives not within the agency's jurisdiction. The regulations also require identification and discussion of alternatives eliminated from detailed study.

NFMA regulations include criteria to guide alternative development. These criteria are:

- Each alternative will be capable of being achieved.
- A "no action" alternative will be formulated that is the most likely future condition if current management direction continues unchanged.
- Each alternative will provide for the orderly elimination of backlogs of needed treatment for the restoration of renewable resources as necessary to achieve the multiple-use objectives of the alternative.
- Each public issue and management concern will be addressed in one or more alternatives.
- Each alternative will represent, to the extent practicable, the most cost-efficient combination of management activities that can meet the objectives established in the alternative.

The NFMA regulations also require that each alternative display:

- The condition and uses that will result from long-term application of the alternative.

- The goods and services to be produced, and the timing and flow of these resources outputs.
- Resource management standards and guidelines.

An alternative is a specific combination of management prescriptions and associated cost and output schedule. Management prescriptions apply only to National Forest System land. A variety of prescription combinations are possible in formulating a reasonable range of alternatives.

Prescriptions are management activities selected for specific land areas to attain multiple-use goals and objectives. Alternatives vary by changing acres and prescription location. Prescriptions for the Management Areas are displayed in Chapter IV, Management Direction, of the Plan.

The prescriptions contain mitigation measures. Mitigation ensures long-term land productivity is not impaired under any alternative.

Each alternative is economically efficient in terms of present net value (PNV) and benefit/cost ratio. Present net value is total discounted benefits minus total discounted costs associated with providing outputs.

Present net value (PNV) is the measure of economic efficiency used in Forest Planning. It is defined as the difference between the discounted dollar value of all priced outputs and the discounted value of all expenditures for management and investment (the process of discounting expresses all values at a common date). "PNV" is one important component or effect that is included in net public benefits. Any differences in PNV among alternatives may be related to the production of public benefits to which prices have not been assigned. Such benefits include outputs, such as endangered animals; physical conditions, such as the maintenance of areas with particularly pleasing visual qualities; and desirable distributive effects, as when especially high levels of commodities are produced to help support dependent communities. Included are reductions in risk, such as those due to intensifications of insect and disease surveys, and improvements in quality, such as those due to increasing recreation site management standards. Similarly, differences in PNV may be related to the production of public benefits to which prices have been assigned. Further, differences in PNV may be directly related to the budget restrictions associated with the alternatives.

An important purpose of this section is to define the difference in the production of public benefits among alternatives that lead to the differences in PNV.

The planning process recognized that a general relationship exists among the various economic values for forest resources. The economic values include:

- Actual cash receipts which the forest collects from the sale of wood, forage, developed recreation and the use of land.
- Explicitly valued resources for which the forest receives no cash, but for which an economic value exists; such as, dispersed recreation (\$3.00 a recreation visitor day).

- Implicitly valued resources for which no economic value exists but which can affect resources with explicit values. For example, scenic beauty and wildlife habitat are resources with out an economic value but the amount of or quality of them have an effect on the amount of dispersed recreation.

In addition to the relationship that exists between the economic values and the resource output patterns, all of which can be identified and described, there are speculative and currently unquantified economic values for resources with the potential to be significant; such as the value of undiscovered mineral and energy deposits.

There can be significant off-forest economic and social effects to the area influenced by the forest's activities and policies. In particular, there could be impacts to jobs in the wood production, ranching and recreation industries due to changes made in the management of the forest. The significance of the impacts would vary with the degree of industry and community dependence on the forest's resources.

The Formulation of Alternatives (Planning Action 5) is the culmination of Planning Actions 1 through 4. The following summarizes these steps:

Step 1. Major public issues are identified through public involvement and coordination with other local, State, and Federal agencies. Management concerns were identified through an internal analysis.

Step 2. Public issues and management concerns are converted into a set of general planning goals.

Step 3. Multiple use management prescriptions are developed. These prescriptions represent sets of compatible management practices, and are designed to address planning goals.

Step 4. Data were collected and stored in the Forest resource data base.

Step 5. Potential locations for applying the management prescriptions were identified through site-specific capability and suitability analysis.

Step 6. Potential production levels were estimated for each resource.

Step 7. Demand and supply levels were estimated for the various resources. The need to change current management direction was identified.

Step 8. A broad range of alternatives was developed. These alternatives address the needed changes in management direction. Each alternative responds to planning questions differently.

Step 9. Objectives for each planning goal were identified.

Step 10. The linear program model, FORPLAN, was used to estimate the goods and services from timber management that could actually be produced by each alternative. The model is a mathematical process that determines the most cost-efficient prescription mix which achieves a desired goal. The model schedules outputs and calculates costs over time.

Step 11. The land use assignments and output schedules were validated. Unacceptable management conflicts were resolved.

Step 12. The land use assignments were mapped and re-analyzed to test the original constraints and to ensure maximum economic efficiency.

Step 13. Steps 9 through 12 were repeated to define the reasonable range of alternatives.

Alternatives considered in the planning effort can be grouped into two categories: those considered and eliminated from detailed study and those considered in detail. Three alternatives, Minimum Wilderness, Maximum Wilderness, and Market Emphasis with Timber Departure were considered and eliminated from detailed study. The Wilderness Alternatives were eliminated from further study after the passage of the Utah Wilderness Act. Eight alternatives were considered in detail and discussed in detail later in this chapter.

C. ROLE AND USE OF BENCHMARKS

Benchmark level analysis was conducted to define the decision space (The parameters within which the decision must be made) used in formulating alternatives. This analysis provided the basis for examining and displaying the trade-offs and effects associated with the benchmark levels and alternatives. The quantitative results of the benchmarks will be used as reference points for comparing alternatives.

Benchmarks differ from alternatives because, generally, benchmarks describe a maximum or minimum level of resource activities and outputs without regard for multiple use considerations. Benchmarks are not intended to be implementable, whereas alternatives reflect multiple use considerations and are fully implementable. The Current Program Alternative is an exception in that it is also displayed as a benchmark for comparison purposes.

Five benchmark levels were analyzed. Each benchmark level is subject to the laws and regulations that govern National Forest System Management. However, benchmarks are not constrained by local, Regional, or National policy. All benchmarks are designed to maintain land productivity.

Constraints vary by benchmark, but are applied to help ensure that each benchmark can be approximately implementable. These constraints are presented in Appendix B.

Each benchmark has a specific objective. This objective is reflected in the objective function, constraints, and the assumptions made for that benchmark. Appendix B has a benchmark comparison, and presents economic analysis and average annual output by resource. Benchmark summaries of outputs, costs, benefits, and cash flows are located in Tables II-1 to II-5(5)a in the following section. Tables II-6, 7 and 8 provide an economic comparison of the benchmarks.

1. Minimum Level Benchmark

This Benchmark level estimates a minimum level of management. It will comply with applicable laws and regulations, including prevention of significant or permanent impairment of long-term land productivity, and which would be needed

to maintain the Forest as part of the National Forest System and to manage uncontrollable outputs and uses. Management activities that occur at this level include fire suppression, insect and disease control, minerals management, non-induced recreation. Incidental outputs include dispersed recreation use, wildlife.

The following conclusions can be drawn from the Minimum Level Benchmark. Few outputs requiring Forest Service funding will be produced. Dispersed recreation, minerals, wilderness use, wildlife, fish, and water will continue to be available on the Forest.

Many grazing permittees depend on National Forest System grazing to supplement their livestock operation. Grazing is not a Minimum Level Benchmark output, as a result, some ranchers will be immediately put out of business. Others may consolidate available private, State, or other Federal grazing opportunities and remain in business.

Similarly, most local sawmill operators rely on National Forest System timber and many will be forced out of business. Some operators may use other Federal timber to remain in business.

New public issues will result from minimum level management. People will find access to the Forest reduced and in some cases eliminated. Wildlife habitat improvements will not exist. No developed recreation opportunities will exist. If the Forest is to remain open, other agencies at the State and local level will have to maintain roads.

Benchmark Disposition. This benchmark was dropped from further study as an alternative because it does not provide adequate levels of outputs.

2. Maximum Present Net Value Based on Established Market Prices Benchmark

This Benchmark level estimates the mix of resource uses and an output and cost schedule which will maximize the present net value of timber, range, and developed recreation.

The following conclusions can be drawn from this Benchmark. The first decade timber harvest is 5.0 million board feet (MMBF) per year. This is the most efficient harvest level required for this Benchmark. The most economically efficient level of range production is 110,000 animal unit months (AUM's) a year and developed recreation capacity is 474,000 recreation visitor days (RVD's) a year.

Management for market output resources will contribute to increased outputs for non-market goods. As aspen is harvested, plant species favorable to big game are established on the site. The increased food availability has the potential to increase the National Forest System summer range carrying capacity. Timber management requires road construction in areas which are not currently roaded. The additional roads increase capacity for motorized recreation. The capacity for non-motorized recreation decreases. However, the overall dispersed recreation capacity increases. Present net value more than doubles and the cost to produce the outputs are eight times greater than the Minimum Level Benchmark over the first ten years.

Benchmark Disposition. This benchmark was dropped from further study because it did not assign values to all resource outputs, such as dispersed recreation and increased water yield.

3. Maximum Present Net Value Including Assigned Values Benchmark

This Benchmark level estimates the mix, output, and cost schedule which will maximize the present net value of outputs for timber, range, developed recreation, dispersed recreation, and increased water yield.

The purpose of the Maximum PNV Benchmark, which uses assigned values, is to provide a basis for computing the opportunity costs (net benefits foregone) of the alternatives. The difference between the PNV of this benchmark level and the PNV of each alternative is the opportunity cost of that alternative. The PNV trade-off analysis, along with the economic impact analysis and cost-efficiency summary of the alternatives, is displayed in the last section of this Chapter. Present Net Value trade-off is presented in Appendix B.

The following conclusions can be drawn from Maximum PNV Benchmark (assigned values). The first decade timber harvest is 5.0 MMBF/year. This is the most efficient harvest level required for this Benchmark. Water yield increases are due to the acres cut over in the Benchmark. The most economically efficient range production level is 110,000 AUM's per year.

Benchmark Disposition. This benchmark was not used for further study because it was not structured to meet multiple use resource requirements.

4. Maximum Timber Level

This Benchmark level estimates the maximum timber output capabilities of the Forest. This will establish the biological potential without impairing land productivity. The timber output schedule is the maximum that could be produced in the first decade subject to the constraint of non-declining yield. All land classified as available and tentatively suitable for timber production was used in the analysis to determine the maximum timber volume that could be scheduled for harvest.

The following conclusions can be drawn from this Benchmark. Timber producing activities are considered more efficient than non-timber producing activities. There is no change in recreation or wilderness outputs. Grazing outputs increase only slightly because transitory range is not made available for grazing.

Benchmark Disposition. This benchmark was not considered in detail because it was not structured to meet multiple use resource requirements and to satisfy issues and concerns.

5. Maximum Range Level Benchmark

This Benchmark level estimates maximum range output capabilities of the Forest. This will establish the upper limit for range production without impairing land productivity. Timber harvest will be used to help achieve maximum range outputs.

All land classified as available and tentatively suitable for timber production was used in the analysis. A timber harvesting prescription was used on timbered grazing land to maximize forage production. All land suitable for range production was used in the analysis.

The following conclusions can be drawn from this Benchmark. Livestock producing activities are considered more efficient than activities that do not reduce livestock grazing opportunities.

Benchmark Disposition. This benchmark was not considered in detail because it was not structured to meet multiple use resource requirements and to satisfy issues and concerns.

6. Current Program Level Benchmark

This benchmark estimates the continuation of current management direction for the entire planning period. The first decade timber harvest level remains at or near historical levels and then declines before rising again at the end of the planning period. The decline reflects that current harvest levels cannot be continued until second-growth timber reaches merchantable size. Grazing levels remain at current levels, while recreation and minerals increase in response to increased demands.

Benchmark Disposition

This benchmark was carried forward as an alternative considered in detail and is fully described in Section E of this Chapter (Alternative A).

D. Resource Outputs, Activities, Costs and Benefits For Benchmarks

The following tables display comparisons of benefits and costs for individual resources. Direct comparisons of benefits and costs displayed for individual resource outputs provide general indications of relationships but may be misleading because some outputs in multiple use management have common costs of production that cannot be easily separated and attributed to individual resources.

D. ALTERNATIVES CONSIDERED AND ELIMINATED FROM DETAILED STUDY

Three alternatives were dropped from further study. The rationale for dropping the alternatives is explained below:

Maximum Wilderness. This alternative was designed to display the effects of recommending all of the qualifying roadless areas for Wilderness. Passage of the Utah Wilderness Act of 1984 eliminated the need to display the information. The act did, however, designate 3 wilderness areas totaling 83,000 acres. This designation remains constant in all benchmarks and all alternatives.

Minimum Wilderness. This alternative was designed to display the effects of recommending none of the qualifying roadless areas as Wilderness. Passage of the Utah Wilderness Act of 1984 eliminated the need to display the

TABLE II-1
RESOURCE OUTPUTS, ACTIVITIES, COSTS
AND BENEFITS FOR BENCHMARK/MINIMUM LEVEL*

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Recreation								
Developed Recreation Use	MRVD	92	92	92	92	92		
Rural ROS		92	92	92	92	92		
Road Natural ROS								
Dispersed Recreation Use	MRVD	300	330	360	360	360		
Primitive ROS								
Semi-Primitive		300	330	360	360	360		
Non-Motor ROS								
Semi-Primitive								
Motorized ROS								
Road Natural ROS								
Rural ROS								
Dispersed Recreation Use (Wild.)	MRVD	55	75	90	90	90		
Primitive ROS		55	75	90	90	90		
Semi-Primitive								
Non-Motor ROS								
Wilderness								
Wilderness Management	MACRES	83	83	83	83	83		
Wildlife								
Structural Habitat Improvement- (Terrestrial)	STRUCTS							
Structural Habitat Improvement- Aquatic	STRUCTS							
Nonstructural Habitat Improvement-Terrestrial	ACRES							
Nonstructural Habitat Improvement-Aquatic	ACRES							
Wildlife and Fish Use	MWFUD	171	154	138	125	126		
Range								
Grazing Use (Livestock)	MAUM							
Wild Horses & Burros	MAUM	0.3	0.3	0.3	0.3	0.3		
Timber								
Allowable Sale Quantity	MMCF	0	0	0	0	0	0	0
Allowable Sale Quantity	MMBF	0	0	0	0	0	0	0
Sawtimber (Softwood)	MMBF	0	0	0	0	0	0	0
Sawtimber (Hardwood) **	MMBF	0	0	0	0	0	0	0
Roundwood Products	MMBF	0	0	0	0	0	0	0
Fuelwood	MMBF	0	0	0	0	0	0	0
Reforestation	ACRES							
TSI	ACRES							
Water								
Meeting Water Quality Goals	%	98	98	98	98	98		
Increased Yield Over Natural-Forest-Wide	M AC.FT.	0	0	0	0	0		
Increased Yield Over Natural-Colorado River	M AC.FT.	0	0	0	0	0		
Protection								
Fuelbreaks and Fuel Treatment	ACRES							

* Entries in the following tables are on an average annual basis for the decade.

** Aspen could have been displayed as roundwood rather than sawtimber in the following tables. Higher sawtimber merchantability standards were applied to aspen providing conservative volume estimates as were conservative fuelwood benefit values.

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Minerals								
Mineral Leases and Permits	CASES	300	350	310	290	290		
HC&D								
Human Resource Programs	EN.YEARS							
Lands								
Land Pur., Acq., & Exchange	CASES							
Soils								
Soil & Water Resource Imp.	ACRES							
Facilities								
Arterial and Collector Roads Construction/Reconstruction	MILES							
Local Roads Construction	MILES							
Reconstruction	MILES							
Trail Construction/Reconstruction	MILES							
BENEFITS M\$*								
Recreation								
Developed		13	13	13	13	13		
Dispersed		3843	4475	4994	4994	4994		
Wilderness		607	827	993	993	993		
Total		4463	5315	6000	6000	6000		
Range		0	0	0	0	0		
Timber		0	0	0	0	0		
Wildlife		4840	4353	3844	3431	3459		
Water Yield		0	0	0	0	0		
Minerals		1712	1841	1841	1841	1841		
Other		21	21	21	21	21		
Total		11036	11530	11706	11293	11321		
RECEIPTS M\$								
Recreation - Developed		13	13	13	13	13		
Range		0	0	0	0	0		
Timber		0	0	0	0	0		
Minerals		5	6	6	5	5		
Other		21	21	21	21	21		
Total		39	40	40	39	39		
COSTS M\$								
Timber		0	0	0	0	0		
Roads (Appropriated)		0	0	0	0	0		
Recreation		140	155	170	170	170		
Wildlife		0	0	0	0	0		
Range		0	0	0	0	0		
Protection		190	190	190	190	190		
Other		375	417	424	430	426		
Total Forest Budget		705	762	784	790	786		
O&M		705	762	784	790	786		
Investment		0	0	0	0	0		
Non-Forest Service Costs (Purchaser Const. Roads)		0	0	0	0	0		
Returns to Treasury		39	40	40	39	39		

* Dollar amounts in the following tables are average annual for the decade expressed in 1978 dollars, inflated to 1/1/82.

TABLE II-1a
 AVERAGE ANNUAL CASH FLOWS AND NON-CASH BENEFITS •
 (Thousands of 1978 Dollars Inflated to 1/1/82)

BENCHMARK - MINIMUM LEVEL	DECADE				
	1	2	3	4	5
Timber	0	0	0	0	0
Costs*	0	0	0	0	0
Benefits	0	0	0	0	0
Net Benefits	0	0	0	0	0
Receipts	0	0	0	0	0
Net Receipts	0	0	0	0	0
Non-Cash Benefits	0	0	0	0	0
Recreation					
Costs	140	155	170	170	170
Benefits	4463	5315	6000	6000	6000
Net Benefits	4323	5160	5830	5830	5830
Receipts	13	13	13	13	13
Net Receipts	-127	-142	157	-157	-157
Non-Cash Benefits	4450	5302	5987	5987	5987
Wildlife					
Costs	0	0	0	0	0
Benefits	4840	4353	3844	3431	3459
Net Benefits	4840	4353	3844	3431	3459
Receipts	0	0	0	0	0
Net Receipts	0	0	0	0	0
Non-Cash Benefits	4840	4353	3844	3431	3459
Range					
Costs	0	0	0	0	0
Benefits	0	0	0	0	0
Net Benefits	0	0	0	0	0
Receipts	0	0	0	0	0
Net Receipts	0	0	0	0	0
Non-Cash Benefits	0	0	0	0	0
Other					
Costs	565	607	614	620	616
Benefits	1733	1862	1862	1862	1862
Net Benefits	1168	1255	1248	1242	1246
Receipts	26	27	27	26	26
Net Receipts	-539	-580	-587	-594	-590
Non-Cash Benefits	1707	1835	1835	1836	1836
Total					
Costs	705	762	784	790	786
Benefits	11036	11530	11706	11293	11321
Net Benefits	10331	10768	10922	10503	10535
Receipts	39	40	40	39	39
Net Receipts	-666	-722	-744	-751	-747
Non-Cash Benefits	10997	11490	11666	11254	11282

Includes Non-Forest Service Costs (Purchaser Constructed Roads)

TABLE II-2
 RESOURCE OUTPUTS, ACTIVITIES, COSTS
 AND BENEFITS FOR BENCHMARK/MAXIMUM PNV MARKET VALUES

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE							
		1	2	3	4	5	10	15	
Recreation									
Developed Recreation Use	MRVD	474	651	1060	1936	2813			
Rural ROS		261	358	583	1065	1547			
Road Natural ROS		213	298	477	871	1266			
Dispersed Recreation Use	MRVD	659	781	1479	2121	2642			
Primitive ROS									
Semi-Primitive									
Non-Motor ROS		66	78	148	212	264			
Semi-Primitive									
Motorized ROS		165	195	370	530	660			
Road Natural ROS		330	391	739	1061	1321			
Rural ROS		99	117	221	318	396			
Dispersed Recreation Use (Wild.)	MRVD	8	10	16	23	28			
Primitive ROS		8	10	16	23	28			
Semi-Primitive									
Non-Motor ROS									
Wilderness									
Wilderness Management	MACRES	83	83	83	83	83			
Wildlife									
Structural Habitat Improvement- (Terrestrial)	STRUCTS								
Structural Habitat Improvement- Aquatic	STRUCTS								
Nonstructural Habitat Improvement-Terrestrial	ACRES								
Nonstructural Habitat Improvement-Aquatic	ACRES								
Wildlife and Fish Use	MWFUD	171	154	138	125	126			
Range									
Grazing Use (Livestock)	MAUM	110	107	105	103	100			
Wild Horses & Burros	MAUM	0.3	0.3	0.3	0.3	0.3			
Timber									
Allowable Sale Quantity	MMCF	1.1	1.1	2.9	2.9	3.2	3.2	3.2	
Allowable Sale Quantity	MMBF	5.0	5.3	17.0	14.3	14.8	15.4	12.1	
Sawtimber (Softwood)	MMBF	4.7	4.5	16.6	12.0	9.7	12.6	11.0	
Sawtimber (Hardwood)	MMBF	0	0.5	0	1.9	4.7	2.4	0.8	
Roundwood Products	MMBF	0.3	0.3	0.4	0.4	0.4	0.4	0.3	
Fuelwood	MMBF	1.6	1.6	5.5	5.2	3.7	3.5	3.0	
Reforestation	ACRES	26	57	169	107	292	1954	118	
TSI	ACRES	0	500	0	45	1062	0	1344	
Water									
Meeting Water Quality Goals	%	98	98	98	98	98			
Increased Yield Over Natural-Forest-Wide	M AC.FT.	2.6	1.6	0.9	1.0	1.5			
Increased Yield Over Natural-Colorado River	M AC.FT.	0.5	0.3	0.3	0.6	0.8			
Protection									
Fuelbreaks and Fuel Treatment	ACRES								

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE					10	15
		1	2	3	4	5		
Minerals								
Mineral Leases and Permits	CASES	300	350	310	290	290		
HC&D								
Human Resource Programs	EN. YEARS							
Lands								
Land Pur., Acq., & Exchange	CASES							
Soils								
Soil & Water Resource Imp.	ACRES							
Facilities								
Arterial and Collector Roads								
Construction/Reconstruction	MILES	0	0	0	0	0		
Local Roads								
Construction	MILES	5	2	2	2	2		
Reconstruction	MILES	1	1	1	1	1		
Trail Construction/Reconstruction	MILES							
BENEFITS M\$								
Recreation								
Developed		1962	2694	4386	8014	11642		
Dispersed		7176	7741	11184	13171	15348		
Wilderness		91	105	182	253	310		
Total		9229	10540	15752	21438	27300		
Range		887	862	847	830	806		
Timber		369	316	963	982	626		
Wildlife		4840	4353	3844	3431	3459		
Water Yield		152	93	52	58	88		
Minerals		1712	1841	1841	1841	1841		
Other		21	21	21	21	21		
Total		17210	18026	23320	28601	34141		
RECEIPTS M\$								
Recreation - Developed		184	247	395	710	1026		
Range		111	108	106	104	101		
Timber		359	306	950	969	613		
Minerals		5	6	6	5	5		
Other		21	21	21	21	21		
Total		680	688	1478	1809	1766		
COSTS M\$								
Timber		329	230	293	868	581		
Roads (Appropriated)		57	24	24	24	24		
Recreation		888	970	1374	2535	3527		
Wildlife		67	77	85	103	125		
Range		240	234	229	224	228		
Protection		685	680	334	334	334		
Other		733	749	805	992	853		
Total Forest Budget		2999	2964	3144	5080	5672		
O&M		2567	2624	2398	3094	3071		
Investment		432	340	746	1986	2601		
Non-Forest Service Costs (Purchaser Const. Roads)		34	18	42	94	65		
Returns to Treasury		680	688	1478	1809	1766		

TABLE II-2a
 AVERAGE ANNUAL CASH FLOWS AND NON-CASH BENEFITS •
 (Thousands of 1978 Dollars Inflated to 1/1/82)

BENCHMARK - MAXIMUM PNV MARKET	DECADE				
	1	2	3	4	5
Timber					
Costs*	363	248	335	962	646
Benefits	369	316	963	982	626
Net Benefits	6	68	628	20	-20
Receipts	359	306	950	969	613
Net Receipts	-4	58	615	7	-33
Non-Cash Benefits	10	10	13	13	13
Recreation					
Costs	888	970	1374	2535	3527
Benefits	9229	10540	15752	21438	27300
Net Benefits	8341	9570	14378	18903	23773
Receipts	184	247	395	710	1026
Net Receipts	-704	-723	-979	-1825	-2501
Non-Cash Benefits	9045	10293	15357	20728	26274
Wildlife					
Costs	67	77	85	103	125
Benefits	4840	4353	3844	3431	3459
Net Benefits	4773	4276	3759	3328	3334
Receipts	0	0	0	0	0
Net Receipts	-67	-77	-85	-103	-125
Non-Cash Benefits	4840	4353	3844	3431	3459
Range					
Costs	240	234	229	224	228
Benefits	887	862	847	830	806
Net Benefits	647	628	618	606	578
Receipts	111	108	106	104	101
Net Receipts	-129	-126	-123	-120	-127
Non-Cash Benefits	776	754	741	726	705
Other					
Costs	1475	1453	1163	1350	1211
Benefits	1885	1955	1914	1920	1950
Net Benefits	410	502	751	570	739
Receipts	26	27	27	26	26
Net Receipts	-1449	-1426	-1136	-1324	-1185
Non-Cash Benefits	1859	1928	1887	1894	1924
Total					
Costs	3033	2982	3186	5174	5737
Benefits	17210	18026	23320	28601	34141
Net Benefits	14177	15044	20134	23427	28404
Receipts	680	688	1478	1809	1766
Net Receipts	-2353	-2294	-1708	-3365	-3971
Non-Cash Benefits	16530	17338	21842	26792	32375

• Includes Non-Forest Service Costs (Purchaser Constructed Roads)

TABLE II-3
RESOURCE OUTPUTS, ACTIVITIES, COSTS
AND BENEFITS FOR BENCHMARK/MAXIMUM PNV ASSIGNED VALUES

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE							
		1	2	3	4	5	10	15	
Recreation									
Developed Recreation Use	MRVD	474	651	1060	1652	2010			
Rural ROS		261	358	583	909	1105			
Road Natural ROS		213	293	477	743	843			
Dispersed Recreation Use	MRVD	806	1070	1708	2656	3604			
Primitive ROS									
Semi-Primitive									
Non-Motor ROS		114	151	242	376	510			
Semi-Primitive									
Motorized ROS		244	324	518	805	1092			
Road Natural ROS		366	486	776	1207	1638			
Rural ROS		81	108	173	268	364			
Dispersed Recreation Use (Wild.)	MRVD	4	7	10	17	25			
Primitive ROS		4	7	10	17	25			
Semi-Primitive									
Non-Motor ROS									
Wilderness									
Wilderness Management	MACRES	83	83	83	83	83			
Wildlife									
Structural Habitat Improvement-(Terrestrial)	STRUCTS	15	26	32	32	33			
Structural Habitat Improvement-Aquatic	STRUCTS	39	44	33	15	15			
Nonstructural Habitat Improvement-Terrestrial	ACRES	2130	2550	2652	2652	2652			
Nonstructural Habitat Improvement-Aquatic	ACRES	230	230	145	150	150			
Wildlife and Fish Use	MWFUD	170	188	185	184	185			
Range									
Grazing Use (Livestock)	MAUM	110	107	105	103	100			
Wild Horses & Burros	MAUM	0.3	0.3	0.3	0.3	0.3			
Timber									
Allowable Sale Quantity	MMCF	1.1	1.1	2.9	2.9	3.2	3.2	3.2	
Allowable Sale Quantity	MMBF	5.0	5.3	17.0	14.3	14.8	15.4	12.1	
Sawtimber (Softwood)	MMBF	4.7	4.5	16.6	12.0	9.7	12.6	11.0	
Sawtimber (Hardwood)	MMBF	0	0.5	0	1.9	4.7	2.4	0.8	
Roundwood Products	MMBF	0.3	0.3	0.4	0.4	0.4	0.4	0.3	
Fuelwood	MMBF	1.6	1.6	5.5	5.2	3.7	3.5	3.0	
Reforestation	ACRES	26	57	169	107	292	1954	118	
TSI	ACRES	0	500	0	45	1062	0	1344	
Water									
Meeting Water Quality Goals	%	98	98	98	100	100			
Increased Yield Over Natural-Forest-Wide	M AC.FT.	2.6	1.6	0.9	1.0	1.5			
Increased Yield Over Natural-Colorado River	M AC.FT.	0.5	0.3	0.3	0.6	0.8			
Protection									
Fuelbreaks and Fuel Treatment	ACRES	2183	1193	1456	5535	2401			

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Minerals								
Mineral Leases and Permits	CASES	595	660	600	575	565		
HC&D								
Human Resource Programs	EN. YEARS	20	20	20	20	20		
Lands								
Land Pur., Acq., & Exchange	CASES							
Soils								
Soil & Water Resource Imp.	ACRES	51	63	80	63	38		
Facilities								
Arterial and Collector Roads Construction/Reconstruction	MILES	0	0	0	0	0		
Local Roads								
Construction	MILES	5	2	2	2	2		
Reconstruction	MILES	1	1	1	1	1		
Trail Construction/Reconstruction	MILES							
BENEFITS M\$								
Recreation								
Developed		1930	2694	4385	6836	8313		
Dispersed		7651	10016	11796	18542	20088		
Wilderness		90	119	190	297	402		
Total		9671	12829	16371	25675	28803		
Range		887	862	847	830	806		
Timber		369	316	963	982	626		
Wildlife		5644	6284	6203	6178	6203		
Water Yield		152	93	52	58	88		
Minerals		2903	3082	3001	2916	2825		
Other		21	21	21	21	21		
Total		19647	23487	27458	36660	39372		
RECEIPTS M\$								
Recreation - Developed								
Range		184	247	395	698	737		
Timber		111	108	106	104	101		
Minerals		11	12	11	10	10		
Other		21	21	21	21	21		
Total		686	694	1483	1802	1482		
COSTS M\$								
Timber		329	230	293	868	581		
Roads (Appropriated)		57	23	24	24	24		
Recreation		726	855	678	689	712		
Wildlife		193	224	233	254	271		
Range		240	234	229	224	228		
Protection		686	684	684	684	688		
Other		1871	2042	2139	2436	2631		
Total Forest Budget		4102	4292	4280	5179	5135		
O&M		3579	3737	3697	4215	4321		
Investment		523	555	583	964	814		
Non-Forest Service Costs (Purchaser Const. Roads)		34	18	42	94	65		
Returns to Treasury		686	694	1483	1802	1482		

TABLE II-3a
 AVERAGE ANNUAL CASH FLOWS AND NON-CASH BENEFITS *
 (Thousands of 1978 Dollars Inflated to 1/1/82)

BENCHMARK - MAXIMUM PNV ASSIGNED	DECADE				
	1	2	3	4	5
Timber					
Costs*	363	248	335	962	646
Benefits	369	316	963	982	626
Net Benefits	61	68	628	20	-20
Receipts	359	306	950	969	613
Net Receipts	-4	58	615	7	-33
Non-Cash Benefits	10	10	13	13	13
Recreation					
Costs	726	855	678	689	712
Benefits	9671	12829	16371	25675	28803
Net Benefits	8945	11974	15693	24986	28091
Receipts	184	247	395	698	737
Net Receipts	-542	-608	-283	9	25
Non-Cash Benefits	9487	12582	15976	24977	28066
Wildlife					
Costs	193	224	233	254	271
Benefits	5644	6284	6203	6178	6203
Net Benefits	5451	6060	5970	5924	5932
Receipts	0	0	0	0	0
Net Receipts	-193	-224	-233	-254	-271
Non-Cash Benefits	5644	6284	6203	6178	6203
Range					
Costs	240	234	229	224	228
Benefits	887	862	847	830	806
Net Benefits	647	628	618	606	578
Receipts	111	108	106	104	101
Net Receipts	-129	-126	-123	-120	-127
Non-Cash Benefits	776	754	741	726	705
Other					
Costs	2614	2749	2847	3144	3343
Benefits	3076	3196	3074	2995	2934
Net Benefits	462	447	227	-149	-409
Receipts	32	33	32	31	31
Net Receipts	-2582	-2716	-2815	-3113	-3312
Non-Cash Benefits	3044	3163	3042	2964	2903
Total					
Costs	4136	4310	4322	5273	5200
Benefits	19647	23487	27458	36660	39372
Net Benefits	15511	19177	23136	31387	34172
Receipts	686	694	1483	1802	1482
Net Receipts	-3450	-3616	0	-3471	-3718
Non-Cash Benefits	18961	22793	25975	34858	37890

Includes Non-Forest Service Costs (Purchaser Constructed Roads)

TABLE II-4
RESOURCE OUTPUTS, ACTIVITIES, COSTS
AND BENEFITS FOR BENCHMARK/MAXIMUM TIMBER

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Recreation								
Developed Recreation Use	MRVD	526	740	757	757	757		
Rural ROS		306	429	439	439	439		
Road Natural ROS		222	311	318	318	318		
Dispersed Recreation Use	MRVD	943	1177	1435	1750	3883		
Primitive ROS								
Semi-Primitive								
Non-Motor ROS		136	166	203	247	302		
Semi-Primitive								
Motorized ROS		290	357	435	530	646		
Road Natural ROS		435	535	652	795	970		
Rural ROS		82	119	144	177	216		
Dispersed Recreation Use (Wild.)	MRVD	43	43	43	43	43		
Primitive ROS		43	43	43	43	43		
Semi-Primitive								
Non-Motor ROS								
Wilderness								
Wilderness Management	MACRES	83	83	83	83	83		
Wildlife								
Structural Habitat Improvement- (Terrestrial)	STRUCTS	9	10	10	10	11		
Structural Habitat Improvement- Aquatic	STRUCTS	20	29	19	11	11		
Nonstructural Habitat Improvement-Terrestrial	ACRES	630	658	696	621	621		
Nonstructural Habitat Improvement-Aquatic	ACRES	210	220	232	207	207		
Wildlife and Fish Use	MWFUD	170	172	168	167	167		
Range								
Grazing Use (Livestock)	MAUM	117	117	117	117	117		
Wild Horses & Burros	MAUM	0.3	0.3	0.3	0.3	0.3		
Timber								
Allowable Sale Quantity	MMCF	6.1	6.2	6.2	6.2	6.3	6.3	6.3
Allowable Sale Quantity	MMBF	31.2	31.3	34.0	31.5	31.2	26.2	29.1
Sawtimber (Softwood)	MMBF	27.7	14.3	31.1	21.2	24.3	20.0	22.2
Sawtimber (Hardwood)	MMBF	2.7	16.0	1.8	9.1	5.6	5.2	5.7
Roundwood Products	MMBF	0.8	1.0	1.1	1.2	1.3	1.0	1.2
Fuelwood	MMBF	7.5	4.7	5.7	7.5	9.2	7.5	8.5
Reforestation	ACRES	1199	403	839	4154	2199	2682	808
TST	ACRES	2629	610	1848	538	0	1735	228
Water								
Meeting Water Quality Goals	%	98	98	98	100	100		
Increased Yield Over Natural-Forest-Wide	M AC.FT.	3.5	7.9	7.5	7.3	8.3		
Increased Yield Over Natural-Colorado River	M AC.FT.	0.7	2.2	2.3	2.5	2.6		
Protection								
Fuelbreaks and Fuel Treatment	ACRES	9842	6109	6359	6489	5802		

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Minerals								
Mineral Leases and Permits	CASES	786	839	779	774	774		
HC&D								
Human Resource Programs	EN. YEARS	20	20	20	20	20		
Lands								
Land Pur., Acq., & Exchange	CASES	0	2	2	2	1		
Soils								
Soil & Water Resource Imp.	ACRES	46	58	58	58	33		
Facilities								
Arterial and Collector Roads Construction/Reconstruction	MILES	2	1	1	1	1		
Local Roads								
Construction	MILES	17	27	24	9	5		
Reconstruction	MILES	40	27	16	26	28		
Trail Construction/Reconstruction	MILES	7	7	7	7	7		
BENEFITS M\$								
Recreation								
Developed		1865	2624	2684	2684	2684		
Dispersed		7305	8250	11114	11274	19802		
Wilderness		408	408	408	408	408		
Total		9578	11282	14206	14366	22894		
Range		943	943	943	943	943		
Timber		1582	906	1342	-36	723		
Wildlife		5631	5711	5623	5588	5604		
Water Yield		204	461	438	426	485		
Minerals		2914	3069	3026	2904	2813		
Other		21	21	21	21	21		
Total		20873	22393	25599	24212	33483		
RECEIPTS M\$								
Recreation - Developed		202	279	286	286	286		
Range		118	118	118	118	118		
Timber		1569	893	1329	0	710		
Minerals		14	15	14	14	14		
Other		21	21	21	21	21		
Total		1924	1326	1768	439	1149		
COSTS M\$								
Timber		1938	1549	1235	2496	1562		
Roads (Appropriated)		24	24	24	24	24		
Recreation		882	963	1368	2529	3539		
Wildlife		144	147	144	148	147		
Range		530	557	571	578	594		
Protection		690	684	679	684	682		
Other		2441	2557	2584	2982	3079		
Total Forest Budget		6649	6481	6605	9441	9627		
O&M		4852	4954	4930	6052	6099		
Investment		1797	1527	1675	3389	3528		
Non-Forest Service Costs (Purchaser Const. Roads)		168	212	150	127	67		
Returns to Treasury		1924	1326	1768	390	1149		

TABLE II-4a
 AVERAGE ANNUAL CASH FLOWS AND NON-CASH BENEFITS •
 (Thousands of 1978 Dollars Inflated to 1/1/82)

BENCHMARK - MAXIMUM TIMBER	DECADE				
	1	2	3	4	5
Timber					
Costs*	2106	1761	1385	2623	1629
Benefits	1582	906	1342	-36	723
Net Benefits	-524	-855	-43	-2659	-906
Receipts	1569	893	1329	0	710
Net Receipts	-537	-868	-56	-2623	-919
Non-Cash Benefits	13	13	13	0	13
Recreation					
Costs	882	963	1368	2529	3539
Benefits	9578	11282	14206	14366	22894
Net Benefits	8696	10319	12838	11837	19355
Receipts	202	279	286	286	286
Net Receipts	-680	-684	-1082	-2243	-3253
Non-Cash Benefits	9376	11003	13920	14080	22608
Wildlife					
Costs	144	147	144	148	147
Benefits	5631	5711	5623	5588	5604
Net Benefits	5487	5564	5479	5440	5457
Receipts	0	0	0	0	0
Net Receipts	-144	-147	-144	-148	-147
Non-Cash Benefits	5631	5711	5623	5588	5604
Range					
Costs	530	557	571	578	594
Benefits	943	943	943	943	943
Net Benefits	413	386	372	365	349
Receipts	118	118	118	118	118
Net Receipts	-412	-439	-453	-460	-476
Non-Cash Benefits	825	825	825	825	825
Other					
Costs	3155	2649	3287	3690	3785
Benefits	3139	3551	3485	3351	3319
Net Benefits	-16	902	198	-339	-466
Receipts	36	36	35	35	35
Net Receipts	-3120	-2613	-3252	-3655	-3750
Non-Cash Benefits	3104	3515	3450	3316	3284
Total					
Costs	6817	6077	6755	9568	9694
Benefits	20873	22393	25599	24212	33483
Net Benefits	14056	16316	18844	14644	23789
Receipts	1924	1326	1768	439	1149
Net Receipts	-4893	-4751	-4987	-9129	-8545
Non-Cash Benefits	18949	21067	23831	23773	32334

• Includes Non-Forest Service Costs (Purchaser Constructed Roads)

TABLE II-5
RESOURCE OUTPUTS, ACTIVITIES, COSTS
AND BENEFITS FOR BENCHMARK/MAXIMUM RANGE

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE							
		1	2	3	4	5	10	15	
Recreation									
Developed Recreation Use	MRVD	526	653	538	538	538			
Rural ROS		306	429	312	312	312			
Road Natural ROS		222	224	226	226	226			
Dispersed Recreation Use	MRVD	827	1106	1705	2618	4033			
Primitive ROS									
Semi-Primitive									
Non-Motor ROS		41	55	85	131	202			
Semi-Primitive									
Motorized ROS		83	111	170	262	403			
Road Natural ROS		579	774	1193	1832	2823			
Rural ROS		124	166	255	393	605			
Dispersed Recreation Use (Wild.)	MRVD	4	4	4	4	4			
Primitive ROS		4	4	4	4	4			
Semi-Primitive									
Non-Motor ROS									
Wilderness									
Wilderness Management	MACRES	83	83	83	83	83			
Wildlife									
Structural Habitat Improvement- (Terrestrial)	STRUCTS	14	12	9	8	6			
Structural Habitat Improvement- Aquatic	STRUCTS	7	7	7	7	7			
Nonstructural Habitat Improvement-Terrestrial	ACRES	400	400	400	400	400			
Nonstructural Habitat Improvement-Aquatic	ACRES	75	71	64	64	58			
Wildlife and Fish Use	MWFUD	165	112	84	67	58			
Range									
Grazing Use (Livestock)	MAUM	119	124	130	137	143			
Wild Horses & Burros	MAUM	0.3	0.3	0.3	0.3	0.3			
Timber									
Allowable Sale Quantity	MMCF	4.0	3.2	3.4	5.6	2.7	3.1	4.3	
Allowable Sale Quantity	MMBF	20.0	16.5	17.1	23.7	14.5	13.7	22.1	
Sawtimber (Softwood)	MMBF	12.2	10.3	10.5	16.9	13.0	12.8	18.4	
Sawtimber (Hardwood)	MMBF	7.0	5.8	5.8	6.0	0.7	0.1	2.7	
Roundwood Products	MMBF	0.8	0.4	0.8	0.8	0.8	0.8	1.0	
Fuelwood	MMBF	10.1	7.2	6.8	7.7	8.7	7.5	8.5	
Reforestation	ACRES	153	159	143	306	614	2831	904	
TSI	ACRES	1536	74	294	1107	450	0	2520	
Water									
Meeting Water Quality Goals	%	98	98	98	100	100			
Increased Yield Over Natural-Forest-Wide	M AC.FT.	4.1	4.1	3.3	3.2	3.0			
Increased Yield Over Natural-Colorado River	M AC.FT.	1.1	1.4	1.2	1.4	1.3			
Protection									
Fuelbreaks and Fuel Treatment	ACRES	7957	7717	6954	4471	5342			

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Minerals								
Mineral Leases and Permits	CASES	786	839	779	774	744		
HC&D								
Human Resource Programs	EN. YEARS	20	20	20	20	20		
Lands								
Land Pur., Acq., & Exchange	CASES							
Soils								
Soil & Water Resource Imp.	ACRES	46	58	58	58	33		
Facilities								
Arterial and Collector Roads								
Construction/Reconstruction	MILES	2	1	1	1	1		
Local Roads								
Construction	MILES	17	27	24	9	5		
Reconstruction	MILES	40	27	16	26	28		
Trail Construction/Reconstruction	MILES	7	7	7	7	7		
BENEFITS M\$								
Recreation								
Developed		2176	2702	2227	2227	2227		
Dispersed		9033	9629	12515	17911	18215		
Wilderness		48	48	48	48	48		
Total		11257	12379	14790	20186	20490		
Range		959	998	1047	1104	1153		
Timber		907	708	756	1066	831		
Wildlife		4707	3115	2230	1695	1387		
Water Yield		239	239	193	187	175		
Minerals		2914	3069	3026	2904	2813		
Other		21	21	21	21	21		
Total		21004	20529	22063	27163	26870		
RECEIPTS M\$								
Recreation - Developed								
Range		202	248	207	207	207		
Timber		120	125	131	138	144		
Minerals		894	695	743	1053	818		
Other		14	15	14	14	13		
Total		21	21	21	21	21		
Total		2151	1104	1116	1433	1203		
COSTS M\$								
Timber		952	648	631	903	833		
Roads (Appropriated)		48	29	0	24	24		
Recreation		449	449	563	587	691		
Wildlife		70	70	68	68	72		
Range		693	756	775	575	596		
Protection		670	670	670	670	670		
Other		1121	1279	1231	1477	1478		
Total Forest Budget		4003	3901	3938	4304	4364		
O&M		2817	2926	2983	3267	3299		
Investment		1186	975	955	1037	1065		
Non-Forest Service Costs (Purchaser Const. Roads)		118	88	82	117	77		
Returns to Treasury		1251	1104	1116	1433	1203		

TABLE II-5a
 AVERAGE ANNUAL CASH FLOWS AND NON-CASH BENEFITS •
 (Thousands of 1978 Dollars Inflated to 1/1/82)

BENCHMARK - MAXIMUM RANGE	DECADE				
	1	2	3	4	5
Timber					
Costs*	1070	736	713	1020	910
Benefits	907	708	756	1066	831
Net Benefits	-163	-28	43	46	-79
Receipts	894	695	743	1053	818
Net Receipts	-176	-41	30	33	-92
Non-Cash Benefits	13	13	13	13	13
Recreation					
Costs	449	449	563	587	691
Benefits	11257	12379	14227	19599	20490
Net Benefits	10808	11930	14227	19599	19799
Receipts	202	248	207	207	207
Net Receipts	-247	-201	-356	-380	-484
Non-Cash Benefits	11055	12131	14583	19979	20283
Wildlife					
Costs	70	70	68	68	72
Benefits	4707	3115	2230	1695	1387
Net Benefits	4637	3045	2162	1627	1315
Receipts	0	0	0	0	0
Net Receipts	-70	-70	-68	-68	-72
Non-Cash Benefits	4707	3115	2230	1695	1387
Range					
Costs	693	756	775	575	596
Benefits	959	998	1047	1104	1153
Net Benefits	266	242	272	529	557
Receipts	120	125	131	138	144
Net Receipts	-573	-631	-644	-437	-452
Non-Cash Benefits	589	442	484	746	539
Other					
Costs	1839	1978	1901	2171	2172
Benefits	3174	3329	3240	3112	3009
Net Benefits	1335	1351	1339	941	837
Receipts	35	36	35	35	34
Net Receipts	-1804	-1942	-1866	-2136	-2138
Non-Cash Benefits	3139	3293	3205	3077	2975
Total					
Costs	4121	3989	4020	4421	4441
Benefits	21004	20529	22063	27163	26870
Net Benefits	16833	16540	18043	22742	22429
Receipts	1251	1104	1116	1433	1203
Net Receipts	-2870	-2885	-2904	-2988	-3238
Non-Cash Benefits	19503	18994	20515	25510	25197

* Includes Non-Forest Service Costs (Purchaser Constructed Roads)

TABLE II-5(5)
 RESOURCE OUTPUTS, ACTIVITIES, COSTS
 AND BENEFITS FOR BENCHMARK/CURRENT PROGRAM

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Recreation								
Developed Recreation Use	MRVD	466	641	958	1275	1106		
Rural ROS		186	256	383	510	804		
Road Natural ROS		280	385	575	765	302		
Dispersed Recreation Use	MRVD	780	1056	1693	2641	3391		
Primitive ROS								
Semi-Primitive Non-Motor ROS	MRVD	110	149	239	373	508		
Semi-Primitive Motorized ROS	MRVD	236	320	513	800	1088		
Road Natural ROS		355	480	769	1201	1634		
Rural ROS		79	107	171	267	363		
Dispersed Recreation Use (Wild.)	MRVD	8	11	17	27	36		
Primitive ROS		8	11	17	27	36		
Semi-Primitive Non-Motor ROS								
Wilderness								
Wilderness Management	MACRES	83	83	83	83	83		
Wildlife								
Structural Habitat Improvement- (Terrestrial)	STRUCTS	10	12	12	12	12		
Structural Habitat Improvement- Aquatic	STRUCTS	20	25	25	25	25		
Nonstructural Habitat Improvement-Terrestrial	ACRES	850	840	840	820	820		
Nonstructural Habitat Improvement-Aquatic	ACRES	100	110	110	130	130		
Wildlife and Fish Use	MWFUD	171	183	182	180	179		
Range								
Grazing Use (Livestock)	MAUM	115	115	115	115	115		
Wild Horses & Burros	MAUM	0.3	0.3	0.3	0.3	0.3		
Timber								
Allowable Sale Quantity	MMCF	5.1	5.2	5.3	5.3	5.4	5.4	5.4
Allowable Sale Quantity	MMBF	26.4	26.0	26.3	26.4	26.4	22.5	24.4
Sawtimber (Softwood)	MMBF	22.9	15.7	14.9	17.4	21.3	19.5	20.5
Sawtimber (Hardwood)	MMBF	2.8	9.4	10.3	7.8	3.7	1.9	2.7
Roundwood Products	MMBF	0.7	0.9	1.1	1.2	1.4	1.1	1.2
Fuelwood	MMBF	10.7	8.4	8.5	8.0	9.4	8.0	8.1
Reforestation	ACRES	1588	402	454	3353	1646	1382	921
TSI	ACRES	5000	54	1769	628	250	119	0
Water								
Meeting Water Quality Goals	%	98	98	98	100	100		
Increased Yield Over Natural-Forest-Wide	M AC.FT.	4.3	8.3	8.1	6.7	6.0		
Increased Yield Over Natural-Colorado River	M AC.FT.	1.2	2.7	2.6	2.1	1.9		
Protection								
Fuelbreaks and Fuel Treatment	ACRES	10505	7117	4641	5133	4919		

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Mineral Leases and Permits	CASES	690	730	750	750	780		
HC&D								
Human Resource Programs	EN. YEARS	20	20	20	20	20		
Lands								
Land Pur., Acq., & Exchange	CASES	2	2	2	2	2		
Soils								
Soil & Water Resource Imp.	ACRES	51	63	80	63	38		
Facilities								
Arterial and Collector Roads Construction/Reconstruction	MILES	2	1	1	1	1		
Local Roads								
Construction	MILES	28	18	15	11	7		
Reconstruction	MILES	32	34	21	22	22		
Trail Construction/Reconstruction	MILES	0	0	0	0	0		
BENEFITS M\$								
Recreation								
Developed		1929	2654	3966	5279	8754		
Dispersed		6917	8287	10865	14769	18709		
Wilderness		90	121	191	297	403		
Total		8936	11062	15022	20345	27866		
Range		927	927	927	927	927		
Timber		1211	1257	964	512	740		
Wildlife		5551	5649	5680	5710	5741		
Water Yield		251	485	473	391	350		
Minerals		2884	3081	3038	2899	2828		
Other		21	21	21	21	21		
Total		19781	22482	26125	30805	38473		
RECEIPTS M\$								
Recreation - Developed		181	244	358	472	411		
Range		116	116	116	116	116		
Timber		1198	124	951	499	727		
Minerals		12	13	14	14	14		
Other		21	21	21	21	21		
Total		1528	1638	1460	1122	1289		
COSTS M\$								
Timber		2500	1327	1071	1981	1314		
Roads (Appropriated)		48	24	24	24	24		
Recreation		640	743	733	832	653		
Wildlife		119	131	139	136	141		
Range		380	380	386	382	389		
Protection		226	335	335	335	335		
Other		2310	2309	2326	2346	2331		
Total Forest Budget		6223	5249	5014	6036	5187		
O&M		3892	3971	3902	4037	3831		
Investment		2331	1278	1112	1999	1356		
Non-Forest Service Costs (Purchaser Const. Roads)		239	170	118	100	64		
Returns to Treasury		1528	1638	1460	1122	1289		

TABLE II-5(5)a
 AVERAGE ANNUAL CASH FLOWS AND NON-CASH BENEFITS *
 (Thousands of 1978 Dollars Inflated to 1/1/82)

BENCHMARK - CURRENT PROGRAM	DECADE				
	1	2	3	4	5
Timber					
Costs*	2739	1497	1189	2081	1378
Benefits	1211	1257	964	512	740
Net Benefits	-1528	-240	-225	-1569	-638
Receipts	1198	1244	951	499	727
Net Receipts	-1541	-253	-238	-1582	-651
Non-Cash Benefits	13	13	13	13	13
Recreation					
Costs	640	743	733	832	653
Benefits	8936	11062	15022	20345	27866
Net Benefits	8296	10319	14289	19513	27213
Receipts	181	244	358	472	411
Net Receipts	-459	-499	-375	-360	-242
Non-Cash Benefits	8755	10818	14664	19873	27455
Wildlife					
Costs	119	131	139	136	141
Benefits	5551	5649	5680	5710	5741
Net Benefits	5432	5518	5541	5574	5600
Receipts	0	0	0	0	0
Net Receipts	-119	-131	-139	-136	-141
Non-Cash Benefits	5551	5649	5680	5710	5741
Range					
Costs	380	380	386	382	389
Benefits	927	927	927	927	927
Net Benefits	547	547	541	545	538
Receipts	116	116	116	116	116
Net Receipts	-264	-264	-270	-266	-273
Non-Cash Benefits	811	811	811	811	811
Other					
Costs	2584	2668	2685	2705	2690
Benefits	3156	3587	3532	3311	3199
Net Benefits	572	919	847	606	5094
Receipts	33	34	35	35	35
Net Receipts	-2551	-2634	-2650	-2670	-2655
Non-Cash Benefits	3123	3553	3497	3276	3164
Total					
Costs	6462	5419	5132	6136	5251
Benefits	19781	22482	26125	30805	38473
Net Benefits	13319	17063	20993	24669	33222
Receipts	1528	1638	1460	1122	1289
Net Receipts	-4934	-3781	-3671	-5014	-3962
Non-Cash Benefits	18253	20844	24665	29683	37184

* Includes Non-Forest Service Costs (Purchaser Constructed Roads)

TABLE II-6
PRESENT NET VALUE AND NON-PRICED OUTPUTS
(MM 1978 Dollars Inflated to 1/1/82)
(Discount Rate 4%)

	PNV	PVC	PVB	VQO Retention M Acres	VQO Partial Retention M Acres	Wildlife Emphasis Management M Acres	Declining Watershed Condition M Acres	Percent of Forest With Moderate or Low Restrictions For Mineral Activities	No. Of Deer In 2030 M Numbers	No. Of Elk In 2030 Numbers
Benchmarks										
Min Level	84.9	5.8	90.7	108	577	0	110	92		
Decade 1	59.8	4.2	64.0	108	577	0	85	92		
2	41.0	2.9	43.9	108	577	0	70	92		
3	26.6	2.0	28.6	108	577	0	50	92		
4	18.1	1.3	19.4	108	577	0	30	92	28.2	2000
5										
Max Range	138.8	33.8	172.6	841	617	41	113	92		
Decade 1	91.9	22.1	114.0	829	514	41	113	92		
2	67.7	15.1	82.8	812	442	41	112	92		
3	57.6	11.2	68.8	800	370	41	112	92		
4	38.4	7.6	46.0	583	298	41	112	92	6.7	450
5										
Max Timber	115.5	56.0	171.5	825	617	41	113	92		
Decade 1	87.1	37.2	124.3	822	590	41	113	92		
2	70.7	25.3	96.0	819	519	41	112	92		
3	37.2	24.2	61.4	816	523	41	112	92		
4	40.7	16.6	57.3	813	482	41	112	92	25.5	500
5										
Max PNV (Mkt)	116.5	24.9	141.4	850	642	131	103	94		
Decade 1	83.5	16.6	100.1	849	633	131	29	94		
2	75.5	12.0	87.5	847	625	131	56	94		
3	59.4	13.1	72.5	844	617	131	31	94		
4	48.6	9.8	58.4	842	609	131	11	94	53.5	1800
5										
Max PNV (Asgn)	127.4	34.0	161.4	850	642	131	103	94		
Decade 1	106.5	23.9	130.4	849	626	131	28	94		
2	86.8	16.2	103.0	847	614	131	56	94		
3	79.5	13.1	92.9	844	602	131	31	94		
4	58.5	8.9	67.4	840	588	131	11	94	53.5	1800
5										
Cur Prog	109.4	53.1	162.5	850	629	131	102	93		
Decade 1	94.7	30.1	124.8	848	617	131	79	93		
2	78.7	19.3	98.0	844	603	131	56	93		
3	62.6	15.5	78.1	841	591	131	31	93		
4	56.9	9.0	65.9	838	578	131	11	93	53.5	1800
5										

TABLE II-7
PRESENT NET VALUE AND PRICED OUTPUTS
(Thousands of 1978 Dollars Inflated to 1/1/82)*

BENCH- MARKS	PNV COSTS**	PV BENEFITS	PV BENEFITS BY RESOURCE				PVC COSTS BY MAJOR COST CATEGORIES						
			REC.	RGE.	WTR.	MIN.	OTHER	TBR***	REC.	W.L.	RGE.	OTHER	
Minimum Level	230300	16320	114170	0	92970	0	39020	460	0	3370	0	4140	8810
Maximum Range	394350	89850	302950	14700	25790	4780	64510	460	19700	10960	1510	14580	27820
Maximum Timber	351180	159380	270240	20530	24210	7790	64510	460	41720	30190	3170	14920	57310
Max PNV Market	383550	76360	294500	18740	11950	2270	39020	460	9160	30300	1770	12080	17960
Max PNV Assigned	458810	96370	326490	18740	11950	2270	64450	460	9160	16220	4810	14910	46180
Current Program	402340	127000	290470	20190	23120	8110	64400	460	42910	15360	2810	6430	51180

* Direct comparisons of benefits and costs displayed for individual resource outputs provide general indications of relationships but may be misleading because some outputs in multiple use forestry have common costs of production that cannot be easily separated and attributed to individual resources.

** 4% Discount Rate used.

*** Includes non-Forest Service Costs (Purchaser Road Construction).

NOTE: Support costs to these program components (Tbr, Rec, Wl, Rge, Other, etc.) from other program components are included.

TABLE II-7a
PRESENT NET VALUE AND PRICED OUTPUTS
(Thousands of 1978 Dollars Inflated to 1/1/82)*

BENCH- MARKS	(RECEIPTS) PNV	PV COSTS**	PV RECEIPTS BY RESOURCE				PVC COSTS BY MAJOR COST CATEGORIES								
			REC.	RGE.	TBR.	WL.	REC.	WL.	RGE.	OTHER					
Minimum Level	-15470	16320	850	280	0	0	0	0	110	460	0	3370	0	4140	8810
Maximum Range	-56110	89850	33740	4690	2770	25510	0	0	310	460	19700	10960	1510	14580	27820
Maximum Timber	-126500	159380	32880	5490	2570	24050	0	0	310	460	41720	30190	3170	14920	57310
Max PNV Market	-53810	76360	22550	7920	2340	11720	0	0	110	460	9160	30300	1770	12080	17960
Max PNV Asgn.	-74210	96370	22160	7390	2340	11720	0	0	250	460	9160	16220	4810	14910	46180
Current Program	-94840	127000	32160	6080	2520	22820	0	0	280	460	42910	15360	2810	6430	51180

* Direct comparisons of receipts and costs displayed for individual resource outputs provide general indications of relationships but may be misleading because some outputs in multiple use forestry have common costs of production that cannot be easily separated and attributed to individual resources.

** 4% Discount Rate used.

*** Includes non-Forest Service Costs (Purchaser Road Construction).

NOTE: Support costs to these program components (Tbr, Rec, WL, Rge, Other, etc.) from other program components are included.

TABLE II-8
PRESENT NET VALUE AND QUALITATIVE EFFECTS
(MM 1978 Dollars Inflated to 1/1/82)

	PNV	PVC	PVB	Narrative
<i>Benchmarks</i>				
Minimum Level	230.3	16.3	246.6	Emphasizes custodial management of the forest only naturally occurring and non-induced outputs and costs are analyzed.
Maximum Range	394.4	89.8	484.2	Emphasizes range grazing. Timber harvest levels are high due to efforts to create transitory range in timbered areas.
Maximum Timber	351.2	159.4	510.6	Emphasizes timber outputs including both soft wood and hardwood. Range outputs increase due to transitory range increase in timbered areas.
Maximum PNV (Mkt)	383.5	76.4	459.9	Emphasizes the level of outputs for Timber, Range, and Developed Recreation that provide the greatest PNV. Other resource outputs are not emphasized.
Maximum PNV (Assigned)	458.8	96.4	555.2	Emphasizes the level of outputs that would provide the greatest PNV. Timber and Range output levels are low while Developed Recreation has high outputs.
Current Program	402.3	127.0	529.3	Emphasizes continuation of current output levels and costs with projected increases in recreation and minerals due to demands.

information. The act did, however, designate three wilderness areas totaling 83,000 acres. This designation remains constant in all benchmarks and all alternatives.

Market Emphasis with Timber Departure. This alternative was designed to display the effects of achieving a high level of timber outputs by accelerating the harvest of timber (departing from a base sale schedule that would not decline and by harvesting timber from steep slopes with special logging equipment. However, the analysis of this timber data revealed that an acceleration would not produce a significantly higher level, and that logging steep slopes with special equipment could be included with Alternative F-Market emphasis and provide the same results. The alternative was eliminated from further study.

E. ALTERNATIVES CONSIDERED IN DETAIL

Eight alternatives are considered in detail in this section. These alternatives are: A - Current Program, B - Composite, C - Constrained Budget, D - Current Budget, E - Non Market Emphasis, F - Market Emphasis, G - RPA 80, H - High Productivity. The Composite alternative is the proposed action. Each alternative meets NFMA feasibility requirements. They are economically, technically, budgetarily, and environmentally feasible and reasonable.

The NFMA regulations require alternatives to address public issues and management concerns. Each alternative addresses the set of planning questions differently.

The alternatives reflect a broad range of resource outputs and expenditure levels. They address differently the public issues, management concerns, and resource opportunities through a unique combination of management prescriptions. Each prescription contains unique standards and guidelines for resource uses and activities. See Chapter IV of the proposed Forest Plan for a complete display of the prescriptions.

Both FORPLAN and a discount analysis were used to help select the combination of prescriptions in each alternative to maximize present net value, given the alternative goals and constraints. A detailed discussion of the linear program model FORPLAN and the economic analysis, is presented in Appendix B. Using both FORPLAN and Economic analysis meets NFMA requirements that each alternative represent to the extent practicable the most cost-efficient combination of management activities. The combination of prescriptions selected was the most cost-efficient combination available in every alternative, because the objective was to maximize present net value.

Although the alternatives considered in detail have different outputs, costs, and effects, each alternative represents the most cost-efficient way of meeting the goals of that alternative. Each alternative has also been evaluated for spatial and resource output feasibility.

The models used and the use of interdisciplinary teams also fulfilled NFMA requirements for the coordination of outdoor recreation, range, timber, water, wildlife and fish, and wilderness. To achieve multiple-use coordination, each alternative must provide an integrated mix of resource outputs.

In addition to the following descriptions, maps are included in Draft EIS package. The maps display the spatial distribution of management prescriptions that were selected for each alternative. The alternative maps display corridors for the proposed construction and reconstruction of arterial and collector roads, corridors for major existing utility routes, and windows for major utility proposals.

The following section describes the goals, objectives, and expected future condition of each alternative.

Tables II-9 through II-16a, II-19, II-23 and II-23a which follow display comparisons of benefits and costs for individual resources. Direct comparisons of benefits and costs displayed for individual resource outputs provide general indications of relationships but may be misleading because some outputs in multiple use management have common costs of production that cannot be easily separated and attributed to individual resources.

1. Alternative A - Current Program (No Action)

This alternative describes the current level and trend of goods and services to be provided in the future. The budget is constrained in the first decade, but increases in subsequent decades to meet projected trends. This alternative provides a "baseline" for comparison with other alternatives and helps determine the need for change.

The goals of this alternative are:

- Continue the existing developed recreation site capacity and adherence to standards to prevent site deterioration.
- Accommodate an anticipated increase in dispersed recreation visits.
- Manage the Pine Valley Mountains, Ashdown Gorge, and the Box-Death Hollow Wilderness's.
- Increase the number of research natural areas.
- Manage wildlife habitat to support minimum viable populations of all native and desired non-native vertebrate species and improve the habitat where needed for selected species.
- Maintain current levels of permitted livestock grazing.
- Maintain investments in structural and non-structural range improvements.
- Maintain timber sale offerings as described in the current timber management plan.
- Improve acres of declining watershed condition by treating the backlog of soil and water restoration needs and improving poor condition range lands.
- Maintain restrictions for mineral leasing activities. Provide prompt responses to mineral requests.
- Provide cost efficient fire suppression.

The objectives that will be needed to meet the above listed goals and expected future conditions of the Forest are described below by major resource areas:

a. Recreation

About 20 percent of the developed site capacity would be managed at full service levels. The remainder would be at reduced service levels. No new developed sites would be built. The Forest would rehabilitate and "harden"

(artificial surfacing) about 50 developed recreation site units per decade. After the year 2010 about 10 percent of all units would be periodically closed, rested, and then re-opened.

Forty to fifty percent of the maintenance in developed sites would be done by human resource programs. Without these programs, the existing facilities would be lost before the end of the planning period.

Although the demand on some of the more popular developed recreation sites presently exceeds their capacity, the capacity Forest-wide will not be exceeded until about the year 2000. After this period, continual increasing demand will create a situation that has people camping off-Forest or camping on-Forest in undeveloped areas.

Trail and road maintenance for recreation purposes would continue on only the more heavily used trails and roads.

The capacity of the Forest for dispersed recreation use would not be exceeded Forest-wide during the planning period, but popular sites would be progressively overused to the point that the quality of the experience would be diminished. Acreage by ROS class would shift less than five percent from the non-motorized to the motorized classes.

Human Resource Programs and volunteers would be used to monitor use and collect refuse in high use areas. Without such programs most of the litter would accumulate.

Scenic values along major roads and recreation areas would be protected.

Most cultural resource survey efforts would be conducted in the proposed Mountain Pine Beetle timber sale areas although some work would be required in designated aspen cutting areas for wildlife habitat improvement. After 1990, survey work would continue at the present level in mixed conifer and spruce sales. Increased impacts to the cultural resource base can be expected under this alternative which emphasizes dispersed recreation.

Research natural areas would be established on the Timbered Cinder Cone (640 acres), Table Cliff (1,235 acres), and Red Canyon (460 acres) in order to protect their unique characteristics and scientific values.

b. Wilderness

Management of the Box-Death Hollow and Ashdown Gorge wilderness areas would emphasize semi-primitive wilderness settings. The management of the Pine Valley Mountain Wilderness would also emphasize semi-primitive wilderness settings; however, the heavy use areas would require more intensive land management, only the more heavily used trails (i.e. the Whipple National Recreation Trail) would be maintained or improved. Trails in Ashdown Gorge, and Box-Death Hollow would receive little or no maintenance unless done by others such as volunteers and other Human Resource Programs.

c. Fish and Wildlife

Habitat management would stress mitigation of land use activities to maintain viable populations. An average of 950 acres and 35 structures of habitat improvement projects would be initiated annually during the planning period. Prescribed burning for vegetative manipulation and aspen cutting would remain at low levels. Protection of big game winter range from livestock use would not receive heavy emphasis.

Habitat capability would gradually improve (approximately 10 percent) for many species because of the general improvement in range condition. Deer numbers would probably decline somewhat on some herd units because of off-Forest development on essential range. Elk would continue to expand their range and population. Snag dependent wildlife species would steadily decline on some areas (primarily the Cedar City R.D.) because of increased access and unauthorized snag cutting. Habitat diversity would improve somewhat as emphasis in timber harvest is shifted to spruce-fir and mixed conifer and some habitat improvement is directed at the browse and aspen types. Fish habitat capability would increase slightly in streams and lakes, however, because of the gradual eutrophication of Panguitch Lake, due to causes beyond Forest Service control, overall capability would decline until the problems are solved.

The necessary coordination would be provided to improve the habitat to assist in the removal of the Utah Prairie dog from threatened and endangered status. This includes providing the Forest's share of transplant sites (11) and cooperating in meeting the objectives of the Utah Prairie Dog Recovery Plan.

d. Range

This alternative would continue livestock grazing practices that would maintain the suitable range in good range condition and allow 110,000 acres of poor condition range to improve to at least fair condition. Projected budget levels have been increased to provide essential maintenance of range improvement--particularly the extensive crested wheat reseedsings.

e. Timber

This alternative would complete timber sales for mountain pine beetle management by 1990, then continue offering a program of about 26 MMBF with a high percentage of that volume coming from the mixed conifer and spruce-fir types until about 1995 or 2000. Conifer volumes would then decline until second growth becomes large enough to harvest near the end of the planning period. After 2030, conifer harvest volumes would equal or exceed 20 MMBF annually.

By the end of the year 2000 most of the available and tentatively suitable timberland, except on steep slopes or remote areas, would have been cutover. A balance of timber age classes would not be achieved until about 2200. Some areas (leave strips, steep slopes, and remote areas) would remain susceptible to insect and disease infestations until 2030. The harvest of aspen would increase over current levels if a market demand materializes. An average of 5,000 acres of TSI and 1,588 acres of reforestation would be done each year for the first decade.

f. Soil and Water

Watershed restoration will progress at moderate rates. About 725 acres of large size projects will be completed by 2000. About 1515 acres of smaller projects will be completed by 2020.

Watershed condition would improve significantly by the end of the planning period. Use on riparian areas would remain moderate. Existing management-related water quality problems would be mitigated before the end of the planning period. No significant deterioration of water quality would occur. No significant change in water yield would occur.

g. Minerals

The production of oil and gas from Forest lands is expected to remain about constant through the planning period. Coal production would begin on a modest scale about the second decade and gradually increase until the end of the planning period. Request for leasing, permits, etc., would receive prompt responses.

h. Lands

The land adjustment activities (exchange and purchase) following the Land Adjustment Program would face some delay in acting on proposals and would involve one to two cases per year. Cases in the first decade would generally be generated by out-of-service requests which would after the first decade, change to a more aggressive program of contacting potential proponents. Any increase in program after the first decade would require an increase in funding. Increased attention after the first decade would be directed toward cases that would protect and assist the increased needs and demands for dispersed recreation. In view of the increasing dispersed use, selected lands for exchange would receive priority based on the highest value per acre so that the smallest acreage reduction occurs in relation to acreage gained.

The rights-of-way activities following the Rights-of-Way Program would face some delay in response to need and need would result from current resource projects during first decade. Level of activity during first decade would be two to five cases per year. Some roadways (prescriptive) and access to public lands would be blocked by private landowners during the first decade. After the first decade, with increased funds, there would be an increasing program with priority directed not only toward resource needs, but to the increasing recreation needs and demands for dispersed use. The program would after the first decade, be more responsive to the needs and status of system roads with a priority to provide adequate access to all areas larger than 10,000 acres. Research Natural areas would be established at the Timbered Cinder Cone (640 acres). Table Cliff (1,235 Acres) and Red Canyon (460 Acres). Establishment reports have been completed for Timbered Cinder Cone and Table Cliff. Enough field data have been acquired to write an establishment report for Red Canyon. Additional Research Natural Areas maybe established if suitable areas exist and are needed.

TABLE II-9
 RESOURCE OUTPUTS, ACTIVITIES, COSTS
 AND BENEFITS FOR ALTERNATIVE A CURRENT PROGRAM*

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Recreation								
Developed Recreation Use	MRVD	466	641	958	1275	1106		
Rural ROS		186	256	383	510	804		
Road Natural ROS		280	385	575	765	302		
Dispersed Recreation Use	MRVD	780	1056	1693	2641	3391		
Primitive ROS								
Semi-Primitive								
Non-Motor ROS		110	149	239	373	508		
Semi-Primitive								
Motorized ROS		236	320	513	800	1088		
Road Natural ROS		355	480	769	1201	1634		
Rural ROS		79	107	171	267	363		
Dispersed Recreation Use (Wild.)	MRVD	8	11	17	27	36		
Primitive ROS								
Semi-Primitive								
Non-Motor ROS								
Wilderness								
Wilderness Management	MACRES	83	83	83	83	83		
Wildlife								
Structural Habitat Improvement- (Terrestrial)	STRUCTS	10	12	12	12	12		
Structural Habitat Improvement- Aquatic	STRUCTS	20	25	25	25	25		
Nonstructural Habitat Improvement-Terrestrial	ACRES	850	840	840	820	820		
Nonstructural Habitat Improvement-Aquatic	ACRES	100	110	110	130	130		
Wildlife and Fish Use	MWFUD	171	183	182	180	179		
Range								
Grazing Use (Livestock)	MAUM	115	115	115	115	115		
Wild Horses & Burros	MAUM	0.3	0.3	0.3	0.3	0.3		
Timber								
Allowable Sale Quantity	MMCF	5.1	5.2	5.3	5.3	5.4	5.4	5.4
Allowable Sale Quantity	MMBF	26.4	26.0	26.3	26.4	26.4	22.5	24.4
Sawtimber (Softwood)	MMBF	22.9	15.7	14.9	17.4	21.3	19.5	20.5
Sawtimber (Hardwood)**	MMBF	2.8	9.4	10.3	7.8	3.7	1.9	2.7
Roundwood Products	MMBF	0.7	0.9	1.1	1.2	1.4	1.1	1.2
Fuelwood	MMBF	10.7	8.4	8.5	8.0	9.4	8.0	8.1
Reforestation	ACRES	1588	402	454	3353	1646	1382	921
TSI	ACRES	5000	54	1769	628	250	119	0
Water								
Meeting Water Quality Goals	%	98	98	98	100	100		
Increased Yield Over								
Natural-Forest-Wide	M AC.FT.	4.3	8.3	8.1	6.7	6.0		
Increased Yield Over								
Natural-Colorado River	M AC.FT.	1.2	2.7	2.6	2.1	1.9		
Protection								
Fuelbreaks and Fuel Treatment	ACRES	10505	7117	4641	5133	4919		

* Entries in the following tables are on an average annual basis for the decade.

** Aspen could have been displayed as roundwood rather than sawtimber in the following tables. Higher sawtimber merchantability standards were applied to aspen providing conservative volume estimates as were conservative fuelwood benefit values.

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Minerals								
Mineral Leases and Permits	CASES	690	730	750	750	780		
HC&D								
Human Resource Programs	EN. YEARS	20	20	20	20	20		
Lands								
Land Pur., Acq., & Exchange	CASES	2	2	2	2	2		
Soils								
Soil & Water Resource Imp.	ACRES	51	63	80	63	38		
Facilities								
Arterial and Collector Roads Construction/Reconstruction	MILES	2	1	1	1	1		
Local Roads								
Construction	MILES	28	18	15	11	7		
Reconstruction	MILES	32	34	21	22	22		
Trail Construction/Reconstruction	MILES	0	0	0	0	0		
BENEFITS M\$*								
Recreation								
Developed		1929	2654	3966	5279	8754		
Dispersed		6917	8287	10865	14769	18709		
Wilderness		90	121	191	297	403		
Total		8936	11062	15022	20345	27866		
Range		927	927	927	927	927		
Timber		1211	1257	964	512	740		
Wildlife		5551	5649	5680	5710	5741		
Water Yield		251	485	473	391	350		
Minerals		2884	3081	3038	2899	2828		
Other		21	21	21	21	21		
Total		19781	22482	26125	30805	38473		
RECEIPTS M\$								
Recreation - Developed		181	244	358	472	411		
Range		116	116	116	116	116		
Timber		1198	1244	951	499	727		
Minerals		12	13	14	14	14		
Other		21	21	21	21	21		
Total		1528	1638	1460	1122	1289		
COSTS M\$								
Timber		2500	1327	1071	1981	1314		
Roads (Appropriated)		48	24	24	24	24		
Recreation		640	743	733	832	653		
Wildlife		119	131	139	136	141		
Range		380	380	386	382	389		
Protection		226	335	335	335	335		
Other		2310	2309	2326	2346	2331		
Total Forest Budget		6223	5249	5014	6036	5187		
O&M		3892	3971	3902	4037	3831		
Investment		2331	1278	1112	1999	1356		
Non-Forest Service Costs (Purchaser Const. Roads)		239	170	118	100	64		
Returns to Treasury		1528	1638	1460	1122	1289		

*Dollar amounts in the following tables are average annual for the decade expressed in 1978 dollars, inflated to 1/1/82.

TABLE II-9a
 AVERAGE ANNUAL CASH FLOWS AND NON-CASH BENEFITS *
 (Thousands of 1978 Dollars Inflated to 1/1/82)

ALTERNATIVE A - CURRENT PROGRAM	DECADE				
	1	2	3	4	5
Timber					
Costs*	2739	1497	1189	2081	1378
Benefits	1211	1257	964	512	740
Net Benefits	-1528	-240	-225	-1569	-638
Receipts	1198	1244	951	499	727
Net Receipts	-1541	-253	-238	-1582	-651
Non-Cash Benefits	13	13	13	13	13
Recreation					
Costs	640	743	733	832	653
Benefits	8936	11062	15022	20345	27866
Net Benefits	8296	10319	14289	19513	27213
Receipts	181	244	358	472	411
Net Receipts	-459	-499	-375	-360	-242
Non-Cash Benefits	8755	10818	14664	19873	27455
Wildlife					
Costs	119	131	139	136	141
Benefits	5551	5649	5680	5710	5741
Net Benefits	5432	5518	5541	5574	5600
Receipts	0	0	0	0	0
Net Receipts	-119	-131	-139	-136	-141
Non-Cash Benefits	5551	5649	5680	5710	5741
Range					
Costs	380	380	386	382	389
Benefits	927	927	927	927	927
Net Benefits	547	547	541	545	538
Receipts	116	116	116	116	116
Net Receipts	-264	-264	-270	-266	-273
Non-Cash Benefits	811	811	811	811	811
Other					
Costs	2584	2668	2685	2705	2690
Benefits	3156	3587	3532	3311	3199
Net Benefits	572	919	847	606	509
Receipts	33	34	35	35	35
Net Receipts	-2551	-2634	-2650	-2670	-2655
Non-Cash Benefits	3123	3553	3497	3276	3164
Total					
Costs	6462	5419	5132	6136	5251
Benefits	19781	22482	26125	30805	38473
Net Benefits	13319	17063	20993	24669	33222
Receipts	1528	1638	1460	1122	1289
Net Receipts	-4934	-3781	-3672	-5014	-3962
Non-Cash Benefits	18253	20844	24665	29683	37184

* Includes Non-Forest Service Costs (Purchaser Constructed Roads)

i. Protection

The fire protection target organization will be driven by Level II fire analysis, and aimed at the organization that demonstrates the lowest average annual cost and net value change for fire suppression.

2. Alternative B - Composite (Preferred)

This alternative describes a level and trend of goods and services to be provided in the future that in total best meets the issues and concerns. The budget is constrained in the first decade, but increases in subsequent decades to meet projected trends. This alternative provides an "optimum" mix of activities that will provide cost efficiency, socioeconomic stability and meet resource needs.

The goals of this alternative are:

- Continue the existing developed recreation site capacity and adherence to standards to prevent site deterioration. Provide for increased downhill ski area capacity.
- Accommodate an anticipated increase in dispersed recreation visits by providing additional trailhead facilities, trail construction and other facilities designed to enhance dispersed types of recreation.
- Manage the Pine Valley Mountains, Ashdown Gorge, and Box-Death Hollow Wilderness's to a standard level.
- Increase the number of research natural areas.
- Manage wildlife habitat to support viable populations of all native and desired non-native vertebrate species and improve the habitat where needed for selected species.
- Maintain current levels of permitted livestock grazing.
- Maintain investments in structural and non-structural range improvements.
- Maintain timber sale offerings in first decade at a level that will sustain present timber industry. Limit sale offerings on soil types where soil loss tolerance levels cannot be met.
- Improve acres of declining watershed condition by treating the backlog of soil and water restoration needs and improving poor condition range lands.
- Maintain restrictions for mineral leasing activities. Provide prompt responses to mineral requests.
- Provide cost efficient fire suppression.

The objectives that will be needed to meet the above listed goals and expected future conditions of the Forest are described below by major resource areas:

a. Recreation

About 60 percent of the developed site capacity would be managed at full service levels. The remainder would be at reduced service levels. New developed sites would be built at Deer Lake, Pine Valley, and Blue Spring Point to meet increased use and enhance dispersed recreation. The Forest would also rehabilitate and "harden" about 50 developed recreation site units per decade to protect the sites. Expanded downhill ski area capacity by the private sector in the Brian Head and proposed Crystal Mountain area could occur.

Construct a 25 unit campground on the north slope of the Boulder Mountains in Decade 5 to enhance dispersed recreation opportunities. Funding would be available to provide for 80 to 90 percent of operations and maintenance needs. The remaining 10 to 20 percent would be done by Human Resource Programs.

Although the demand on some of the more "popular" developed recreation sites presently exceeds their capacity, the capacity Forest-wide will not be exceeded until about the year 2021.

Provide frequent maintenance of the more heavily used roads and trails. Develop parking and trailhead facilities to accommodate wilderness area users, and winter sport users.

The capacity of the Forest for dispersed recreation use would not be exceeded Forest-wide during the planning period; however, localized "popular" sites will be progressively overused to the point that a "quality" experience is diminished. The construction of 11 trailheads across the forest and the maintenance of 320 miles of trails will help to disperse the use and increase the quality of the experiences. Acreage by ROS class will shift less than 5 percent from the non-motorized to the motorized classes. The Forest would be funded to maintain back country patrols and policing to also help improve the quality. Volunteers would also be used when they are available.

Research Natural Areas would be established at the Timbered Cinder Cone (640 acres), Table Cliff (1,235 acres), and Red Canyon (460 acres) in order to protect their unique characteristics and scientific values. Additional Research Natural Areas may be established if suitable area exist and are needed.

Scenic values along major roads and recreation areas would be protected, as well as increased emphasis on project activities to provide for scenic beauty. In order to comply with the provisions of the National Historic Preservation Act of 1966 (26 CFR 800), most survey efforts would be conducted in the proposed mountain pine beetle timber sale areas until at least 1990 although some work would be required in designated aspen cutting areas for wildlife habitat improvement. After 1990, survey work would continue at the present level in mixed conifer and spruce sales. This alternative, which also increases the impacts to the cultural resource base via dispersed recreation, will require survey in areas that have been proposed for the development of dispersed recreation facilities (trailheads, trails and parking areas). Expanded downhill skiing facilities may also affect cultural resources under this alternative. "Under the preferred alternative, the minimum NFMA requirements will be funded by 074 Recreation dollars and will include the composition of a cultural resource overview, the identification of areas requiring more intensive inventory, National Register evaluations and nominations, protection of significant sites from vandalism and natural destruction, maintenance and interpretation".

b. Wilderness

Management of the Box-Death Hollow and Ashdown Gorge wildernesses would emphasize semi-primitive wilderness settings. The management of the Pine Valley Mountain wilderness would also stress a semi-primitive setting; however, the heavily used areas would require more intensive management. Trails and

trailheads will be constructed to disperse use over more of the areas. Volunteers will be used where possible to patrol and cleanup areas. Funding will be available to do 90 percent or more of the operation and maintenance work.

c. Fish and Wildlife

Habitat management would stress mitigation of land use activities to maintain viable populations. An average of 2,670 acres and 165 structures of habitat improvement projects would be initiated annually during the planning period. Low cost prescribed burning for vegetative manipulation and aspen cutting would be emphasized. Protection of big game winter range from livestock use would receive emphasis where needed to provide for wildlife values.

Habitat capability would gradually improve (approximately 10 percent) for many species because of the general improvement in range and wildlife habitat conditions. Deer numbers would not increase on some herd units because of off-Forest development on critical range. Elk would continue to expand their range and population. Snag dependent wildlife species would slowly decline on some areas (primarily the Cedar City R.D.) because of increased access and unauthorized snag cutting. Habitat diversity would improve somewhat as emphasis in timber harvest is shifted to spruce-fir and mixed conifer and some habitat improvement is directed at the browse and aspen types. Fish habitat capability would increase slightly in streams and lakes; however, because of the gradual eutrophication of Panguitch Lake, due to causes beyond Forest Service control, overall capability will decline until the problems are solved.

The necessary coordination would be provided to improve the habitat to assist in the removal of the Utah Prairie dog from threatened and endangered status. This includes providing the Forest's share of transplant sites (11) and cooperating in meeting the objectives of the Utah Prairie Dog Recovery Plan.

d. Range

This alternative would continue current grazing practices and livestock numbers. It would maintain the suitable range in good condition and allow 110,000 acres of poor condition range to improve to at least fair condition. Projected budget levels have been increased to provide essential maintenance of range improvement, particularly the extensive crested wheat reseeding. Increased emphasis would be applied to protect riparian areas.

e. Timber

This alternative would complete timber sales made to minimize impacts of mountain pine beetle by 1990, then continue offering a program of about 26 MMBF with a high percentage of that volume coming from the mixed conifer and spruce types until about 1995 or 2000. Thereafter, conifer harvest volumes would decrease to reflect sanitation and partial cutting in leave strips adjacent to old clearcuts and small, scattered stands. Near the end of the planning period conifer harvest levels would gradually increase as second growth stands achieve harvestable size. The harvest of aspen trees would increase over current levels if a market demand materializes. An average of 5,000 acres of TSI and 1,588 acres of reforestation would be done per year during the first decade.

f. Soil and Water

Aggressive action would be taken to treat the watershed restoration backlog, 725 acres of large size projects will be completed by 1995, 1515 acres of smaller projects will be completed by 2010. Unforeseen damaged watershed areas would be promptly treated.

Watershed conditions would improve significantly by the end of the planning period. Use on riparian areas would be moderate. Existing management-related water quality problems would be mitigated before the end of the planning period. No significant deterioration of water quality would occur. No significant change in water yield would occur.

g. Minerals

The production of oil and gas from Forest lands is expected to remain about constant through the planning period. Coal production would begin on a modest scale about the second decade and gradually increase until the end of the planning period. Request for leasing, permits, etc., would receive prompt responses.

h. Lands

The Land Adjustment Activities (exchange and purchase) Program following the Land Adjustment Program would face some delay in acting on proposals and would involve one to two cases per year. Cases in the first decade will generally be generated by out-of-service requests which would, after the first decade, change to a more aggressive position of contacting potential proponents. Increasing attention after the first decade would be directed toward cases that would protect and assist the increasing needs and demands for dispersed recreation. Securing parking and trailhead areas, as well as rights-of-way for general dispersed activities, wilderness, and winter sports, would gain priority. In view of the increasing dispersed use, selected lands for exchange would receive priority based on the highest value per acre so that the smallest acreage reduction occurs in relation to acreage gained. Releasing land in the Brian Head area or an area of similar potential would accomplish this objective and provide for private expansion and development of services.

Rights-of-way activities following the Rights-of-Way Program would face some delay in response to need, and need would result from current resource projects during first decade. Level of activity during first decade, two to five cases per year. Some roadways (prescriptive) and access to public lands would be

blocked by private landowners during the first decade. After the first decade, there would be an increasing program with priority directed not only toward resource needs, but to the increasing recreation demands for easements in response to dispersed use, wilderness, and winter sports. The program would after the first decade, be more responsive to the needs and status of system roads. Priority would be to provide adequate access to all areas with greater than 10,000 acres.

TABLE II-10
RESOURCE OUTPUTS, ACTIVITIES, COSTS
AND BENEFITS FOR ALTERNATIVE B COMPOSITE

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE							
		1	2	3	4	5	10	15	
Recreation									
Developed Recreation Use	MRVD	474	651	1060	1652	2010			
Rural ROS		261	358	583	909	1105			
Road Natural ROS		213	293	477	743	804			
Dispersed Recreation Use	MRVD	803	1253	1787	2692	3699			
Primitive ROS									
Semi-Primitive									
Non-Motor ROS		123	192	258	412	566			
Semi-Primitive									
Motorized ROS		205	320	430	687	944			
Road Natural ROS		369	575	775	1237	1700			
Rural ROS		106	166	224	355	489			
Dispersed Recreation Use (Wild.)	MRVD	8	13	17	27	38			
Primitive ROS		8	13	17	27	38			
Semi-Primitive									
Non-Motor ROS									
Wilderness									
Wilderness Management	MACRES	83	83	83	83	83			
Wildlife									
Structural Habitat Improvement- (Terrestrial)	STRUCTS	19	20	21	22	23			
Structural Habitat Improvement- Aquatic	STRUCTS	135	142	145	148	153			
Nonstructural Habitat Improvement-Terrestrial	ACRES	2040	2092	2145	2202	2255			
Nonstructural Habitat Improvement-Aquatic	ACRES	500	510	520	530	540			
Wildlife and Fish Use	MWFUD	180	202	197	202	202			
Range									
Grazing Use (Livestock)	MAUM	115	115	115	115	115			
Wild Horses & Burros	MAUM	0.3	0.3	0.3	0.3	0.3			
Timber									
Allowable Sale Quantity	MMCF	5.1	5.2	5.3	5.3	5.4	5.4	5.4	
Allowable Sale Quantity	MMBF	26.4	26.0	26.3	26.4	26.4	22.5	24.4	
Sawtimber (Softwood)	MMBF	22.9	15.7	14.9	17.4	21.3	19.5	20.5	
Sawtimber (Hardwood)	MMBF	2.8	9.4	10.3	7.8	3.7	1.9	2.7	
Roundwood Products	MMBF	0.7	0.9	1.1	1.2	1.4	1.1	1.2	
Fuelwood	MMBF	10.7	8.4	8.5	8.0	9.4	8.0	8.1	
Reforestation	ACRES	1588	402	454	3353	1646	1382	921	
TSI	ACRES	5000	54	1769	628	250	119	0	
Water									
Meeting Water Quality Goals	%	98	98	98	100	100			
Increased Yield Over Natural-Forest-Wide	M AC.FT.	4.3	8.3	8.1	6.7	6.0			
Increased Yield Over Natural-Colorado River	M AC.FT.	1.2	2.7	2.6	2.1	1.9			
Protection									
Fuelbreaks and Fuel Treatment	ACRES	10505	7117	4641	5133	4919			

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Minerals								
Mineral Leases and Permits	CASES	691	750	690	665	655		
HC&D								
Human Resource Programs	EN. YEARS	20	20	20	20	20		
Lands								
Land Pur., Acq., & Exchange	CASES	2	3	3	4	4		
Soils								
Soil & Water Resource Imp.	ACRES	85	138	35	20	20		
Facilities								
Arterial and Collector Roads								
Construction/Reconstruction	MILES	2	1	1	1	1		
Local Roads								
Construction	MILES	28	18	14	11	7		
Reconstruction	MILES	32	34	21	22	21		
Trail Construction/Reconstruction	MILES	33	70	40	0	0		
BENEFITS M\$								
Recreation								
Developed		1961	2694	4385	6836	8313		
Dispersed		7651	10016	11796	18542	20088		
Wilderness		90	141	190	304	417		
Total		9702	12851	16371	25682	28818		
Range		927	927	927	927	927		
Timber		1211	1257	964	512	740		
Wildlife		5665	6334	6317	6334	6334		
Water Yield		251	485	473	391	350		
Minerals		2903	3082	3001	2916	2825		
Other		21	21	21	21	21		
Total		20680	24957	28074	36783	40015		
RECEIPTS M\$								
Recreation - Developed		184	247	395	608	737		
Range		116	116	116	116	116		
Timber		1198	1244	951	499	727		
Minerals		13	14	12	12	12		
Other		21	21	21	21	21		
Total		1532	1642	1495	1256	1613		
COSTS M\$								
Timber		2500	1327	1071	1981	1314		
Roads (Appropriated)		24	0	0	0	0		
Recreation		969	1142	1183	1174	1154		
Wildlife		375	325	357	306	340		
Range		490	632	642	571	573		
Protection		373	335	335	335	335		
Other		2885	3071	2518	2796	2792		
Total Forest Budget		7616	6832	6106	7163	6508		
O&M		4868	5083	4516	4779	4925		
Investment		2748	1749	1590	2384	1583		
Non-Forest Service Costs (Purchaser Const. Roads)		239	170	118	100	64		
Returns to Treasury		1532	1642	1495	1256	1613		

TABLE II-10a
 AVERAGE ANNUAL CASH FLOWS AND NON-CASH BENEFITS *
 (Thousands of 1978 Dollars Inflated to 1/1/82)

ALTERNATIVE B - COMPOSITE	DECADE				
	1	2	3	4	5
Timber					
Costs	2739	1497	1189	2081	1378
Benefits	1211	1257	964	512	740
Net Benefits	-1528	-240	-225	-1569	-638
Receipts	1198	1244	951	499	727
Net Receipts	-1541	-253	-238	-1582	-651
Non-Cash Benefits	13	13	13	13	13
Recreation					
Costs	969	1142	1183	1174	1154
Benefits	9702	12851	16371	25682	28818
Net Benefits	8733	11709	15188	24508	27664
Receipts	184	247	395	608	737
Net Receipts	-785	-895	-788	-566	-417
Non-Cash Benefits	9518	12604	15976	25074	28081
Wildlife					
Costs	375	325	357	306	340
Benefits	5665	6334	6317	6334	6334
Net Benefits	5290	6009	5960	6028	5994
Receipts	0	0	0	0	0
Net Receipts	-375	-325	-357	-306	-340
Non-Cash Benefits	5665	6334	6317	6334	6334
Range					
Costs	490	632	642	571	573
Benefits	927	927	927	927	927
Net Benefits	437	295	285	356	354
Receipts	116	116	116	116	116
Net Receipts	-374	-516	-526	-455	-457
Non-Cash Benefits	811	811	811	811	811
Other					
Costs	3282	3406	2853	3131	3127
Benefits	3175	3588	3495	3328	3196
Net Benefits	-107	182	642	197	69
Receipts	34	35	33	33	33
Net Receipts	-3248	-3371	-2820	-3098	-3094
Non-Cash Benefits	3141	3553	3462	3295	3163
Total					
Costs	7855	7002	6224	7263	6572
Benefits	20680	24957	28074	36783	40015
Net Benefits	12825	17955	21850	29520	33443
Receipts	1532	1642	1495	1256	1613
Net Receipts	-6323	-5360	-4729	-6007	-4959
Non-Cash Benefits	19148	23315	26579	35527	38402

i. Protection

The fire protection target organization will be driven by Level II Fire Analysis, and aimed at the organization that demonstrates the lowest average annual cost and net value change for fire suppression.

3. Alternative C - Constrained Budget

This alternative describes the activities and outputs of goods and services that could be provided with a budget that is 25 percent less than the Forest's 1982 budget. The reduced budget would remain constant for the five decades of the planning period. The emphasis would be to maintain the same relative combination of resource activities as the current program alternatives, but adjusted for the budget.

The goals for this alternative are:

- Continue the existing developed recreation site capacity, but at reduced service level or less. Prevention of site deterioration would not be a goal.
- Provide, in spite of deteriorating road and trail systems, the opportunity for dispersed recreation.
- Manage the Pine Valley Mountains, Ashdown Gorge, and the Box-Death Hollow wildernesses to a less than standard level.
- Increase the number of research natural areas.
- Manage wildlife habitat sufficient only to support minimum viable populations of all native and desired non-native vertebrate species.
- Reduce the numbers of permitted livestock commensurate with the loss of capacity due to unmaintained range improvements.
- Maintenance of range improvements would be on a priority basis to reduce the loss of capacity.
- Timber sale offerings having low preparation and road development costs would be stressed.
- Emphasize watershed restoration projects that are low cost.
- Restrictions on mineral leasing activities would not be emphasized. Response time for mineral requests would be doubled. Require industry to provide environmental and legal studies.
- Provide cost efficient fire protection.

The objectives that will be needed to meet the above listed goals and expected future conditions of the Forest are described below:

a. Recreation

All campgrounds would remain open, but provide only reduced service, maintenance, and cleanup, at the heavily used campgrounds such as Pine Valley, Navajo Lake and Panguitch Lake. All lighter used campgrounds would receive only sporadic and infrequent maintenance and cleanup. No new sites would be built. No rehabilitation or resting of existing sites would occur. Human Resource Programs would be used as much as possible. Even with this program, facilities will disintegrate from overuse and capital investment will be lost.

Allow dispersed recreation users to use the Forest with little expenditure for signing, road maintenance, trail maintenance, etc.

During the planning period developed recreation use would diminish steadily in relation to expected increased demand as recreation areas, roads and trails deteriorate from lack of maintenance and cleanup. Many users would seek more attractive sites outside of the developed sites and dispersed area use would increase at first and then drop toward the end of the planning period as sites become over used and worn out.

Research natural areas would be established on the Timbered Cinder Cone (640 acres), Table Cliff (1,235 acres), and Red Canyon (460 acres) in order to protect their unique characteristics and scientific values.

Scenic values, along major roads and recreation areas, would receive little protection because of the lack of expertise and coordination.

Under a reduced budget, the Cultural Resources Program would continue to survey project areas as they are designated for development. Although support dollars would be less, the program would survive as presently constructed (shared services). The majority of survey work would be conducted in proposed timber sale areas.

b. Wilderness

The management of all wilderness areas would emphasize primitive settings, to allow use to occur where it will without any facilities or content.

Wilderness visits would decrease in relation to apparent demand because of the lack of trail maintenance and construction.

Volunteers and Human Resource Programs would provide the only means of patrolling or policing areas.

c. Fish and Wildlife

Habitat management would stress mitigation of land use activities to maintain only the minimum viable populations. No new habitat improvement structures would be initiated, except for selected projects for threatened, endangered, or sensitive species. Existing structures would be maintained.

During the planning period big game habitat capability would generally decrease because of the deterioration of range condition, reduction in timber sales and limited habitat improvement projects. Habitat for snag and old growth dependent wildlife would increase because of reduced timber activities. Diversity would decrease because of reduced activities in timber and range.

d. Range

Manage livestock range presently in "fair" or better condition so that the range would not deteriorate below "fair". "Poor" condition range would remain "poor".

Due to a decrease in range improvement construction and maintenance and range administration, the capacity of the range would steadily decrease in permitted AUM's and range condition classes.

e. Timber

Offer timber sales in only those areas where tractor logging can take place and where arterial and collector roads are in place.

During the planning period, timber harvest would be reduced from the current level and most of the commercial forest would not be as intensively managed. Some access roads may become unusable due to lack of maintenance. Conditions favoring insect and disease epidemics would increase, especially in the spruce-fir type.

f. Soil and Water

Manage all soil and water resources through mitigation and coordination with other resources to prevent serious degradation below current conditions. The backlog of 725 acres of the larger, high cost watershed projects would not be treated. Most of the backlog of 1515 acres of smaller, low cost projects would be treated by the end of the 5th decade.

Watershed conditions would generally remain static and decline in some areas. Use on riparian areas would increase due to lack of management causing an overall deterioration of the resource. Water quality problems would not be mitigated until after the 50 year planning horizon. The untreated watersheds in the backlog would remain untreated and continue to cause erosion problems.

g. Minerals

The expected production of oil and gas and coal from Forest lands would continue as explained in the Current Program Alternative. However, the industry's requests for permits, leases, etc., would be met in a timely manner only if industry provides data and environmental studies.

Conflicts with the mining industry would increase. Trespass and unpermitted actions would increase. A general slow down in mineral activities would occur.

H. Lands

The land adjustment activities (exchange and purchase) following the Land Adjustment Program would face some delay in acting on proposals and would involve perhaps one case per year. Cases would generally be generated by out-of-service requests. After the first decade, there would be an increasing backlog of cases generated by potential proponents with fewer cases completed.

The program would increasingly take on the characteristics of a deferred action program responsive only to unavoidable targets and the most sensitive cases. The overall result of this alternative to the Forest would be one of lost opportunities in terms of carrying out land management objectives through this program. Under this alternative, the Forest would lose the option of accomplishing land management objectives through this program.

The rights-of-way activities following the Rights-of-Way Program would face some delay in response to need, and need would result from current resource projects. Level of activity during first decade would be perhaps one to two cases per year with an increasing backlog and reduced accomplishment over

TABLE II-11
 RESOURCE OUTPUTS, ACTIVITIES, COSTS
 AND BENEFITS FOR ALTERNATIVE C CONSTRAINED BUDGET

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE							
		1	2	3	4	5	10	15	
Recreation									
Developed Recreation Use	MRVD	269	277	308	362	416			
Rural ROS		148	152	169	199	229			
Road Natural ROS		121	125	138	163	187			
Dispersed Recreation Use	MRVD	731	1125	1341	1995	2651			
Primitive ROS									
Semi-Primitive									
Non-Motor ROS		103	159	190	283	375			
Semi-Primitive									
Motorized ROS		221	341	406	604	803			
Road Natural ROS		368	568	677	1007	1339			
Rural ROS		39	57	68	101	134			
Dispersed Recreation Use (Wild.)	MRVD	8	12	14	20	27			
Primitive ROS		8	12	14	20	27			
Semi-Primitive									
Non-Motor ROS									
Wilderness									
Wilderness Management	MACRES	83	83	83	83	83			
Wildlife									
Structural Habitat Improvement- (Terrestrial)	STRUCTS	2	2	2	2	2			
Structural Habitat Improvement- Aquatic	STRUCTS	5	5	5	5	5			
Nonstructural Habitat Improvement-Terrestrial	ACRES	50	50	50	50	50			
Nonstructural Habitat Improvement-Aquatic	ACRES	0	0	0	0	0			
Wildlife and Fish Use	MWFUD	139	153	146	145	145			
Range									
Grazing Use (Livestock)	MAUM	110	107	105	103	100			
Wild Horses & Burros	MAUM	0.3	0.3	0.3	0.3	0.3			
Timber									
Allowable Sale Quantity	MMCF	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Allowable Sale Quantity	MMBF	22.4	23.5	24.4	24.5	22.8	19.1	23.5	
Sawtimber (Softwood)	MMBF	14.1	15.3	19.0	21.2	16.1	14.9	22.1	
Sawtimber (Hardwood)	MMBF	7.9	7.8	5.0	2.9	6.2	3.8	1.0	
Roundwood Products	MMBF	0.4	0.4	0.4	0.4	0.5	0.4	0.4	
Fuelwood	MMBF	7.6	5.5	5.2	5.8	6.6	4.5	5.5	
Reforestation	ACRES	315	675	378	1092	1869	1891	2099	
TSI	ACRES	447	957	4103	1609	593	0	0	
Water									
Meeting Water Quality Goals	%	98	98	98	98	98			
Increased Yield Over Natural-Forest-Wide	M AC.FT.	4.6	6.0	5.2	5.2	6.4			
Increased Yield Over Natural-Colorado River	M AC.FT.	1.2	1.6	1.3	1.6	2.2			
Protection									
Fuelbreaks and Fuel Treatment	ACRES	6525	5558	5077	4713	3787			

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Minerals								
Mineral Leases and Permits	CASES	595	660	600	575	565		
HC&D								
Human Resource Programs	EN. YEARS	2	2	2	2	2		
Lands								
Land Pur., Acq., & Exchange	CASES	1	1	1	1	1		
Soils								
Soil & Water Resource Imp.	ACRES	33	33	33	33	33		
Facilities								
Arterial and Collector Roads Construction/Reconstruction	MILES	1	0	0	0	0		
Local Roads								
Construction	MILES	15	18	17	17	10		
Reconstruction	MILES	33	23	15	13	16		
Trail Construction/Reconstruction	MILES	0	0	0	0	0		
BENEFITS M\$								
Recreation								
Developed		1113	1147	1274	1498	1722		
Dispersed		6880	8250	8500	11620	13040		
Wilderness		83	128	151	223	297		
Total		8076	9525	9925	13341	15059		
Range		887	862	847	830	806		
Timber		1151	976	950	753	248		
Wildlife		5631	5289	4993	4949	4976		
Water Yield		268	350	304	304	374		
Minerals		2665	2765	2726	2698	2700		
Other		21	21	21	21	21		
Total		18699	19788	19766	22896	24184		
RECEIPTS M\$								
Recreation - Developed		110	113	124	143	163		
Range		111	108	106	104	101		
Timber		1138	963	937	740	235		
Minerals		11	12	11	10	10		
Other		21	21	21	21	21		
Total		1391	1217	1199	1018	530		
COSTS M\$								
Timber		1227	1332	1331	1332	1331		
Roads (Appropriated)		48	24	24	24	24		
Recreation		477	483	531	536	540		
Wildlife		52	53	56	59	60		
Range		240	234	229	224	228		
Protection		357	342	346	346	346		
Other		1737	1758	1735	1713	1701		
Total Forest Budget		4138	4226	4252	4234	4230		
O&M		2984	2950	2919	2898	2863		
Investment		1154	1276	1333	1336	1367		
Non-Forest Service Costs (Purchaser Const. Roads)		143	147	123	115	76		
Returns to Treasury		1391	1217	1199	1018	530		

TABLE II-11a
 AVERAGE ANNUAL CASH FLOWS AND NON-CASH BENEFITS *
 (Thousands of 1978 Dollars Inflated to 1/1/82)

ALTERNATIVE C - CONSTRAINED BUDGET	DECADE				
	1	2	3	4	5
Timber					
Costs	1370	1479	1454	1447	1407
Benefits	1151	976	950	753	248
Net Benefits	-219	-503	-504	-694	-1159
Receipts	1138	963	937	740	235
Net Receipts	-232	-516	-517	-707	-1172
Non-Cash Benefits	13	13	13	13	13
Recreation					
Costs	477	483	531	536	540
Benefits	8076	9525	9925	13341	15059
Net Benefits	7599	9042	9394	12805	14519
Receipts	110	113	124	143	163
Net Receipts	-367	-370	-407	-393	-377
Non-Cash Benefits	7966	9412	9801	13198	14896
Wildlife					
Costs	52	53	56	59	60
Benefits	5631	5289	4993	4949	4976
Net Benefits	5579	5236	4937	4890	4916
Receipts	0	0	0	0	0
Net Receipts	-52	-53	-56	-59	-60
Non-Cash Benefits	5631	5289	4993	4949	4976
Range					
Costs	240	234	229	224	228
Benefits	887	862	847	830	806
Net Benefits	647	628	618	606	578
Receipts	111	108	106	104	101
Net Receipts	-129	-126	-123	-120	-127
Non-Cash Benefits	776	754	741	726	705
Other					
Costs	2142	2124	2105	2083	2171
Benefits	2954	3136	3051	3023	3095
Net Benefits	812	1012	946	940	1024
Receipts	32	33	32	31	31
Net Receipts	-2110	-2091	-2073	-2052	-2040
Non-Cash Benefits	2922	3103	3019	2992	3064
Total					
Costs	4281	4373	4375	4349	4306
Benefits	18699	19788	19766	22896	24184
Net Benefits	14418	15415	15391	18547	19878
Receipts	1391	1217	1199	1018	530
Net Receipts	-2890	-3156	-3176	-3331	-3776
Non-Cash Benefits	17308	18571	18567	21878	23654

Includes Non-Forest Service Costs (Purchaser Constructed Roads)

time. An increasing number of roadways (prescriptive) and access points to public lands will be blocked by private landowners. Some resource projects would have to be deferred or alternate projects selected due to the inability of the program to respond. Under this alternative the Forest would lose the option of solving management problems involving rights-of-way through this program.

i. Protection

The fire protection target organization will be driven by Level II fire analysis, and aimed at the organization that demonstrates the lowest average annual cost and net value change for fire suppression.

4. Alternative D - Current Budget

This alternative describes the activities and outputs of goods and services that could be provided with a constant budget similar to the Forest's 1982 budget. The emphasis would be to maintain the same combination of resource activities as the Current Program Alternative, but reduced because the Forest could not meet increased demands, nor continuation of some existing facilities and improvements.

The goals for this alternative are:

- Maintain the existing developed recreation site capacity with reduced services and facilities. Adhere to standards to prevent site deterioration.
- Accommodate an anticipated increase in dispersed recreation visits with the existing services and facilities.
- Protect the wilderness values of the Pine Valley Mountain, Ashdown Gorge, and Box-Death Hollow areas, maintain to less than standard level.
- Increase the number of research natural areas.
- Manage wildlife habitat to support minimum viable populations of all native and desired non-native vertebrate species and maintain existing habitat improvements.
- Reduce the numbers of livestock commensurate with the loss of capacity due to unmaintained crested wheat reseeds.
- Maintain investment in structural and non-structural range improvements on a priority basis of cost efficiency.
- Complete the current timber harvest program for mountain pine beetle affected timber then reduce timber sale offerings described in the current timber, management plan to avoid sale offerings with high preparation, and road development costs.
- Improve acres of declining watershed condition by treating most of the backlog of soil and water restoration needs and improving one-half of poor condition rangeland.
- Maintain restrictions for mineral leasing activities. Provide prompt responses to mining industry requests.
- Provide cost efficient fire suppression.

The objectives that will be needed to meet the above listed goals and expected future conditions of the Forest are described below by major resource areas:

a. Recreation

Manage all existing sites at reduced service levels. Rehabilitation of existing sites would stress replacement of facilities with high maintenance cost by facilities with low maintenance costs and would stress "hardening" (artificial surfacing) of sites to reduce maintenance costs. About 30 site units would be rehabilitated per decade. Although the demand on some of the more "popular" developed recreation sites presently exceeds their capacity, the demand rate would increase more slowly than alternatives that protect or add new facilities, because of the lower quality facilities available. Thus, the capacity Forest-wide would not be exceeded until about the year 2010. After this period, the continual increasing demand would create a situation that has people camping off-Forest or camping on-Forest in undeveloped areas. Ten percent of the developed site capacity would need to be closed each decade due to the loss of facilities and to protect soil, water, and vegetative resources. Sixty to seventy percent of maintenance will be accomplished by Human Resource Programs. If these programs are not available, more of the facilities will be lost and use in developed sites will drop more drastically.

Trail and road maintenance for recreation purposes would continue on only the more heavily used trails and roads and those with national significance.

The capacity of the Forest for dispersed recreation use would not be exceeded Forest-wide during the planning period; however, localized "Popular" sites would be progressively overused to the point that a "quality" experience may not be available by the end of the planning period. Acreage, by ROS class, would shift less than five percent from the non-motorized to the motorized classes.

Research natural areas would be established at the Timbered Cinder Cone (640 acres), Table Cliff (1,235 acres), and Red Canyon (460 acres) in order to protect their unique characteristics and scientific values.

Scenic values along major roads and recreation areas would be protected.

Most culture resource survey efforts would be conducted in the proposed mountain pine beetle timber sale areas until at least 1990 although some work would be required in designated aspen cutting areas for wildlife habitat improvement. After 1990, survey work would continue at near the present level in mixed conifer and spruce sales. Occasional range projects (structural & non-Structural) can also be expected. Dispersed recreation, which is emphasized under this alternative, will result in increased impacts to the cultural resource base.

b. Wilderness

Management of the Box-Death Hollow and Ashdown Gorge wildernesses would emphasize semi-primitive Wilderness settings. Management of the Pine Valley Mountain wilderness would also stress semi-primitive setting, however, the heavily used areas will require more intensive management. One trailhead will be constructed at each of the wilderness areas; however, only one percent of the trails will be maintained and resource damage will likely occur. Volunteers and Human Resource Programs will be relied on to provide 70 to 80 percent of patrolling and cleanup.

c. Fish and Wildlife

Habitat management would stress mitigation of land use activities to maintain viable populations. Approximately 725 acres and 28 structures of habitat improvement projects would be initiated annually. Prescribed burning for vegetative manipulation and aspen cutting would remain at low levels. Protection of big game winter range from livestock use would not receive heavy emphasis.

Habitat capability would remain static for many species because of the general lack of improvement in range condition. Deer numbers would probably decline somewhat on some herd units because of off-Forest development on critical range. Elk would continue to expand their range and population. Snag dependent wildlife species would steadily decline on some areas (primarily the Cedar City R.D.) because of increased access and unauthorized snag cutting. Habitat diversity would improve somewhat as emphasis in timber harvest is shifted to spruce-fir and mixed conifer and some habitat improvement is directed at the browse and aspen types. Fish habitat capability would remain unchanged in streams and lakes, however, because of the gradual eutrophication of Panguitch Lake, due mostly to causes beyond Forest Service control, overall capability would decline until the problems are solved.

The necessary coordination would be provided to improve the habitat to assist in the removal of the Utah Prairie dog from threatened and endangered status. This includes providing the Forest's share of transplant sites (11) and cooperating in meeting the objectives of the Utah Prairie Dog Recovery Plan.

d. Range

This alternative would continue grazing practices that would maintain suitable native range in good condition and allow about half of the 110,000 acres of poor condition native range to improve to at least fair condition by the fifth decade. However, the budget level is insufficient to provide essential maintenance of range improvement, particularly the extensive crested wheat reseedings.

e. Timber

This alternative would complete timber sales made to minimize impacts of mountain pine beetle by 1990, then continue offering about 28 MMBF per year with a high percentage of that volume coming from the mixed conifer type and spruce types until about 1995 or 2000. Thereafter, conifer harvest volumes would decrease slightly during the second decade to reflect sanitation and partial harvesting of leave strips adjacent to old clearcuts and small

scattered stands. Conifer harvest levels would continue at near current levels for the rest of the planning period. The harvest of aspen trees would increase over current levels if a market demand materializes. A balance of timber age classes would not be achieved until about 2235. Many areas would remain susceptible to insect and disease infestations.

f. Soil and Water

Watershed restoration would be completed on 725 acres of the backlog of large projects. Only 935 of 1515 acres of smaller watershed restoration projects would be completed by the end of the planning period.

Watershed conditions will improve. Approximately one-half of the acres of declining watershed condition would be improved by the end of the planning period. Use on riparian areas will remain moderate. Existing management-related water quality problems will be mitigated before the end of the planning period. No significant deterioration of water quality will occur. No significant change in water yield will occur.

g. Minerals

The production of oil and gas from Forest lands is expected to remain about constant through the planning period. Coal production would begin on a modest scale about the second decade and gradually increase until the end of the planning period. Request for leasing, permits, etc., would receive prompt responses.

h. Lands

The land adjustment activities (exchange and purchase) following the Land Adjustment Program would face some delay in acting on proposals and would involve one to two cases per year. Cases would generally be generated by out-of-service requests. After the first decade, there would be an increasing backlog of cases generated by potential proponents with fewer cases completed. The program would increasingly take on the characteristics of a deferred action program responsive only to unavoidable targets and the most sensitive cases. Land adjustment activities assisting the increasing need for dispersed recreation would receive priority. The overall result of this alternative to the Forest would be one of lost opportunities in terms of carrying out land management objectives through this program. Under this alternative, with 1982 funding, the accomplishments must decrease.

The rights-of-way activities following the Rights-of-Way Program would face some delay in response to need, and need would result from current resource projects. Level of activity during first decade would be perhaps 2 to 3 cases per year with an increasing backlog and reduced accomplishment over time. An increasing number of roadways (prescriptive) and access points to public lands would be blocked by private landowners. Some resource projects would have to be deferred or alternate projects selected due to the inability of the program to respond. The 1982 funding would not maintain a viable program by which the Forest can solve its road and trail problems.

TABLE II-12
RESOURCE OUTPUTS, ACTIVITIES, COSTS
AND BENEFITS FOR ALTERNATIVE D CURRENT BUDGET

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Recreation								
Developed Recreation Use	MRVD	466	468	507	525	543		
Rural ROS		256	258	279	289	299		
Road Natural ROS		210	211	228	236	244		
Dispersed Recreation Use	MRVD	806	1070	1708	2656	3604		
Primitive ROS								
Semi-Primitive								
Non-Motor ROS		114	151	242	376	510		
Semi-Primitive								
Motorized ROS		244	324	518	805	1092		
Road Natural ROS		366	486	776	1207	1638		
Rural ROS		81	109	173	269	364		
Dispersed Recreation Use (Wild.)	MRVD	8	11	17	27	36		
Primitive ROS								
Semi-Primitive								
Non-Motor ROS								
Wilderness								
Wilderness Management	MACRES	83	83	83	83	83		
Wildlife								
Structural Habitat Improvement- (Terrestrial)	STRUCTS	10	10	8	6	5		
Structural Habitat Improvement- Aquatic	STRUCTS	20	20	20	20	20		
Nonstructural Habitat Improvement-Terrestrial	ACRES	640	620	600	560	480		
Nonstructural Habitat Improvement-Aquatic	ACRES	160	155	150	140	120		
Wildlife and Fish Use	MWFUD	175	172	168	166	164		
Range								
Grazing Use (Livestock)	MAUM	115	115	115	115	115		
Wild Horses & Burros	MAUM	0.3	0.3	0.3	0.3	0.3		
Timber								
Allowable Sale Quantity	MMCF	5.6	5.6	5.6	5.6	5.6	5.6	5.6
Allowable Sale Quantity	MMBF	27.0	28.4	29.2	28.9	28.2	23.0	27.4
Sawtimber (Softwood)	MMBF	19.7	17.4	23.8	20.9	23.2	18.0	20.3
Sawtimber (Hardwood)	MMBF	6.5	10.6	4.6	7.2	4.2	4.2	6.1
Roundwood Products	MMBF	0.8	0.4	0.8	0.8	0.8	0.8	1.0
Fuelwood	MMBF	10.1	7.2	6.8	7.7	8.7	7.5	8.5
Reforestation	ACRES	830	476	720	2641	2400	2529	1206
TSI	ACRES	980	1556	3801	1251	264	550	0
Water								
Meeting Water Quality Goals	%	98	98	98	100	100		
Increased Yield Over Natural-Forest-Wide	M AC.FT.	4.8	7.6	6.9	7.0	7.0		
Increased Yield Over Natural-Colorado River	M AC.FT.	1.1	2.0	2.0	2.2	2.5		
Protection								
Fuelbreaks and Fuel Treatment	ACRES	7957	7717	6954	4471	5342		

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Minerals								
Mineral Leases and Permits	CASES	691	750	690	665	655		
HC&D								
Human Resource Programs	EN. YEARS	20	20	20	20	20		
Lands								
Land Pur., Acq., & Exchange	CASES	2	1	2	1	1		
Soils								
Soil & Water Resource Imp.	ACRES	43	46	68	68	47		
Facilities								
Arterial and Collector Roads Construction/Reconstruction	MILES	2	1	1	1	1		
Local Roads								
Construction	MILES	15	28	20	12	6		
Reconstruction	MILES	38	26	17	20	25		
Trail Construction/Reconstruction	MILES	0	0	0	0	0		
BENEFITS M\$								
Recreation								
Developed		1930	1938	2097	2173	2247		
Dispersed		7067	8261	10724	14625	18593		
Wilderness		90	119	190	297	402		
Total		9087	10318	13011	17095	21242		
Range		927	927	927	927	927		
Timber		1495	1056	528	862	895		
Wildlife		5637	5936	5509	5481	5493		
Water Yield		280	444	403	409	409		
Minerals		2903	3082	3001	2916	2825		
Total		21	21	21	21	21		
Total		20350	21784	23400	27711	31812		
RECEIPTS M\$								
Recreation - Developed		181	181	196	202	208		
Range		116	116	116	116	116		
Timber		1482	1043	515	849	882		
Minerals		13	14	12	12	12		
Other		21	21	21	21	21		
Total		1813	1375	860	1200	1239		
COSTS M\$								
Timber		1824	1716	1736	1810	1799		
Roads (Appropriated)		183	23	24	24	24		
Recreation		717	847	667	681	704		
Wildlife		126	120	117	113	110		
Range		310	309	300	267	271		
Protection		230	345	335	345	345		
Other		2083	2103	2070	2067	2079		
Total Forest Budget		5473	5463	5249	5307	5332		
O&M		3561	3833	3536	3441	3495		
Investment		1912	1630	1713	1866	1837		
Non-Forest Service Costs (Purchaser Const. Roads)		159	227	146	99	68		
Returns to Treasury		1813	1375	860	1200	1239		

TABLE II-12a
 AVERAGE ANNUAL CASH FLOWS AND NON-CASH BENEFITS •
 (Thousands of 1978 Dollars Inflated to 1/1/82)

ALTERNATIVE D - CURRENT BUDGET	DECADE				
	1	2	3	4	5
Timber					
Costs	1983	1943	1882	1909	1867
Benefits	1495	1056	528	862	895
Net Benefits	-488	-887	-1354	-1047	-972
Receipts	1482	1043	515	849	882
Net Receipts	-501	-900	-1367	-1060	-985
Non-Cash Benefits	13	13	13	13	13
Recreation					
Costs	717	847	667	681	704
Benefits	9087	10318	13011	17095	21242
Net Benefits	8370	9471	12334	16414	20538
Receipts	181	181	196	202	208
Net Receipts	-536	-666	-471	-479	-496
Non-Cash Benefits	8906	10137	12815	16893	21034
Wildlife					
Costs	126	120	117	113	110
Benefits	5637	5936	5509	5481	5493
Net Benefits	5511	5816	5392	5368	5383
Receipts	0	0	0	0	0
Net Receipts	-126	-120	-117	-113	-110
Non-Cash Benefits	5637	5936	5509	5481	5493
Range					
Costs	310	309	300	267	271
Benefits	927	927	927	927	927
Net Benefits	617	618	627	660	656
Receipts	116	116	116	116	116
Net Receipts	-194	-193	-184	-151	-155
Non-Cash Benefits	811	811	811	811	811
Other					
Costs	2496	2471	2429	2436	2448
Benefits	3204	3547	3425	3346	3255
Net Benefits	708	1076	996	910	807
Receipts	34	35	33	33	33
Net Receipts	-2462	-2436	-2396	-2403	-2415
Non-Cash Benefits	3174	3516	3394	3317	3226
Total					
Costs	5632	5690	5395	5406	5400
Benefits	20350	21784	23400	27711	31812
Net Benefits	14718	16094	18005	22305	26412
Receipts	1813	1375	860	1200	1239
Net Receipts	-3819	-4315	-4535	-4206	-4161
Non-Cash Benefits	18541	20413	22542	26515	30577

i. Protection

The fire protection target organization will be driven by Level II fire analysis, and aimed at the organization that demonstrates the lowest average annual cost and net value change for fire suppression. Because of reduced budgets there will be larger fires, more resource damage and more FFF money spent.

5. Alternative E - Non-Market Emphasis

This alternative describes the activities and outputs of goods and services that could be provided if emphasis was provided to the amenity values. Outputs for water, wildlife, and dispersed recreation would increase and quality would be enhanced. Conversely, timber, range, and developed recreation would be managed at a lower level or in such a manner that would enhance amenity and dispersed recreation values. The budget is constrained in the first decade only.

The goals of this alternative are:

- Expand the developed recreation site capacity in areas where expansion will enhance dispersed recreation and continue adherence to standards to prevent site deterioration. Provide emphasis in expansion of site capacity to enhance quality and opportunities to emphasize dispersed recreation.
- Accommodate and enhance the quality experience for the anticipated increase in dispersed recreation visits.
- Protect the wilderness values of the Pine Valley Mountains, Ashdown Gorge, and Box-Death Hollow areas, maintain to a standard level.
- Increase the number of Research Natural Areas.
- Manage wildlife habitat to support optimum population of native and desired non-native wildlife species.
- Reduce the current levels of permitted livestock grazing to enhance wildlife, scenic, and recreation values.
- Maintain investments in structural and non-structural range improvements.
- Modify timber harvest and cultural activities to enhance wildlife, scenic, and recreation values.
- Improve acres of declining watershed condition by treating the backlog of soil and water restoration needs and improving poor condition rangeland.
- Increase the current restrictions for mineral leasing activities to protect environmental values. Provide prompt responses to mineral requests.
- Rehabilitate soil and water values damaged by future mining activities.
- Provide cost efficient fire suppression.

The objectives that will be needed to meet the above listed goals and the expected future conditions of the Forest are described below by major resource areas.

d. Recreation

Dispersed recreation areas would be enhanced by "hardening" (artificial surfacing) and operating at full service 80% of those existing campgrounds that serve as a major base for dispersed recreation activities. The remaining 20 percent of the campground units would be operated at a reduced service level. Fifty to sixty percent of the maintenance at developed sites would be done by Human Resource Program. Expand existing developed sites and/or construct new

sites at Deer Lakes, Cowpuncher, Barker Lake and Pine Valley, where the existence of developed sites will enhance opportunities for dispersed recreation.

Frequent maintenance would be provided on all 641 miles of trails, on the Forest to provide safety and convenience for trail users. Parking and facilities for horses at 10 trailhead locations would be developed during the planning period. All 641 miles of trails on the Forest would be reworked every 20 years to relocate steep and wet areas and prevent resource damage. Five parking facilities for snowmobiling and an equal number for cross country skiing would be developed and maintained during the planning period. Twenty one hundred miles of Forest roads would be kept safe for travel by passenger vehicles during the planning period. An agreement would be entered into with Utah Department of Transportation and Department of Parks and Recreation to maintain winter parking areas and trails.

Developed recreation site capacity Forest-wide would not exceed demand until approximately the year 2015. However, the capacity of the more popular sites would be exceeded earlier. Existing sites would be hardened (artificial surfacing) and upgraded. The overflow from developed sites would move to dispersed areas off the Forest. The capacity for dispersed recreation would not be exceeded Forest-wide. Localized popular sites would be progressively overused to the point that a quality experience is diminished. The facilities planned for construction would provide a much higher quality of experience and reduce conflicts between users more than any of the other alternatives. Acreage by ROS class would shift less than five percent from the non-motorized to the motorized classes.

Research National Areas would be established at the Timbered Cinder Cone (640 acres), table cliff (1235 acres), and Red Canyon (460 acres) in order to protect their unique characteristics and scientific values.

Scenic values along major roads and recreation areas would be protected as well as a general emphasis on all project activities to provide for scenic quality.

This alternative, which calls for reductions in the harvest levels of timber and curtails grazing, would impact the cultural resources program by reducing support money. As presently constructed (shared services), the program would survive and projects would be surveyed as they were proposed. Survey work, in conjunction with an emphasis on dispersed recreation, would be conducted in areas of proposed facility development (trailheads, trails, parking areas, horse and snowmobile facilities). Land exchange activity, designed to acquire tracts for recreational facility development, would increase. Increased wildlife habitat improvement (burns and aspen cuttings) would require more survey for this element than previously required in the past. Survey would also be required for range improvements designed to protect riparian and big game winter range areas.

b. Wilderness

Management of Ashdown Gorge and Box-Death Hollow wilderness would emphasize primitive wilderness settings. The management of the Pine Valley Mountains Wilderness would also be semi-primitive, however, the heavily used areas would require more intensive management. New trailheads would be constructed to

provide parking and access points. All of the system trails in the wilderness areas would be maintained yearly. Patrolling and policing of the areas would be done by Forest Service employees.

c. Fish and Wildlife

Habitat management would stress mitigation of land use activities to maintain viable populations and increased habitat improvements to increase numbers above viable levels. An average of 2,020 acres and 50 structures of habitat improvement projects would be initiated annually during the planning period. Prescribed burning for vegetative manipulation and aspen cutting would be at moderate to high levels. Protection of big game winter range and riparian areas from livestock use would receive heavy emphasis.

Habitat capability would improve for many species because of the general improvement in habitat conditions. Deer numbers would not increase dramatically on some herd units because of off-Forest development on critical range. Elk would continue to expand their range and population. Snag dependent wildlife species would remain only static on some areas (primarily the Cedar City R.D.) because of unauthorized snag cutting. Habitat diversity would improve as emphasis in timber harvest is shifted to spruce-fir and mixed conifer and habitat improvement is directed at the browse and aspen types. Fish habitat capability on many streams and small lakes would increase, but overall there would be a decline as the result of eutrophication of Panguitch Lake, due mostly to causes beyond Forest Service control, however, it is anticipated that eutrophication problems would be solved by the fifth decade and overall capability will increase.

To assist in removal of the Utah prairie dog from threatened and endangered status. This includes providing the Forest's share of transplant sites (11) and cooperating in meeting the objectives of the Utah Prairie Dog Recovery Plan. The necessary coordination would be provided to improve the habitat.

d. Range

Grazing levels would decline somewhat because of efforts to reduce use on riparian areas, big game winter range, and areas of heavy dispersed recreation use.

This alternative would continue grazing practices that would maintain the suitable range in good range condition and allow 110,000 acres of poor condition range to improve to at least fair condition by the end of the fifth decade. Additional range improvements would be needed to protect riparian and big game winter range areas. Maintenance of existing improvements would intensify to keep capacity levels high on non-wildlife important areas.

e. Timber

All timber harvest and cultural treatments would be to enhance wildlife habitat and dispersed recreation values. Timber harvest volumes would decrease from current and be offered only for tractor logging sales. The emphasis on aspen harvest would be to provide for wildlife habitat for big game. Habitat for other species, especially cavity nesting birds would be protected during these activities.

The low level of timber harvest would delay the achievement of a managed stand condition and balance of age classes until about 2230. Insect and disease losses would continue at a high level. The harvest emphasis would remain about the same as current in spruce-fir stands, decrease in ponderosa pine stands, and increase in aspen stands.

f. Soil and Water

Watershed Restoration Program would be accelerated completing 725 acres of larger scale projects before the year 1995. Emphasis would shift later in the planning period to complete all small scale projects and fencing to protect some key riparian areas by the end of the third decade.

Watershed conditions would improve significantly. Overall use on riparian areas would decline, although recreational use would increase due to significantly improved conditions. Existing management-related water quality problems would be mitigated before the end of the period. Water quality would generally improve across the Forest. No significant changes in water yield will occur.

g. Minerals

The production of oil and gas from Forest lands is expected to remain about constant through the planning period. Coal production would begin on a modest scale about the second decade and gradually increase until the end of the planning period. Request for leasing, permits, etc., would receive prompt responses. Rehabilitation of disturbed mining areas would be emphasized.

h. Lands

The Land Adjustment Activities (exchange and purchase) following the Land Adjustment Program will face some delay in acting on proposals and would involve one to two cases per year. Cases in the first decade would generally be generated by out-of-service requests which would after the first decade, change to a more aggressive position of contacting potential proponents. Increasing attention after the first decade would be directed toward cases that would protect and assist the increasing needs and demands of recreation. Securing parking and trailhead areas as well as rights-of-way for general dispersed activities, wilderness, and winter sports would gain priority. The program would also consider wildlife and scenic needs. In view of the increasing demand for dispersed use, selected lands for exchange would receive priority based on the highest value per acre so that the smallest acreage reduction occurs in relation to acreage gained. Releasing land in the Brian Head area or an area of similar potential would accomplish this objective and provide for private expansion and development of services. Under this alternative the program would gradually gain in its ability to meet the need and demands outlined in the alternative.

Rights-of-way activities following the Rights-of-Way Program would face some delay in response to need, and need would result from current resource projects during first decade. Level of activity during first decade, two to five cases per year. Some roadways (prescriptive) and access to public lands would be blocked by private landowners during the first decade. After the first decade, there would be an increased program with priority directed toward the

TABLE II-13
RESOURCE OUTPUTS, ACTIVITIES, COSTS
AND BENEFITS FOR ALTERNATIVE E NON-MARKET EMPHASIS

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE							
		1	2	3	4	5	10	15	
Recreation									
Developed Recreation Use	MRVD	442	525	740	837	1014			
Rural ROS		243	289	407	407	558			
Road Natural ROS		199	236	333	430	456			
Dispersed Recreation Use	MRVD	798	1256	1700	2728	3755			
Primitive ROS									
Semi-Primitive									
Non-Motor ROS		120	188	255	409	563			
Semi-Primitive									
Motorized ROS		319	502	680	1091	1502			
Road Natural ROS		279	440	595	955	1314			
Rural ROS		80	126	170	273	376			
Dispersed Recreation Use (Wild.)	MRVD	8	13	17	27	38			
Primitive ROS		8	13	17	27	38			
Semi-Primitive									
Non-Motor ROS									
Wilderness									
Wilderness Management	MACRES	83	83	83	83	83			
Wildlife									
Structural Habitat Improvement- (Terrestrial)	STRUCTS	11	16	17	17	18			
Structural Habitat Improvement- Aquatic	STRUCTS	39	44	33	30	30			
Nonstructural Habitat Improvement-Terrestrial	ACRES	1630	1900	1902	1902	1902			
Nonstructural Habitat Improvement-Aquatic	ACRES	230	230	145	135	120			
Wildlife and Fish Use	MWFUD	183	211	204	211	211			
Range									
Grazing Use (Livestock)	MAUM	90	90	90	90	90			
Wild Horses & Burros	MAUM	0.3	0.3	0.3	0.3	0.3			
Timber									
Allowable Sale Quantity	MMCF	4.7	5.2	5.3	5.3	5.3	5.3	5.3	
Allowable Sale Quantity	MMBF	21.5	24.0	24.5	24.9	23.7	21.2	23.6	
Sawtimber (Softwood)	MMBF	15.5	11.4	13.7	14.5	15.5	11.6	11.7	
Sawtimber (Hardwood)	MMBF	3.5	8.7	6.7	6.2	3.9	5.6	7.9	
Roundwood Products	MMBF	2.5	3.9	4.1	4.2	4.3	4.0	4.0	
Fuelwood	MMBF	7.5	8.4	8.4	8.4	8.4	8.4	8.4	
Reforestation	ACRES	586	345	681	1677	2814	689	729	
TST	ACRES	37	645	2171	627	226	1717	0	
Water									
Meeting Water Quality Goals	%	98	98	98	100	100			
Increased Yield Over Natural-Forest-Wide	M AC.FT.	3.9	5.7	5.6	5.7	5.4			
Increased Yield Over Natural-Colorado River	M AC.FT.	0.9	1.4	1.4	1.6	1.9			
Protection									
Fuelbreaks and Fuel Treatment	ACRES	6775	4350	3779	4324	4198			

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE					
		1	2	3	4	5	10
Minerals							
Mineral Leases and Permits	CASES	652	714	654	629	629	
HC&D							
Human Resource Programs	EN. YEARS	20	20	20	20	20	
Lands							
Land Pur., Acq., & Exchange	CASES	2	2	3	2	3	
Soils							
Soil & Water Resource Imp.	ACRES	85	138	35	20	20	
Facilities							
Arterial and Collector Roads Construction/Reconstruction	MILES	2	1	1	1	1	
Local Roads							
Construction	MILES	9	19	11	7	5	
Reconstruction	MILES	31	18	20	23	23	
Trail Construction/Reconstruction	MILES	37	38	38	33	33	
BENEFITS M\$							
Recreation							
Developed		1831	2173	3060	3060	4197	
Dispersed		7174	15589	11333	15509	19802	
Wilderness		91	141	190	304	417	
Total		9096	17903	14583	18873	24416	
Range		725	725	725	725	725	
Timber		1261	930	897	800	990	
Wildlife		5643	6284	6203	6178	6203	
Water Yield		228	333	327	333	315	
Minerals		2898	3078	3034	2913	2822	
Other		21	21	21	21	21	
Total		19872	29274	25790	29843	35492	
RECEIPTS M\$							
Recreation - Developed		172	202	279	314	378	
Range		91	91	91	91	91	
Timber		1248	917	884	787	977	
Minerals		12	13	12	11	11	
Other		21	21	21	21	21	
Total		1544	1244	1287	1224	1478	
COSTS M\$							
Timber		1228	969	1065	1358	1563	
Roads (Appropriated)		24	23	24	24	24	
Recreation		2304	1710	2017	2011	2108	
Wildlife		222	267	274	309	332	
Range		293	265	272	275	280	
Protection		357	345	345	345	345	
Other		2329	2216	2243	2307	2281	
Total Forest Budget		6757	5796	6240	6629	6933	
O&M		5057	4246	4456	4695	4805	
Investment		1700	1550	1784	1934	2128	
Non-Forest Service Costs (Purchaser Const. Roads)		123	124	101	120	49	
Returns to Treasury		1544	1244	1287	1224	1478	

TABLE II-13a
 AVERAGE ANNUAL CASH FLOWS AND NON-CASH BENEFITS •
 (Thousands of 1978 Dollars Inflated to 1/1/82)

ALTERNATIVE B - NON-MARKET	DECADE				
	1	2	3	4	5
Timber					
Costs	1351	1093	1166	1478	1612
Benefits	1261	930	897	800	990
Net Benefits	-90	-163	-269	-678	-622
Receipts	1248	917	884	787	977
Net Receipts	-103	-176	-282	-691	-635
Non-Cash Benefits	13	13	13	13	13
Recreation					
Costs	2304	1710	2017	2011	2108
Benefits	9096	17903	14583	18873	24416
Net Benefits	6792	16193	12566	16862	22308
Receipts	172	202	279	314	378
Net Receipts	-2132	-1508	-1738	-1697	-1730
Non-Cash Benefits	8924	17701	14304	18559	24038
Wildlife					
Costs	222	267	274	309	332
Benefits	5643	6284	6203	6178	6203
Net Benefits	5421	6017	5929	5869	5871
Receipts	0	0	0	0	0
Net Receipts	-222	-267	-274	-309	-332
Non-Cash Benefits	5643	6284	6203	6178	6203
Range					
Costs	293	265	272	275	280
Benefits	725	725	725	725	725
Net Benefits	432	460	453	450	445
Receipts	91	91	91	91	91
Net Receipts	-202	-174	-181	-184	-189
Non-Cash Benefits	634	634	634	634	634
Other					
Costs	2710	2585	2612	2676	2650
Benefits	3147	3432	3382	3267	3158
Net Benefits	437	847	770	591	508
Receipts	33	34	33	32	32
Net Receipts	-2677	-2551	-2579	-2644	-2618
Non-Cash Benefits	3112	3396	3349	3233	3124
Total					
Costs	6880	5920	6341	6749	6982
Benefits	19872	29274	25790	29843	35492
Net Benefits	12992	23354	19449	23094	28510
Receipts	1544	1244	1287	1224	1478
Net Receipts	-5336	-4676	-5054	-5525	-5504
Non-Cash Benefits	18326	28028	24503	28617	34012

recreation demands for easements in response to dispersed use, wilderness, and winter sports. The program would, after first decade, be more responsive to these needs and priority given to the status of system road to provide access to all areas larger than 5,000 acres .

i. Protection

The fire protection target organization will be driven by Level II fire analysis, and aimed at the organization that demonstrates the lowest average annual cost and net value change for fire suppression.

6. Alternative F - Market Emphasis

This Alternative describes the activities and outputs of goods and services that could be provided if the Forest emphasized market outputs--those that produce revenue for the government. High output levels in developed recreation, timber harvesting, and livestock grazing will be stressed. Restrictive stipulations on mineral activities will be relaxed to encourage higher mineral outputs. The timber harvesting levels will be limited to what can be achieved with an even-flow (non-declining) sustained yield of forest products. Less than optimum, but legally sufficient, levels of outputs for water quality, wildlife, and dispersed recreation will be achieved.

The goals of this alternative are:

- Expand the developed recreation site capacity to accommodate all anticipated users. Adhere to standards to prevent site deterioration.
- Accommodate an anticipated increase in dispersed recreation visits.
- Manage the Pine Valley Mountains, Ashdown Gorge, and the Box-Death Hollow areas to maintain wilderness qualities. Provide a standard level of maintenance.
- Increase the number of Research Natural Areas.
- Manage wildlife habitat sufficient only to support minimum viable populations of all native and desired non-native vertebrate species.
- Increase the levels of permitted livestock.
- Increase the numbers of range improvements and maintenance levels.
- Increase timber harvest levels by including steep timbered slopes and timber cultural activities.
- Treat backlog of watershed restoration needs.
- Decrease the current restrictions for mineral leasing activities. Provide prompt responses to mining industry requests.
- Provide cost efficient fire suppression.

The objectives that will be needed to meet the above listed goals and expected future conditions of the Forest are described below by major resource areas:

a. Recreation

All of the developed site capacity would be managed at full service levels.

Existing high-use recreation sites would be identified. New group sites would be constructed to accommodate 1000 PAOT. Three 100-unit sites and nine 50-unit sites would be constructed by end of planning period. This would ensure that

quality developed sites would accommodate the anticipated demand for both group and family use. All of the maintenance work would be done by Forest Service employees.

Trail and road maintenance for recreation purposes would continue on only the more heavily used trails and roads and those with national significance.

The capacity of the Forest for dispersed recreation use would not be exceeded Forest-wide during the planning period. Localized popular sites would be progressively overused to the point that a quality experience is diminished. Quality recreation experience in general would diminish due to high levels of project activity. Acreage by ROS class would shift less than 30 percent from the non-motorized to the motorized classes.

Scenic values would be protected along only the most significant of the road corridors and recreation areas.

Research Natural Areas would be established at the Timbered Cinder Cone (640 acres), Table Cliff (1,235 acres), and Red Canyon (460 acres) in order to protect their unique characteristics and scientific values.

The Cultural Resources Program, as presently constructed (shared services professional, seasonal technician), would require expansion (more seasonals) under this alternative which calls for high resource outputs in developed recreation, timber harvesting and livestock grazing. Survey efforts in all three efforts would increase substantially. A release of National Forest System lands around Brian Head would require survey in tracts of "selected" land prior to the initiation of land exchanges.

b. Wilderness

Management of Ashdown Gorge and Box-Death Hollow wildernesses would emphasize primitive wilderness settings. The management of the Pine Valley Mountains Wilderness would also stress semi-primitive settings, however, the heavily used areas would require more intensive management. The Whipple Trailhead would be the only area maintained for trail access to wilderness. Ten percent of the trails would be maintained and only ten percent of the needed operation and maintenance work would be accomplished.

c. Fish and Wildlife

Habitat management would stress mitigation of land use activities to maintain viable populations. An average of 700 acres and 45 structures of habitat improvement projects would be initiated annually during the planning period. Prescribed burning for vegetative manipulation would remain at low levels. Increased aspen harvest for timber purposes would slightly enhance big game habitat. Protection of big game winter range from livestock use would not receive emphasis.

Habitat capability would not improve for many species because of the general increased resource activities. Deer numbers would probably decline somewhat on some herd units because of off-Forest development on critical range. Elk would continue to expand their range and population. Snag dependent wildlife species would steadily decline on some areas (primarily the Cedar City R.D.) because of increased access and unauthorized snag cutting. Habitat diversity would

improve somewhat as emphasis in timber harvest is shifted to spruce-fir and mixed conifer and some habitat improvement is directed at the browse and aspen types. Fish habitat capability would increase slightly in streams and lakes, however, because of the gradual eutrophication of Panguitch Lake, due to causes beyond Forest Service control, overall capacity would decline until the problems are solved. It is anticipated that eutrophication problems would be solved by the fifth decade.

d. Range

Greater numbers of livestock would be permitted on the Forest. Range improvements, in the form of fences and water developments, would be built in order to increase the grazing intensity on 20,000 acres of suitable range. Grazing use on riparian areas would be moderate. Some fencing would be done to prevent over use.

The livestock ranges on the Forest currently in poor condition would remain in that condition throughout the planning period. Most areas presently in good condition would be maintained in that condition.

e. Timber

Timber harvest levels would increase by increasing the harvest of aspen, timber harvesting on slopes over 40 percent, and by applying more intensive cultural treatments on a greater number of acres. The rapid conversion of mature timber stands would be on a schedule compatible with market demand and sawmill capacity. Aerial and cable logging sales would be offered in addition to tractor logging sales so that more of the Forest's timber lands would be under intensive management.

The major portion of the available, capable and suitable Forest timber land, including steep slopes, would have been cutover by 2030 and a balance of timber age classes would be achieved by 2140. Insect and disease losses will be reduced to endemic levels by 2030. The harvest of aspen would increase if a market demand materializes.

f. Soil and Water

Intensify the coordination and mitigation of land use activities on soil and water would be intensified because of increased management activities. Two thousand two hundred forty acres of watershed restoration would be accomplished activities by 2020.

Watershed conditions will remain static or decline in limited areas. Livestock use on riparian areas will increase, resulting in some deterioration. Very small increases in water yield may occur. Water quality will decline locally, but no significant Forest-wide impairment will occur.

g. Minerals

The production of oil and gas from Forest lands is expected to remain nearly constant through the planning period. Coal production would begin on a modest scale about the second decade and gradually increase

TABLE II-14
 RESOURCE OUTPUTS, ACTIVITIES, COSTS
 AND BENEFITS FOR ALTERNATIVE F MARKET EMPHASIS

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE							
		1	2	3	4	5	10	15	
Recreation									
Developed Recreation Use	MRVD	474	651	1060	1936	2813			
Rural ROS		361	358	583	1065	1547			
Road Natural ROS		213	293	477	871	1266			
Dispersed Recreation Use	MRVD	459	781	1479	2121	2642			
Primitive ROS									
Semi-Primitive									
Non-Motor ROS		66	78	148	212	264			
Semi-Primitive									
Motorized ROS		165	195	370	530	660			
Road Natural ROS		330	391	739	1061	1321			
Rural ROS		99	117	221	318	396			
Dispersed Recreation Use (Wild.)	MRVD	8	10	17	23	28			
Primitive ROS		8	10	17	23	28			
Semi-Primitive									
Non-Motor ROS									
Wilderness									
Wilderness Management	MACRES	83	83	83	83	83			
Wildlife									
Structural Habitat Improvement-(Terrestrial)	STRUCTS	10	10	10	10	10			
Structural Habitat Improvement-Aquatic	STRUCTS	35	35	35	35	35			
Nonstructural Habitat Improvement-Terrestrial	ACRES	665	600	560	520	480			
Nonstructural Habitat Improvement-Aquatic	ACRES	165	150	140	130	120			
Wildlife and Fish Use	MWFUD	155	186	184	183	182			
Range									
Grazing Use (Livestock)	MAUM	117	117	117	117	117			
Wild Horses & Burros	MAUM	0.3	0.3	0.3	0.3	0.3			
Timber									
Allowable Sale Quantity	MMCF	5.9	5.9	6.0	6.0	6.0	6.0	6.0	
Allowable Sale Quantity	MMBF	28.7	30.7	31.6	30.8	30.1	24.4	27.8	
Sawtimber (Softwood)	MMBF	18.8	19.8	24.5	25.5	23.4	20.2	25.0	
Sawtimber (Hardwood)	MMBF	9.1	9.9	6.0	4.1	5.4	3.2	1.6	
Roundwood Products	MMBF	0.8	1.0	1.1	1.2	1.3	1.0	1.2	
Fuelwood	MMBF	9.9	7.1	8.2	7.9	9.6	6.5	7.0	
Reforestation	ACRES	1169	413	681	5051	1837	2556	566	
TSI	ACRES	365	1801	3621	1092	300	1388	0	
Water									
Meeting Water Quality Goals	%	98	98	98	100	100			
Increased Yield Over Natural-Forest-Wide	M AC.FT.	5.5	7.7	7.3	7.3	8.0			
Increased Yield Over Natural-Colorado River	M AC.FT.	1.4	2.0	2.1	2.4	2.9			
Protection									
Fuelbreaks and Fuel Treatment	ACRES	8052	8167	7435	6259	5947			

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE					10	15
		1	2	3	4	5		
Minerals								
Mineral Leases and Permits	CASES	786	839	779	774	744		
H&D								
Human Resource Programs	EN. YEARS	20	20	20	20	20		
Lands								
Land Pur., Acq., & Exchange	CASES	2	2	3	2	3		
Soils								
Soil & Water Resource Imp.	ACRES	63	75	92	75	50		
Facilities								
Arterial and Collector Roads								
Construction/Reconstruction	MILES	2	1	1	1	1		
Local Roads								
Construction	MILES	17	27	24	9	5		
Reconstruction	MILES	40	27	16	26	28		
Trail Construction/Reconstruction	MILES	7	7	7	7	7		
BENEFITS M\$								
Recreation								
Developed		1962	2694	4386	8014	11642		
Dispersed		7176	7741	11184	13171	15348		
Wilderness		91	105	182	253	310		
Total		9229	10540	15752	21438	27300		
Range		943	943	943	943	943		
Timber		1465	1153	373	908	741		
Wildlife		5631	5711	5623	5588	5604		
Water Yield		321	449	426	426	467		
Minerals		2914	3069	3026	2904	2813		
Other		21	21	21	21	21		
Total		20524	21886	26164	32228	37889		
RECEIPTS M\$								
Recreation - Developed								
Range		184	247	395	710	1026		
Timber		118	118	118	118	118		
Minerals		1452	1140	360	895	728		
Other		14	15	14	14	13		
Total		21	21	21	21	21		
Total		1789	1541	908	1758	1906		
COSTS M\$								
Timber								
Roads (Appropriated)		1707	1684	1751	2787	1484		
Recreation		48	24	24	24	24		
Wildlife		882	963	981	2529	3529		
Range		144	147	144	148	147		
Protection		530	557	570	578	594		
Other		774	765	764	765	763		
Total Forest Budget		2391	2557	2634	3002	3052		
Q&M		6476	6697	6868	9833	9593		
Investment		4667	4940	5005	5616	5899		
Non-Forest Service Costs (Purchaser Const. Roads)		1809	1757	1863	4217	3694		
Returns to Treasury		176	224	173	90	65		
Total		1789	1541	908	1758	1906		

TABLE II-14a
 AVERAGE ANNUAL CASH FLOWS AND NON-CASH BENEFITS •
 (Thousands of 1978 Dollars Inflated to 1/1/82)

ALTERNATIVE F - MARKET EMPHASIS	DECADE				
	1	2	3	4	5
Timber					
Costs	1883	1908	1924	2877	1549
Benefits	1465	1153	373	908	741
Net Benefits	-418	-755	-1551	-1969	-808
Receipts	1452	1140	360	895	728
Net Receipts	-431	-768	-1564	-1982	-821
Non-Cash Benefits	13	13	13	13	13
Recreation					
Costs	882	963	981	2529	3529
Benefits	9229	10540	15752	21438	27300
Net Benefits	8347	9577	14771	18909	23771
Receipts	184	247	395	710	1026
Net Receipts	-698	-716	-586	1819	-2503
Non-Cash Benefits	9045	10293	15357	20728	26274
Wildlife					
Costs	144	147	144	148	147
Benefits	5631	5711	5623	5588	5604
Net Benefits	5487	5564	5479	5440	5457
Receipts	0	0	0	0	0
Net Receipts	-144	-147	-144	-148	-147
Non-Cash Benefits	5631	5711	5623	5588	5604
Range					
Costs	530	557	570	578	594
Benefits	943	943	943	943	943
Net Benefits	413	386	373	365	349
Receipts	118	118	118	118	118
Net Receipts	-412	-439	-452	-460	-476
Non-Cash Benefits	825	825	825	825	825
Other					
Costs	3213	3346	3422	3791	3839
Benefits	3256	3539	3473	3351	3301
Net Benefits	43	193	51	-440	-538
Receipts	35	36	35	35	34
Net Receipts	-3178	-3310	-3387	-3756	-3805
Non-Cash Benefits	3221	3503	3438	3316	3267
Total					
Costs	6652	6921	7041	9923	9658
Benefits	20524	21886	26164	32228	37889
Net Benefits	13872	14945	19123	22305	28231
Receipts	1789	1541	908	1758	1906
Net Receipts	-4863	-5380	-6133	-8165	-7752
Non-Cash Benefits	18735	20345	25256	30470	35983

until the end of the planning period. Request for leasing, permits, etc., would receive prompt responses.

h. Lands

The Land Adjustment Activities (exchange and purchase) following the Land Adjustment Program would face some delay in acting on proposals and would involve one to two cases per year. Cases in the first decade would generally be generated by out-of-service requests which will, after the first decade, change to a more aggressive position of contacting potential proponents. Increasing attention after the first decade would be directed toward cases that would protect and assist the increasing needs and demands for developed recreation. Project support for developed or potential development areas suitable for recreation, camping, and winter sports would gain priority. Releasing land in the Brian Head area or areas of similar potential for private expansion and development of services would provide high valued lands so that the exchange program could assist the purchase program in meeting the projected demands.

Rights-of-way activities following the Rights-of-Way Program would face some delay in response to need, and need would result from current resource projects during first decade. The level of activity during first decade would be two to five cases per year. Some roadways (prescriptive) and access to public lands would be blocked by private landowners during the first decade. After the first decade, there would be an increasing program with priority directed toward the demands for easements serving those projects that generate income. The program would, after the first decade, be more responsive to needs and status of system roads. Priority would be to provide adequate access to all areas larger than 5,000 acres.

i. Protection

The fire protection target organization will be driven by Level II fire Analysis, and aimed at the organization that demonstrates the lowest average annual cost and net value change for fire suppression.

7. Alternative G - 1980 RPA

This alternative describes the activities and outputs of goods and services that could be provided if the Forest achieved the targets outlined in the Intermountain Regional Guide.

The goal of this alternative is to achieve the levels of activities and outputs described on pages 3-1 to 3-40 and page 3-46 of the Regional Guide for the Intermountain Region.

The objective that would be needed to meet the goals and the expected future condition of the Forest are described below by major resource area.

a. Recreation

The developed sites would be at the full service level. Three hundred forty four units in major developed recreation site would be hardened by the year 2000 to prevent resource damage. These sites would be enlarged to provide 27

additional units by the year 2000. New developed sites would be constructed with a total of 200 units between 2010 and the end of the planning period.

The capacity in existing developed sites would exceed the RPA estimate of use until the year 2005, however, there would be some overuse in the more popular sites prior to that time. The existing sites would be hardened (artificial surfacing) to prevent site deterioration. New sites would be constructed in the more heavily used areas. Funding would not be available to maintain all of the facilities. About 50 to 60 percent of the maintenance would be done by Human Resource Programs. Site deterioration would occur in the popular sites.

The assigned targets for dispersed recreation would fall well below the anticipated use. The assigned targets would be substantially exceeded during the planning period.

The capacity for dispersed use would not be exceeded Forest-wide. However, some localized sites would be overused. ROS class sizes would shift from non-motorized to motorized as with Alternative A. The anticipated budget would be adequate to provide facilities to reduce conflicts between user groups.

Trail and road maintenance for recreation purposes on all portions of the Forest would be emphasized. About one-tenth of the trail mileage would be maintained each year.

Scenic values along major roads and recreation areas would be protected.

Research natural areas would be established at the Timbered Cinder Cone (640 acres), Table Cliff (1,235 acres), and Red Canyon (460 acres) in order to protect their unique characteristics and scientific values.

Under this alternative, regarding cultural resources, survey work will be required in the 227 new recreation units to be constructed between the year 2000 and the end of the planning period. Timber harvest levels, bolstered by aspen cuttings for wildlife habitat improvements, would require survey work to clear about 20 MMBF annually after 1990 when the accelerated Mountain Pine Beetle timber sales have been sold. Range projects (structural and non-structural), to increase grazing on 40,000 acres, will require intensive survey efforts. A release of National Forest System lands around Brian Head would require survey efforts in tracts of "selected" land prior to the initiation of land exchanges. The Cultural Resources Program, as presently constructed (shared services), would require the hiring of additional seasonals to meet the projected increase of the workload.

b. Wilderness

The Pine Valley Mountains, Ashdown Gorge, and the Box-Death Hollow areas would be managed as wilderness.

Management of the Box-Death Hollow and Ashdown Gorge area would emphasize semi-primitive wilderness settings. The management of the Pine Valley Mountains wilderness would also stress a semi-primitive setting; however, the heavily used areas would require more intensive management. Construct a trailhead at each of the areas and maintain 10 percent of existing trails.

Forest Service personnel will do eight percent of the maintenance through agency funding. The remainder will be through Human Resource Programs and Volunteers or else it will not be done.

c. Fish and Wildlife

Habitat management would stress mitigation of land use activities to maintain viable populations and increased habitat improvements to increase numbers above viable levels. an average of 1,020 acres and 60 structures of habitat improvement projects would be initiated annually during planning period. Prescribed burning for vegetative manipulation and aspen cutting for wildlife purposes would be at moderate to high levels. Protection of big game winter range and riparian areas from livestock use would not receive heavy emphasis because use on those areas will be needed to meet grazing targets.

Habitat capability would gradually improve (about ten percent) for many species because of the general improvement in habitat conditions. Deer numbers would probably decline on some herd units because of off-Forest development on critical range. Elk will continue to expand their range and population. Snag dependent wildlife species would steadily decline on some areas because of increased access and unauthorized snag cutting in spite of increased law enforcement effort. Habitat diversity would improve somewhat as emphasis in timber harvest is shifted to spruce-fir and mixed conifer and some habitat improvement is directed at the browse and aspen type. Fish Habitat capability on many streams and small lakes would increase, but overall there would be a decline as the result of eutrophication of Panguitch Lake, due to causes mostly beyond Forest Service control. It is anticipated that the eutrophication problems would be solved by the fifth decade.

The necessary coordination would be provided to improve the habitat to assist in the removal of the Utah Prairie Dog from threatened and endangered status. This includes providing the Forest's share of transplant sites (11) and cooperating in meeting the objectives of the Utah Prairie Dog Recovery Plan.

Wildlife habitat would be improved as the result of a high level of coordination with timber and other resources as well as direct habitat improvement projects. Horizontal and vertical diversity would be improved because of a higher level of timber harvest, range improvements and direct habitat improvements.

d. Range

Appropriate range improvements would be provided to increase grazing capacity on 40,000 acres of suitable range and 5000 acres of transitory range.

Additional range improvements such as fences and water developments and some small revegetation projects would be undertaken to intensify grazing use on suitable and transitory range. Grazing use on riparian areas would be moderate, but would be controlled by administration and partial fencing.

e. Timber

This alternative would complete accelerated timber sales made to minimize impacts of mountain pine beetle by 1990, then continue offering a conifer saw

timber sale program of about 18 to 26 MMBF with a high percentage of that volume coming from the mixed conifer and spruce types until about 1995 or 2000. Second decade harvest volumes would decrease slightly to reflect sanitation and partial cutting of leave strips adjacent to old cuts and small, scattered stands. The harvest of aspen would increase over current levels if a market demand materializes. The RPA target of harvest volumes would not be met in the first decade.

f. Soil and Water

Aggressive action will take place to treat the soil and water restoration backlog. Treatment would be completed on both the large and small scale projects by 2005. Due primarily to the increase in grazing, poor condition range would not be improved. There would be a significant acreage in declining watershed condition at the end of the planning period. Existing management related water quality problems would have been mitigated. Before the end of the planning period. No significant change in water yield would occur.

g. Minerals

The production of oil and gas from Forest lands is expected to remain about constant through the planning period. Coal production would begin on a modest scale about the second decade and gradually increase until the end of the planning period. Request for leasing, permits, etc., would receive prompt responses.

h. Lands

The land adjustment activities (exchange and purchase) following the Land Adjustment Program would face some delay in acting on proposals and would involve one to two cases per year. Cases in the first decade would generally be generated by out-of-service requests which would, after the first decade, change to a more aggressive position of contacting potential proponents. Increasing attention after the first decade would be directed toward cases that be would protect and assist the increasing needs and demands for both developed

and dispersed recreation. Securing parking and trailhead areas as well as rights-of-way for general dispersed activities, wilderness, and winter sports would gain priority. In view of the increasing dispersed use, selected lands for exchange would receive priority based on the highest value per acre so that the smallest acreage reduction occurs in relation to acreage gained. Releasing land in the Brian Head area or an area of similar potential for private expansion and development of services would provide high valued lands so that the exchange program could assist the purchase program in meeting the projected demands.

Rights-of-way activities following the Rights-of-Way Program would face some delay in response to need and need would result from current resource projects during first decade. Level of activity during first decade would be two to five cases per year. Some roadways (prescriptive) and access to public lands would be blocked by private landowners during the first decade. After the first decade, there would be an increasing program with priority directed toward the recreation demands for easements in response to dispersed use, wilderness, and winter sports. The program should be in a position to respond

TABLE II-15
 RESOURCE OUTPUTS, ACTIVITIES, COSTS
 AND BENEFITS FOR ALTERNATIVE G 1980 RPA

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Recreation								
Developed Recreation Use	MRVD	425	455	771	615	1351		
Rural ROS		234	250	424	338	743		
Road Natural ROS		191	205	347	277	608		
Dispersed Recreation Use	MRVD	611	511	624	971	1317		
Primitive ROS								
Semi-Primitive								
Non-Motor ROS		87	95	88	137	186		
Semi-Primitive								
Motorized ROS		187	204	189	294	399		
Road Natural ROS		275	306	284	441	598		
Rural ROS		63	68	63	98	133		
Dispersed Recreation Use (Wild.)	MRVD	6	7	9	10	13		
Primitive ROS		6	7	9	10	13		
Semi-Primitive								
Non-Motor ROS								
Wilderness								
Wilderness Management	MACRES	83	83	83	83	83		
Wildlife								
Structural Habitat Improvement- (Terrestrial)	STRUCTS	12	13	16	16	16		
Structural Habitat Improvement- Aquatic	STRUCTS	39	51	41	51	56		
Nonstructural Habitat Improvement-Terrestrial	ACRES	680	805	803	805	806		
Nonstructural Habitat Improvement-Aquatic	ACRES	210	251	251	251	252		
Wildlife and Fish Use	MMFUD	183	204	198	204	204		
Range								
Grazing Use (Livestock)	MAUM	119	120	121	122	123		
Wild Horses & Burros	MAUM	0.3	0.3	0.3	0.3	0.3		
Timber								
Allowable Sale Quantity	MMCF	6.6	6.9	6.2	5.7	5.4	5.3	5.3
Allowable Sale Quantity	MMBF	32.8	34.8	32.1	29.1	27.2	22.1	25.6
Sawtimber (Softwood)	MMBF	25.3	18.5	24.2	25.9	23.5	17.3	24.6
Sawtimber (Hardwood)	MMBF	6.7	15.5	6.8	2.1	2.5	3.8	0
Roundwood Products	MMBF	0.8	0.8	1.1	1.1	1.2	1.0	1.0
Fuelwood	MMBF	11.0	9.1	9.0	8.8	8.5	7.5	8.0
Reforestation	ACRES	1368	344	589	5855	2210	3017	605
TSI	ACRES	3585	4034	3290	1138	900	1105	165
Water								
Meeting Water Quality Goals	%	98	98	98	100	100		
Increased Yield Over Natural-Forest-Wide	M AC.FT.	5.1	9.7	8.0	6.3	7.5		
Increased Yield Over Natural-Colorado River	M AC.FT.	1.3	3.3	2.7	1.9	2.6		
Protection								
Fuelbreaks and Fuel Treatment	ACRES	11418	7405	7426	6862	5866		

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Minerals								
Mineral Leases and Permits	CASES	730	786	726	701	691		
HC&D								
Human Resource Programs	EN. YEARS	20	20	20	20	20		
Lands								
Land Pur., Acq., & Exchange	CASES	2	2	2	2	2		
Soils								
Soil & Water Resource Imp.	ACRES	101	162	39	19	19		
Facilities								
Arterial and Collector Roads								
Construction/Reconstruction	MILES	2	1	1	1	1		
Local Roads								
Construction	MILES	24	28	15	9	5		
Reconstruction	MILES	46	25	27	30	28		
Trail Construction/Reconstruction	MILES	0	0	0	0	0		
BENEFITS M\$								
Recreation								
Developed		1507	1615	2734	2180	4791		
Dispersed		4174	5857	5655	6830	8104		
Wilderness		60	66	803	95	128		
Total		5741	7538	8469	9105	13023		
Range		959	967	975	983	991		
Timber		1790	598	851	746	398		
Wildlife		5632	5969	5930	5841	5921		
Water Yield		298	566	467	368	438		
Minerals		2536	2641	2605	2487	2422		
Other		21	21	21	21	21		
Total		16977	18300	19318	19551	23214		
RECEIPTS M\$								
Recreation - Developed		166	177	291	234	499		
Range		120	121	122	123	124		
Timber		1777	585	838	733	385		
Minerals		13	14	13	13	13		
Other		21	21	21	21	21		
Total		2097	918	1285	1124	1042		
COSTS M\$								
Timber		2453	1813	1564	2933	1603		
Roads (Appropriated)		24	24	24	24	24		
Recreation		991	673	2352	1601	1161		
Wildlife		168	135	174	179	182		
Range		455	521	543	548	557		
Protection		692	713	683	683	683		
Other		2569	2565	2853	2829	3631		
Total Forest Budget		7352	6444	8193	8797	7841		
O&M		4620	4592	4942	5222	6093		
Investment		2732	1852	3251	3575	1748		
On-Forest Service Costs (Purchaser Const., Roads)		245	225	133	95	67		
Returns to Treasury		2097	918	1285	1124	1042		

TABLE II-15a
 AVERAGE ANNUAL CASH FLOWS AND NON-CASH BENEFITS •
 (Thousands of 1978 Dollars Inflated to 1/1/82)

ALTERNATIVE G - 1980 RPA	DECADE				
	1	2	3	4	5
Timber					
Costs	2698	2038	1697	3028	1670
Benefits	1790	598	851	746	398
Net Benefits	-908	-1440	-846	-2282	-1272
Receipts	1777	585	838	733	385
Net Receipts	-921	-1453	-859	-2295	-1285
Non-Cash Benefits	13	13	13	13	13
Recreation					
Costs	991	673	2353	1601	1161
Benefits	5741	7538	8469	9105	13023
Net Benefits	4750	6865	6117	7504	11862
Receipts	166	177	291	234	499
Net Receipts	-825	-496	-2061	-1367	-662
Non-Cash Benefits	5575	7361	8178	8871	12524
Wildlife					
Costs	168	135	174	179	182
Benefits	5632	5969	5930	5841	5921
Net Benefits	5464	5834	5756	5662	5739
Receipts	0	0	0	0	0
Net Receipts	-168	-135	-174	-179	-182
Non-Cash Benefits	5632	5969	5930	5841	5921
Range					
Costs	455	521	543	548	557
Benefits	959	967	975	983	991
Net Benefits	504	446	432	435	434
Receipts	120	121	122	123	124
Net Receipts	-335	-400	-421	-425	-433
Non-Cash Benefits	839	846	853	860	867
Other					
Costs	3285	3302	3560	3536	4338
Benefits	2855	3228	3093	2876	2881
Net Benefits	-430	-74	-467	-660	-1457
Receipts	34	35	34	34	34
Net Receipts	-3251	-3267	-3526	-3502	-4304
Non-Cash Benefits	2821	3193	3059	2842	2847
Total					
Costs	7597	6669	8326	8892	7908
Benefits	16977	18300	19318	19551	23214
Net Benefits	9380	11631	10992	10659	15306
Receipts	2097	918	1285	1124	1042
Net Receipts	-5500	-5751	-7041	-7768	-6866
Non-Cash Benefits	14880	17382	18033	18427	22172

to any resource need resulting from new markets or demands. The program would after, the first decade, be more responsive to needs and status of system roads. The priority would be to provide adequate access to all areas larger than 5,000 acres.

i. Protection

The fire protection target organization will be driven by Level II Fire Analysis, and aimed at the organization that demonstrates the lowest average annual cost and net value change for fire suppression.

8. Alternative H - High Productivity

This alternative describes the activities and outputs of goods and services that could be provided if the Forest emphasized the outputs of timber and range. The outputs of other goods and services would be on a cost efficient level after meeting high timber and range targets.

The goals of this alternative are:

- Maintain the existing developed recreation site capacity with reduced services and facilities. Adhere to standards to prevent site deterioration.
- Accommodate an anticipated increase in dispersed recreation visits with the existing services and facilities.
- Manage the Pine Valley Mountains, Ashdown Gorge, and the Box-Death Hollow as wilderness areas and to a less than standard level.
- Increase the number of Research Natural Areas.
- Manage wildlife habitat to support minimum viable populations of all native and desired non-native vertebrate species and maintain existing habitat improvements.
- Increase the numbers of permitted livestock by observing only the minimum legal protection of soil and water values, wildlife values and other legal requirements i.e., Cultural Resources T&E species.
- Increase the amount of and quality of structural and nonstructural range improvement.
- Increase the timber harvest levels by adoption of the following policies:

All tentatively suitable lands may be used for timber production purposes. The exclusions are lands already withdrawn from timber production by legislation or formal withdrawal by the Secretary or Chief. The exclusions include such areas as designated Wilderness, and Research Natural Areas.

Utilization of timber products to include trees five inch dbh and larger.

The state of vegetation in harvested areas, necessary before harvest of adjacent stands, is the existence of established seedlings in appropriate numbers.

Openings created by application of even-aged management will not generally exceed 100 acres and will average about 40 acres.

Existing and new logging technology will be applied throughout the Forest beginning in the second decade.

Aspen will be harvested in ever increasing amounts beginning in the second decade until accessible merchantable volumes are harvested.

The average rotation age for timber will be reduced to 109 years.

Sales schedules will not be constrained by nondeclining yield, and substantial reductions in sale offerings can be expected in years beyond 2030 resulting from high volume harvests in the early decades.

There may be an increase in the genetic tree improvement program, but the benefits may be delayed until improved stock reaches merchantable size.

Unit costs for many activities will be lower than for other alternatives because of:

Economics of scale.

Improved utilization and increased harvest from riparian areas.

Increased even aged management unit size.

Greater proportions of drainages can be logged using new technologies.

Greater utilization of transportation system will reduce the cost of construction and maintenance per unit of timber sold. Road maintenance costs will increase.

- Treat backlog of watershed restoration needs.
- Maintain restrictions for mineral leasing activities.
Provide prompt responses to mining industry requests.
- Provide cost efficient fire suppression.

The objectives that will be needed to meet the above listed goals and expected future conditions of the Forest are described below by major resource areas:

9. Recreation

All existing sites would be managed at reduced service levels. Rehabilitation of existing sites would stress replacement of facilities with high maintenance cost by facilities with low maintenance costs and would stress "hardening" (artificial surfacing) of sites to reduce maintenance costs. About 30 site units would be rehabilitated per decade.

Although the demand on some of the more popular developed recreation sites presently exceeds the demand, use would increase more slowly than projected rates because of the high levels of disrupting project activities. Thus, the capacity Forest-wide would not be exceeded until about the year 2012. After this period, a continual increasing demand would cause people to camp off-Forest or on-Forest in undeveloped areas.

Trail and road maintenance for recreation purposes would continue on only the more heavily used trails and roads and those with National significance.

The capacity of the Forest for dispersed recreation use would not be exceeded Forest-wide during the planning period, however, localized popular sites will be progressively overused to the point that the quality experience is diminished. Acreage by ROS class would shift significantly from the non-motorized to the motorized classes. Conflicts between recreation users and increased grazing and timber harvesting activities would reduce the quality of the recreation experience and number of recreation users.

Research Natural Areas would be established at the Timbered Cinder Cone (640 acres), Table Cliff (1,235 acres), and Red Canyon (460 acres) in order to protect their unique characteristics and scientific values.

Scenic values along major roads and recreation areas would not be protected.

The increased levels of timber and range activities would require additional archeological surveys to be made.

b. Wilderness

The three wilderness areas would be managed for semi-primitive recreation opportunities.

c. Wildlife and Fish

Habitat management would stress mitigation of land use activities to maintain only minimum viable populations. An average of 700 acres and 70 structures of habitat improvement projects will be initiated annually during the planning period. Prescribed burning for vegetative manipulations and aspen cutting for wildlife purposes would remain at low levels. Protection of big game winter range from livestock use would not receive emphasis.

Habitat capability would remain static or decline for many species because of the general high levels of disturbance, road construction, lack of cover and high range utilization. Deer numbers would also probably decline somewhat on some herd units because of off-Forest development on critical range. Elk would not expand their range and population. Snag dependent wildlife species would steadily decline on most areas because of increased access and unauthorized snag cutting. Habitat diversity would improve somewhat as emphasis in timber harvest is shifted to spruce-fir mixed conifer and aspen types. Fish habitat capability would decrease slightly in streams and lakes and because of the gradual eutrophication of Panguitch Lake, due mostly to causes beyond Forest Service control. Overall capability would decline significantly until the lakes's problems are solved.

The necessary coordination would be provided to improve the habitat to assist in removal of the Utah prairie dog from threatened and endangered status. This includes providing the Forest's share of transplant sites (11) and cooperating in meeting the objectives of the Utah Prairie Dog Recovery Plan.

d. Range

Greater numbers of livestock would be permitted on the Forest. Additional range improvements, both structural and nonstructural, would be built in order to increase the grazing intensity on 40,000 acres of suitable range.

Transitory range in timber harvest areas would not be utilized in order to protect the timber value. Grazing use on riparian areas would be heavy.

The livestock ranges on the Forest currently in poor condition will remain in poor condition. All areas presently in good condition will not deteriorate below fair.

e. Timber

The timber harvest level would be increased by implementing the 12 policies listed under the goal statements. Implementing this alternative would allow the conversion of mature timber to young growth stands on all available, and tentatively suitable timber stands before the fifth decade. Aerial and cable logging sales would be offered in addition to tractor logging sales so that more of the Forest's timber lands would be under intensive management.

The harvest of aspen would increase over current levels in the first two decades if the market demand materializes.

f. Soil and Water

The coordination and mitigation of land use activities on soil and water values would continue due to increased management activities. Two thousand two hundred forty acres of watershed restoration activities would be completed by 2021.

Watershed conditions will remain static or decline in most areas. Use on riparian areas would increase, resulting in some deterioration. Very small increases in water yield may occur. Water quality would decline locally, but no significant Forest-wide impairment would occur.

g. Minerals

The production of oil and gas from Forest lands is expected to remain nearly constant through the planning period. Coal production

would begin on a modest scale about the second decade and gradually increase until the end of the planning period. Request for leasing, permits, etc., would receive prompt responses.

h. Lands

The land adjustment activities (exchange and purchase) following the Land Adjustment Program would face some delay in acting on proposals and would involve one to two cases per year. Cases in the first decade would generally be generated by out-of-service decisions/requests which would after the first decade, change to a more aggressive position of contacting potential proponents. Priority under this alternative would be oriented toward support of the timber and range programs. Increasing attention after meeting the first priority needs would be directed toward cases that would protect and assist the increasing needs and demands for dispersed recreation. Securing parking and trailhead areas for dispersed activities, wilderness, and winter sports would gain priority. In view of the increasing dispersed use, selected lands for exchange would receive priority based on the highest value per acre so that the

TABLE II-16
 RESOURCE OUTPUTS, ACTIVITIES, COSTS
 AND BENEFITS FOR ALTERNATIVE H HIGH PRODUCTIVITY

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE							
		1	2	3	4	5	10	15	
Recreation									
Developed Recreation Use	MRVD	466	644	539	1275	2012			
Rural ROS		256	354	297	446	704			
Road Natural ROS		210	290	243	829	1308			
Dispersed Recreation Use	MRVD	761	1057	1694	2646	3846			
Primitive ROS									
Semi-Primitive									
Non-Motor ROS		111	149	240	374	508			
Semi-Primitive									
Motorized ROS		238	320	513	802	1088			
Road Natural ROS		357	480	770	1202	1633			
Rural ROS		55	107	171	267	617			
Dispersed Recreation Use (Wild.)	MRVD	5	6	5	13	20			
Primitive ROS		5	6	5	13	20			
Semi-Primitive									
Non-Motor ROS									
Wilderness									
Wilderness Management	MACRES	83	83	83	83	83			
Wildlife									
Structural Habitat Improvement-(Terrestrial)	STRUCTS	17	17	19	21	21			
Structural Habitat Improvement-Aquatic	STRUCTS	52	52	52	52	52			
Nonstructural Habitat Improvement-Terrestrial	ACRES	647	585	546	507	468			
Nonstructural Habitat Improvement-Aquatic	ACRES	183	165	154	143	132			
Wildlife and Fish Use	MMFUD	150	174	171	168	159			
Range									
Grazing Use (Livestock)	MAUM	119	124	130	136	139			
Wild Horses & Burros	MAUM	0.3	0.3	0.3	0.3	0.3			
Timber									
Allowable Sale Quantity	MMCF	6.4	4.8	4.8	6.0	7.5	1.9	5.7	
Allowable Sale Quantity	MMBF	33.7	25.4	26.8	32.1	39.4	9.3	17.5	
Sawtimber (Softwood)	MMBF	31.3	11.1	20.9	28.4	34.2	6.9	16.4	
Sawtimber (Hardwood)	MMBF	1.7	13.2	4.8	2.6	4.0	2.2	0.1	
Roundwood Products	MMBF	0.7	1.1	1.1	1.1	1.2	0.2	1.0	
Fuelwood	MMBF	6.0	4.2	6.1	3.4	7.3	1.0	2.5	
Reforestation	ACRES	1060	259	663	6209	3010	405	1423	
TSI	ACRES	2635	3970	4147	0	0	0	0	
Water									
Meeting Water Quality Goals	%	98	98	98	100	100			
Increased Yield Over Natural-Forest-Wide	M AC.FT.	4.4	9.0	7.3	6.0	7.4			
Increased Yield Over Natural-Colorado River	M AC.FT.	1.1	2.7	2.1	1.8	2.7			
Protection									
Fuelbreaks and Fuel Treatment	ACRES	5912	4401	6387	7460	8327			

OUTPUT/ACTIVITY	UNIT OF MEASURE	DECADE						
		1	2	3	4	5	10	15
Minerals								
Mineral Leases and Permits	CASES	730	786	726	701	691		
HC&D								
Human Resource Programs	EN. YEARS	20	20	20	20	20		
Lands								
Land Pur., Acq., & Exchange	CASES	2	2	2	2	2		
Soils								
Soil & Water Resource Imp.	ACRES	63	85	101	90	70		
Facilities								
Arterial and Collector Roads Construction/Reconstruction	MILES	2	1	1	1	1		
Local Roads								
Construction	MILES	31	28	13	5	5		
Reconstruction	MILES	55	25	22	26	27		
Trail Construction/Reconstruction	MILES	2	2	2	2	2		
BENEFITS M\$								
Recreation								
Developed		1654	2285	1912	4522	7133		
Dispersed		5975	7087	9191	11956	15608		
Wilderness		77	103	163	254	345		
Total		7706	9475	11266	16732	23086		
Range		983	1048	1072	1096	1120		
Timber		1753	532	696	924	468		
Wildlife		5632	5713	5483	5144	4937		
Water Yield		257	525	426	350	432		
Minerals		2463	2644	2605	2486	2422		
Other		21	21	21	21	21		
Total		18815	19958	21569	26753	32486		
RECEIPTS M\$								
Recreation - Developed		181	245	207	472	747		
Range		123	131	134	137	140		
Timber		1740	519	683	911	455		
Minerals		13	14	13	13	13		
Other		21	21	21	21	21		
Total		2078	930	1058	1554	1376		
COSTS M\$								
Timber		1865	1018	1202	2463	1697		
Roads (Appropriated)		48	24	24	24	24		
Recreation		479	483	618	675	531		
Wildlife		176	177	132	247	191		
Range		694	756	774	573	597		
Protection		686	349	349	349	349		
Other		2539	3094	3099	3365	3706		
Total Forest Budget		6487	5901	6198	7696	7095		
O&M		4510	4564	4611	4879	5102		
Investment		1977	1337	1587	2817	1993		
Non-Forest Service Costs (Purchaser Const. Roads)		276	135	127	103	90		
Returns to Treasury		2078	930	1058	1554	1376		

TABLE II-16a
 AVERAGE ANNUAL CASH FLOWS AND NON-CASH BENEFITS •
 (Thousands of 1978 Dollars Inflated to 1/1/82)

ALTERNATIVE H - HIGH PRODUCTIVITY	DECADE				
	1	2	3	4	5
Timber					
Costs	2141	1153	1329	2566	1787
Benefits	1753	532	696	924	468
Net Benefits	-388	-621	-633	-1642	-1319
Receipts	1740	519	683	911	455
Net Receipts	-401	-634	-646	-1655	-1332
Non-Cash Benefits	13	13	13	13	13
Recreation					
Costs	479	483	618	675	531
Benefits	7706	9475	11266	16732	23086
Net Benefits	7227	8992	10648	16057	22555
Receipts	181	245	207	472	747
Net Receipts	-298	-238	-411	-203	216
Non-Cash Benefits	7525	9230	11059	16260	22339
Wildlife					
Costs	176	177	132	247	191
Benefits	5632	5713	5483	5144	4937
Net Benefits	5456	5536	5351	4897	4746
Receipts	0	0	0	0	0
Net Receipts	-176	-177	-132	-247	-191
Non-Cash Benefits	5632	5713	5483	5144	4937
Range					
Costs	694	756	774	573	597
Benefits	983	1048	1027	1096	1120
Net Benefits	289	292	298	523	523
Receipts	123	131	134	137	140
Net Receipts	-571	-625	-640	-436	-457
Non-Cash Benefits	860	917	938	959	980
Other					
Costs	3273	3467	3472	3738	4079
Benefits	2741	3190	3052	2857	2875
Net Benefits	-532	-277	-420	-881	-1204
Receipts	34	35	34	34	34
Net Receipts	-3239	-3432	-3438	-3704	-4045
Non-Cash Benefits	2707	3155	3018	2823	2841
Total					
Costs	6763	6036	6325	7799	7185
Benefits	18815	19958	21569	26753	32486
Net Benefits	12052	13922	15244	18954	25301
Receipts	2078	930	1058	1554	1376
Net Receipts	-4685	-5106	-5267	-6245	-5809
Non-Cash Benefits	16737	19028	20511	25199	31110

smallest acreage reduction occurs in relation to acreage gained. Releasing land in the Brian Head, area or an area of similar potential, would accomplish this objective and provide for private expansion and development of services.

Rights-of-way activities following the Rights-of-Way Program would face some delay in response to need, and need would result from current resource projects during first decade. As the priority programs of range and timber supported by this alternative progress, there would be a more planned program developed. Level of activity during first decade, two to five cases per year. After the first decade, there would be an increasing program. A secondary priority would be directed toward the recreation demands for easements in response to dispersed use. Some roadways (prescriptive) and access to public lands would be blocked by private landowners during the first decade and perhaps into the second while support is given to priority programs. The program would, after first decade, be more responsive to needs and status of system roads with a priority to provide adequate access to all areas over 5,000 acres.

i. Protection

The fire protection target organization will be driven by Level II Fire Analysis, and aimed at the organization that demonstrates the lowest average annual cost and net value change for fire suppression.

F. COMPARISON OF ALTERNATIVES

This section compares seven of the alternatives with the Current Program ("No Action") Alternative. The numbers used for comparison as shown in Table II-19, represent the difference in outputs, activities, benefits and costs from the Current Program Alternative. Table II-18 displays acres assigned to each prescription by alternative. Appendix B further explains the prescriptions and acreage assignments.

The purpose of Forest planning is to identify and select for implementation the alternative that most nearly maximizes net public benefits. Net public benefits are defined as the "overall long term value to the Nation of all outputs and positive effects (benefits less all associated inputs and negative effects (costs) whether they can be quantitatively valued or not, consistent with the principles of multiple use and sustained yield".

There is no mathematical formula available to define the desired alternative. Indeed, there are differences of opinion about whether the particular effects of alternatives are positive or negative. Therefore, it is necessary to separately define all the major effects of each alternative as the basis for review, judgment, and eventual selection.

The following pages summarize in tables and narrative the effects that differ significantly among alternatives. Tabular displays include:

Chapter IV, Environmental Consequences, describes in greater detail the expected effects of implementing each alternative.

1. Recreation

The capacity and service level provided at campgrounds and picnic areas would decrease, causing increasing site damage under the Current Program, Current Budget, and Constrained Budget Alternatives. Under the RPA 1980, Market, and Non-Market Alternatives, the number of facilities would increase and quality would improve.

The Constrained Budget Alternative would not provide for reconstruction of sites resulting in more site deterioration. The Current Program and Current Budget Alternatives would provide for some site reconstruction; however, it is not sufficient to keep up with projected deterioration.

The RPA 1980, Market, High Productivity and Non-Market Alternatives would provide for reconstruction of deteriorating facilities and construction of new facilities.

The composite alternative provides for sufficient construction to accommodate 50 percent of the anticipated use. The new construction would cause some temporary damage to the environment but the overall effect would be to preserve many popular dispersed areas.

The levels of cultural resource management would differ considerably between the eight alternatives. The variability of the intensity of management is attributable to the amount of support dollars provided the archeology program by the comparative levels of other management activity. For example, those alternatives that emphasize the cutting of high volumes of timber will provide more support dollars to cultural resource management than alternatives which restrict timber volumes. "Simply stated, an increased amount of support dollars means more acres surveyed and more archeological sites recorded. Recreation dollars will continue to fund minimum NFMA requirements which include the composition of a overview, the survey of lands independent of project activities, the nomination of sites to the National Register, and the protection, maintenance and interpretation of unevaluated and significant sites".

In synopsis, the market, high productivity, RPA 1980 and the composite Alternatives will provide the most intense levels of cultural resource management due to increased volumes of harvestable timber and correspondingly, more support dollars for the mitigation of direct project impacts. The Non-Market Alternative, which emphasizes dispersed recreation, will increase mainly the degree of indirect impacts to the cultural resource base. Unlike the direct impacts of the market, High Productivity, RPA 1980 and the Composite Alternatives, the indirect impacts of dispersed recreation are virtually impossible to mitigate

2. Developed Recreation-Private

Use of recreational residence, lodges, resorts, supermarkets, marinas, organizational sites and ski areas operated by private sector would be expected to increase under all alternatives. The Current Program, Constrained Budget, Current Budget, and High Productivity Alternatives, which would not provide the needed facilities in the public sector, but would increase the demand on the

private sector. The Composite alternative encourages expansion in the private sector. The Forest would entertain proposals from the private sector for development and would consider each proposal on its merits at the time. Brian Head and Crystal Mountain would be allowed to develop according to approved master plans.

3. Wilderness

Composite Alternative proposes to construct or reconstruct 11 trailheads, maintain 90 percent of the trails and provide 45 man days annually to administer use, pick up trash, and maintain signing. The Non Market Alternative proposes 11 trailheads, maintaining 100 percent of the trails, and 68 man days for administration. The Current Program Alternative proposes four trailheads (two at Pine Valley and one each for Ashdown and Box-Death Hollow), maintaining 10 percent of the trails and 7 man days for administration. The Current Budget Alternative proposes to construct a trailhead at each area, maintain 3 percent of the trail system in Pine Valley Mountains; and provide for four man days of maintenance.

RPA 80 Alternative proposes to construct three trailheads, maintain ten percent of the trails and provide six man days for administration and maintenance. The Market Alternative proposes to reconstruct one trailhead at Pine Valley, maintain ten percent of the trail systems and provide seven man days for administration and maintenance. The Constrained Budget and the High Productivity Alternatives will not construct any new trailhead facilities. The High Productivity Alternative will maintain ten percent of existing trails and provide three man days of administration. The constrained Budget will not provide adequate administration.

In the Composite Alternative 50 to 60 percent of the developed site capacity will be managed at the full service level. To accomplish this 50 percent of the maintenance will need to be done with Human Resource Programs. If these programs are not available then the cost to the Government will need to be increased. New Developed site constructed at Deer Lake Trailhead, Pine Valley, Blue Springs Point, and Fish Creek Lake Trail Head will emphasize dispersed recreation adjacent to these areas. The Forest will maintain one-half of the existing trails. Some of these will be relocated to take advantage of topography and scenic attractions. Twelve trailheads will be constructed for summer use. Seventy-five percent of these will accommodate the use in Wilderness Areas. An agreement will be worked out with the State Department of Parks and Recreation for the development and maintenance of winter (cross country skiing and snowmobile) trails on the Forest. An agreement will also be worked out with the Department of Transportation to maintain parking areas at Midway, Navajo Lake, Strawberry- Uinta Flat, Pine Valley, Tom Best Spring, U12, and East Fork for winter snow play areas.

4. Wildlife

Under all alternatives, the habitat of threatened or endangered species would be managed so that present population levels are maintained or increased. The RPA 1980, Non-Market, and Composite Alternatives would provide for the greatest increases in big game populations and fish production. This is directly related to an increased level of habitat improvement. The greatest decrease in big game numbers would occur in the High Productivity and Market Emphasis

Alternatives because they provide only modest habitat improvement and create considerable habitat disturbance. Fish production under the High Productivity and Market Emphasis Alternatives would be expected to decrease because of high impacts to riparian areas. Similar decreases are seen in the Constrained Budget Alternative due to the lack of habitat improvement work.

Winter and summer range conditions would not be maintained at present levels under Current Budget, Market Emphasis, and Constrained Budget Alternatives. The Current Program Alternative would improve winter ranges to accommodate current population levels. RPA 1980, Composite, and Non-Market Alternatives would maximize the direct improvement of the wildlife range.

5. Range

Under the Current Budget and Constrained Budget Alternatives the animal unit months (AUM) would decrease gradually because of lack of maintenance to revegetated areas. Under the Non-Market Alternative, AUM's decrease due to emphasis on riparian area management and watershed protection. Under the Current Program and Composite Alternatives, AUM's remain constant. AUM's would increase under the RPA 1980, Market Emphasis, and High Productivity Alternatives.

Range conditions would improve more rapidly in the Non-Market Emphasis, Current Program, and Composite Alternatives. Under the Constrained Budget, Market and RPA 1980 Alternatives, range conditions do not improve nor do they decline.

The wild horse habitat conditions and populations are expected to remain the same under all alternatives because no management activities would be allowed to degrade either the herd or its habitat.

6. Timber

The Market Emphasis Alternative provides for harvesting 27.9, 29.7, 30.6, 29.6 and 28.7 million board feet of live sawtimber on an average annual basis for each of the respective decades in the 50-year planning period. This is the third largest harvest volume of any alternative. Timber is available for harvest on all available and tentatively suitable lands. Timber management intensity will be high, but minimum legal and management requirements for compatibility with other resources will be met. The regeneration of mature timber stands will be aggressive toward attempting to reach the objective of a balanced distribution of age classes. The aspen was included to show what could be produced under this alternative.

The Current Program and Composite Alternatives provide identical timber volumes of 25.7, 25.1, 25.2, 25.1 and 25.1 million board feet of live sawtimber on an average annual basis for each of the respective decades in the planning period. Management intensity would be slightly lower and the number of tentatively suitable acres would be slightly less than in the Market Emphasis Alternative because of additional constraints on timber harvest to meet objectives for other resource management. Aspen sawtimber harvest ranges between 2.8 and 10.3 MMBF per year.

The Constrained Budget Alternative would provide for harvesting 22.0, 23.1, 24.0, 24.1 and 22.3 million board feet of live sawtimber for each of the planning period decades. Aspen sawtimber harvest ranges between 2.9 and 7.9 MMBF per year. The budget in this alternative is 25 percent lower than in the Forest's 1982 budget. Timber products would be produced at levels lower than in all other alternatives except Non Market.

Harvest levels chosen by the FORPLAN model for the Composite and Current Program Alternatives versus the Current Budget Alternative (given required budgets to meet the harvest levels) may appear inconsistent, although a rational explanation exists. Model results showed a lower sawtimber output level for the Composite and Current Program Alternatives in the first decade even though required budgets were higher than the Current Budget Alternative which produced more sawtimber. Output levels and required budgets for decades beyond decade 1 are lower for the Composite and Current Program Alternatives than for the Current Budget Alternative. This appears consistent.

To explain the apparent inconsistency in the first decade, the assumptions of each alternative must be examined. A harvest floor based on a ten year timber program along with a nondeclining yield constraint were used in the Composite and Current Program FORPLAN runs. An objective function of maximizing Present Net Value was used (with non-declining yield) causing the model to choose the same sawtimber output as the harvest floor throughout the planning horizon. Because the Dixie FORPLAN model chooses to cut little timber when the objective function specified is to maximize present net value and no harvest floor was provided for the Current Budget Alternative FORPLAN run, an objective to maximize timber in the first decade was used. Also used were a nondeclining yield constraint and budget constraint to see how much sawtimber could be produced with the Forest's current timber budget. The model chose to harvest more aspen under the current budget than the other two alternatives to maximize sawtimber outputs in the first decade. Because unit costs are lower for aspen harvest than those for softwood sawtimber (primarily because of negligible reforestation costs and a clearcutting harvest method) the model could provide more sawtimber for less money than in the Current Program and Composite Alternatives. This was compounded by the fact that the Current Program and Composite Alternatives were constrained to precommercially thin 50,000 acres, over the five decade planning period to meet perceived silvicultural needs. This costs money now but provides no benefits until future decades. The Current Budget alternative was not forced to precommercial thin and chose a much lower level of this activity to maximize Present Net Value requiring fewer budget dollars now but forgoing future benefits. Because the Current Program and Composite Alternatives harvest more aspen beyond the first decade to meet nondeclining yield, required budgets fall, yielding apparently more consistent results beyond the first decade.

The Non-Market Alternative would emphasize management of recreation, wilderness, wildlife and other amenity values. Timber management would be modified to enhance these values. This alternative would provide for harvesting 19.0, 20.1, 20.4, 20.7 and 19.4 million board feet of live sawtimber on an average annual basis for each of the decades in the planning period. Aspen sawtimber harvest ranges between 3.5 and 8.7 MMBF per year. Production of aspen roundwood and fuelwood are the highest of any alternative. Increased aspen roundwood and fuelwood harvest would enhance big game habitat. Only tractor logging timber sales would be offered under this alternative.

The Current Budget Alternative would be very similar to the Current Program Alternative except the budget is constrained to the 1982 Forest budget. This alternative provides for harvesting 26.2, 28.0, 28.4, 28.1 and 27.4 million board feet of live sawtimber on an average annual basis for each of the planning period decades. Harvest of aspen sawtimber is greater than in the Current Program Alternative, but in the first decade the outputs are less.

The RPA 1980 Alternative has assigned targets of 30.0, 34.0, 31.0, 28.0 and 26.0 million board feet of live sawtimber annually for each of the planning period decades. Projected timber outputs from FORPLAN are 31.9, 34.0, 31.0, 28.0 and 26.0 MMBF on an average annual basis. These totals include aspen sawtimber volumes ranging from 2.1 to 15.5 MMBF per year.

The High Productivity Alternative has objectives 31.0, 37.0, 40.0, 40.0 and 46.5 million board feet on an average annual basis for the planning period decades. Objectives for timber outputs were established by the Regional Office R-4 - based on preliminary data from the Forest to be presented in an alternative that produced high levels of Market outputs. The objectives were considered unattainable. Instead of dropping the High Productivity Alternative at this point the intent of the alternative was modified to come as close to the originally established objectives as possible. Projected timber outputs from FORPLAN are 33.0, 24.3, 25.7, 31.0 and 38.2 MMBF per year. Commercial wood product utilization standards are relaxed to a minimum 5-inch diameter (8 inches in all other alternatives) so the harvest of roundwood products would be higher than in most other alternatives; .7, 1.1, 1.1 and 1.2 million board feet annually for each of the planning period decades. All tentatively suitable acres are available for timber harvest as in the Market Emphasis Alternative.

A National issue, concerning Forest Service timber sales that lose money, has been emerging. The following section has been prepared to: 1) define the below cost sales issue, 2) present rationale and explanation for such sales, and 3) display the alternatives, estimating propensity to contain below cost sales on the Dixie National Forest.

The issue of below cost timber sales centers on the contention that some Forest Service timber sales lose money. In other words some timber sales cost more to prepare, sell, and administer than they return in revenue. This can be attributed to a number of factors. First when all the direct costs (as defined in 36 CFR 219.14 (b)(2)) of timber production are included in the analysis, cost allocation must be employed since these direct costs go to produce other outputs. For example, the cost of a plan, such as this one, must be allocated to all the benefiting uses, such as timber, recreation, and wildlife, etc. This is a problem of joint cost and benefits. Other examples can be shown for road cost, fire protection, and other activities that produce multiple outputs. There is no non-arbitrary conceptually correct method of cost allocation. The goal of cost allocation as used herein is to isolate avoidable cost by program component and lump many joint costs into a single category. In this way, joint costs can be allocated to program components according to the preference of each reviewer. The problem of cost allocation is of interest in the sales below cost issue because often timber sales bear the total cost of roads and other improvements that, in reality, benefit more than just the one timber sale.

Second, road construction costs are a major component of timber sale costs. To accurately portray these costs, they need to be considered as capital expenditures and not current expenses. Doing so will allow the assignment of road costs to future timber sales and not just the current sale. This is justifiable since roads are used for many years and access several timber sales. Once the initial investment in roads is made, future timber sales become more attractive financially. Given this view, road costs should be amortized much like a factory, not as a resource that is consumed in the production of the goods and services.

Third, National Forests are not managed solely for timber production but are managed for numerous other values beyond the money they can produce. For example, in any given timber sale some prime timber may be left to provide visual quality, wildlife habitat, or stream side protection. These practices would not be followed if the primary goal was to maximize monetary returns. In addition, the Forest Service offers timber at appraised rates. When timber appraises at very low rates, policy directs that sales be offered at "base rates", which do not necessarily recover all direct costs. Further, the Forest Service offers timber on an "even-flow" basis. This policy too is not consistent with the notion of maximizing monetary returns.

Fourth, timber sales may produce more outputs than wood products, such as dispersed recreation use, enhanced water yield, and wildlife habitat improvement. Many of these outputs do not have established market values.

As the previous discussion has shown, the below cost sales issue is a complex problem. To simplify a comparison of alternatives within the context of below cost sales, a generalized process is used. This process estimates the relative frequency of below cost sales within alternatives. The Max PNV Market benchmark is used as a base to compare alternatives. This benchmark would have the smallest percentage of below cost timber sales independent of the accounting techniques used. In general, alternatives that have a higher allowable sale quantity (not including salvage, roundwood, or firewood) have a higher percentage of below cost sales. The following discussion highlights the differences in allowable sale quantity between alternatives and the Max PNV Market Benchmark and discusses these deviations and the rationale for those deviations.

Max PNV Market Benchmark. The Maximum PNV Market Benchmark has the smallest percentage of below cost timber sales independent of the accounting techniques used. For this reason the PNV Benchmark is used to compare alternatives with regard to below cost sales. In general the higher the allowable sale quantity (ASQ) the higher the percentage of below cost sales. However, even the PNV Benchmark contains some sales below cost when viewed in any accounting framework which allocates joint costs to that sale and which fails to amortize road investments over the life of the road.

The following discussion highlights for each alternative the amount of the allowable sale quantity that is greater than that quantity in the Max PNV Benchmark and provides the rationale for the higher percentage of below cost sales.

Alternative A - Current Program. The ASQ is 21.4 more than that of the Maximize PNV Market Values Benchmark (base). The ASQ of 26.4 MMBF reflects current output levels from the Forest. The amount of below cost sales would be higher than the proportion of additional volume offered in the base, especially beyond the first decade. This is due to the fact that the amount of low value aspen harvest increase multiple uses are a constraining factor, road building increase, higher logging costs on steeper slopes would occur, and lands that are more difficult to regenerate would be encountered. Additionally, timber program costs would increase in the first decade because of higher levels of timber stand improvement than any other alternative which produces no immediate value but benefits future stands. Alternative A would probably rank in the middle of the eight alternatives based on the number of below cost sales.

Alternative B - Composite. The ASQ and accompanying timber program is the same as Alternative A and will probably have the same amount of below cost sales.

Alternative C - Constrained Budget. The ASQ is 22.4 MMBF which is 17.4 MMBF greater than the base. The amount of below cost sales would probably be higher than the proportion of additional volume offered in the base because of the same reasons mentioned in Alternative A. Alternative C would, however, rank second lowest to the Non-Market Emphasis Alternative based on the number of below cost sales. This is explained by the fact that the budget constraint limits the amount of the ASQ and the number of high cost areas logged. More low value aspen is offered after the first decade than in the Non-Market Alternative.

Alternative D - Current Budget. The ASQ is 27.0 for this alternative which is 22.0 MMBF more than the base. The amount of below cost sales would probably be higher than the proportion of additional volume offered in the base for the same reasons stated in previous alternatives. The amount of below costs sales would probably be higher than Alternative A because of the higher ASQ which would require entry into more "high cost" areas.

Alternative E - Non-Market Emphasis. This alternative has an ASQ of 21.5 MMBF which is 16.5 MMBF above the ASQ of the "PNV" Benchmark. The alternative has the lowest ASQ of all alternatives and would probably rank lowest in the number of below cost sales. Although multiple use constraints for wildlife habitat, scenery and other amenity values are greater than other alternatives, they are primarily achieved on "high cost" lands where logging and regeneration costs would be higher but harvest will not take place under the alternative.

Alternative F - Market Emphasis. The ASQ in Alternative F is 23.7 MMBF more than in the Max PNV Benchmark. An ASQ of 28.7 MMBF emphasizes timber market values. This alternative along with Alternative G contain the highest probability for below cost sales of the alternatives. Reasons for this are the same as those stated for Alternative A.

Alternative G - RPA 80. The ASQ of 32.8 MMBF exceeds the base by 27.8 MMBF. This alternative responds to the 1980 RPA program and contains a high probability of below cost sales similar to Alternative F.

Alternative H - High Productivity. The ASQ of 33.7 MMBF exceeds the base by 28.7 MMBF and is similar to Alternatives F and G in probability for below cost sales to occur. The likelihood of below cost sales occurring, however, is

slightly lower than Alternatives F and G, because of fewer multiple-use constraints imposed on the timber base.

7. Water and Soil

Aggressive action would be taken to treat the backlog watershed restoration acres under the Composite, Non-Market and RPA 1980 Alternatives. Under the High Productivity Market and Current Program Alternatives, moderate action would be taken to treat the backlog areas. Under the Constrained Budget and Current Budget Alternatives, the backlog acres would not be completed within the planning period.

State standards for water quality would eventually be met in all alternatives as eutrophication problems in Panguitch Lake are diminished by coordinated multi-agency restoration measures. Under the Constrained Budget Alternative, this improvement could be delayed beyond the 50 year planning horizon due to lack of funds for coordination activities and restoration measures. Stream sedimentation would be greater in those alternatives with more vigorous timber harvest and road building programs (Market Emphasis, RPA 1980, and High Productivity) and reduced levels of range administration (Constrained Budget).

In all alternatives, water yield would be increased only slightly above natural levels as a result of management activities, primarily timber harvest. However, the water yield increases in Market Emphasis, RPA 1980, and High Productivity would be somewhat greater than in the other alternatives.

The amount of riparian ecosystem would remain essentially the same in all alternatives except Market Emphasis where some loss of riparian ecosystem is anticipated. Riparian ecosystem condition would be maintained or improved in all alternatives except Constrained Budget, Current Budget, RPA 1980, and High Productivity. In these alternatives, a decline is anticipated primarily as a result of increased or less rigorously managed livestock grazing in riparian areas.

8. Minerals

The scope of locatable mineral activity allowed in an alternative is dependent upon the amount of land on which mining claims or mineral leases may be filed and environmental sensitivity. Mining claims and locatable mineral leases are restricted by administrative withdrawals and legislation, including

wilderness. These restrictions would be essentially the same in all alternatives.

Environmental sensitivity encourages or discourages oil and gas activity through the requirements placed on the petroleum industry to protect other resources. The control is defined in stipulations attached to oil and gas leases and development permits. These range from standard stipulations as a minimum, to restrictive stipulations, to no surface occupancy or no lease. The mix of acres available for development varies with the emphasis of each alternative.

Development of oil and gas leases and proposals for mining claim operations will be carefully evaluated on a case-by-case basis through the environmental

TABLE II-17
COMPARISON OF MINERAL LEASING ACCESS
RESTRICTIONS BY ALTERNATIVES

ACCESS RESTRICTIONS TO LEASE/PERMIT ACTIVITIES	ALTERNATIVES							
	A (M ACRES) %	B (M ACRES) %	C (M ACRES) %	D (M ACRES) %	E (M ACRES) %	F (M ACRES) %	G (M ACRES) %	H (M ACRES) %
Totally Restricted	83	83	83	83	83	83	83	83
No Lease (Withdrawn For Milderness)	4	4	4	4	4	4	4	4
Highly Restricted	136	24	131	136	296	111	156	24
No Surface Occupancy	7	1	7	7	16	6	8	1
Moderately Restricted	357	656	302	357	683	580	249	92
Seasonal Restrict Low Restriction	19	35	16	19	37	31	13	5
Standard Stipulation Only	1289	70	1349	1289	803	1091	1377	1660
TOTAL	1865	100	1865	100	1865	100	1865	100

Total National Forest land (net) open to leasing is 1,864,779 acres. This has been rounded to 1865 M Acres for convenience.
Table

analysis process under all alternatives. The budget associated with each alternative will determine the Forest Service capability to process and approve mineral proposals. The Constrained Budget and Non-Market Emphasis Alternatives will restrict case analysis below the Current Program and will significantly delay mineral activity cases completed. The Current Program, Composite, and Current Budget Alternatives would provide a capability based on current workload but would delay mineral activity cases during peak years. The RPA, 1980, High Productivity and Market Alternatives would provide a capability to complete mineral cases in a timely manner.

9. Lands

Land Adjustment activities under the various alternatives have been covered in the discussion of each alternative.

Rights-of-way activities under the various alternatives have been covered in the discussion of each alternative.

Occupancy Trespass, Title Claims, and Small Tracts Act: these programs would vary with funding and landline activities. The programs may be characterized as having an increasing backlog of potential cases during the first decade. The program during this period would be responsive to the urgency to limit resource damage and general sensitivity of cases, with all cases facing some delay in action. With increased funding, increased accomplishment would take place; however, new cases would continue to accumulate faster than case work as long as an aggressive landline program continues. The exception to this general trend would be the Constrained and Current Budget Alternatives. Under these two alternatives the program would degenerate to record keeping with no option for taking corrective action. The Forest, under these two alternatives, would lose the option of pursuing management objectives through these programs.

Special Uses: the number of on-going and new permits would not generally be a reflection of the alternative. This program would reflect funding in terms of delay time in permit work, frequency and type of permits inspected, and fee determination. With increased funding, the program would gradually increase in it's ability to reduce these shortcomings. Special projects and demands on the program would be a problem in the first decade. New fee calculation procedures may be undertaken on an extensive basis in the first decade with more intensive appraisals occurring after the first decade. The exception to this general trend would be the Constrained, Current Budget and Market Alternatives. The Constrained and Current Budget Alternatives would have the program drop away from an active position to the point that the only accomplishment would be the most important paper work and inspections. No new composite areas or new fee determinations could be undertaken with the Constrained and Current Budget Alternative. The Market Alternative leads in the opposite direction with full funding of this program. More intensive appraisals with increased funding would provide a full return on the use of Federal Lands.

The local interchange program (exchange of land with other agencies) would consider those lands that, after study, would be more efficiently managed by another agency. This is a conceptual program for increased management efficiency, which will be carried out at the local level. The program would be a reflection of not only our funding, but those of such agencies as may become

involved. Lands difficult to manage due to location and/or restricted in use due to management restraints serving a cooperating agency's needs would be of first consideration. Selection of lands would also relate to the objectives and needs of individual alternatives. The exception to this general trend for this program would be the Constrained and Current Budget Alternatives. Under these alternatives the interchange program would probably not progress beyond the initial study stage due to a lack of funding.

Utility corridors have been identified and are the same in all alternatives.

The Forest does not expect any requests for new transportation corridors or for major changes in existing highways, so highway corridors remain unchanged in all alternatives.

Acquisitions of rights-of-way for use in management of the timber resource varies among alternatives, depending on the number of miles of new road required. Differences among the alternatives are not expected to be significant.

Evaluation of existing mineral withdrawals would likely result in some recessions. Withdrawal review is required by law and would occur in all alternatives.

The RPA 1980, Market Emphasis, and Composite Alternatives would prescribe land line survey and posting adequate to meet resource activity needs and prevent most occupancy trespass. In contrast, the Current Budget, Non-Market, and Current Program Alternatives provide land line survey and posting adequate for resource activities, but not to prevent occupancy trespass. The Constrained Budget Alternative would not meet the needs of resource activities and would not prevent occupancy trespass.

Because of increased interest in development of hydroelectric power, the Forest expects applications for development of small hydro-power facilities on some perennial streams.

10. Protection

The fire protection target organization will be driven by Level II Fire Analysis, and aimed at the organization that demonstrates the lowest average annual cost and net value change for fire suppression.

The Level II analysis curve demonstrates the predicted effects in terms of suppression costs and resource damages for various fire budget levels and corresponding initial attack organization. The curve is useful in defining the most cost effective initial attack organization based on average annual wildfire expectations, as well as estimating the costs of budget and organization options above and below the curve's lowest point.

Most fuels treatment would result from other resource activities and utilization primarily through the fuelwood program. The amount accomplished would be directly related to the volume of timber harvested and the acres made accessible by roads for timber sales.

11. Facilities

Building and administrative site repair and maintenance would be limited to health, safety, and energy items in the Current and Constrained Budget Alternatives. The other alternatives would provide preventive maintenance, replacement, and repair programs.

The collector road system needed to meet the thrust of the RPA 1980, Market Emphasis, High Productivity, Composite, and Current Program Alternatives would be in place before year 2000. The road construction and reconstruction program would be minimal in the Current and Constrained Budget Alternatives.

Local road construction and reconstruction would increase in proportion to timber harvest levels in the alternatives.

The program to replace existing substandard bridges is similar for all alternatives. Bridge maintenance and repair will be completed on structures unsafe or no longer useable in the Current Budget and Constrained Budget Alternatives. The RPA 1980, Market Emphasis, Non-Market, Composite, and Current Program Alternatives include accelerated bridge maintenance and repair programs.

Under Current Budget, Current Program and Composite Alternatives, roads will be maintained on a priority basis depending on use. Arterial and collector roads will be minimally maintained to handle traffic volumes. Local roads will be maintained on an as-needed basis. Signing of roads will not be kept up to date.

Under the Constrained Budget Alternative, only roads absolutely essential for Forest activities would be maintained. These roads would be only minimally maintained. Signing would be provided for the safety of the users.

The Non-Market Emphasis, Market Emphasis with Timber Departure, 1980 RPA Program, and High Productivity Alternatives would develop and maintain an efficient, safe, and environmentally sound arterial and collector road system, local roads would be maintained as needed.

The comparison of the management emphases for each alternative is displayed in Table II-18. The relative amounts of land assigned to Management Area prescriptions provides a measure of management emphasis.

TABLE II-18
ACREAGE ASSIGNMENT BY MANAGEMENT AREA PRESCRIPTION
FOR EACH ALTERNATIVE
(M Acres)

Mgmt. Area Presc.	Emphasis	Alternatives							
		A	B	C	D	E	F	G	H
1A	National Forest Recreation Sites.	17.4	19.4	14.7	17.4	4.6	5.0	11.2	13.7
1B	Existing winter sports sites.	3.8	3.8	3.3	3.8	2.2	3.8	3.4	3.7
2A	Semi-primitive recreation opportunities.	88.8	222.3	73.6	88.8	391.0	71.0	85.0	46.9
2B	Roaded, natural & rural recreation opportunities. Maintained or improved visual quality on major travel routes.	114.5	131.7	15.6	114.5	224.8	20.9	14.1	0
4A	Fish habitat increase water quality & stream channel enhancement for fish habitat.	3.8	1.1	1.1	3.8	1.4	0.1	1.4	1.1
4B	Wildlife habitat management for one or more management indi- cator species. Live- stock grazing will be compatible with wild- life habitat management.	14.3	36.7	0	14.3	432.4	0	15.5	0
4C	Wildlife habitat improvement. Vegeta- tion treatment in hard- wood and shrub dominated land. Livestock grazing will be compatible with wildlife habitat management.	0	72.9	0	0	0	0	0	0
4D	Wildlife habitat management. Livestock grazing will be compat- ible with wildlife habitat management. Clearcut aspen only.	0	10.5	0	0	45.0	0	4.1	0
5A	Big game winter range in non-forest areas. Travel management prevents unacceptable stress. Livestock grazing managed to favor wildlife habitat.	112.8	313.6	31.4	112.8	214.6	40.9	113.2	40.9

5B	Big game winter range in forest areas. Travel management prevents unacceptable stress. Vegetation treatment will enhance plant and animal diversity. Livestock grazing managed to favor wildlife habitat.	0	23.6	0	0	0	0	0	0
6A	Livestock grazing. Improve forage composition. Vegetation treatment in mountain grass, meadow, and shrub; oakbrush; and aspen types.	339.9	276.6	465.6	339.9	59.3	939.5	480.0	848.8
7A	Intensive timber management. Timber harvest in aspen, spruce-fir, ponderosa pine and mixed conifer types. Slopes less than 40 percent.	271.2	270.4	200.4	271.2	130.4	373.7	305.4	590.8
8A	Semi-primitive wilderness setting. Moderate level of solitude. Moderate opportunity for challenge, risk, and self-reliance.	83.0	83.0	83.0	83.0	83.0	83.0	83.0	83.0
8A1	Antone Bench Exclusion	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
8A2	Other Box-Death Hollow Exclusions.	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
9A	Riparian area management. Limits utilization of resources. One hundred feet from perennial stream edges, high water marks of lakes and wetlands.	18.3	7.6	1.1	18.3	11.1	0	6.3	0
9B	Intensive riparian area management.	1.10	1.6	0.08	0.10	11.1	0.5	0	0
10A	Research Natural Areas.	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
10E	Municipal Watersheds.	24.0	9.1	19.4	24.9	21.5	9.7	23.8	8.8
1.	General Forest Direction	785.1	393.0	969.8	785.1	249.3	330.1	734.6	239.7

TOTAL - 1,883.676 M ACRES

The following Table II-19 present a comparison of the outputs, activities, costs, and receipts for the Benchmarks and alternatives. All comparisons are made with the output, activity or cost of the first decade of the Current Program Alternative.

TABLE II-19
 RESOURCE OUTPUTS, ACTIVITIES, COSTS, AND BENEFITS COMPARED TO THE FIRST DECADE
 OF THE CURRENT PROGRAM ALTERNATIVE BY BENCHMARKS AND ALTERNATIVES*

OUTPUT/ACTIVITY	UNITS	CURRENT PROGRAM FIRST DECADE	ALT. A CURRENT PROGRAM	BENCHMARKS				ALTERNATIVES									
				MINIMUM LEVEL	MAXIMUM RANGE	PNV MARKET	PNV ASSIGN.	(B) COMPO-SITE	(C) CONSTR. BUDGET	(D) CURRENT BUDGET	(E) NON-MARKET	(F) MARKET	(G) 1980 EPA	(H) HIGH PROD.			
Recreation																	
Developed Rec. Use (inc. VIS) (R)	MRVD																
Decade 1		186	0	-94	+120	+75	+75	-38	+70	+57	+175	+48	+70				
2			+70	-94	+243	+172	+172	-34	+72	+103	+172	+64	+168				
3			+197	-94	+253	+397	+397	-17	+93	+221	+397	+238	+111				
4			+324	-94	+253	+879	+723	+13	+103	+879	+879	+152	+260				
5			+618	-94	+253	+1361	+919	+43	+113	+372	+1361	+557	+518				
Developed Rec. Use (inc. VIS) (RN)	MRVD																
Decade 1		280	0	-280	-58	-67	-67	-159	-70	-81	-67	-89	-70				
2			+105	-280	+31	+18	+13	-155	-71	-44	+13	-75	+10				
3			+295	-280	+31	+197	+197	-142	-52	+53	+197	+67	-37				
4			+485	-280	+38	+591	+463	-117	-44	+150	+591	-3	+549				
5			+22	-280	+38	+986	+563	-93	-36	+176	+986	+328	+1028				
Dispersed Rec. Use (SPNM)	MRVD																
Decade 1		110	0	+190	+26	-44	+4	-7	+4	+10	-44	-23	+1				
2			+39	+220	+56	-32	+11	+49	+41	+78	-32	-15	+39				
3			+129	+250	+93	-25	+132	+80	+132	+145	+38	-22	+130				
4			+263	+250	+137	+21	+266	+173	+266	+299	+102	+27	+264				
5			+398	+250	+192	+92	+400	+265	+400	+453	+154	+76	+398				
Dispersed Rec. Use (SPM)	MRVD																
Decade 1		236	0	-236	+54	-153	+8	-15	+8	+83	-71	-49	+2				
2			+84	-236	+121	-41	+88	+105	+88	+266	-41	-32	+84				
3			+277	-236	+199	-66	+282	+170	+282	+444	+134	-47	+277				
4			+564	-236	+294	+26	+569	+368	+569	+855	+294	+58	+566				
5			+852	-236	+410	+167	+856	+567	+856	+1266	+424	+153	+852				
Dispersed Rec. Use Other (RN)	MRVD																
Decade 1		355	0	-355	+80	+224	+11	+13	+11	-76	-25	-80	+2				
2			+125	-355	+180	+419	+36	+220	+131	+85	+36	-49	+125				
3			+414	-355	+297	+838	+421	+322	+421	+210	+384	-71	+415				
4			+846	-355	+440	+1477	+852	+652	+852	+600	+706	+86	+847				
5			+1279	-355	+615	+2468	+1283	+984	+1283	+959	+966	+243	+1278				

OUTPUT/ACTIVITY	UNITS	CURRENT PROGRAM FIRST DECADE	ALT. A CURRENT PROGRAM	BENCHMARKS				ALTERNATIVES											
				MINIMUM LEVEL	MAXIMUM RANGE	PVT MARKET	PVT ASSIGN.	(B) COMPO-SITE	(C) CONSTR. BUDGET	(D) CURRENT BUDGET	(E) NON-MARKET	(F) MARKET	(G) 1980 EPA	(H) HIGH PROD					
															TIMBER	TIMBER	MAXIMUM RANGE	PVT MARKET	PVT ASSIGN.
Structural Habitat Imp. Aquatic	Struc.																		
Decade 1		20	0	-20	0	-13	-20	+19	+15	-15	0	+19	+15	+19	+32				
2			+5	-20	+9	-13	-20	+24	+122	-15	0	+24	+15	+31	+32				
3			+5	-20	-1	-13	-20	+13	+125	-15	0	+13	+15	+21	+32				
4			+5	-20	-9	-13	-20	-5	+128	-15	0	+10	+15	+31	+32				
5			+5	-20	-9	-13	-20	-5	+133	-15	0	+10	+15	+36	+32				
Nonstructural Hab. Imp. Aquatic	Acres																		
Decade 1		100	0	-100	+110	-25	-100	+130	+100	-100	+60	+130	+65	+110	+83				
2			+10	-100	+132	-36	-100	+130	+110	-100	+55	+130	+50	+151	+65				
3			+10	-100	+120	-29	-100	+15	+120	-100	+50	+15	+40	+151	+64				
4			+30	-100	+107	-36	-100	+50	+130	-100	+40	+35	+30	+151	+43				
5			+30	-100	+107	-42	-100	+50	+140	-100	+20	+20	+20	+152	+32				
Wildlife and Fish Use	WMFUD																		
Decade 1		171	0	0	-1	-6	0	-1	+9	-32	+4	+12	-16	+12	-21				
2			+12	-17	+1	-59	-17	+17	+31	-18	+1	+10	+15	+33	+3				
3			+11	-33	-3	-87	-33	+14	+26	-25	-3	+30	+13	+27	0				
4			+9	-46	-4	-104	-46	+13	+31	-26	-5	+40	+12	+33	-3				
5			+8	-45	-4	-113	-45	+14	+31	-26	-7	+40	+11	+33	-12				
Range																			
Grazing Use (livestock)	M AUM																		
Decade 1		115	0	-115	+2	+4	-5	-5	0	-5	0	-25	+2	+4	+7				
2			0	-115	+2	+9	-8	-8	0	-8	0	-25	+2	+5	+15				
3			0	-115	+2	+15	-10	-10	0	-10	0	-25	+2	+6	+18				
4			0	-115	+2	+22	-12	-12	0	-12	0	-25	+2	+7	+21				
5			0	-115	+2	+28	-15	-15	0	-15	0	-25	+2	+8	+24				
Wild Horses and Burros	M AUM																		
Decade 1		0.3	0	0	0	0	0	0	0	0	0	0	0	0	0				
2			0	0	0	0	0	0	0	0	0	0	0	0	0				
3			0	0	0	0	0	0	0	0	0	0	0	0	0				
4			0	0	0	0	0	0	0	0	0	0	0	0	0				
5			0	0	0	0	0	0	0	0	0	0	0	0	0				

OUTPUT/ACTIVITY	UNITS	CURRENT PROGRAM FIRST DECADE	ALT. A CURRENT PROGRAM	BENCHMARKS				ALTERNATIVES									
				MINIMUM LEVEL	MAXIMUM TIMBER	MAXIMUM RANGE	PVT MARKET	ENV ASSIGN.	(B) COMPO-SITE	(C) CONSTR. BUDGET	(D) CURRENT BUDGET	(E) NON-MARKET	(F) MARKET	(G) 1980 REA	(H) HIGH PROD		
																PHV MARKET	
Timber																	
Allowable Sale Qty	MCF																
Decade 1		5.1	0	-5.1	+1.0	-1.1	-4.0	-4.0	0	-0.6	+0.5	-0.4	+0.8	+1.5	+1.3		
2			+0.1	-5.1	+1.1	-1.9	-4.0	-4.0	+0.1	-0.6	+0.5	+0.1	+0.8	+1.8	-0.3		
3			+0.2	-5.1	+1.1	-1.7	-2.2	-2.2	+0.2	-0.6	+0.5	+0.2	+0.9	+1.1	-0.3		
4			+0.2	-5.1	+1.1	+0.5	-2.2	-2.2	+0.2	-0.6	+0.5	+0.2	+0.9	+0.6	+0.9		
5			+0.3	-5.1	+1.2	-2.4	-1.9	-1.9	+0.3	-0.6	+0.5	+0.2	+0.9	+0.3	+2.4		
10			+0.3	-5.1	+1.2	-2.0	-1.9	-1.9	+0.3	-0.6	+0.5	+0.2	+0.9	+0.2	+3.2		
15			+0.3	-5.1	+1.2	-0.8	-1.9	-1.9	+0.3	-0.6	+0.5	+0.2	+0.9	+0.2	+0.6		
Allowable Sale Qty	MMBF																
Decade 1		26.4	0	-26.4	+4.8	-6.4	-21.4	-21.4	0	-4.0	+0.6	+4.9	+2.3	+6.4	+7.3		
2			-0.4	-26.4	+4.9	-9.9	-21.4	-21.4	-0.4	-2.9	+2.0	-2.4	+4.3	+8.4	-1.0		
3			-0.1	-26.4	+7.6	-9.3	-9.4	-9.4	-0.1	-2.8	+2.8	-1.9	+5.2	+5.7	+0.4		
4			0	-26.4	+5.1	-2.7	-12.1	-12.1	0	-1.9	+2.5	-1.5	+4.4	+2.7	+5.7		
5			0	-26.4	+4.8	-11.9	-11.6	-11.6	0	-3.6	+1.8	-2.7	+3.7	+0.8	+13.0		
10			-3.9	-26.4	-0.2	-12.7	-11.0	-11.0	-3.9	-7.3	-3.4	-5.2	-2.0	-4.3	-17.1		
15			-2.0	-26.4	+2.7	-4.3	-14.3	-14.3	-2.0	-2.0	+1.0	-2.8	+1.4	-0.8	-8.9		
Sawtimber (softwood)	MMBF																
Decade 1		22.9	0	-22.9	+4.8	-10.7	-18.2	-18.2	0	-8.8	-3.2	-7.4	-4.1	+2.4	+8.4		
2			-7.2	-22.9	-8.6	-12.6	-18.4	-18.4	-7.2	-7.6	-5.5	-11.5	-3.1	-4.4	-11.8		
3			-8.0	-22.9	+8.2	-12.4	-6.3	-6.3	-8.0	-3.9	+0.9	-9.2	+1.6	+1.3	-2.0		
4			-5.5	-22.9	-1.7	-6.0	-10.9	-10.9	-5.5	-1.7	-2.0	-8.4	+2.6	+3.0	+5.5		
5			-1.6	-22.9	+1.4	-9.9	-13.2	-13.2	-1.6	-6.8	+0.3	-7.4	+0.5	+0.6	+11.3		
10			-3.4	-22.9	-2.9	-10.1	-10.3	-10.3	+3.4	-8.0	-4.9	-11.3	-2.7	-5.6	-16.0		
15			-2.4	-22.9	-9.7	-4.5	-11.9	-11.9	-2.4	-0.8	-2.6	-11.2	+2.1	+1.7	-6.5		
Sawtimber (hardwood)	MMBF																
Decade 1		2.8	0	-2.8	-0.1	-4.2	-2.8	-2.8	0	+5.1	+3.7	+0.7	+6.3	+3.9	-1.1		
2			+6.6	-2.8	+13.2	+3.0	-2.3	-2.3	+6.6	+6.0	+7.8	+5.9	+7.1	+12.7	+10.4		
3			+7.5	-2.8	-1.0	+3.0	-2.8	-2.8	+7.5	2.2	+1.8	+3.9	+3.2	+4.0	+2.0		
4			+5.0	-2.8	+6.3	+3.2	-0.9	-0.9	+5.0	+0.1	+4.4	+3.4	+1.3	-0.7	-0.2		
5			+0.9	-2.8	+2.8	-2.1	+1.9	+1.9	+0.9	+3.4	+1.4	+1.1	+2.6	-0.3	-1.2		
10			-0.9	-2.8	+2.4	-2.7	-0.4	-0.4	-0.9	+1.0	+1.4	+2.8	+0.4	+1.0	-0.6		
15			-0.1	-2.8	+2.9	-0.1	-2.0	-2.0	-0.1	-1.8	+3.3	+5.1	-1.2	-2.8	-2.7		
Roundwood Products	MMBF																
Decade 1		0.7	0	-0.7	+0.1	+0.1	-0.4	-0.4	0	-0.3	+0.1	+1.8	+0.1	+0.1	0		
2			+0.2	-0.7	+0.3	-0.3	-0.4	-0.4	+0.2	-0.3	-0.3	+3.2	+0.3	+0.1	+0.4		
3			+0.4	-0.7	+0.4	+0.1	-0.3	-0.3	+0.4	+0.1	+0.1	+3.4	+0.4	+0.4	+0.4		
4			+0.5	-0.7	+0.5	+0.3	-0.3	-0.3	+0.5	-0.3	+0.1	+3.5	+0.5	+0.4	+0.4		
5			+0.7	-0.7	+0.6	+0.1	-0.3	-0.3	+0.7	-0.2	+0.1	+3.6	+0.6	+0.5	+0.5		
10			+0.4	-0.7	+0.3	+0.1	-0.3	-0.3	+0.4	-0.3	+0.1	+3.3	+0.3	+0.3	-0.5		
15			+0.5	-0.7	+0.5	+0.3	-0.4	-0.4	0.5	-0.3	+0.3	+3.3	+0.5	+0.3	+0.3		

QUIP/ACTIVITY	UNITS	CURRENT PROGRAM FIRST DECADE	AL.T. A CURRENT PROGRAM	BENCHMARKS			ALTERNATIVES												
				MINIMUM LEVEL	MAXIMUM TIMBER	MAXIMUM RANGE	ENV MARKET	ENV ASSIGN.	(B) COMPO-SITE	(C) CONSTR. BUDGET	(D) CURRENT BUDGET	(E) NON-MARKET	(F) MARKET	(G) 1980 REA	(H) HIGH PROD				
Ingressed Water Yield Over Natural Colorado River	M Ac. Ft.																		
Decade 1		0	-1.2	-0.5	-0.1	-0.7	-0.7	-0.7	0	-0.1	-0.3	+0.2	+0.1	-0.1					
2		+1.5	-1.2	+1.0	+0.2	-0.9	-0.9	-0.9	+1.5	+0.4	+0.2	+0.8	+2.1	+1.5					
3		+1.4	-1.2	+1.1	0	-0.9	-0.9	-0.9	+1.4	+0.1	+0.8	+0.9	+1.5	+0.9					
4		+0.9	-1.2	+1.3	+0.2	-0.6	-0.6	-0.6	+0.9	+0.4	+1.0	+1.2	+0.7	+0.6					
5		+0.7	-1.2	+1.4	+0.1	-0.4	-0.4	-0.4	+0.7	+1.0	+1.3	+1.7	+1.4	+1.5					
Fuelbreaks and Fuel Treatment	Acres																		
Decade 1		0	-10505	-663	-2548	-10505	-8322	-8322	0	-3980	-2548	-2453	+913	-4593					
2		-3388	-10505	-4396	-2788	-10505	-9312	-9312	-3388	-4947	-2788	-2338	-3100	-6104					
3		-5864	-10505	-4146	-3551	-10505	-9049	-9049	-5864	-5528	-5528	-3070	-4118	-3079					
4		-5372	-10505	-4016	-6034	-10505	-8970	-8970	-5372	-5792	-6034	-4246	-3643	-3045					
5		-5586	-10505	-4703	-5163	-10505	-8104	-8104	-5586	-6718	-5163	-4558	-4639	-2178					
Minerals																			
Mineral Leases and Permits	Cases																		
Decade 1		0	-300	+96	+96	-300	-95	-95	+1	-95	+1	+96	+40	+40					
2		+40	-340	+149	+149	-340	-30	-30	+60	-30	+60	+149	+96	+90					
3		+60	-380	+89	+89	-380	-90	-90	0	-90	0	+89	+36	+36					
4		+60	-400	+84	+84	-400	-115	-115	-25	-115	-25	+84	+11	+11					
5		+90	-400	+84	+84	-400	-125	-125	-35	-125	-35	+54	+1	+1					
HCAD																			
Human Resource Programs	Enr. Yr.																		
Decade 1		0	-20	0	0	-20	0	0	0	-18	0	0	0	0					
2		0	-20	0	0	-20	0	0	0	-18	0	0	0	0					
3		0	-20	0	0	-20	0	0	0	-18	0	0	0	0					
4		0	-20	0	0	-20	0	0	0	-18	0	0	0	0					
5		0	-20	0	0	-20	0	0	0	-18	0	0	0	0					
Lands																			
Land Pur. & Acq. (exo.)	Cases																		
Decade 1		0	-2	-2	-2	-2	-2	-2	0	0	0	0	0	0					
2		0	-2	0	-2	-2	-2	-2	+1	0	-1	0	0	0					
3		0	-2	0	-2	-2	-2	-2	+1	0	0	+1	0	0					
4		0	-2	0	-2	-2	-2	-2	+2	0	-1	0	0	0					
5		0	-2	0	-2	-2	-2	-2	+2	0	-1	+1	0	0					

OUTPUT/ACTIVITY	UNITS	CURRENT PROGRAM FIRST DECADE	ALT. A CURRENT PROGRAM	BENCHMARKS				ALTERNATIVES										
				MINIMUM LEVEL	MAXIMUM LEVEL	RANGE	P/MV MARKET	P/MV ASSIGN.	(B) COMFO-SITE	(C) CONSTR. BUDGET	(D) CURRENT BUDGET	(E) NON-MARKET	(F) MARKET	(G) 1980 RPA	(H) HIGH PROD			
																MINIMUM	MAXIMUM	JUMBER
Soils																		
Soil & Water Resources Imp.	Acres																	
Decade 1		51	0	-51	-5	-5	-51	0	+34	-18	-8	+34	+12	+50	+12			
2			+12	-51	+7	+7	-51	+12	+87	-18	-5	+87	+24	+111	+34			
3			+29	-51	+7	+7	-51	+29	-16	-18	+17	-16	+41	-12	+50			
4			+12	-51	+7	+7	-51	+29	-16	-18	+17	-31	+24	-32	-39			
5			-13	-51	-18	-18	-51	-13	-31	-18	-4	-31	-1	-32	+19			
Facilities																		
Arterial & Collector Roads Construction/Reconstruction	Miles																	
Decade 1		2	0	-2	0	0	-2	-2	0	-1	0	0	0	0	0			
2			-1	-2	-1	-1	-2	-2	-1	-2	-1	-1	-1	-1	-1			
3			-1	-2	-1	-1	-2	-2	-1	-2	-1	-1	-1	-1	-1			
4			-1	-2	-1	-1	-2	-2	-1	-2	-1	-1	-1	-1	-1			
5			-1	-2	-1	-1	-2	-2	-1	-2	-1	-1	-1	-1	-1			
Local Road Construction	Miles																	
Decade 1		28	0	-28	-11	-11	-23	-23	0	-13	-13	-19	-11	-4	+3			
2			-10	-28	-1	-1	-26	-26	-10	-10	0	-9	-1	0	0			
3			-13	-28	-4	-4	-26	-26	-11	-11	-8	-17	-4	-13	-15			
4			-17	-28	-19	-19	-26	-26	-17	-11	-16	-21	-19	-19	-23			
5			-21	-28	-23	-23	-26	-25	-21	-18	-22	-23	-23	-23	-23			
Local Road Reconstruction	Miles																	
Decade 1		32	0	-32	+8	+8	-31	-31	0	+1	+6	-1	+8	+14	+23			
2			+2	-32	-5	-5	-31	-31	+2	-9	-6	-14	-5	-7	-7			
3			-11	-32	-16	-16	-31	-31	-11	-17	-15	-12	-16	-5	-10			
4			-10	-32	-6	-6	-31	-31	-10	-19	-12	-9	-6	-2	-6			
5			-10	-32	-4	-4	-31	-31	-11	-16	-17	-9	-4	-4	-5			
Trail Construction/Reconstruction	Miles																	
Decade 1		0	0	0	+7	+7	0	0	+33	0	0	+37	+7	0	+2			
2			0	0	+7	+7	0	0	+40	0	0	+38	+7	0	+2			
3			0	0	+7	+7	0	0	+38	0	0	+38	+7	0	+2			
4			0	0	+7	+7	0	0	0	0	0	+33	+7	0	+2			
5			0	0	+7	+7	0	0	0	0	0	+33	+7	0	+2			

OUTPUT/ACTIVITY	UNITS	CURRENT PROGRAM FIRST DECADE	ALT. A CURRENT PROGRAM	BENCHMARKS				ALTERNATIVES												
				MINIMUM LEVEL	MAXIMUM TIMBER	MAXIMUM RANGE	PNV MARKET ASSIGN.	(B) COMFO-SITE	(C) CONSTR. BUDGET	(D) CURRENT BUDGET	(E) NON-MARKET	(F) MARKET	(G) 1980 REA	(H) HIGH PROD						
Benefits																				
Recreation Developed	M \$																			
Decade 1		1929	0	-1916	-64	+247	+33	+1	+32	-816	+1	-98	+33	-422	-275					
2			+725	-1916	+695	+773	+765	+765	+765	-782	+9	+244	+765	-314	+356					
3			+2037	-1916	+755	+298	+2457	+2456	+2456	-655	+168	+1131	+2457	+805	-17					
4			+3350	-1916	+755	+298	+6885	+4907	+4907	-431	+244	+1131	+6085	+251	+2593					
5			+6825	-1916	+755	+298	-287	+6384	+6384	-207	+318	+2268	+9713	+2862	+5204					
Dispersed	M \$																			
Decade 1		6917	0	-3074	+388	+2116	+259	+734	+734	-37	+150	+257	+259	-2743	-942					
2			+1370	-2442	+1333	+2712	+824	+3099	+3099	+1333	+1344	+8672	+824	-1060	+170					
3			+3848	-1923	+4197	+5598	+4267	+4879	+4879	+1583	+3807	+4416	+4267	-1262	+2274					
4			+7852	-1923	+4357	+10994	+6254	+11625	+11625	+4703	+7708	+8592	+6254	-87	+5039					
5			+11792	-1923	+12885	+11298	+8431	+13171	+13171	+6123	+11676	+12885	+8431	+1187	+8691					
Wilderness																				
Decade 1		90	0	+517	+318	-42	+1	0	0	-7	0	+1	+1	-30	-13					
2			+31	+737	+318	-42	+15	+29	+51	+38	+29	+51	+15	-24	+13					
3			+101	903	+318	-42	+92	+100	+100	+61	+100	+100	+92	-10	+73					
4			+207	+903	+318	-42	+163	+207	+214	+133	+207	+214	+163	+5	+164					
5			+313	+903	+318	-42	+220	+312	+327	+207	+312	+327	+220	+38	+255					
Range																				
Decade 1		927	0	-927	+16	+32	-40	-40	0	-40	0	-202	+16	+32	+56					
2			0	-927	+16	+32	-65	-65	0	-65	0	-202	+16	+32	+121					
3			0	-927	+16	+32	-80	-80	0	-80	0	-202	+16	+32	+145					
4			0	-927	+16	+32	-97	-97	0	-97	0	-202	+16	+32	+169					
5			0	-927	+16	+32	-121	-121	0	-121	0	-202	+16	+32	+193					
Timber																				
Decade 1		1211	0	-1211	+371	+304	-842	-842	0	-60	+284	+50	+254	+579	+542					
2			+46	-1211	-305	-503	-895	-895	+46	-245	-155	-281	-50	-613	-679					
3			-247	-1211	+131	-455	-248	-248	-247	-261	-683	-314	-338	-360	-515					
4			-699	-1211	-1247	-145	-229	-229	-699	-458	-349	-400	-303	-465	-287					
5			-471	-1211	-488	-380	-585	-585	-471	-963	-316	-221	-470	-813	-743					
Wildlife	WFUD'S																			
Decade 1		5551	0	-711	+80	-844	-711	+93	+114	+80	+86	+92	+80	+81	+81					
2			+98	-1198	+160	-2436	+160	+733	+733	-243	+385	+733	+160	+418	+68					
3			+129	-1707	+72	-3321	-1707	+652	+766	-558	-32	+652	+72	+379	-68					
4			+159	-2120	+37	-4856	-2120	+627	+784	-602	-70	+627	+37	+290	-97					
5			+190	-2092	+53	-4164	-2092	+652	+783	-575	-58	+652	+53	+370	-514					

OUTPUT/ACTIVITY	UNITS	CURRENT PROGRAM FIRST DECADE	ALT. A CURRENT PROGRAM	BENCHMARKS			ALTERNATIVES					(H) HIGH PROD					
				MINIMUM LEVEL	MAXIMUM TIMBER	MAXIMUM RANGE	PNV MARKET	PNV ASSIGN	(B) COMPO-SITE	(C) CONSTR. BUDGET	(D) CURRENT BUDGET		(E) NON-MARKET	(F) MARKET	(G) 1980 RPA		
Water Yield	M \$																
Decade 1		251	0	-251	-47	-12	-99	-99		0	+17	+29	-23	+70	+47	+6	
2			+234	-251	+210	-12	-158	-158		+234	+99	+193	+82	+198	+315	+274	
3			+222	-251	+187	-58	-199	-199		+222	+53	+152	+76	+175	+216	+175	
4			+140	-251	+175	-84	-193	-193		+140	+53	+158	+82	+175	+117	+99	
5			+99	-251	+234	-76	-163	-163		+99	+123	+158	+64	+216	+187	+181	
Minerals	M \$																
Decade 1		2884	0	-1172	+30	+30	-1172	+19		+19	-219	+19	+14	+30	-348	-421	
2			+197	-1043	+185	+185	-1043	+198		+198	-119	+198	+194	+185	-243	-240	
3			+154	-1043	+142	+142	-1043	+117		+117	-158	+117	+150	+142	-279	-279	
4			+15	-1043	+20	+20	-1043	+32		+32	-186	+32	+29	+20	-397	-398	
5			-56	-1043	-71	-71	-1043	-59		-59	-184	-59	-62	-71	-462	-462	
Other	M \$																
Decade 1		21	0	0	0	0	0	0		0	0	0	0	0	0	0	
2			0	0	0	0	0	0		0	0	0	0	0	0	0	
3			0	0	0	0	0	0		0	0	0	0	0	0	0	
4			0	0	0	0	0	0		0	0	0	0	0	0	0	
5			0	0	0	0	0	0		0	0	0	0	0	0	0	
Total Benefits	M \$																
Decade 1		19781	0	-8745	+1092	+1223	-2571	-134		+899	-1082	+569	+91	+743	-2804	-966	
2			+2701	-8251	+2612	+748	-1755	+3706		+576	+7	+2003	+9493	+2105	+1481	+177	
3			+6344	-8075	+5818	+2282	+3539	+7677		+8293	-15	+3619	+6009	+6383	+63	+1788	
4			+11024	-8488	+4431	+7382	+8820	+16879		+17002	+3115	+7930	+10062	+12447	-230	+6372	
5			+18692	-8460	+13702	+7089	+14360	+19591		+20234	+4403	+12031	+15711	+18108	+3433	+12705	
Receipts	M \$																
Recreation-Developed																	
Decade 1		181	0	-168	+21	+21	+3	+3		+3	-71	0	-9	+3	-15	0	
2			+63	-168	+98	+67	+66	+66		+66	-68	0	+21	+66	-4	-64	
3			+177	-168	+105	+26	+214	+214		+214	-57	+15	+98	+214	+110	+26	
4			+291	-168	+105	+26	+529	+517		+427	-38	+21	+133	+529	+53	+291	
5			+230	-168	+105	+26	+845	+556		+556	-18	+27	+197	+845	+318	+566	
Range	M \$																
Decade 1		116	0	-116	+2	+4	-5	-5		0	-5	0	-25	+2	+4	+7	
2			0	-116	+2	+9	-8	-8		0	-8	0	-25	+2	+5	+15	
3			0	-116	+2	+15	-10	-10		0	-10	0	-25	+2	+6	+18	
4			0	-116	+2	+22	-12	-12		0	-12	0	-25	+2	+7	+21	
5			0	-116	+2	+28	-15	-15		0	-15	0	-25	+2	+8	+24	

OUTPUT/ACTIVITY	UNITS	CURRENT PROGRAM FIRST DECADE	ALT. A CURRENT PROGRAM	BENCHMARKS				ALTERNATIVES										
				MINIMUM LEVEL	MAXIMUM RANGE	PVT MARKET	PVT ASSIGN.	(B) CONFO-SITE	(C) CONSTR. BUDGET	(D) CURRENT BUDGET	(E) NON-MARKET	(F) MARKET	(G) 1980 RPA	(H) HIGH PROD.				
															MAXIMUM	MINIMUM	MAXIMUM	MINIMUM
Timber	M \$																	
Decade 1		1198	0	-1198	+371	-304	-839	-839	-839	-60	+284	+50	+254	+579	+512			
2			+46	-1198	-305	-503	-892	-892	-235	-155	-281	-281	-58	-613	-679			
3			-247	-1198	+131	-455	-248	-248	-261	-683	-314	-314	-838	-360	-515			
4			-699	-1198	-1198	-145	-229	-229	-458	-349	-411	-411	-303	-465	-287			
5			-471	-1198	-488	-80	-585	-585	-983	-316	-221	-221	-470	-813	-743			
Other	M \$																	
Decade 1		21	0	0	0	0	0	0	0	0	0	0	0	0	0			
2			0	0	0	0	0	0	0	0	0	0	0	0	0			
3			0	0	0	0	0	0	0	0	0	0	0	0	0			
4			0	0	0	0	0	0	0	0	0	0	0	0	0			
5			0	0	0	0	0	0	0	0	0	0	0	0	0			
Total Receipts	M \$																	
Decade 1		1528	0	-1489	+396	-277	-848	-848	-137	+285	+16	+16	+261	+569	+550			
2			+110	-1488	-202	-424	-840	-840	-311	-153	-284	-284	+13	-610	-598			
3			-68	-1488	+240	-412	-50	-50	-329	-668	-241	-241	-620	-243	-470			
4			-406	-1489	-1138	-95	+281	+274	-510	-328	-304	-304	+230	-404	+26			
5			-239	-1489	-379	-325	+238	+46	-998	-289	-50	-50	+378	-486	-152			
Costs																		
Recreation	M \$																	
Decade 1		640	0	-500	+242	-191	+248	+86	-163	+77	+1664	+1664	+242	+351	-161			
2			+103	-485	+323	-191	+330	+215	-157	+207	+1070	+1070	+323	+33	-157			
3			+93	-470	+728	-77	+734	+38	-109	+27	+1377	+1377	+341	+1712	-22			
4			+192	-470	+1889	-53	+1895	+40	-104	+41	+1371	+1371	+1889	+961	+35			
5			+13	-470	+2899	+51	+2887	+72	-100	+64	+1468	+1468	+2889	+521	-109			
Wildlife	M \$																	
Decade 1		119	0	-119	+25	-49	-52	+74	-67	+7	+103	+103	+25	+49	+360			
2			+12	-119	+28	-49	-42	+105	-66	+1	+148	+148	+28	+16	+364			
3			+20	-119	+25	-51	-34	+114	-63	-2	+155	+155	+25	+55	+199			
4			+17	-119	+29	-51	-16	+135	-60	-60	+190	+190	+29	+60	+556			
5			+22	-119	+28	-47	+6	+152	-59	-9	+213	+213	+28	+63	+112			
Range	M \$																	
Decade 1		380	0	-380	+150	+113	-140	-140	-140	-70	-87	-87	+150	+75	+319			
2			0	-380	+177	+376	-146	-146	-146	-71	-115	-115	+177	+141	+376			
3			+6	-380	+191	+395	-151	-151	-151	-80	-108	-108	+190	+163	+394			
4			+2	-380	+198	+195	-156	-156	-156	-113	-105	-105	+198	+168	+193			
5			+9	-380	+214	+216	-152	-152	-152	-109	-100	-100	+214	+177	+217			

OUTPUT/ACTIVITY	UNITS	CURRENT PROGRAM FIRST DECADE	ALT. A CURRENT PROGRAM	BENCHMARKS			ALTERNATIVES										
				MINIMUM LEVEL	MAXIMUM RANGE	PNV MARKET	PNV ASSIGN.	(B) COMPO-SITE	(C) CONSTR. BUDGET	(D) CURRENT BUDGET	(E) NON-MARKET	(F) MARKET	(G) 1980 RPA	(H) HIGH PROD			
															MINIMUM TIMBER	MAXIMUM TIMBER	
Timber	M \$																
Decade 1		2500	0	-2500	-562	-1548	-2171	-2171	-2171	0	-1273	-676	-1272	-793	-47	-635	
2			-1173	-2500	-951	-1852	-2270	-2270	-2270	-1173	-1168	-784	-1531	-816	-687	-1482	
3			-1429	-2500	-1265	-1869	-207	-207	-207	-1429	-1169	-764	-1435	-749	-936	-1298	
4			-519	-2500	-4	-1597	-1632	-1632	-1632	-519	-1168	-690	-1142	+287	+433	-31	
5			-1186	-2500	-938	-1667	-1919	-1919	-1919	-1186	-1169	-701	-937	-1016	+897	-802	
Roads (Appropriated)	M \$																
Decade 1		48	0	-48	-24	0	+9	+9	+9	-24	0	+135	-24	0	-24	0	
2			-24	-48	-24	-19	-24	-24	-24	-48	-24	-25	-24	-24	-24	-24	-24
3			-24	-48	-24	-48	-24	-24	-24	-48	-24	-24	-24	-24	-24	-24	-24
4			-24	-48	-24	-24	-24	-24	-24	-48	-24	-24	-24	-24	-24	-24	-24
5			-24	-48	-24	-24	-24	-24	-24	-48	-24	-24	-24	-24	-24	-24	-24
Protection	M \$																
Decade 1		226	0	-36	+464	+444	+459	+460	+460	+137	+131	+4	+131	+548	+466	+460	
2			+109	-36	+458	+444	+454	+458	+458	+109	+116	+119	+119	+539	+487	+123	
3			+109	-36	+453	+444	+108	+458	+458	+109	+120	+109	+119	+538	+457	+123	
4			+109	-36	+458	+444	+108	+458	+458	+109	+120	+119	+119	+539	+457	+123	
5			+109	-36	+456	+444	+108	+462	+462	+109	+120	+119	+119	+537	+457	+123	
Other	M \$																
Decade 1		2310	0	-1935	+131	-1189	-1577	-439	-439	+575	-573	-227	+19	+81	+259	+229	
2			-1	-1893	+247	-1031	-1561	-268	-268	+761	-552	-207	-94	+247	+255	+784	
3			+16	-1886	+274	-1079	-1505	-171	-171	+208	-575	-240	-67	+324	+543	+789	
4			+36	-1880	+672	-833	-1318	+126	+126	+486	-597	-243	-3	+692	+519	+1055	
5			+21	-1884	+769	-832	-1457	+321	+321	+482	-609	-231	-29	+742	+1321	+1396	
Total Forest Budget	M \$																
Decade 1		6223	0	-5518	+426	-2220	-3224	-2121	-2121	+1393	-2085	-750	+534	+253	+1129	+264	
2			-974	-5461	+258	-2322	-3259	-1931	-1931	+609	-7997	-760	-427	+474	+221	-322	
3			-1209	-5439	+382	-2285	-3079	-1943	-1943	-117	-1971	-974	+17	+645	+1970	-25	
4			-187	-5433	+3218	-1919	-1143	-1044	-1044	+940	-1989	-916	+406	+3610	+2574	+1473	
5			-1036	-5437	+3404	-1859	-551	-1088	-1088	+285	-1993	-891	+710	+3370	+1618	+872	
Operation & Mtoe. Portion of Budget	M \$																
Decade 1		3892	0	-3187	+960	-1075	-1325	-313	-313	+976	-908	-331	+1165	+775	+728	+618	
2			+79	-3130	+1062	-966	-1268	-155	-155	+1191	-942	-59	+354	+1048	+700	+672	
3			+10	-3108	+1038	-909	-1494	-195	-195	+624	-973	-356	+584	+1113	+1050	+719	
4			+145	-3102	+2160	-625	-798	+323	+323	+887	-994	-151	+803	+1724	+1330	+987	
5			-61	-3106	+2207	-593	-821	+429	+429	+1033	-1029	-397	+913	+2007	+2201	+1210	

OUTPUT/ACTIVITY	UNITS	CURRENT PROGRAM FIRST DECADE	ALT. A CURRENT PROGRAM	BENCHMARKS				ALTERNATIVES										
				MINIMUM LEVEL	MAXIMUM TIMBER	MAXIMUM RANGE	PVT MARKET	PVT ASSIGN.	(B) COMPO-SITE	(C) CONSTR. BUDGET	(D) CURRENT BUDGET	(E) NON-MARKET	(F) MARKET	(G) 1980 RPA	(H) HIGH PROD			
Investment Portion of Budget	M \$																	
Decade 1		2331	0	-2331	-534	-1145	-1899	-1808	417	-1177	-419	-631	-522	+401	-354			
2			-1053	-2331	-804	-1356	-1991	-1776	-582	-1055	-701	-781	-574	+479	-994			
3			-1219	-2331	-656	-1376	-1585	-1748	-741	-998	-618	-547	-468	+920	-744			
4			-332	-2331	+1058	-1294	-345	-1367	+53	-995	-465	-397	+1886	-1244	+486			
5			-975	-2331	-1197	-1266	+270	-1517	-748	-964	-494	-203	+1363	-583	-338			
Non-Forest Service Costs (Purchaser Constructed Roads)	M \$																	
Decade 1		239	0	-239	-71	-121	-205	-205	0	-96	-80	-116	-63	+6	+37			
2			-69	-239	-27	-151	-221	-221	-69	-92	-12	-115	-75	-14	-104			
3			-121	-239	-89	-157	-197	-197	-121	-116	-93	-138	-66	-106	-112			
4			-139	-239	-112	-122	-145	-145	-139	-124	-140	-119	-149	-144	-136			
5			-175	-239	-172	-162	-174	-174	-175	-163	-171	-190	-174	-172	-149			
Returns to Treasury	M \$																	
Decade 1		1528	0	-1489	+396	-277	-848	-842	+4	-137	+285	+16	+261	+569	+550			
2			+110	-1488	-202	-424	-840	-834	+114	-311	-153	-284	+13	-610	-598			
3			-68	-1488	+240	-412	-50	-45	-33	-329	-668	-241	-620	-243	-470			
4			-406	-1489	-1138	-95	+281	+274	-272	-510	-328	-304	+230	-404	+26			
5			-239	-1489	-379	-325	+238	+46	+85	-998	-289	-50	+378	-486	-152			

*Changes from Current are average annual for the decade. Dollar amounts are average annual for the decade expressed in 1978 dollars, inflated to 1/1/82.

Tables II-20, 21, 22, 23, and 24 present information on discount values and comparison of Present Net Value by alternatives.

TABLE II-20
 BENEFITS AND RECEIPTS OF OUTPUTS INCLUDED
 IN PNV ANALYSIS
 (1978 dollars inflated in 1/1/82)

SOURCE	RESOURCE	OUTPUT MEASURE	BENEFITS
Historical			calculated by
Forest Data	Softwood/Sawtimber/Roundwood	MCF	FORPLAN
	Hardwood/Sawtimber/Roundwood	MCF	32.72
	Softwood/Roundwood	MCF	69.00
	Hardwood/Roundwood	MCF	32.72
	Softwood/Hardwood/Firewood	MCF	32.72
RPA	Developed Recreation Use	RVD	4.14
	Dispersed Recreation Use	RVD	4.14
	Wilderness Use	RVD	11.03
	Big Game User Day	WFUD	31.85
	Cold Water Fish User Day	WFUD	24.61
	Livestock Use	AUM	8.06
Region 4	Mineral Materials Sold	M TONS	250.00
	Mineral Materials Free Use	M TONS	250.00
	Mineral Materials Inservice	M TONS	250.00
	Uranium Production	BBTU	15.99
	Oil & Gas Production	BBTU	417.24
	Lease Rentals Non-Energy	ACRES	1.00
	Lease Rentals - Energy	ACRES	1.00
	Coal Production	BBTU	140.38
	Increased Water Yield	AC/FT	58.38

SOURCE	RESOURCE	OUTPUT MEASURE	RECEIPT (1982 \$)
Historical			calculated by
Forest Data	Sawtimber	MMBF	FORPLAN
	Roundwood	MMBF	\$23,000.00
	Fuelwood	MMBF	\$ 6,100.00
	Recreation (Developed)	RVD	\$.36
	Recreation (Special Uses)	\$/Year	\$13,000.00 (constant)
	Range	AUM	\$ 1.01
	Minerals	CASE	\$ 18.09
	Land Use	\$/Year	\$ 9,000.00 (constant)
	Power	\$/Year	\$12,000.00 (constant)

Definitions:

RPA - Resource Planning Act; 1980 Assessment.

Region 4 - Developed by Intermountain Region, Forest Service, for use in Forest Planning

TABLE II-21
PRESENT NET VALUE AND NON-PRICED OUTPUTS
(MM 1978 Dollars Inflated to 1/1/82)
(Discount Rate 4%)

	PNV	FVC	PVB	VQO		Wildlife Emphasis Management M Acres	Declining Watershed Condition M Acres	Percent of Forest With Moderate or Low Restrictions For Mineral Activities	No. of Deer In 2030 M Numbers	No. of Elk In 2030 Numbers
				Retention M Acres	Partial Retention M Acres					
CURRENT PROGRAM										
Decade 1	109.4	53.1	162.5	850	629	130.9	102	93		
2	94.7	30.1	124.8	848	617	130.9	79	93		
3	78.7	19.3	98.0	844	603	130.9	56	93		
4	62.6	15.5	78.1	841	591	130.9	33	93		
5	56.9	9.0	65.9	838	578	130.9	11	93	53.5	1800
COMPOSITE										
Decade 1	105.4	64.5	169.9	850	629	449.2	102	94		
2	99.7	38.9	138.6	848	617	449.2	79	94		
3	82.0	23.3	105.3	844	603	449.2	56	94		
4	74.8	18.4	93.2	841	591	449.2	31	94		
5	57.3	11.2	68.5	778	578	449.2	11	94	53.5	2900
CONSTRAINED BUDGET										
Decade 1	118.4	35.2	153.6	852	633	32.5	113	92		
2	85.6	24.3	109.9	849	625	32.5	113	92		
3	57.7	16.4	74.1	845	617	32.5	112	92		
4	47.0	11.0	58.0	844	603	32.5	112	92		
5	34.0	7.4	41.4	841	592	32.5	112	92	45.5	1500
CURRENT BUDGET										
Decade 1	120.9	46.3	167.2	850	626	130.9	108	93		
2	89.4	31.6	121.0	847	614	130.9	97	93		
3	67.6	20.2	87.8	844	603	130.9	87	93		
4	56.5	13.7	70.2	841	591	130.9	76	93		
5	45.3	9.2	54.5	837	576	130.9	66	93	51.7	1800
NON-MARKET										
Decade 1	106.8	56.5	163.3	854	642	693.4	98	84		
2	129.6	32.9	162.5	851	630	693.4	66	84		
3	72.9	23.8	96.7	848	622	693.4	36	84		
4	58.5	17.1	75.6	845	612	693.4	10	84		
5	48.8	12.0	60.8	843	600	693.4	0	84	56.0	3000
MARKET										
Decade 1	113.9	54.7	168.6	830	606	41.0	113	92		
2	83.1	38.4	121.5	806	570	41.0	112	92		
3	71.7	26.4	98.1	780	531	41.0	112	92		
4	56.6	25.1	81.7	753	500	41.0	111	92		
5	48.4	16.5	64.9	725	450	41.0	111	92	52.1	1500

	PVC		PVB		VQC Retention		VQC Partial Retention		Wildlife Emphasis Management		Declining Watershed Condition		Percent of Forest With Moderate or Low Restrictions For Mineral Activities		No. of Deer In 2030		No. of Elk In 2030		
	M Acres	M Acres	M Acres	M Acres	M Acres	M Acres	M Acres	M Acres	M Acres	M Acres	M Acres	M Acres	M Acres	M Acres					
Benchmarks																			
RPA 1980																			
Decade 1	77.1	62.4	139.5	849	623	134.2	112	94											
2	64.6	37.0	101.6	844	603	134.2	111	94											
3	41.3	31.2	72.5	838	581	134.2	110	94											
4	27.0	22.5	49.5	834	562	134.2	110	94											
5	26.2	13.5	39.7	828	542	134.2	110	94								54.8		2200	
HIGH PRODUCTIVITY																			
Decade 1	99.0	55.6	154.6	831	607	42.0	113	94											
2	77.3	33.5	110.8	803	566	42.0	112	94											
3	57.2	23.7	80.9	773	521	42.0	112	94											
4	48.0	19.8	67.8	743	476	42.0	111	94											
5	43.3	12.3	55.6	710	426	42.0	112	94								45.0		1500	

TABLE II-22
PRESENT NET VALUE AND QUALITATIVE EFFECTS
(MM 1978 Dollars Inflated to 1/1/82)

	PNV	PVC	PVB	Narrative
Alternatives				
Current Program	402.3	127.0	529.3	Timber outputs decline, but most outputs remain the same during the planning period except those that increase due to public demand, such as recreation and minerals.
Composite	419.1	156.4	575.5	Most outputs increase or remain the same compared to the Current Program Alternative and maintains a strong level of amenity values.
Constrained Budget	342.9	94.2	437.1	Generally, all outputs are at a low level, but compared to others, has low costs.
Current Budget	379.5	121.1	500.6	Maintains a moderate level of outputs and costs throughout the planning period, but quality of the forest gradually declines.
Non-Market	416.8	142.2	559.0	Produces low timber and range outputs, but has high outputs in dispersed recreation and amenity values.
Market	373.6	161.2	534.8	Produces high timber, range and developed recreation outputs, but has high costs.
RPA 80	236.1	166.7	402.8	PNV is low because although commodity outputs are higher in this Alternative, the cost of producing the additional outputs are proportionately higher.
High Productivity	324.9	144.9	469.8	Produces the highest timber and range outputs but without high costs. Low outputs in other resources.

TABLE II-23
PRESENT NET VALUE AND PRICED OUTPUTS
(Thousands of 1978 Dollars Inflated to 1/1/82)*

	PVC COSTS**	PV COSTS**	PV BENEFITS BY RESOURCE				PVC COSTS BY MAJOR COST CATEGORIES								
			REC.	RGE.	TBR.	ML.	HTR.	MVN.	OTHER	TBR***	REC.	ML.	RGE.	PROTEC.	OTHER
Current Program	402340	127000	290470	20190	23120	122590	8110	64400	460	42910	15360	2810	8310	6430	51180
Composite	419100	156430	326900	20190	23120	132300	8110	64450	460	42910	23690	7580	12370	7600	62280
Constrained Budget	342860	94240	216070	18740	20770	115430	6690	58940	460	31000	10870	1180	5090	7600	38500
Current Budget	379570	121060	260450	20190	23830	123230	8020	64450	460	42180	16030	2610	6530	6530	47180
Non-Market	416740	142220	318480	15790	22600	130810	6330	64490	460	28050	44700	5670	6070	7610	50120
Market	373660	161180	294500	20530	23410	122820	8610	64510	460	43220	28720	3170	12070	16720	57280
RPA 80	236100	166750	166160	21100	23790	126600	9020	55720	460	50380	26750	3550	11010	15100	59960
High Productivity	324880	144870	240110	22620	23100	120060	8260	55140	460	38540	11550	3880	15280	10370	65250

* Direct comparisons of benefits and costs displayed for individual resource outputs provide general indications of relationships but may be misleading because some outputs in multiple use forestry have common costs of production that cannot be easily separated and attributed to individual resources.

** 4% Discount Rate used.

*** Includes non-Forest Service Costs (Purchaser Road Construction).

NOTE: Support costs to these program components (Tbr, Rec, Ml, Rge, Other, etc.) from other program components are included.

TABLE II-23a
PRESENT NET VALUE AND PRICED OUTPUTS
(Thousands of 1978 Dollars Inflated to 1/1/82)*

	(RECEIPTS)		PV RECEIPTS BY RESOURCE				PVC COSTS BY MAJOR COST CATEGORIES				OTHER				
	PV COSTS**	PV RECEIPTS	REC.	RGE.	TBR.	WL.	WTR.	MIN.	OTHER	TBR***		REC.	WL.	RGE.	PROTEC.
Current Program	-94840	127000	32160	6080	22820	0	0	280	46	42910	15360	2810	8310	6430	51180
Composite	-123180	156430	33250	7160	22820	0	0	290	460	42910	23690	7580	12370	7600	62280
Constrained Budget	-68060	94240	26180	2640	20490	0	0	250	460	31000	10870	1180	5090	7600	38500
Current Budget	-90130	121060	30930	4100	23560	0	0	290	460	42180	16030	2610	6530	6530	47180
Non-Market	-112150	142220	30070	5030	22320	0	0	270	460	28050	44700	5670	6070	7610	50120
Market	-126790	161180	34390	7920	23130	0	0	310	460	43220	28720	3170	12070	16720	57280
RPA 80	-134980	166750	31770	4870	23510	0	0	290	460	50380	26750	3550	11010	15100	59960
High Productivity	-112350	144870	32520	6110	22830	0	0	290	460	38540	11550	3880	15280	10370	65250

* Direct comparisons of receipts and costs displayed for individual resource outputs provide general indications of relationships but may be misleading because some outputs in multiple use forestry have common costs of production that cannot be easily separated and attributed to individual resources.

** 4% Discount Rate used.

*** Includes non-Forest Service Costs (Purchaser Road Construction).

NOTE: Support costs to these program components (Tbr, Rec, Wl, Rge, Other, etc.) from other program components are included.

G. VEGETATION MANAGEMENT PRACTICES

This section describes the timber stand treatment methods that will be used to achieve long-term sustained yield. These methods are further described in the Regional Guide for the Intermountain Region (Chapter 3) and in the Standards and Guidelines of the Forest Plan.

1. Even-aged Management

a. Clearcut Methods

Clearcut methods (patch, strip or stand) are used in insect and disease infested stands of all conifers and in stands of pure aspen. The basic objective is to replace the existing defective or mature stand with young healthy trees through natural or artificial regeneration. Small patch clearcuts, usually less than four acres will be used in ponderosa pine and mixed conifer to remove heavy pockets of dwarf mistletoe. Similar patch cuts and narrow strip cuts may be used in the Engelmann spruce - subalpine fir type to remove root rot center and harvest mature trees where partial cutting would create risk of blowdown. Stand clearcuts, less than 40 acres, will be used to harvest stands (clones) of mature aspen.

b. Shelterwood Methods

Shelterwood methods are the most widely used in stands of generally healthy conifers. The following treatments are generally applied:

Precommercial thinning. Applied in dense stands or clumps of saplings and poles to reduce numbers of trees for maximum diameter growth to commercial size. Cleaning and weeding (removal of undesirable species and rough or damaged trees) may be applied at this time or in conjunction with intermediate cutting.

Intermediate cutting. This improvement cutting is the first commercial thinning applied to small sawtimber sized trees to improve tree quality and species composition of the residual stand and the reduce trees per acre for optimum volume increment consistent with objective tree diameter. Intermediate cutting may be applied in conjunction with overstory removal cutting in denser unmanaged stands. Two or more intermediate cuttings may be done over a period forty to sixty years before the preparatory or seed cut.

Preparatory cutting. This entry may be made in dense unmanaged stands at or near maturity with inadequate advance regeneration for the purpose of developing desirable seed trees. The objective is to leave about 50 percent crown cover and give residual seed trees room to develop full crowns.

Seed cutting. This the regeneration cut of a shelterwood applied in a mature stand. Stand density is reduced to 25 to 45 square feet of basal area per acre. The best potential seed bearing trees are left which will also provide shelter for the regeneration.

Removal cutting. This is the final step of a shelterwood where seed trees are removed when regeneration is firmly established, usually within 30 years after the seed cut. One to three removal cuts may be made depending on site conditions and mitigation requirements for other resources (visual quality, wildlife cover, etc.)

2. Uneven-aged Management

The basic objective of uneven-age management is to create or maintain uneven-age stands of timber by maintaining equal numbers of trees in each diameter class. This system will only be used in special cases on the Dixie National Forest, mostly to satisfy objectives other than timber management, e.g. vertical diversity for certain wildlife or visual quality.

a. Individual Tree Selection

A combination of cutting taken place each entry where mature trees are harvested. Excess trees in each diameter class are cut (intermediate cutting) and clumps of saplings are precommercially thinned. Regeneration is an associated objective.

b. Group Selection

This method is applied to create or maintain a clumpy arrangement of trees within a stand. All trees in a single group (several trees up to 2 acres) are either cut or left. Openings created are regenerated by natural or artificial means.

c. Sanitation - Salvage

This method may be applied in special situations under even or uneven-age systems. The objective is to remove appropriate trees to prevent the spread of insects or disease and to utilize dead or dying trees. Sanitation - salvage cutting may be used if necessary in areas outside of the timber base such as developed recreation areas and non-commercial forest land. In some instances, especially in low value stands, prescribed fire might be used as the most appropriate tool for stand conversion.

3. Reforestation

a. Site preparation

Some type of site preparation is usually required prior to regeneration to expose mineral soil and/or remove competing vegetation so tree seedlings can become established and grow at an acceptable rate.

Mechanical. Mechanical means such as discing, ripping, or surface scarification, is done to increase plantability in adverse soil conditions and/or to remove competing vegetation.

Chemical. Herbicides may be used to kill competing vegetation such as grass or brush. Dead plant material is left in place for a mulching effect which is beneficial to the reforestation effort. An environmental analysis is required for each project. Chemical site preparation may be used prior to mechanical or burning methods.

Burning. Prescribed fire may be used as an economical site preparation technique to remove fire slash materials and/or temporarily reduce competing vegetation.

b. Planting

Most reforestation on the Dixie National Forest will be done by planting tree seedlings, bare-root or containerized on 18 to 24 inch scalped spots at a target rate of 400 to 550 trees per acre. Natural regeneration is difficult to obtain in southern Utah because of infrequent seed crops and a seasonal drought during much of the growing season. Natural regeneration of aspen by sprouting is usually successful.

4. Timber Stand Improvement (TSI)

a. Precommercial Thinning

Excess trees smaller than 8 inches in diameter will be cut consistent with density management guideline in FSH 2409.26C and with mitigating requirements for other resources identified during the environmental analysis process for each timber sale or project. The objective of precommercial thinning is to concentrate wood fiber growth on as many trees per acre as possible while maintaining a free growth condition (no competition from stand density) until the stand reaches an average tree diameter of 10-12 inches. An average of 5,000 acres of precommercial thinning will be done each year for the first decade under the Current Program and composite alternatives. TSI levels in other alternatives will vary with timber harvest, budget and other constraints.

b. Other

TSI activities such as release, weeding and cleaning will be done in relatively small amounts in conjunction with precommercial thinning.

5. Harvest of Timber from Unsuitable Lands

The Forest Plan identifies lands that are unsuitable for timber production for reasons of irreversible resource damage and not capable of producing crops of industrial wood products. Data available during Forest Plan development were insufficient to accurately identify some of these areas. The monitoring plan provides for more detailed examination and evaluation of these areas in the near future. Some areas may subsequently qualify as suitable and be returned to the timber base.

H. HOW THE ALTERNATIVES ADDRESS THE ISSUES

The following display summarizes how each issue is addressed by the eight alternatives in a comparative format. Most issues are treated differently by each alternative although three are treated the same by each alternative. Appendix A in the appendix document describes all issues in further detail.

I. ECONOMIC VALUES AND RESPONSES TO MAJOR ISSUES, CONCERNS AND OPPORTUNITIES

The major reason that alternatives differ is that each responds to the issues, concerns, and opportunities (ICO's) identified for this Forest in differing ways. This section summarizes these differences by defining indicators of those responses that can be quantified. It also discusses indicators of

HOW THE ALTERNATIVES ADDRESS THE ISSUES

ISSUES	CURRENT PROGRAM	COMPOSITE	CONSTRAINED BUDGET	CURRENT BUDGET	NON-MARKET EMPHASIS	MARKET EMPHASIS	1980 RPA	HIGH PRODUCTIVITY
1. AMOUNT OF EMPHASIS PLACED ON FIRE MGMT.	Provide for adequate fire protection based on Level II fire analysis. Actively disposed of promptly & adequately.	Provide for adequate fire protection based on Level II fire analysis. Actively disposed of promptly & adequately.	Fire protection not adequate to provide complete Level II fire needs. Activity late & provide increased hazard. No use of managed resources.	Same as Current Program but in later periods of the plan fire protection not adequate for the increased use projected on the Forest.	Provide for adequate fire protection based on Level II fire analysis. Emphasis on activity fuel disposal & managed fire will be to enhance wildlife habitat.	Provide for adequate fire protection based on Level II fire analysis. Emphasis on activity fuel disposal & managed fire will be to enhance wildlife habitat.	Same as Market Emphasis Alt.	Same as Market Emphasis Alt.
2. INCREASED DEMAND ON FOREST RESOURCES	All Alternatives assume that an increased demand for forest resources will exist.	Same.	Same.	Same.	Same.	Same.	Same.	Same.
3. SOCIO-ECONOMIC STABILITY OF DEPENDENT COMMUNITIES	Provide for continued stability of communities in first decade. Later have to utilize Aspen and small pine.	Same as Current Program Alt.	Community stability based on NF resource will decline because of reduced levels of resource utilization & recreation opportunities.	Same as Current Program Alt.	Reduced timber harvest & grazing levels will create stability problems in those communities dependent on timber resources.	Reduced timber harvest & grazing levels will create stability problems in those communities dependent on timber resources.	Same as Market Emphasis Alt.	Same as Market Emphasis Alt.

4. REDUCE MORTALITY LOSS ACCELERATING HARVEST OF TIMBER

Provide for a moderate acceleration of timber in the 1st decade of the plan. Mortality will continue heavy in mixed & conifer stands.

Same as Current Program Alt.

Lower levels of timber harvest & reduced levels of timber stand improvement work will not provide for a reduction in mortality.

Same as Current Program Alt.

Higher levels of timber harvest on all areas excluding high cost logging areas will provide the greatest reduction of mortality.

Same as Market Emphasis Alt.

However, some losses will continue until timber stands have been under management for several cutting cycles.

5. EMPHASIZE WILDLIFE MANAGEMENT

Wildlife management is emphasized by restricting timber harvest & grazing in areas of critical wildlife habitat. Mitigation of damage to wildlife habitat will be adequate to maintain minimum populations.

Emphasis is provided by more restrictions where timber harvesting & grazing will occur. Essential wildlife habitat areas receive increased emphasis from management presumptions.

Lower levels of timber harvest & grazing will provide some enhancement of wildlife habitat but low levels of wildlife habitat improvements will not provide adequate emphasis to wildlife habitat use of management presumptions.

Reduced grazing & timber harvest levels in important wildlife areas & increased expenditure for wildlife habitat improvements will provide the highest level of wildlife management emphasis. Large areas of the forest will be managed for wildlife emphasis.

Increased grazing & timber harvest levels & low levels of wildlife habitat improvement expenditure will not provide adequate emphasis to meet desired wildlife goals.

Same as Market Emphasis Alt.

6. MANAGEMENT OF FIREWOOD

Current levels of firewood availability will continue. Supplies will continue to dwindle in a radius around Cedar City.

Same as Current Program Alt.

Lower levels of resource utilization & reduced road access will restrict the availability of firewood in the later periods of the plan.

Same as Current Program Alt.

Increased timber harvest levels & reduced road access will provide for only low levels of firewood availability.

Same as Market Emphasis Alt.

7. LIVESTOCK GRAZING LEVELS

Current levels of grazing will continue throughout the planning period.

Same as Current Program Alt.

Reduced levels of administration, range improvement maintenance & construction will cause a gradual decline in permitted livestock numbers.

Permitted livestock numbers will be reduced in order to provide for wildlife habitat, riparian areas protection, etc.

Increased levels of range improvements & administration will provide for an increase in permitted livestock numbers.

Same as Market Emphasis Alt.

8. PROTECTION OF WATER VALUES

CURRENT PROGRAM Water values will continue to be protected thru the use of avoidance, mitigation, & stipulation in contracts, permits, etc. Restoration of damaged watersheds will continue but at a slow pace.

CONstrained BUDGET Only small watershed projects will be treated. Most areas of declining water-erosion hazard, a higher level of coordination, & continued use of stipulation in contracts, permits, etc. Restoration of damaged watersheds will be completed within the planning period.

CURRENT BUDGET The larger watershed restoration projects will be water-treated. One-half of the declining water-erosion hazard, a higher level of coordination, & continued use of stipulation in contracts, permits, etc. Restoration of damaged watersheds will be completed.

NON-MARKET EMPHASIS Water values will be significantly enhanced by riparian areas & streams & reduced levels of resource use. Restoration of damaged watersheds will be completed.

MARKET EMPHASIS Water values will continue to be protected, but quality overall will decline due to increased levels of resource uses & road construction. Aggressive action would be taken to treat soil & water res-sources of declining watershed due to poor range condition would not be treated.

9. MINERAL DEVELOPMENT, & LEASING

CURRENT PROGRAM Mining activities will continue with some restrictions for the protection of other resource values. Most impacts will be mitigated through the use of protective stipulation.

CONstrained BUDGET Same as Current Program Alt. except that impacts from mining on other resource values will increase due to lower levels of the administration of permits and protective stipulations.

CURRENT BUDGET Same as Current Program Alt. except that more areas of the Forest will be restricted by stipulations for the protection of other values.

NON-MARKET EMPHASIS Same as Current Program Alt's. except that fewer areas will be restricted by stipulations for the protection of other values.

MARKET EMPHASIS Similar to Current Program Alt's. except that fewer areas will be restricted by stipulations for the protection of other values.

10. SCENIC VALUES

CURRENT PROGRAM Scenic values will continue to be protected along the major road corridors & recreation areas.

CONstrained BUDGET Scenic values will decline slightly due to a lack of administration of road corridor resource uses. Recreation areas will be protected.

CURRENT BUDGET Scenic values will be maintained at the present level or enhanced. Management activities will emphasize scenic quality in road corridors & recreation areas or be prohibited.

NON-MARKET EMPHASIS Scenic values will be maintained at the present level or enhanced. Management activities will emphasize scenic quality in road corridors & recreation areas or be prohibited.

MARKET EMPHASIS Scenic values will decline due to the increased level of resource uses. A smaller portion of the Forest's road corridors & recreation areas will be protected.

ISSUES	CURRENT PROGRAM	COMPOSITE	CONSTRAINED BUDGET	CURRENT BUDGET	NON-MARKET EMPHASIS	MARKET EMPHASIS	1980 RPA	HIGH PRODUCTIVITY
11. INCREASED RECREATION USE	The Forest's capacity for developed recreation use will be inadequate for the expected increase in recreation visits. The capacity for dispersed recreation will remain adequate, however, quality will diminish gradually.	Similar to Current Program Alt except that some developed recreation facilities will occur & that greater portions of the Forest will be managed for semi-primitive recreation.	The Forest's capacity for developed recreation use will decline below the present capacity. The dispersed recreation area will remain adequate, however, quality will diminish.	Same as Current Program Alt.	The construction of developed recreation facilities will be increased to ensure an adequate capacity for recreation uses. The quantity & quality of dispersed recreation areas will be high.	The construction of developed recreation facilities will be increased to ensure an adequate capacity for recreation uses. The quantity & quality of dispersed recreation areas will be high.	Same as Market Emphasis Alt.	Same as Market Emphasis Alt.
12. DEVELOPED RECREATION SITES	All alternatives provide for both group sites & single family units in satisfactory proportions.	Same.	Same.	Same.	Same.	Same.	Same.	Same.
13. RECREATION USER CONFLICTS	Conflicts between users are expected to increase gradually over the planning period. However, signs, facilities, & law enforcement efforts will keep the number of conflicts low.	Same as current Program Alt.	Conflicts between motorized & non-motorized users will increase because of lack of signs, facilities, and law enforcement.	A modest increase over current Program Alt.	Emphasis on dispersed recreation facilities. Administration will lead to a moderate level of conflicts between motorized and non-motorized users.	Lack of emphasis on dispersed recreation facilities will lead to a moderate level of conflicts between motorized and non-motorized users.	Same as Market Emphasis Alt.	Same as Market Emphasis Alt.
14. TRANSPORTATION SYSTEM SAFETY & CONVENIENCE	Collector & local road system miles increase gradually. Road maintenance is adequate for safety & convenience on the majority of the roads on the system.	Same as Current Program Alt.	Collector & Local road system miles declines. Public safety & convenience cause of low maintenance levels on all roads.	Slightly lower road system miles and maintenance levels than Current Program Alt.	Collector & Local road system miles increase moderately due to relatively high timber & range levels. Public safety & convenience is only moderate because road maintenance for resource harvest would be emphasized over public safety & convenience.	Collector & Local road system miles increase moderately due to relatively high timber & range levels. Public safety & convenience is only moderate because road maintenance for resource harvest would be emphasized over public safety & convenience.	Same as Market Emphasis Alt.	Same as Market Emphasis Alt.

concern to the nation as a whole. Appendix A provides a full discussion on each of the ICO's and the indicators. The seven major ICO's with the greatest influence on the alternatives and indicators of responsiveness include:

1. The level of timber harvest while responding to other demands on the forest. The indicators are:
 - a. Volume of timber harvested.
 - b. Long-term sustained yield.
 - c. Suitable acres managed for timber production.
 2. Quality of habitats and wildlife and fish populations. The indicators are:
 - a. Population of catchable trout.
 - b. Population of elk.
 - c. Population of deer.
 3. Road accessibility and the quality of roads. While mileage, costs, and construction standards are all indicators, road mileage and costs are too strongly correlated with the volume of timber harvested to be useful. Likewise, road standards are not useful because they are the same in all alternatives. Therefore, no indicators are suitable.
 4. Contributions of the Forest to the economic development and way of life of nearby communities. Although no quantitative indicators reflecting ways of life are available, Chapter IV discusses the implications of the alternatives. The indicator of contributions to economic development are:
 - a. Number of Forest-dependent jobs.
 - b. Dollar income generated in dependent communities.
 - c. Payments to counties.
 5. Areas to be managed as wilderness and semi-primitive recreation opportunity areas while meeting other demands. The indicators are:
 - a. Acres of wilderness areas.
 - b. Acres managed for semi-primitive recreation opportunities.
 6. The level of livestock grazing while responding to other demands. The indicators are:
 - a. Number of AUM's permitted.
 7. Protection of scenic values. The indicators are:
 - a. Acres in the visual quality classes of primitive, retention, and partial retention.
- In addition, the nation as a whole has an interest in ensuring that this valuable Forest is managed in a financially prudent manner while the quality of the physical environment is protected and enhanced. Additional indicators:
- a. Economic efficiency, as measured by present net value.
 - b. Cash receipts from management.
 - c. Budget costs to the taxpayers for management.

TABLE II-24
INDICATORS OF RESPONSIVENESS OF ALTERNATIVES
TO MAJOR ISSUES AND NATIONAL CONCERNS
(Alternatives Ranked by Decreasing PNV)
(1978 Dollars Inflated to 1/1/82)

INDICATORS	UNITS	ALTERNATIVES								
		B	R	A	D	F	C	H	G	
National economic concerns										
PNV	MM\$	41.9	41.7	40.2	38.0	37.4	34.3	32.5	23.6	
Benefits*	MM\$	20.7	19.9	19.8	20.3	20.5	18.7	18.8	17.0	
Cash receipts*	MM\$	1.5	1.5	1.5	1.8	1.8	1.4	2.1	2.1	
Budget cost*	MM\$	7.6	6.8	6.2	5.5	6.5	4.1	6.5	7.4	
Non-cash benefits*	MM\$	19.2	18.4	18.3	18.5	18.7	17.3	16.7	14.9	
Timber and road issues										
Allowable sale quantity*	MMBF	26.4	21.5	26.4	27.0	28.7	22.4	33.7	32.8	
LTSY capacity	MVCF	8.2	6.0	8.2	8.3	7.7	7.7	8.1	7.5	
Suitable forest lands	M ACRES	302.4	187.7	302.4	310.7	312.1	276.9	310.8	309.6	
Roads constructed*	Miles	30	11	30	17	19	16	33	26	
Fisheries/wildlife issue										
Fish	M LBS.									
Decade 1		216	221	215	214	214	217	213	215	
2		213	215	209	209	210	210	207	212	
3		212	216	203	203	204	204	200	210	
4		212	217	196	197	197	199	193	211	
5		212	217	190	191	191	193	186	210	
Deer	M NOS.									
Decade 1		51	52	51	41	41	41	41	52	
2		53	56	53	53	52	48	50	55	
3		53	56	53	52	52	45	49	55	
4		53	56	53	52	52	45	48	55	
5		53	56	53	52	52	45	45	55	
Elk	NOS.									
Decade 1		1530	1530	1530	1530	1530	1530	1530	1530	
2		2000	2300	1800	1800	1500	1500	1500	1900	
3		2000	2300	1800	1800	1500	1500	1500	1900	
4		2000	2300	1800	1800	1500	1500	1500	1900	
5		2000	3000	1800	1800	1500	1500	1500	2200	

INDICATORS	UNITS	ALTERNATIVES											
		B	E	A	D	F	C	H	G				
Community effects issues													
Total dependent employment**	NO. JOBS	1576	1418	1429	1400	1285	1174	1489	1051				
Total dependent income**	M\$	21.0	18.9	19.7	19.5	17.5	17.6	20.3	15.7				
Payments to counties*	M\$	383	386	382	453	447	348	524	524				
Livestock Grazing													
Number of AUM's permitted	M AUM's												
Decade 1		115	90	115	115	117	110	122	119				
2		115	90	115	115	117	107	130	120				
3		115	90	115	115	118	105	133	121				
4		115	90	115	115	118	103	136	122				
5		115	90	115	115	119	100	139	123				
Scenic Value Protection issue													
Preservation Class	M ACRES												
Decade 1		83	83	83	83	83	83	83	83				
2		83	83	83	83	83	83	83	83				
3		83	83	83	83	83	83	83	83				
4		83	83	83	83	83	83	83	83				
5		83	83	83	83	83	83	83	83				
Retention Class	M ACRES												
Decade 1		850	854	850	850	830	852	831	849				
2		848	851	848	847	806	849	803	844				
3		844	848	844	844	780	845	773	838				
4		841	845	841	841	753	844	743	834				
5		839	843	838	837	725	841	710	828				
Partial Retention Class	M ACRES												
Decade 1		629	642	629	626	606	633	607	623				
2		617	630	617	614	570	625	566	603				
3		603	622	603	603	531	617	521	581				
4		591	612	591	591	500	603	476	562				
5		578	600	578	576	450	592	426	542				
Wilderness & development issue													
Wilderness acres	M ACRES	83	83	83	83	83	83	83	83				
Managed for semi-primitive recreation	M ACRES	222	391	89	89	71	74	47	85				

*Annual, first decade
**End of first decade