Cost-Benefit Analysis

The Proposed Rule (36 CFR 219) for National Forest Land Management Planning

U.S. Department of Agriculture, Forest Service

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COST-BENEFIT ANALYSIS

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EXECUTIVE SUMMARY

The U.S. Department of Agriculture, Forest Service is proposing new regulations to improve the process of developing, amending, and revising land management plans for the National Forest System. As a result of the court injunction against the 2008 planning rule, on December 18, 2009, the Agency issued a notice of intent to prepare an environmental impact statement for a new planning rule, starting a new planning rule revision effort.

The proposed planning rule is the product of an extensive collaborative effort among many agencies, organizations, Tribes, and individuals who care deeply about the national forests. The Forest Service considered input gathered through broad-based collaboration to craft a proposed rule intended to be stakeholder-driven, firmly rooted in science, and implementable.

This analysis identifies the economic costs and benefits associated with the proposed revisions to the National Forest System Land Management Planning regulations (36 CFR part 219). The cost-benefit analysis focuses on key planning activities related to the three-part planning cycle for which costs could be estimated under the 1982 rule procedures and the proposed rule. Major activities include assessments, collaboration, science support, analysis/decisions, the resolution of disputes regarding plan decisions through the administrative processes of appeals or objections, plan maintenance, and monitoring. This analysis does not estimate the trend in planning complexity or costs not associated with the changes in the planning rule. The following sections summarize the discussion of regulatory impact in terms of agency cost impacts, efficiency and cost-effectiveness impacts, and distributional impacts under the proposed rule, no-action alternative (1982 rule procedures), and three other alternatives.

REGULATORY IMPACTS

The Agency reviewed this proposed rule under U.S. Department of Agriculture (Department) procedures and Executive Order 12866 issued September 30, 1993 (E.O. 12866).

The Agency has determined that this proposed rule is not an economically significant rule. This proposed rule will not have an annual effect of $100 million or more on the economy or adversely affect productivity, competition, jobs, the environment, public

health or safety, or State or local governments. This proposed rule will not interfere with an action taken or planned by another Agency. Finally, this proposed rule will not alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients of such programs. However, because of the extensive interest in National Forest System (NFS) planning and decisionmaking, this proposed rule has been designated as significant and, therefore, is subject to Office of Management and Budget review under E.O. 12866.

An analysis was conducted to compare the costs and benefits of implementing the proposed rule to the baseline, the 2000 planning rule using 1982 planning procedures (the 1982 rule procedures). This analysis is posted on the World Wide Web/internet at *http://www.fs.usda.gov/planningrule*, along with other documents associated with this proposed rule.

The scope of this analysis is limited to the programmatic or Agency procedural activities related to development, revision, and amendment (i.e., maintenance) of land management plans for management units (national forests, grasslands, prairies) within the National Forest System. As such, Agency or private costs or benefits associated with on-the-ground or site-specific activities and projects resulting from implementation of individual plans are not characterized or projected. This analysis identifies and compares the costs and benefits associated with developing, maintaining, revising, and amending NFS land management plans under five alternatives—(A) the proposed planning rule (proposed rule); (B) implementation of 1982 rule procedures under the 2000 rule (no action); (C) minimum to meet NFMA and purpose and need; (D) modified version of the proposed rule with an alternative approach to species diversity and an emphasis on watershed health; and (E) a modified version of the proposed rule with emphasis on monitoring performance and collaboration. Procedural effects evaluated include potential changes in Agency costs and changes in overall planning efficiency. This document focuses on analysis of direct procedural or programmatic effects, not potential indirect resource-specific or ecological effects. Examples of potential indirect resource-specific effects and changes in flows of goods and services are provided to help characterize potential outcomes associated with plans developed under the respective alternatives, however, the reader is referred to the draft environmental impact statement for the proposed rule for details about indirect effects. Alternative B is the no-action alternative and therefore the baseline for this analysis.

The effects of the proposed rule are evaluated within the context of a planning framework consisting of a three-part planning cycle: (1) assess, (2) develop/revise/amend, and (3) monitor. Based on this new planning framework, the cost-benefit analysis focuses on key activities related to this planning cycle for which agency costs can be estimated. Differences in costs across alternatives are estimated when possible, but benefits are discussed qualitatively in the context of potential changes in procedural or programmatic efficiency. The key activities for which costs were analyzed include: (1) assessments (e.g., activities conducted to establish a need for change, prior to initiating plan revisions or amendments; pre-notice of intent); (2) collaboration (e.g., collaboration and public engagement activities *outside* of public comment solicitation and content analysis completed to satisfy NEPA requirements); (3) development and analysis of plan, plan

revision and plan amendment decisions (i.e., development of alternatives to address a need for change; analysis and comparison of the effects of alternatives, including NEPA effects analysis and public comment solicitation; and finalizing and documenting revision and amendment decisions); (4) science support (e.g., assurances regarding how to account for best science); (5) monitoring (to support planning-related activities); and (6) disputes about the proposed plan decisions through the administrative processes of appeals or objections.

The primary sources of data used to help estimate Agency costs include recent cost-benefit analyses, business evaluations, and budget justifications for land management planning activities between 2000 and 2008, as well as recent historical data (1996–2009) regarding regional and unit-level budget allocations and paid expenditures for planning and monitoring activities related to planning. Agency costs are initially estimated for the 1982 rule procedures and then used as a baseline from which adjustments are made, based on explicit differences in planning procedures, to estimate costs for the proposed rule. Annual costs are estimated separately for years during which units (with regional support) are engaged in plan revision and years engaged in plan maintenance/amendment and then aggregated to estimate total planning costs. Over a 15-year planning cycle, it is assumed that management units will be engaged in plan revision for 3 years under the proposed rule and 5 years under the 1982 rule procedures, implying plan maintenance or amendment will be occurring for the remaining 12 and 10 years respectively. Monitoring is assumed to occur every year, but monitoring effort differs slightly for plan revision years compared to maintenance years. Shorter revision periods reflect expectations that the process for revising plans will be more efficient as a consequence of procedural changes described below (see Efficiency and Cost Effectiveness Impacts). It is also assumed that approximately 120 management units will at least initiate plan revision over the next 15 years (2012 through 2026). Total costs are assumed to cover activities directly related to planning and planning-related monitoring at the unit and regional office levels, as well as indirect or overhead (i.e., add-on or cost pools) activities to support planning activities. Costs do not include project-level activities (project and alternative development, NEPA analysis, etc.). Total costs (in 2009 dollars) are estimated for a 15-year planning cycle and then discounted assuming a 3 percent and 7 percent discount rate. Discounting reduces future costs to present-day values and is used to assess costs that occur over multiple years (e.g., 15 years). The sum of discounted annual costs is referred as the present net value of costs. This present net value of costs is then annualized (as in calculating mortgage payment) over a 15-year period to reflect present net value converted to an annual flow of costs. Annualized costs accrued over the 15-year period therefore reflect the annual flow of costs that have been adjusted to acknowledge society's time value of money.

Because of the programmatic nature of the proposed action, the benefits derived from land management plans developed, revised, or amended under the different alternatives are not quantified. Instead, the benefits of the alternatives are assessed qualitatively in the context of procedural or planning efficiency. Efficiency is a function of (1) the time and resources used (costs) to complete and maintain plans, and (2) the degree to which those plans are capable of providing direction for resource monitoring, management, and use/access that sustains multiple uses (including ecosystem services) in perpetuity and

maintains long-term health and productivity of the land for the benefit of human communities and natural resources, giving due consideration to relative values of resources (i.e., meets the objectives of NFMA and the proposed rule).

AGENCY COST IMPACTS

Annual average undiscounted costs to the Agency and the annualized costs at 3 percent and 7 percent discount rates explained above are estimated for all alternatives. Results indicate that Agency costs increase for some key activities and decrease for others under the proposed rule and alternatives. However, total annual planning costs are not projected to be substantially different between the proposed rule and the 1982 rule procedures.

The annual average cost to the Agency for all planning-related activities under the proposed rule ($102.5 million per year) is estimated to be $1.5 million per year less than the 1982 rule procedures ($104.0 million per year) (see Table S-1). The annual average cost to the Agency under Alternative C is estimated to be $80.2 million per year—$22.3 million per year (22 percent) lower than the proposed rule (Alternative A) and $23.8 million per year (23 percent) lower than the 1982 rule procedures (Alternative B, No Action). Annual average costs under Alternative D are projected to be $116.0 million per year to the Agency, which is $13.5 million per year (13 percent) higher than the proposed rule and $12.0 million per year (12 percent) higher than the current rule procedures. Annual average costs under Alternative E are projected to be $134.4 million per year to the Agency, which is $32.0 million per year (31 percent) higher than the proposed rule and $30.4 million per year (29 percent) higher than the 1982 rule procedures.

Under the proposed rule, as well as Alternatives D and E, costs are projected to be redirected toward collaboration, assessment, and monitoring activities and away from NEPA analysis/decision tasks compared to the 1982 rule procedures (see Table B-S-2). Costs are also redirected more toward non-revision periods (i.e., plan amendments and maintenance) under the proposed rule and Alternatives D and E, due in part to the reduced number of years anticipated to be needed for plan revisions. Time (and therefore costs) needed to complete plan revisions is assumed to decrease under the proposed rule as a consequence of broader support and resolution of issues during collaboration associated with development of plan proposals (i.e., prior to proposing or finalizing action). Some Alternative C costs are expected to be similar to the 1982 rule procedures. Notable exceptions are in the areas of assessment, analysis, and monitoring where lower costs are attributed to minimal requirements for these activities.

Assuming a 3 percent discount rate, the annualized cost for the proposed rule is estimated to be $102.0 million, while the annualized cost for the 1982 rule procedures is $103.3 million, implying an annualized cost difference of only $1.3 million. Assuming a seven percent discount rate for the same timeframe, the annualized cost estimate for the proposed rule is $101.2 million compared to $102.2 million under the 1982 rule procedures. Annualized costs for Alternative C are estimated to be $79.6 million and $78.8 million for discount rates of 3 percent and 7 percent respectively. Annualized costs for Alternative D are estimated to be $115.4 million and $114.6 million for discount rates of 3 percent and 7 percent respectively. Annualized costs for Alternative E are estimated

to be $133.8 million and $133.0 million for discount rates of 3 percent and 7 percent respectively.

EFFICIENCY AND COST-EFFECTIVENESS IMPACTS

Proposed Rule (Alternative A)

The numerous public meetings, forums, and roundtable discussions, convened as a result of this rule-making effort, revealed growing concern about a variety of risks and stressors (e.g., climate change; insects and disease; recreation, timber, and shifts in other local demands and national market trends; population growth, demographic shifts, and concerns about water supply and other ecosystem support services). Addressing these types of risks and contingencies requires a larger landscape perspective, information from a broader spectrum of sources and users, and a framework that can facilitate adaptation to new information about risks and stressors. The new procedural requirements in Alternative A are designed to recognize these needs and increase Agency as well as unit capacity for adapting management plans to new and evolving information about risks, stressors, contingencies, and management constraints, as described in the section above. Although substantial changes in total planning costs over a 15-year period are not projected under the proposed rule, it is anticipated that management units will have greater capacity to establish plans that are perceived as being efficient and legitimate frameworks for managing resources in a manner that meets public demand in a sustainable and acceptable fashion (i.e., satisfies the goals of the Multiple-Use Sustained-Yield Act [MUSYA] and the National Forest Management Act [NFMA]).

Long-term gains in planning efficiency are expected as a result of procedural changes and reallocation of effort (and costs) across key planning activities under the proposed rule (Table S-2). These gains would be reflected in part through reduced time needed to complete plan revisions (e.g., it is assumed that revisions are completed within 3 to 4 years under the proposed rule). Costs associated with planning activities such as analyzing and revising plan components are anticipated to be streamlined as resources are shifted to other activities such as collaboration, assessments, and monitoring under the proposed rule. These shifts in emphasis and resources are also projected to improve the currency, reliability, and legitimacy of plans to serve as a guide for: (1) reducing uncertainty by increasing opportunities to gather (and exchange) new information from a wide spectrum of sources, stakeholders, and other interested parties about conditions, trends, risks, stressors, contingencies, vulnerabilities, values/needs, contributions, and management constraints; (2) integrating and assessing ecological, social, and economic information to determine if outputs and outcomes related to unit contributions to ecological, social, and economic conditions constitute a need for change; and (3) responding to a need for change through management activities and projects or revisions and amendments to plan components.

New requirements to consider diversity and sustainability in monitoring, assessments, and plan components are expected to improve the cost-effectiveness of project-level analysis and decisionmaking, recognizing that project-level costs are not included in the analysis of planning costs. Potential changes in planning efficiency associated with specific planning activities are presented below.

Assessment

Slight increases in assessment costs are anticipated under the proposed rule because of the increased emphasis on a number of factors (e.g., unit roles and contributions within a broader ecological and geographic context [landscapes], ecosystem and species diversity, climate change, and other system drivers, risks, threats, and vulnerabilities); and the mitigating effects of other elements such as requirements to rely on existing information and removal of prescriptive benchmark analysis. Changes in the following assessment requirements and guidance are expected to increase planning efficiency by improving capacity to assimilate and integrate new information for determining a need for change:

- Assessments are to be conducted at landscape levels and at a geographic scale based on ecological, economic, or social factors, rather than strict adherence to administrative boundaries, thereby enhancing capacity to incorporate information about conditions outside of National Forest System (NFS) boundaries;
- Risks and vulnerabilities to ecosystem sustainability are to be considered in assessments, thereby encouraging consideration of the effects of long-term environmental or social/economic variability, events, and trends on future outputs, ecosystem services, and outcomes (e.g., climate change); and
- Agency costs for broad-scale assessments might be offset in part by considering and referencing existing assessments completed by other branches in Forest Service, other Federal agencies, States, and other entities.

Collaboration

Costs associated with collaboration are projected to increase under the proposed rule primarily owing to requirements that opportunities for collaboration be provided at all stages of planning. Gains in cost effectiveness could occur, in part, by providing responsible officials with discretion to design collaboration strategies that meet unit-specific needs and constraints and recognize local collaboration capacity. Collaboration costs for some units could be higher where potential barriers to collaboration are present (e.g., pre-existing relationships might exacerbate perceived inequities; absence of pre-existing social networks or capacity). Changes in guidance and requirements for collaboration under the proposed rule are expected to increase planning efficiency as a result of the following:

- Improved capacity to address uncertainty by gathering, verifying, and integrating information from a variety of sources, including tribal or other forms of knowledge and land ethics, within and beyond unit boundaries;
- Improved analysis and decisionmaking efficiency during latter stages of planning due to increases in collaborative efforts during early phases (e.g., assessments);
- Potential to offset or reduce Agency monitoring costs at the unit level as a result of collaboration during monitoring program development and monitoring itself;
- Reduced need for large numbers of plan alternatives as well as time needed to complete plan revisions as a consequence of broader support and resolution of issues achieved through collaboration during early phases of proposed plan development;

- Improved perceptions about the legitimacy of plans and the planning process and reduced Agency costs associated with resolving objections (or conflict) by increasing transparency; developing awareness about the values and expected behavior of others; and seeking greater consensus about values, needs, tradeoffs, and outcomes during earlier stages of planning;
- Expectations about building unit (and regional) capacity to overcome existing barriers to collaboration (e.g., absence of social networks or capacity; perceptions about pre-existing power relationships) through training and facilitation; and
- More efficient exchange mechanism with plan revision and amendments based on a need for change.

Analysis and Decisions (Plan Revision or Amendment)

Costs associated with NEPA analysis and decisions are estimated to decrease under the proposed rule owing to the net effects of: (1) fewer prescriptive requirements (relative to 1982 rule procedures) regarding probable (management) actions, timber program elements, number and types of alternatives, evaluation of alternatives, and minimum management requirements; (2) increased emphasis on consideration of resource attributes and conditions such as sustainability, watershed health, and water supply; and (3) more efficient approaches for addressing species viability, diversity, and monitoring. The following elements associated with the proposed rule are expected to increase planning efficiency by facilitating plan revisions and amendments, expanding capacity for adaptive management, and improving guidance for responding to need-for-change determinations:

- The adoption of a coarse filter/fine filter approach for addressing species viability and diversity within plan components, while recognizing local land and unit capabilities and limits, is expected to increase the flexibility and feasibility of responding to species and ecosystem sustainability and recovery needs.
- Consideration of sustainability and resiliency in plan components is expected to facilitate restoration responses triggered by new information regarding environmental, social, and economic risks and stressors, including climate change and market trends.
- Refocusing the use of the term “restoration” to focus on recovery of resiliency and ecosystem function (instead of historical reference points) provides greater flexibility to respond to need-for-change regarding damaged ecosystems.
- Additional emphasis on evaluating links between ecosystem resiliency and sustaining economic opportunities should facilitate restoration action responding to a need for change linked to local or rural community conditions.
- More frequent amendments expected under the proposed rule could potentially lead to more focused descriptions of need for change to guide future revisions;
- Greater emphasis placed on identifying each unit's role in providing ecosystem services within a broader landscape or region should facilitate the design of management responses that recognize the marginal effects or contributions of

ecological, social, or economic conditions outside of the traditional unit study area boundaries.

- Less prescriptive descriptions of timber harvests, sale schedule, and management practices under the proposed rule are likely to provide the flexibility needed to develop actions that are responsive to unit-specific vegetation management and ecosystem restoration (sustainability) needs.

Science Support

Slight increases in costs for science support might occur under the proposed rule owing in part to more prescriptive language about taking into account best science in assessment reports, plan decision documents, and monitoring evaluation reports. The guidance and requirements for taking into account science under the proposed rule contributes to planning efficiency by maximizing coverage of scientific input from diverse sources, integrating science throughout all stages of planning, and taking advantage of scientific knowledge from external partners and Agency research stations.

Resolutions

The effect of a shift from a post-decisional appeals process (under the 1982 rule procedures) to a pre-decisional objection period under the proposed rule is difficult to project; however, the anticipated success of collaboration in achieving greater understanding about plan components and perceptions of legitimacy and trust in the planning process is expected to have a beneficial effect on resolution activity and corresponding costs. Procedural changes related to collaboration are expected to provide opportunities for resolving potential objections or conflict at earlier stages of planning, thereby reducing the need for and cost of resolutions at latter stages.

Monitoring

Relative increases in monitoring costs are anticipated as a consequence of greater emphasis on broader input and participation in design and implementation of monitoring, new approaches for characterizing diversity and resiliency, and two-tier (unit and broad-scale) monitoring programs. Monitoring requirements such as coordination of broad-scale monitoring, as well as adoption of “focal species” and key ecological conditions, as measures for diversity are expected to contribute to monitoring cost-effectiveness. The following changes in guidance and requirements for monitoring under the proposed rule are expected to increase planning efficiency by improving capacity to gather information and reduce uncertainty for a number of integrated ecological, social, and economic conditions, trends, risks, stressors, constraints, and values, within and beyond unit boundaries:

- Monitoring under the proposed rule focuses to a greater extent on ecosystems, habitat diversity, and smaller numbers of focal species, with the intent that tracking of species diversity and habitat sustainability will be reflective of unit-specific capacities and therefore cost effective.
- Two-tiered monitoring (unit-specific and broad-scale) is intended to create a more systematic and unified monitoring approach to detect effects of management within

unit boundaries as well as track risks, stressors, and conditions beyond unit boundaries that affect or are affected by unit conditions and actions.

- Emphasis on coordination between unit and broad-scale monitoring helps ensure information is complementary and gathered at scales appropriate to monitoring questions, thereby reducing redundancy and improving cost-effectiveness.

Alternative C

Under Alternative C, a majority of the prescriptive requirements designed to enhance collection of new information, assimilation and evaluation of new information for determining need for change, and response to need for change during plan revision or amendment under Alternative A would be eliminated. Agency costs are substantially lower as a consequence of these changes. However, in the absence of these requirements, management units are less likely to be able to reduce uncertainty and respond to new information about environmental, economic, and social stressors and risks in a manner that allows them to establish plans that sustain multiple uses and maintain long-term productivity, thereby providing benefits to human communities.

The numerous public meetings, forums, and roundtable discussions convened as a result of this rule-making effort revealed growing concern about a variety of risks and stressors (e.g., climate change, insects and disease, shifts in local demands and national markets, demographic shifts, and shifts in supply and other ecosystem support services) requires a larger landscape perspective, information from a broader spectrum of sources and users, and a framework that can facilitate adaptation to new information about risks and stressors. In the absence of new procedural requirements designed to accommodate these needs, it is anticipated that management units will have less capacity to establish plans that are perceived as being efficient and legitimate frameworks for managing resources in a manner that meets public demand in a sustainable and acceptable fashion (i.e., satisfies the goals of MUSYA and NFMA) under Alternative C.

A majority of the potential planning efficiency gains listed for Alternative A (see previous section) would be absent or reduced under Alternative C for individual management units. Losses in planning efficiency are also likely to occur as a result of decreased capacity for the Agency's research units, regional offices, and the Washington office, as well as other government agencies and organizations, to coordinate with and support planning at the unit level. The extent to which these losses might be reflected in potential changes in time needed to complete plan revisions is difficult to estimate; however, it is likely that revision times under Alternative C will be longer than Alternative A and less than Alternative B (1982 rule procedures). Alternative C requires minimal public involvement and no collaboration. There is less opportunity to resolve issues and conflicts, so revision costs are likely to be higher than Alternative A. However, fewer analysis requirements exist under Alternative C compared to Alternative B, implying less time and expense than alternative B. Even though Agency costs are substantially lower under Alternative C compared to Alternatives A or B, overall planning efficiency is expected to decrease because of the inability of management units to revise and maintain management plans that adequately address uncertainty and reflect

current knowledge about social, economic, and ecological risks, stressors, and contingencies.

Alternative D

New prescriptive requirements under Alternative D could provide greater assurances about consistent and comprehensive coverage of issues related to riparian and watershed health protection, resiliency of aquatic environments, and vulnerability to climate change within management plans. However, Agency planning costs are estimated to be greater (13 percent) under Alternative D, compared to Alternative A, and potential improvements in planning efficiency might be limited to those management units where uncertainty and concerns about potential watershed problems and vulnerability to climate change are greatest.

Many of the explicit requirements for watershed protection under Alternative D are implicit within plan component requirements under Alternative A. This suggests there is limited potential for incremental improvements in planning efficiency under Alternative D, even for units where watershed and climate change concerns and uncertainty are greatest. For those units where watershed issues are better understood and considered, compliance with additional prescriptive requirements could increase Agency costs without additional benefits to planning efficiency. Information about aquatic ecosystem integrity and resiliency, restoration strategies, and priority watersheds gained from collaboration, consultation, and broad-scale monitoring requirements already specified in Alternative A might reduce the incremental gains or benefits of having more prescriptive requirements regarding vulnerability assessments and conservation boundaries in Alternative D. These requirements might help reduce the amount of time needed to complete plan revisions for some management units but might increase revision time for other units; it is difficult to project the overall impact of these requirements on time for completing revisions.

Some units might see isolated improvements in planning efficiency from more explicit requirements about vulnerability assessments, refining conservation area boundaries, and consideration of watershed sustainability and health guidelines under Alternative D. However, overall potential for increased planning efficiency might be limited given the magnitude of estimated increases in Agency costs combined with uncertainty about changes in plan revision time and variability in unit-specific conditions related to watershed needs and vulnerabilities.

Monitoring under this alternative would focus more on focal species rather than key ecosystem characteristics. The alternative requirements aimed at species diversity in Alternative D rely more heavily on population surveys of focal species as the primary measurement for assessing overall effectiveness of plan components for supporting species diversity. The additional required plan monitoring elements under this alternative are more likely to assess the overall effectiveness of plan components toward maintaining biological diversity within the plan area in a more accurate and timely manner than under the other alternatives.

Alternative E

New prescriptive requirements regarding monitoring program questions, monitoring indicators, and program performance under Alternative E might contribute to improvements in the consistency of monitoring program reliability, recognizing that improvements or benefits could be concentrated in management units where existing uncertainty is high regarding significant issues and/or where monitoring programs are dated. However these benefits would be achieved through additional costs (Agency costs are estimated to be 17 percent higher than Alternative A) to achieve monitoring consistency across all management units, some of which might have greater existing capacity to maintain or develop monitoring programs that satisfy known unit-specific assessment needs. Input and reviews received as a result of collaboration during monitoring program development, as well as consultation with research stations and other agencies during broad-scale monitoring under the proposed rule (Alternative A), might serve as a substitute, in part, for the assurances regarding monitoring program reliability achieved through the additional prescriptive monitoring requirements under Alternative E.

Additional assurances about the extent and success of collaboration during planning could be achieved under Alternative E as a result of more procedural requirements regarding development of public participation plans. The benefits from these assurances could be most apparent for management units where potential barriers or challenges to collaboration are present. However, potential benefits from additional collaborative requirements could be offset by reduced flexibility and the added expense of complying with collaborative requirements in situations where collaborative capacity already exists or where fewer challenges are present. Correspondingly, the effect of additional collaboration (and monitoring) requirements on time needed to complete plan revisions is likely to be function of unit-specific conditions, with the average net effect being difficult to estimate.

Similar to Alternative D, isolated improvements in planning efficiency for some units could result from more explicit requirements about signals for monitoring questions, factors to consider in monitoring questions, periodic evaluations of monitoring programs, and the process for developing a strategy for public participation (collaboration) under Alternative E, but overall potential for increased planning efficiency as a result of these requirements might be limited, given the magnitude of estimated increases in Agency costs combined with uncertainty about changes in plan revision time and variability in unit-specific conditions related to monitoring performance and collaborative capacity.

Distributional Impacts

Because of the programmatic nature of this rule, it is not feasible to assess distributional impacts (e.g., changes in jobs, income, or other measures for socio-economic conditions across demographics or economic sectors) in detail. Impacts on economic activities, jobs, and income are more significantly influenced by congressional funding of Agency programs, Agency priorities, and site-specific projects, rather than any particular planning rule. The economic effects of these budget and administrative influences will be analyzed at the unit level during plan revision, with public participation.

In general, the proposed rule is designed to facilitate engagement and involvement throughout all phases of land management planning, thereby improving capacity to consider and incorporate values and concerns for all economic sectors and social segments affected by any given plan, plan revision, or amendment. The proposed rule is also intended to facilitate assimilation of new information about local or rural (as well as national) concerns and values through adaptive management (i.e., continuous cycle of assessment, revision/amendment, and monitoring). The effects associated with the proposed rule are therefore assumed to be evenly (and beneficially) distributed across all sectors and populations.

Under all alternatives, units would continue to use their timber sale program and other forest management activities to enhance timber and other forest resource values and benefits over time. Recreation use would be expected to be monitored in all alternatives because use of the current national visitor use monitoring system is expected to continue.

The proposed rule is more prescriptive about considering and facilitating restoration of damaged resources as well as improving resource capacity to withstand environmental risks and stressors (i.e., resiliency), thereby providing greater capacity for sustaining local or rural economic opportunities to benefit from forest resources and ecosystem services, including recreation/tourism and water supply/watershed health. Under the proposed rule (as well as Alternatives D and E) collaboration would assure consideration of a broad spectrum of recreational values and an integrated mix of sustainable recreation opportunities relevant to each NFS unit. Plans would include components to maintain or restore healthy rangeland conditions and allotment management plans would be expected to be modified to achieve these objectives.

In addition to meeting the NFMA timber requirements described above, planning under 1982 procedures (Alternative B) would continue to include identifying recreation opportunities on NFS lands and their ability to meet present and future recreation demands and identifying the suitability of NFS lands for producing forage for grazing animals.

The capacity to efficiently consider, assimilate, and adapt to new values and concerns from all sectors and social segments is expected to decrease under Alternative C, compared to Alternative A, because of the elimination of most prescriptive requirements designed to enable planning efficiency. Plans under Alternative C would include provisions for sustainable recreation, but planning would vary widely from unit to unit in analysis of roles and contributions to recreation opportunities. Where livestock grazing is currently authorized, lands would be expected to be identified as suitable for this use; however, there would be a low probability of consistency in assessment of the rangeland resource, plan components to guide its management, or monitoring across NFS units. Timber direction in plans would be expected to not exceed the minimum NFMA requirements common to all alternatives. In contrast, there could be increased opportunities to recognize values and concerns from multiple sectors and segments under Alternative E where additional requirements for developing public participation plans could provide greater assurances about coverage of diverse interests (e.g., full spectrum of recreational values), depending on local collaborative capacity and barriers to collaboration, relative to Alternative A.

More explicit requirements about vulnerability assessments, conservation area refinements, consideration of watershed sustainability and health guidelines in plan components, and consideration of species viability within plan components and assessments under Alternative D have the potential to increase opportunities for sustaining local economic opportunities that rely on the resiliency of forest ecosystems. However, as noted in discussions of efficiency effects, the extent to which Alternatives D and E generate distributional effects could be highly unit-specific. Plans under Alternative D would be expected to focus unit timber programs on restoration and protection of watersheds and riparian areas. Consequently, harvest volumes could go up in some areas and down in other areas. Overall, the Agency timber program would be expected to remain near the current level with a probable shift toward smaller diameter material. In general, average net distributional effects across all regions would be not different noticeably from Alternative A.

Table S-1. Summary of Attributes for all Alternatives

	Alternative A	Alternative B	Alternative C	Alternative D	Alternative E
	Proposed rule	No action 1982 rule procedures	Minimum to meet NFMA and purpose and need	Proposed rule modified with additional watershed/ riparian and species viability requirements	Proposed rule modified with prescriptive collaboration and monitoring standards
Annual costs ($million)	102.5	104.0	80.2	116.0	134.4
Annualized costs ($million @ 3%)	101.9	103.3	79.6	115.4	133.8
Annualized costs ($million @7%)	101.2	102.2	78.8	114.6	133.0
Planning efficiency	High potential for improvements due to greater focus on assessment, monitoring, and collaboration and capacity to address risks and stressors. • More timely revisions. • Greater unit-specific flexibility.	Current situation.	High potential for decreases due to capacity to resolve conflicts through collaboration. • More persistent uncertainty. • Potential for longer revisions than Alternative A but less than Alternative B.	Lower potential for improvements. Isolated improvements for units where uncertainty or concerns are high for watersheds, climate change, and viability. • Lower unit-specific flexibility.	Lower potential for improvements. Isolated improvements for units where concerns persist about monitoring performance and collaborative capacity. • Lower unit-specific flexibility.
Distributional effects	Improved capacity to: • Consider values and concerns from diverse interests. • Increase resiliency and sustain economic opportunities dependent on ecosystems.	Current situation.	Decreased capacity to consider and incorporate values and concerns. Decreased capacity to increase resiliency and sustain economic opportunities.	Some potential to improve capacity to increase resiliency and sustain economic opportunities within some units.	Some potential to improve capacity to consider and incorporate values and concerns within some units.

Table S-2 Annualized Agency Planning Costs (discounted at 3%), by Planning Activity

Planning Activity	Proposed Rule Alternative A	1982 Rule Procedures Alternative B	Proposed Rule Modified Alternative C	Proposed Rule Modified Alternative D	Proposed Rule Modified Alternative E
	thousands of dollars				
Assessment	$12,548	$8,690	$6,517	$14,430	$12,548
Collaboration	$10,510	$1,179	$1,179	$10,510	$14,188
Analysis/Decisions	$21,703	$48,628	$32,554	$23,873	$21,703
Science Support	$2,113	$1,529	$1,529	$2,113	$2,113
Resolutions	$886	$2,110	$2,110	$886	$886
Minimum Maintenance (a)	$7,293	$4,988	$4,988	$7,293	$7,293
Monitoring	$46,911	$36,153	$30,730	$56,293	$75,057
TOTAL	**$101,963**	**$103,277**	**$79,608**	**$115,398**	**$133,788**

(a) Minimum Maintenance includes minimum expenses to maintain a plan during non-revision years, excluding assessment, collaboration, and analysis/decision costs associated specifically with amendments.

COST-BENEFIT ANALYSIS

The Proposed Rule (36 CFR 219) for National Forest Land Management Planning

INTRODUCTION

The Forest Service is responsible for managing the lands and resources of the National Forest System (NFS) under the jurisdiction of the Secretary of Agriculture (the Secretary). According to the Multiple-Use Sustained-Yield Act of 1960 (MUSYA) (16 U.S.C. 528) and the National Forest Management Act of 1976 (NFMA) (16 U.S.C. 1600 et seq.), NFS lands are to be managed for a variety of uses on a sustained-yield basis to ensure a continual supply of products and services in perpetuity.

The NFMA guides land management planning for NFS lands. It directs the Secretary to develop, maintain, and, as appropriate, revise land management plans for units of the NFS and sets forth the requirements for doing so. There are many controversial issues about the appropriate short- and long-term use of national forests and grasslands.

The Forest Service has developed several planning rules during the 30 years since NFMA became law. The current plans for all Forest Service administrative units were developed using the 1982 planning rule. Although the 1982 planning rule reflected then-current thinking in planning practices and then-current science, its authors could not foresee all the changes that would occur. Also, the Forest Service has learned many lessons about how to make planning more effective, efficient, and responsive to change. In May 1990 a comprehensive review of its land management planning process was published in a summary report titled *Synthesis of the Critique of Land Management Planning* (Vol. 1) (1990 critique)(USDA Forest Service 1990), accompanied by ten other more detailed reports. The 1990 critique documented lessons learned since passage of the NFMA and the 1982 planning rule. The 1990 critique provided recommendations to improve planning by reducing complexity, cost, and time, and to more effectively engage the public in addressing future natural resource management challenges.

Work to draft a new planning rule has been ongoing, including the convening of a 13-member Committee of Scientists in December 1997 to review the Forest Service planning process and to offer recommendations for improvements. Their findings—which served as a partial basis for a revised land management planning rule published in the *Federal Register* on November 9, 2000 (2000 planning rule)—were documented in *Sustaining the Peoples Lands*, March 1999 (Committee of Scientists 1999). Some of their findings are also being used currently for this proposed planning rule.

After the 2000 planning rule was completed, concerns were raised about the Agency's ability to implement the rule because some requirements were too expensive, time-consuming, and possibly unrealistic or infeasible. The Department directed the Agency to develop an organizational approach to resolve the major concerns identified in the reviews of the 2000 planning rule. An interim proposed rule to modify the transition language in Section 219.35 of the 2000 planning rule was published in the *Federal Register* on May 20, 2002, and an interpretative rule to clarify the transition provisions of the 2000 planning rule was published in the *Federal Register* on September 29, 2004. Section 219.35(b) of the 2000 planning rule as amended provides that until a proposed rule that revises the 2000 planning rule is adopted, a responsible official may elect to continue or to initiate plan amendments or revisions under the 1982 planning rule or may initiate amendments or revisions under the 2000 planning rule. To date, all plan amendments and revisions have used and are using the 1982 planning rule.

The Forest Service drafted and published revised planning rules in 2005 and 2008. Both rules were vacated by courts. For the 2005 rule, on March 30, 2007 the federal district court ruled that the Department had violated the NEPA, the Endanged Species Act (ESA), and the Administrative Procedure Act in the promulgation of the rule. The court enjoined the rule's implementation and use until the Department complied with the court's opinion (*Citizens for Better Forestry v. USDA*, 481 F. Supp.2d 1059 (N.D. Cal. 2007)). With respect to the NEPA and ESA rulings, the court ruled that "because the 2005 Rule may significantly affect the quality of the human environment under NEPA, and because it may affect listed species and their habitat under ESA, the Agency must conduct further analysis and evaluation of the impact of the 2005 Rule in accordance with those statutes."

The United States District Court for the Northern District of California invalidated the 2008 rule, holding that it was developed in violation of the NEPA and the Endangered Species Act. The court held that the EIS did not adequately disclose the effects of the rule and that ESA consultation had not been done. The district court vacated the 2008 rule, enjoined the USDA from further implementing it and remanded it to the USDA for further proceedings (*Citizens for Better Forestry v. USDA*, 632 F. Supp. 2d 968 (N.D. Cal. 2009)). . The Forest Service is currently operating under the transition provisions of the 2000 planning rule, as an interim measure until a new planning rule is issued. The 2000 planning rule allows forests to develop, revise, and amend forest plans using the procedures of the 1982 planning rule.

On December 18, 2009, the Agency issued a notice of intent to prepare an environmental impact statement for a new planning rule, starting a new planning rule revision. The new planning rule intends to improve public participation in decisionmaking. The emphasis of the proposed rule on collaboration, use of science, and monitoring and evaluation will contribute to the long-term sustainability and health of NFS lands.

PROPOSED ACTION

The Forest Service is proposing adoption of a planning rule to guide development, revision, and amendment of land management plans for the National Forest System. The proposed planning rule is the product of an extensive collaborative effort among many

agencies, organizations, Tribes, and individuals who care deeply about the national forests. The Forest Service considered input gathered through broad-based collaboration to craft a proposed rule intended to be stakeholder-driven, firmly rooted in science, and implementable.

The proposed planning rule is developed around a framework within which land managers and partners would work together to understand conditions on the land, revise management plans to respond to existing and predicted conditions/needs, and monitor changing conditions and the effectiveness of management actions to provide a continuous feedback loop. The proposed framework would move the Forest Service away from "once in a generation" planning toward a more responsive process that allows the Agency to adapt management to changing conditions and will improve management based on new information and monitoring. The framework consists of a three-part learning and planning cycle: (1) assess conditions and stressors on the NFS unit and in the context of the broader landscape; (2) revise/amend land management plans based on the need for change (identified through assessments); and (3) monitor to detect changes on the unit and across the broader landscape and to evaluate the ability of management actions to produce desired outcomes.

Five alternatives are considered: (A) the proposed rule; (B) the 2000 planning rule using 1982 procedures (no action); (C) minimum to meet NFMA and purpose and need; (D) a modified version of the proposed rule with additional prescriptive watershed/riparian standards and requirements for species viability; and (E) a modified version of the proposed rule with prescriptive collaboration and monitoring standards.

NEED FOR THE ACTION

The Forest Service is developing a planning rule. This action is needed to meet requirements under the NFMA as well as to allow the Agency to meet its obligations under the MUSYA, the Endangered Species Act, the Wilderness Act, and other legal requirements. A new planning rule is needed to be responsive to the challenges of climate change; the need for forest restoration and conservation, watershed protection, and wildlife conservation; and the sustainable use of public lands to support vibrant communities. A new planning rule must be clear, efficient, and effective, and must provide for a transparent, collaborative process that allows for effective public participation. The rule should also be within the Agency's capability to implement on all NFS units.

PURPOSE OF THE ANALYSIS

This analysis identifies and compares the costs and benefits associated with developing, maintaining, revising, and amending NFS land management plans under five alternatives as described above.

The Agency has reviewed this proposed rule under U.S. Department of Agriculture (Department) (USDA, 1997) procedures and Executive Order 12866 issued September 30, 1993 (EO 12866). This analysis provides the details of that review, including the regulatory impact analysis requirements associated with EO 12866 and OMB circulars.

This analysis provides quantitative estimates of costs to the Agency for developing, maintaining, and revising NFS land management plans under the five alternatives. This analysis also serves as the specialist report that characterizes the economic and social effects for inclusion in the draft environmental impact statement (DEIS) prepared for the proposed action in compliance National Environmental Policy Act (NEPA) requirements. The DEIS provides more detailed discussion about resource and program-specific effects under each alternative (Chapter 3 of the DEIS), and how those effects compare across alternatives (Chapter 2 of the DEIS).

The analysis and report were prepared according to the following Office of Management and Budget (OMB) direction:

1. Memorandum M-00-08 Guidelines to Standardize Measures of Costs and Benefits and the Format of Accounting Statements.
2. OMB Office of Information and Regulatory Affairs, January 11, 1996, guidance on "Economic Analysis of Federal Regulations under Executive Order 12866."
3. OMB Circular A-4, Regulatory Analysis Guidance, September 17, 2003 (OMB 2003).

DESCRIPTION OF ALTERNATIVES

The Forest Service developed five alternatives for detailed analysis, including the no-action and proposed rule alternatives, in response to the significant issues.

ALTERNATIVE A (PROPOSED PLANNING RULE)

The proposed planning rule is a product of the most collaborative planning rule development in the Agency's history. The Forest Service considered input gathered through broad-based collaboration to craft a proposed rule intended to be stakeholder-driven, firmly rooted in science, and implementable.

The proposed planning rule is developed around a framework within which land managers and partners would work together to understand conditions on the land, revise management plans to respond to existing and predicted conditions/needs, and monitor changing conditions and the effectiveness of management actions to provide a continuous feedback loop. The proposed framework would move the Forest Service away from "once in a generation" planning toward a more responsive and agile process that allows the Agency to adapt management to changing conditions and will improve management based on new information and monitoring. The framework consists of a three-part learning and planning cycle: (1) assess conditions and stressors on the NFS unit and in the context of the broader landscape; (2) revise/amend land management plans based on the need for change (identified through assessments); and (3) monitor to detect changes on the unit and across the broader landscape and to evaluate the ability of management actions to produce desired outcomes.

The proposed rule—

- Names the supervisor of the national forest, grassland, prairie, or other comparable administrative unit as the responsible official for approving plan revisions.
- Provides guidance to the responsible official for taking science into account in the planning process and requires documentation as to how science was taken into account.
- Requires the responsible official to: (1) provide opportunities for public participation throughout all stages of the planning process; (2) encourage participation by youth, low-income, and minority populations; (3) consult with and provide opportunities for participation by federally recognized Indian Tribes and Alaska Native corporations; (4) encourage federally recognized Indian Tribes and Alaska Native corporations to share native knowledge during the planning process and requires land management plans to be consistent with Indian treaty rights; (5) coordinate planning with the equivalent and related planning efforts of other Federal agencies, State and local governments, and Indian Tribes.
- Requires the consideration and integration of the management of physical, biological, social, and cultural resources given the distinctive roles and contributions of ecosystem services and multiple uses to the local area, region, and Nation. The roles and contributions are developed through the public participation process.
- Requires plans to include five required plan components—desired conditions, objectives, standards, guidelines, and suitability of areas; and an optional component, goals.
- Requires that plans include plan components for protection, maintenance, and restoration of terrestrial and aquatic ecosystems and contribute to social and economic conditions.
- Requires all plans to include plan components to guide the maintenance or restoration of the structure, composition, and processes of watersheds within the plan area recognizing the impacts and potential stressors on and off NFS lands to water resources and how such stressors might affect hydrologic function; aquatic habitat; and water quality, quantity, and availability.
- Integrates recreation concerns throughout the rule and recognizes the importance of recreation and the value of recreation for connecting people to the land. The proposed rule provides for assessing recreation values, opportunities, settings, and needs within the broader landscape; creating plan components to provide sustainable recreation opportunities and infrastructure; and monitoring recreational use.
- Provides species viability requirements for the conservation of all native aquatic and terrestrial species by providing the ecological conditions to keep common species common, contributes to the recovery of federally listed threatened and endangered species, and maintains viable populations of species of conservation concern. The proposed rule would also require selection of key characteristics, ecological conditions, and a set of focal species to monitor and assess the degree to which ecological conditions are supporting diversity of plant and animal communities and ecological sustainability.

- Contains specific requirements contained in NFMA for management of timber. These requirements are not substantially different in this rule from previous rules.
- Facilitates rapid evaluation and amendment of plans, as needed. The proposed rule also provides for administrative changes of plans—an expedited process for making minor changes.
- Requires preparation of an environmental impact statement and a record of decision for new plans and plan revisions. Documentation for plan amendments would be determined by the significance of effects pursuant to Agency NEPA procedures. Decision documents would be required to include rationale for the decision and how the decision meets requirements of various provisions in the rule. The proposed rule would also require that planning records be readily available to the public.
- Provides guidance for plans to require meaningful and accountable monitoring through a structured public process that evaluates changes on the unit and across the broader landscape. Monitoring would be used to assess progress toward achieving desired conditions in plans and for evaluating whether there is a need for re-assessment and plan revision or amendment. The proposed rule would also require monitoring and evaluation of the status of a small set of focal species selected to assess the degree to which ecological conditions are supporting diversity of plant and animal communities within each plan area. Questions and key indicators for watershed conditions and watershed elements would be addressed in the unit monitoring plans to the extent practicable and appropriate.
- Requires an approval document for a plan, amendment, or revision to clarify what existing uses or decisions will be exempt from further modification to comply with the changed plan. Those not exempted would be expected to be adjusted, as practicable, to be consistent.
- Requires responsible officials to provide formal public notification when an assessment begins; when development begins on the proposed plan, plan amendment or plan revision; when the proposed plan, plan amendment, or revision is made available for comment; when the environmental documentation is made available for comment; at the start of the objection period; and when the plan, plan amendment, or revision is approved.
- Requires the responsible official to use proactive, contemporary tools such as the internet to provide broad access and meet the unique needs of the local community as well as requiring that notices concerning a new plan or plan revision be published in the *Federal Register* and the planning unit's newspaper of record.
- Provides a pre-decisional administrative review process for proposed plans, plan amendments, and plan revisions. The proposed process is based on the pre-decisional objection regulations for certain hazardous fuel reduction projects, found at 36 CFR Part 218, and is intended to foster continued collaboration in the administrative review process.

ALTERNATIVE B (NO ACTION)

The Forest Service reinstated the 2000 planning rule after the 2008 planning rule was set aside by the court (74 FR 67059). If the Forest Service chooses to take no action, the 2000 planning rule would remain in effect. Since identifying a host of issues with the 2000 planning rule provisions, the Forest Service intends to use the transition language at §219.35 in the 2000 planning rule to allow use of the 1982 planning rule provisions to develop, revise, and amend land management plans until a new planning rule is in place. The 1982 planning rule provisions require integration of planning for national forests and grasslands, including the planning for timber, range, fish and wildlife, water, wilderness, and recreation resources, with resource protection activities such as fire management and the use of other resources such as minerals. The 1982 provisions require comprehensive quantitative analysis of mostly timber outputs and determination of a sustained yield of timber in the form of an allowable sale quantity. The rule emphasizes sustained timber outputs with mitigation of impacts to other resources.

The appeal process has been used throughout the life of the 1982 planning rule. The 1982 rule requires regional foresters to be the responsible official for approval of new plans and plan revisions. Plan amendments may be approved by a forest or grassland supervisor.

ALTERNATIVE C

Alternative C was developed with provisions designed to meet the purpose and need along with the minimum requirements of NFMA. Provisions to meet the purpose and need, but not otherwise required by NFMA were included to ensure that plans would be responsive to the challenges of climate change, the need for forest restoration, and to ensure the sustainable use of public lands to support vibrant communities. Specifically, the provision in this alternative at §219.7(e)(4) requires plan components to include guidance to identify and consider climate, forest restoration and conservation, and social and economic elements of sustainability to support vibrant rural communities. Provisions were also added to ensure that plans would be developed collaboratively. Specifically, the provision in this alternative at §219.4 requires the responsible official to use a collaborative and participatory approach to land management planning.

ALTERNATIVE D

Alternative D was developed to address the issue of watershed protection and the issue of diversity of plant and animal communities. It addresses these issues together because they both involve requirements for plan content for resource protection, as opposed to other issues that are concerned with procedural requirements.

This alternative would require specific plan provisions to establish conservation areas and key watersheds, prescribe standard buffer areas for riparian conservation, and place the highest restoration priority on road removal in watersheds. Watershed assessments would be required to provide information for defining conservation area boundaries and developing watershed monitoring programs. It would also require the identification of watersheds to serve as anchor points for the protection, maintenance, and restoration of

habitat for species dependent on aquatic habitat, and to provide spatial connectivity among aquatic and upland habitats.

This alternative would also take a species approach to maintaining viable populations of all species within the plan area. It would require an assessment prior to plan development or revision that evaluates: current and historical ecological conditions and trends, including the effects of global climate change; ecological conditions required to support viable populations of native species and desired non-native species within the planning area; and current and likely future viability of focal species within the planning area. It would also require that the unit monitoring program establish critical values for ecological conditions and focal species that trigger reviews of planning and management decisions to achieve compliance with the provision for maintaining viable populations within the plan area. It also includes specific requirements for coordination and public participation.

This alternative consists of the proposed rule (Alternative A) with additional and replacement direction focused on coordination requirements at §219.4, assessment requirements at §219.6, sustainability requirements at §219.8, species requirements at §219.9, monitoring requirements at §219.13, and some additional and alternative definitions at §219.18.

ALTERNATIVE E

Alternative E prescribes an extensive list of monitoring and assessment questions and requires monitoring program descriptions to state signals for action for each question and its associated indicator.

It specifies performance accountability for line officers' management of unit monitoring; it adds responsibility to the Chief to conduct periodic evaluations of unit monitoring programs and the regional monitoring strategies; and it adds more prescriptive requirements to the language in the proposed rule.

This alternative consists of the proposed rule (Alternative A) with additional and replacement direction focused on prescriptive requirements for public notification at §219. 4, assessment requirements at §219.6, monitoring requirements at §219.13, and public notification requirements §219.15.

SCOPE AND EFFECTS ADDRESSED BY THIS ANALYSIS

The scope of this analysis is limited to the programmatic or Agency procedural activities related to development, revision, and amendment (i.e., maintenance) of land management plans for management units (e.g., national forests, grasslands, prairie) within the National Forest System. As such, Agency or private costs or benefits associated with on-the-ground or site-specific activities and projects resulting from implementation of individual plans are not characterized or projected. Procedural effects evaluated include potential changes in agency costs and changes in overall planning efficiency.

LAND MANAGEMENT PLAN REVISIONS CURRENTLY UNDERWAY

This analysis assumes that the Agency can initiate eight new plan revisions in any given year and assumes the all national forests will start to use the new planning rule for any new plan revision starts beginning in fiscal year (FY) 2012. This schedule would provide for a reasonably even flow of work and eventually allow the Agency to meet the NFMA 15-year requirement for completing revisions. However, in FY 2011 because of the backlog of revision efforts and the funding level for land management planning activities, the Agency did not initiate any new plan revisions.

At the end of FY 2009, 37 plans were under revision. The budget for Land Management Planning was reduced from $48.8 million in FY 2009 to $45.9 million in FY 2010. Coupled with the need to initiate a new planning rule in FY 2010, this resulted in the agency reducing the number of plans under revision to 20. These plans are being revised using the 1982 rule procedures. With a flat budget in FY 2011, the agency is continuing the funding of 20 plan revisions and the new planning rule development. All other first time revisions, including the 17 revisions suspended in FY 2010, will need to be initiated or re-started under the new planning rule. Some of these could begin as early as FY 2012. Table 1 summarizes the current status of forest plan revisions.

Table 1. Current Status of Forest Plan Revisions

	FY 2010
Number of ongoing plan revisions to be completed under the 1982 rule procedures	20
Number of ongoing plan revisions to be re-started and completed under the new rule	17
Number of plans needing revision but with revision process not yet started	33

DIRECT AND INDIRECT EFFECTS NOT QUANTIFIED IN THE ANALYSIS

The proposed rule is programmatic in nature and does not make site-specific project or activity decisions. There will be no direct environmental effects until decisions are made for unit-specific land management plans or projects carried out under the forest, grassland, or prairie plans. Indirect resource-specific or ecological effects are disclosed in the draft programmatic environmental impact statement (DEIS) for the planning rule (USDA Forest Service, 2011). A summary of indirect resource-specific or ecological effects, by alternative, is provided in Appendix C of this document; examples of resource-specific effects include climate change, restoration and resilience of habitat, watershed and riparian conditions, and plant and animal diversity. For more details about resource-specific and ecological indirect effects, see the DEIS. Examples of indirect effects to resource use and access (as discussed in the context of sustainable use to support communities) are presented in the section “Distributional Impacts” as well as Appendix C.

The proposed rule provides direction for Forest Service personnel about how to develop, amend, and revise land management plans pursuant to the NFMA and other laws and

regulations. It imposes no requirements on other government agencies, the public, Tribes, or private businesses. The proposed rule also does not set up a specific level of resource outputs. Direct effects on the levels of goods, services, and uses produced on NFS lands are not included in this analysis. These are the end-results of unit plans or projects and are beyond the scope of this accompanying analysis.

Since the proposed rule sets up procedures for land management planning for NFS lands, promulgation will not result in any immediate changes in the management of any particular national forest, grassland, or prairie in activities permitted or conducted on those lands. Thus, the adoption of the proposed rule would not have a direct impact on the quality of the human environment owing to its programmatic nature. However, future implementation of projects on individual NFS units subsequent to plans developed, amended, or revised under planning processes established in the proposed rule could affect decisions that are made for those lands.

Implementation of the proposed rule could eventually lead to an effect on economic and social factors by changing the amount of products and services derived from NFS lands. This could result in a localized change in some types and distribution of employment and in payments to States. However, such projects would be subject to appropriate NEPA analyses and decisions at the land management plan level or project level, and are therefore outside the scope of this cost/benefit analysis.

Implementation of the proposed rule is expected to eventually result in plans that improve the sustainability of the ecological systems, increase capacity to provide goods and services from NFS lands that meet the needs of the public, and thus improve the sustainability of opportunities that contribute to forest or grassland-related jobs, income, and payments to States. Any short-term or long-term effects on the availability of forest or grassland products and services would occur on a unit-by-unit basis through forest, grassland, or prairie and project-level planning. It is not possible to determine short- or long-term environmental consequences of those future decisions in this analysis. For this reason, quantifiable impacts on the availability of forest, grassland, or prairie products and services and the associated economic effects cannot be determined at this time. A qualitative description of the type of actions and effects are described in the next sections.

DESCRIPTION OF AFFECTED ENVIRONMENT

The national forests and grasslands contain abundant natural resources and opportunities that help meet the demands and needs of the American people. The benefits provided by National Forest System (NFS) lands have evolved over time in response to many social, economic, and environmental factors. The forest reserves that formed the base of the NFS were created in 1897 for the purposes of improving and protecting land, securing favorable waterflows, and providing a continuous supply of timber. The Multiple-Use Sustained-Yield Act of 1960 directed that the national forests be administered for outdoor recreation, rangeland, timber, watershed, and wildlife and fish.

The most recent strategic plan for the Forest Service (USDA Forest Service 2007a) refers to a number of outputs and services that generate benefits for rural and urban populations

including rangeland products (forage) associated with grazing permits; wood fiber to help meet demand for forest products; woody biomass (as a source of alternative energy) from fuel reductions and restoration treatments; access to energy-minerals; open space and undeveloped forest land to help protect and conserve wildlife, recreation opportunities, and scenic beauty; high-quality outdoor recreational experiences; as well as other market and non-market ecosystem services.

Ecosystem services include goods and services derived from forests and grasslands that are often not valued in the marketplace. Forests and grasslands are valued for basic goods, such as food and wood fiber. But these ecosystems also deliver important services that are often perceived to be free and limitless; examples include air and water purification, flood and climate regulation, and biodiversity. NFS lands also contain resources and vast reserves of cultural and historical value and deliver resource opportunities that serve as a natural laboratory for informing scientific knowledge and policy. Non-timber products (including edible and culinary, floral and decorative, arts and crafts, medicinal and dietary, and landscape products) continue to offer social, economic, and cultural benefits; these and the unique resource values associated with tropical rainforests (El Yunque) will require ongoing protection.

In addition to the direct benefits derived from these goods and services, forest outputs and amenities also have distributional impacts in the form of job and income contributions locally, as well as at broader regional scales. Impacts also include effects on a number of social indicators related to lifestyle, community resiliency, and other measures of social health and/or conditions. Resource outputs affected by Forest Service land management planning are likely to have direct, indirect, and induced impacts on jobs and labor income associated with economic sectors such as forestry, logging, and support activities for agriculture and forestry (North American Industrial Classification System (NAICS 113, 115); fishing, hunting, and trapping (NAICS 114); wood product and paper manufacturing (NAICS 321, 322); oil and gas extraction, mining, mining support services (NAICS 211, 212, 213); and recreation, accommodations, and food services (i.e., tourism) (NAICS 713, 721, 722). Contributions to jobs and income can affect the local economies of the 2,545 counties within 100 miles of NFS boundaries and might have more substantial effects on those counties that are highly dependent on forest and wildland resources. The National Forest-Dependent Rural Communities Economic Diversification Act of 1990 was passed to assist rural communities that are located in or near national forests and are economically dependent on forest resources or are likely to be economically disadvantaged by Federal or private sector land management practices. During the fall of 2004, it was determined that 590 counties were found eligible for assistance based on the following criteria: (1) labor income due to wildland-based industries (i.e., timber, mining, grazing, recreation) is 15 percent or more of total county labor income; (2) a county is not located within a metropolitan statistical area (MSA); and (3) a county must be located within 100 miles of a national forest or grassland (USDA Forest Service 2007). Table 2 provides estimates of direct, indirect, and induced job and labor income contributions by economic activity linked to resource utilization and management on NFS lands for the Nation (USDA Forest Service 2010f).

Table 2: Gross Employment and Labor Income by Program (Avg Annual)

Resource *	Gross Number of Jobs Income Contributed	
	Full and Part Time Jobs	Labor Income (Thousands of 2009 Dollars)
Recreation **	199,883	8,036,853
Wildlife and fish recreation **	24,259	1,034,624
Grazing	3,695	91,919
Timber	44,083	2,054,923
Minerals ***	--	--
Other forest products	100	3,821
Payments to states/counties	10,634	506,774
Forest Service expenditures	56,925	1,764,434
Total forest management	**339,579**	**13,493,348**

Source: USDA Forest Service 2010f. Model and data represent conditions for 2008 and IMPLAN Version 3.

** Only the "Forest Service Expenditures" line reflects jobs and income generated from Forest Service program budget expenditures. All the previous lines reflect private sector activity supported by Forest Service management.*

*** Estimates of total recreation and wildlife contribution should be added to match the numbers reported in the NVUM FY 2009 National Summary Report.*

**** The contribution of minerals management is not counted here because administration is carried out by the Department of the Interior.*

United States population growth and expanding urban centers have created greater demand for goods, services, and amenities from the Nation's private and public forests and grasslands. The Nation's population is projected to increase by nearly 50 percent by the middle of this century. The combination of increasing populations and the continued decline of public access to privately owned forest land creates extensive pressure on public lands to provide more recreational opportunities. Current population growth trends also show a steady loss of open spaces to developed uses. An estimated 60 percent of the worldwide ecosystem services evaluated are being degraded or used unsustainably (USDA Forest Service 2007a).

The process of developing and maintaining management plans for NFS lands that are capable of sustaining multiple uses while maintaining productivity and meeting public demands that reflect broad and expanding resource values, is faced with a variety of internal and external challenges and value tradeoffs that are driven by conditions within and beyond the boundaries of NFS lands. Examples of these challenges and tradeoffs include (USDA Forest Service 2007b):

- Loss and fragmentation of private forest land caused by urban expansion, and corresponding increase in value of urban and rural forest lands;
- Increasing threats from exotic species, climate change, air pollution, and insects and disease;
- Continuing threats from wildfire due to drought conditions (in the West), multi-decade increases in forest density, and development within the wildland-urban interface;

- Changes in Western landscapes as a result of elimination of Native American burning and other cultural practices, livestock grazing, systematic control of wildfire, harvest of large conifers, increases in ratios of timber growth to removal, changes in groundwater removal for urban and agricultural purposes (climate change cannot be ruled out; also, changes have increased susceptibility to wildfire and insects and disease);
- Increasing focus on utilization of woody biomass as a byproduct of restoration to help offset the costs of vegetation treatments and integrate with alternative energy demands; and
- Sustaining adequate high-quality outdoor recreation that meets the Nation's needs while maintaining the ecological integrity of national forests and grasslands.

The procedural and programmatic requirements established under the proposed planning rule will affect the degree to which these and other future challenges can be addressed while meeting the goals of the National Forest Management Act and the Multiple-Use Sustained-Yield Act.

METHODOLOGY AND GENERAL ASSUMPTIONS

The scope of this analysis is limited to the programmatic or Agency procedural activities related to development, revision, and amendment (i.e., maintenance) of land management plans for management units (e.g., national forests, grasslands, prairie) within the National Forest System. As such, Agency or private costs or benefits associated with on-the-ground or site-specific activities and projects resulting from implementation of individual plans are not characterized or projected. Procedural effects evaluated include potential changes in Agency costs and changes in overall planning efficiency.

This analysis does not estimate the trends in planning complexity or the associated costs. It only compares quantitative differences among these alternative rules as modified by current practices, and a discussion of incremental effects between the five alternatives—proposed rule, 1982 rule procedures, and modified proposed rule alternatives C, D, and E. Descriptions of the five alternatives are provided above. The 1982 rule procedures (Alternative B) is assumed to be the no-action alternative and therefore the baseline for analysis.

The proposed rule is considering a new planning framework consisting of a three-part planning cycle: (1) assess, (2) revise/amend, and (3) monitor. Based on this new planning framework, the cost-benefit analysis focuses on key activities related to this planning cycle for which agency costs can be estimated. The differences among the costs of the alternatives are estimated when possible, but benefits are discussed qualitatively in the context of potential changes in procedural or programmatic efficiency. Agency costs represent averages for all management units across all NFS regions; no attempt is made to distinguish region-specific costs.

As noted above, this document focuses on analysis of direct programmatic effects, not indirect potential for resource-specific or ecological effects which cannot be determined in the absence of on-the-ground activity prescriptions at the unit level. Appendix C

contains a qualitative summary of potential indirect effects related to resource-specific and ecological issues raised in public comments; for details about indirect effects, the reader is referred to the draft environmental impact statement for the proposed rule (USDA Forest Service, 2011).

SOURCES OF INFORMATION AND DATA

The sources of data and information used to help estimate Agency costs and assess potential changes in planning efficiency include the following:

- Agency data regarding paid expenses (under NFPN and NFIM budget line items) for planning and monitoring activities related to planning, by management unit, for years 2006-2008 (USDA Forest Service 2010a);
- Agency data regarding budget allocations for management units and regional offices for planning and monitoring activities related to planning (USDA Forest Service 2010b; 2010c);
- Business evaluations of the 2000 and 2002 planning rules: cost projections and distributions, by planning activity and cost center (USDA Forest Service 2002b);
- Cost-benefit analysis results for previous planning rules and the 1982 rule (USDA Forest Service 2007);
- Reports to the Congress regarding budget appropriations for forest planning (USDA Forest Service 2002a); and
- Additional personal communication with Forest Service planning staff regarding allocations and costs for planning, monitoring, and collaboration activities.
- Draft Environmental Impact Statement (DEIS) for the proposed rule (USDA Forest Service, 2011).

METHODOLOGY: BENEFITS AND EFFICIENCY ANALYSIS

Because of the programmatic nature of the proposed action, the benefits derived from carrying out projects and activities under land management plans developed, revised, or amended under the different alternatives are not quantified. Instead, the benefits of the alternatives are assessed qualitatively in the context of procedural or programmatic planning efficiency and capacity for management plans to reduce transaction costs. Transaction costs are high for managing and extracting benefits from forest and grassland resources in a manner that is acceptable, enforceable, and adaptable. For NFS lands, acceptable management is defined by the purpose and objectives of the proposed rule, consistent with the Multiple-Use Sustained-Yield Act of 1960 (MUSYA) and the National Forest Management Act of 1976 (NFMA) (i.e., to sustain multiple uses, including ecosystem services, in perpetuity and maintain long-term health and productivity of the land for the benefit of human communities and natural resources, giving due consideration to the relative values of resources). Management plans and the planning process lower transaction costs by serving as a mechanism for exchanging and assimilating information about resources and resource values, as well as a means for

clarifying and providing guidance for resource management, use, access, assessment, and monitoring. The magnitude of potential reductions in transaction costs, and corresponding improvements in management efficiency and net public benefits, is subject to the effectiveness of the procedural requirements adopted for revising and maintaining management plans.

METHODOLOGY: AGENCY COST ANALYSIS

General Assumptions: Framework, Time Frame, and Discounting

The key activities for which costs were analyzed include (1) assessments (e.g., activities conducted to establish a need for change, prior to initiating plan revisions or amendments; pre-notice of intent); (2) collaboration (e.g., collaboration and public engagement activities outside of public comment solicitation and content analysis completed to satisfy NEPA requirements); (3) analysis of effects and developing decisions (e.g., development of proposed and final plan revisions and amendment alternatives, NEPA effects analysis, NFMA timber program requirements, documentation/records, public comment analysis, post-notice of intent NEPA); (4) science support (e.g., assurances regarding how to account for best science); (5) monitoring (to support planning-related activities); and (6) resolution of disputes about the proposed plan decisions through the administrative processes of appeals or objections.

Agency costs are initially estimated for the 1982 rule procedures, whose costs are then used as a baseline from which cost adjustments are made to project costs for the proposed rule, based on specified changes in planning procedures by key activity. Agency cost estimates for previous planning rules (2000, 2002, 2008) (USDA Forest Service 2002b, 2007) are also reviewed and used to help gauge the potential magnitude of cost adjustments by key activity, recognizing that substantial differences in requirements exist for some key activities. Annual costs are estimated separately for years during which units (with regional support) are engaged in plan revision and years engaged in plan maintenance/amendment. Costs are then aggregated for all years (i.e., 15-year planning cycle) and all management units to estimate total planning costs. Over a 15-year planning cycle, it is assumed that management units will be engaged in plan revision for 3 years under the proposed rule and 5 years under the 1982 procedures, implying that plan maintenance or amendment will be occurring for the remaining 12 and 10 years, respectively. It is also assumed that approximately 120 management units will at least initiate plan revision over the next 15 years (2012 through 2026). Total costs are assumed to cover activities directly related to planning and planning-related monitoring at the unit and regional office levels, as well as indirect or overhead (i.e., add-on or cost pools) activities to support planning activities. Costs do not include project-level activities (project and alternative development, NEPA analysis, etc.). Costs associated with planning activities at national offices and research stations are assumed to remain relatively constant across alternatives and therefore are not included in total cost estimates. Total costs (in 2009 dollars) are estimated for a 15-year planning cycle and then annualized assuming a 3 percent and 7 percent discount rate in accordance with Office of Management and Budget Circular A-4 (OMB, 2003) (see USDA Forest Service 2010d for details about activity costs and cost calculations).

Cost Assumptions: Alternatives A (Proposed Rule) and B (No Action)

Estimates of planning and monitoring costs during plan revision years—as well as distributions of costs across key planning activities (e.g., assessment, analysis, appeal resolution, etc.) under the 1982 rule procedures—are based initially on past cost estimates for plan revision under the 1982 rule procedures (USDA Forest Service 2007) and then adjusted to reflect recent information and data regarding Forest Service paid expenditures (USDA Forest Service 2010a) and Forest Service budget allocations for planning and monitoring activities (USDA Forest Service 2010b, 2010c), as represented by Agency budget line items for planning (NFPN) and monitoring (NFIM) for 1996 to 2010.

Costs during plan maintenance periods, including plan amendment activities, are not available from past planning rule analyses, so historical expenditures and funding allocations (USDA Forest Service 2010a, 2010c) were examined to help derive planning costs during maintenance periods. Historical data suggest that annual expenditures per management unit associated with the non-monitoring planning activities (budget line item NFPN) during maintenance years are about 30 percent of annual expenditures during periods of revision. Based on final cost estimates for this analysis, average annual costs associated with non-monitoring planning activities for plan maintenance are approximately 25 percent and 35 percent of non-monitoring planning activities during plan revision for alternatives A and B respectively.

Given that historical Forest Service budget and expenditure data, as well as past planning rule cost information, are not capable of providing a complete characterization of the relative differences in activity-specific costs between the 1982 rule procedures and the proposed rule, adjustments or refinements were made to revision and maintenance year costs, by key activity, based on additional input and personal communications with Forest Service planning staff and the rule-writing team. Even with these refinements, it should be acknowledged that substantial uncertainty remains within cost estimates and projected differences in costs across alternatives. Additional details about cost assumptions and estimation for key activity categories are noted below:

Collaboration

Costs for collaboration are assumed to cover all collaboration activities and traditional public meetings, except activities related to public comments and content analysis for complying with NEPA and NFMA formal notification and comment solicitation requirements (those costs are included within the Analysis/Revision section). The costs for the 1982 procedures rule during periods of revision are based on the cost of traditional public meetings and minimal amounts of additional collaboration; costs during maintenance periods are assumed to be negligible (zero costs) relative to other planning expenses. Costs for collaboration under the proposed rule include all costs under the 1982 procedures rule and also include estimates of expenses for additional collaboration involvement, training, facilitation, tribal involvement, facilities, and travel (USDA Forest Service 2010e). Collaboration costs account for 21 percent of plan revision costs under the proposed rule, which is slightly lower though still similar to the 24 percent estimated for the 2008 planning rule (USDA Forest Service 2007). Collaboration accounts for 5 percent of projected costs during plan maintenance periods under the proposed rule.

Collaboration is projected to account for a substantially lower percentage of costs under the1982 rule procedures (3 percent).

Science Support

Costs for science support include expenses for consultations and other activities to help take into account best science and provide documentation in assessment reports, plan decision documents, and monitoring evaluation reports. Science support costs under the 1982 rule procedures and the proposed rule are approximately 3 percent and 4 percent of plan revision costs respectively, consistent with percentages described in previous assessments of planning rule costs (USDA Forest Service 2002b, 2007). Costs decrease to less than 1 percent of costs during plan maintenance periods under both alternatives.

Assessments

Assessment costs (pre-notice of intent) include activities related to a number of pre-NOI activities such as assessments of current conditions and trends, such as analyses of management situations (AMS) and benchmark analysis under the 1982 rule procedures, viability assessments, and two-tier (unit-level and broad-scale) assessments under the proposed rule. Previous analyses of planning costs (USDA Forest Service 2002b) found that consideration of broad-scale assessments can have a large impact on overall assessment costs. Assessment costs were estimated to account for 19 percent to 28 percent of plan revision costs for the 2000 and 2002 planning rules (USDA Forest Service 2002b), and a similar percentage (19 percent) is projected for this proposed rule, decreasing to 9 percent under the 1982 rule procedures. Cost percentages during plan maintenance periods decease to approximately 8 percent for both alternatives.

Analysis/Decisions

These costs cover primarily post-NOI NEPA-related activities including effects analysis, public comment solicitation and content analysis, and alternative development. Costs also include timber (suitability) analysis requirements, comparison of alternatives, and documentation of decisions. Costs associated with evaluations of special or designated areas (e.g., wilderness) are assumed to remain constant across all alternatives and are not included in cost estimates. Projected analysis and decision costs account for 37 percent of plan revision costs under the proposed rule, slightly lower than percentages previously estimated for 2000, 2002, and 2008 planning rules (47 percent to 58 percent) (USDA Forest Service 2002b, 2007). Corresponding costs under the 1982 rule procedures are estimated to be 47 percent of plan revision costs. Analysis and decision costs during plan maintenance are estimated to decrease to 14 percent and 33 percent for the proposed rule and 1982 rule procedures respectively.

Resolutions

Costs to address post-decisional appeals under the 1982 rule procedures and pre-decisional objections under the proposed rule account for 3 percent and 2 percent of plan revision costs respectively. These percentages are similar to those reported in previous planning cost analyses (USDA Forest Service 2002b, 2007). Resolution costs are estimated to account for less than 1 percent of costs during plan maintenance periods for the proposed rule, and 1.5 percent under the 1982 rule procedures.

Monitoring

Monitoring costs are assumed to be represented by funds and expenses under the Agency's NFIM budget line item. Historical expense and budget allocation data indicate that annual monitoring costs during plan revision and plan maintenance are similar and that monitoring funds directed toward planning range from 40 percent to 57 percent of non-monitoring funds (budget line item NFPN) for planning (USDA Forest Service 2002a, 2010a, 2010c). Monitoring costs during plan revision under the 1982 rule procedures are estimated to be 23 percent of non-monitoring costs and 21 percent under the proposed rule. During periods of plan maintenance, monitoring costs as a percentage of non-monitoring costs increase slightly under the 1982 rule procedures and to a greater extent under the proposed rule. Monitoring costs account for a similar percentage of total plan revision costs (17 percent to 19 percent) for both rules, which is similar to the percentage (13 percent) estimated in previous analyses for the 1982 procedures and the 2008 proposed rule (USDA Forest Service 2007).

See Appendices B and C for calculations for annual and annualized costs for Alternatives A and B.

Cost Assumptions: Alternatives C, D, and E

Alternatives C, D, and E can all be considered to be modifications or refinements of the proposed rule (Alternative A), whereby prescriptive requirements for the key planning activities are removed, adjusted, or augmented. As such, changes in Agency costs for these alternatives are described, by planning activity, as qualitative or percentage changes with respect to Alternative A or Alternative B costs in the Agency Cost Impacts section below.

ANALYTICAL RESULTS

AGENCY COST IMPACTS

Proposed Rule (Alternative A) and 1982 Rule Procedures (Alternative B) Costs

Based on the results from the analysis of Agency costs (Table 2), there is potential for increases as well as decreases in costs depending on the type of planning activity being considered. However, total annual planning costs are not projected to be substantially different between the proposed rule and the 1982 rule procedures. Estimates of potential differences in planning costs are complicated by the unknown effects of any future Forest Service directives that might be developed to support the proposed rule.

The annual cost to the Agency for all planning-related activities under the proposed rule ($102.5 million per year) is estimated to be $1.5 million per year lower compared to the 1982 rule procedures ($104 million per year) (Appendix Table 2). Assuming a 3 percent discount rate, the annualized cost for the proposed rule is estimated to be $102 million, while the annualized cost for the 1982 rule procedures is $103 million, implying an annualized cost difference of only $1 million (Tables 3 and 4). Assuming a 7 percent discount rate for the same timeframe, the annualized cost estimate for the proposed rule is

$101.2 million compared to $102.2 million under the 1982 rule procedures (Tables 5 and 6).

Under the proposed rule, costs are projected to be skewed toward collaboration, assessment, and monitoring activities and away from analysis/decision tasks compared to the 1982 rule procedures (see Tables 4 and 6). Costs are also skewed more toward non-revision periods (i.e., plan amendments and maintenance) under the proposed rule, due in part to the reduced number of years anticipated to be needed for plan revisions. Time (and therefore costs) needed to complete plan revisions is assumed to decrease under the proposed rule as a consequence of broader support and resolution of issues during collaboration associated with development of plan proposals (i.e., prior to proposing or finalizing action). Additional details about potential factors contributing to the cost differences between the proposed rule (Alternative A) and the 1982 rule procedures (Alternative B) are presented in Appendix A.

Table 3. Annualized Agency Planning Costs, For All Units, Discounted at 3 Percent

Planning Activity	Proposed Rule Alternative A	1982 Rule Procedures Alternative B	Proposed Rule Modified Alternative C	Proposed Rule Modified Alternative D	Proposed Rule Modified Alternative E
	thousands of dollars				
Assessment	$12,548	$8,690	$6,517	$14,430	$12,548
Collaboration	$10,510	$1,179	$1,179	$10,510	$14,188
Analysis/Decisions	$21,703	$48,628	$32,554	$23,873	$21,703
Science Support	$2,113	$1,529	$1,529	$2,113	$2,113
Resolutions	$886	$2,110	$2,110	$886	$886
Minimum Maintenance (a)	$7,293	$4,988	$4,988	$7,293	$7,293
Monitoring	$46,911	$36,153	$30,730	$56,293	$75,057
TOTAL	**$101,963**	**$103,277**	**$79,608**	**$115,398**	**$133,788**

(a) Minimum Maintenance includes minimum expenses to maintain a plan during non-revision years, excluding assessment, collaboration, and analysis/decision costs associated specifically with amendments.

Table 4. Net Cost Change Comparisons - Annualized Discounted Costs at 3 Percent

Planning Activity	Ave. Annual Cost Change Proposed Rule to 1982 Procedures (Alt. A - Alt. B)	Ave. Annual Cost Change Alternative C to 1982 Procedures (Alt. C - Alt. B)	Ave. Annual Cost Change Alternative D to 1982 Procedures (Alt. D - Alt. B)	Ave. Annual Cost Change Alternative E to 1982 Procedures (Alt. E - Alt. B)
	thousands of dollars			
Assessment	3,858	-2,172	5,740	3,858
Collaboration	9,331	0	9,331	13,009
Analysis/decisions	-26,925	-16,074	-24,755	-26,925
Science support	584	0	584	584
Resolutions	-1,224	0	-1,224	-1,224
Minimum maintenance (a)	2,305	0	2,305	2,305
Monitoring	10,758	-5,423	20,140	38,904
TOTAL	**-1,314**	**-23,669**	**12,121**	**30,511**

Table 5 Annualized Agency Planning Costs, For All Units, Discounted at 7 Percent

Planning Activity	Proposed Rule Alternative A	1982 Rule Procedures Alternative B	Proposed Rule Modified Alternative C	Proposed Rule Modified Alternative D	Proposed Rule Modified Alternative E
	thousands of dollars				
Assessment	12,435	8,612	6,459	14,300	12,435
Collaboration	10,369	1,131	1,131	10,369	13,999
Analysis/decisions	21,172	47,635	31,757	23,289	21,172
Science support	2,046	1,481	1,481	2,046	2,046
Resolutions	839	2,061	2,061	839	839
Minimum maintenance (a)	7,341	5,090	5,090	7,341	7,341
Monitoring	46,977	36,208	30,776	56,373	75,164
TOTAL	**101,179**	**102,217**	**78,756**	**114,557**	**132,995**

(a) Minimum maintenance includes minimum expenses to maintain a plan during non-revision years, excluding assessment, collaboration, and analysis/decision costs associated specifically with amendments.

Table 6. Net Cost Change Comparisons - Annualized Discounted Costs at 7 Percent

Planning Activity	Ave. Annual Cost Change Proposed Rule to 1982 procedures (Alt. A - Alt. B)	Ave. Annual Cost Change Alternative C to 1982 Procedures (Alt. C - Alt. B)	Ave. Annual Cost Change Alternative D to 1982 Procedures (Alt. D - Alt. B)	Ave. Annual Cost Change Alternative E to 1982 Procedures (Alt. E - Alt. B)
	thousands of dollars			
Assessment	3,822	-2,153	5,688	3,822
Collaboration	9,238	0	9,238	12,868
Analysis/decisions	-26,463	-15,877	-24,346	-26,463
Science support	566	0	566	566
Resolutions	-1,222	0	-1,222	-1,222
Minimum maintenance (a)	2,250	0	2,250	2,250
Monitoring	10,770	-5,431	20,165	38,956
TOTAL	**-1,038**	**-23,461**	**12,339**	**30,777**

Alternative C Costs

Alternative C describes minimum levels of planning activity necessary for meeting the purpose and need associated with NFMA. Costs for Alternative C are characterized in terms of changes with respect to Alternative A (proposed rule). The science review and documentation requirements under the proposed rule are no longer prescribed under Alternative C, so science support costs are assumed to be similar to costs estimated for the 1982 rule procedures, recognizing the continuing need to satisfy U.S. Department of

Agriculture policy[1] regarding information quality requirements (see USDA guidelines for information quality at www.ocio.usda.gov/qi_guide/background.html).

Requirements for using a collaborative process are retained under Alternative C; however, all prescriptive requirements for the collaborative process are removed with the exception of the responsible official having discretion about the design and scope of the process. As a consequence, collaboration costs are assumed to be equivalent to costs under the 1982 rule procedures.

Prescriptive requirements regarding monitoring under the proposed rule, as well as the 1982 rule procedures, are removed under Alternative C. Monitoring costs are therefore assumed to be equivalent to 1982 monitoring costs minus the costs of annual and 5-year evaluations as well as effort required to address management indicator species and other prescriptive considerations under the 1982 procedures. These additional cost deductions are estimated to be approximately 15 percent of baseline 1982 rule procedure monitoring costs based on past analyses[2].

Prescriptive requirements regarding assessments under the proposed rule are removed, and it is assumed that other requirements under the 1982 rule procedures will likewise not apply (e.g., requirements associated with analysis of management situations (AMS), benchmark analysis, regional guides, evaluations of MIS). As a consequence, assessment costs under Alternative C are projected to be 25 percent lower relative to assessment costs estimated for the 1982 rule procedures based on reduced numbers of monitoring requirements, continuing need to perform assessments to determine need for change, and assumptions regarding percentage reductions for monitoring costs.

Costs related to post-NOI requirements for completing plan revisions and amendments and complying with NEPA (i.e., development and evaluation of alternatives, analysis of effects, provision of notifications and opportunities for comment, decision documentation, public records, etc.) would remain in effect under Alternative C; however, all prescriptive language regarding development and evaluation of alternatives under the 1982 rule procedures and the proposed rule would not apply. Plan components and NFMA timber requirements under the proposed rule would remain in effect under Alternative C, as would most requirements to consider sustainability, climate, diversity, and restoration; however, much of the prescriptive language for considering these factors is removed under Alternative C. Given the absence of collaboration during early phases of plan revision and amendment, a greater number of plan alternatives are likely to be needed under Alternative C, relative to the proposed rule. Analysis and decision costs under Alternative C are therefore assumed to be significantly lower than costs under the

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[1] USDA information quality policy is based largely on Office of Management and Budget's (OMB)2002 "Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies" (i.e., section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106-554)), now commonly referred to as the Data Quality Act.

[2] Total costs for annual reviews and 5-year evaluations are estimated to be approximately $500,000 over a 15-year planning period based on costs estimated for the 1982 rule (USDA Forest Service 2007).

1982 rule procedures, but more than analysis costs projected under the proposed rule by 50 percent.

There is potential for costs associated with resolving objections under Alternative C to increase relative to the proposed rule as well as the 1982 rule procedures; however, it is difficult to predict changes in resolution costs. Resolution costs under Alternative C are therefore assumed to be equivalent to those estimated for the 1982 rule procedures.

The annual planning cost to the Agency under Alternative C is estimated to be $80.2 million per year based on the changes in procedural requirements described above. These costs are $22.3 million per year (22 percent) lower than the proposed rule (Alternative A) (see Appendix Table B-2). Total planning costs under Alternative C are estimated to be $23.8 million per year lower than the 1982 rule procedures (Alternative B; No Action). Annualized costs for Alternative C are estimated to be $79.6 million and $78.8 million for discount rates of 3 percent and 7 percent respectively (Tables 3 and 5).

Alternative D Costs

Alternative D (greater emphasis on riparian and watershed health, climate change vulnerability assessment, and alternative approach to species diversity) contains more explicit requirements about preparing a climate change vulnerability assessment, refining conservation area boundaries, and including watershed sustainability and watershed health guidelines and standards in plan components. The climate change vulnerability assessment requirement may increase assessment costs slightly for all management units. However, more explicit requirements regarding watershed health, standards, and guidelines in plan components may increase analysis/decision costs only for those units where these issues are not already priority issues, the overall effect being more consistent coverage of watershed health and protection within plan components. Many of the explicit requirements regarding consideration of watershed health in plan components are implicit within plan component requirements under Alternative A and may therefore have little effect for those units where watershed health and protection has already been identified as a relatively higher priority concern. Based on these changes, there is potential for increases in costs for assessment, analysis/decision, and monitoring activity categories under Alternative D with respect to Alternative A (proposed action).

Alternative D also provides additional guidance and requirements regarding monitoring, assessment, and developing plan components. Additional prescriptive language regarding coordination with other agencies, governments, organizations, and partners in the assessment and monitoring of species viability may increase initial costs related to collaboration, monitoring program development, and assessment; however, more consistent coordination may also result in more cost-effective long-term planning efforts to meet viability objectives. Prescriptive coordination requirements for species viability add focus but are nonetheless comparable to requirements in the proposed rule (Alternative A). Successful coordination may also provide increased opportunities to distribute and share monitoring and assessment costs as well as more cost-effective monitoring strategies. More prescriptive requirements regarding how to account for best available science under Alternative D may slightly increase costs associated with the science support activity category. However, similar support could be called for under

Alternative A. Therefore, overall increases in Agency costs for science support are expected to be negligible. The provisions related to species diversity are expected to require monitoring of more species than contemplated in Alternative A.

The aggregate effect of the changes in planning requirements regarding consideration of watershed health, climate change, and viability are projected to result in a 15 percent increase in assessment costs, 10 percent increase in analysis costs, and 20 percent increase in monitoring costs, compared to Alternative A. As a result of these changes, annual planning costs under Alternative D are projected to be $116.0 million per year to the Agency, which is $13.5 million per year (13 percent) higher than the proposed rule (Alternative A) (Appendix Table B-2). Total planning costs under Alternative D are estimated to be $12.0 million per year (12 percent) higher than the 1982 rule procedures (Alternative B , No Action). Annualized costs for Alternative D are estimated to be $115.4 million and $114.6 million for discount rates of 3 percent and 7 percent respectively (Tables 3and 5).

Alternative E Costs

Alternative E (greater emphasis on monitoring programs, monitoring performance, and collaboration) requires signals or criteria for action for each monitoring question and indicator; a somewhat more prescriptive list of factors to consider in monitoring and assessment questions; and new standards for periodic evaluations of monitoring programs. The new requirements regarding signal points and evaluations of monitoring programs may increase monitoring costs slightly for all management units. However, more explicit requirements—those regarding (1) the need to address sustainability, diversity, and timber requirements in assessments; (2) new factors to be addressed in monitoring questions (e.g., recovery of threatened and endangered species, vegetation diversity, insects and pathogens, goods and services contributing to economic sustainability, safety and environmental risks); and (3) more prescriptive language about addressing existing factors in monitoring questions (e.g., watershed conditions, key ecological conditions, invasive species, and climate change)—may increase costs for a smaller subset of management units, depending on the extent to which specific resource areas or programs are already targeted as a priority or concern for monitoring. Some of these explicit requirements are implicit within monitoring requirements under the proposed rule and therefore less likely to have a significant cost impact for some management units.

Average monitoring costs per management unit may increase under Alternative E as a consequence of the need to (1) adjusting current unit monitoring programs to improve consistency for some topics (30 percent increase) and (2) initiate new and additional monitoring for other topics (55 percent increase). However, there could be a reduced effort from consistency of methods and information management support that may offset the increased costs by an estimated 25 percent. Overall, the aggregate effect of the monitoring cost implications noted above is projected to result in a 60 percent increase in monitoring costs for Alternative E compared to monitoring costs estimated for Alternative A (proposed rule).

Alternative E also places greater emphasis on collaboration throughout all phases of planning. The expectations regarding effort dedicated to the creation of collaborative capacity and the ability to overcome barriers to collaboration, acknowledged to a limited extent in the cost estimates for Alternative A, are made more explicit and expanded upon in Alternative E, particularly through prescriptive language regarding the process for creating a plan for public participation. Alternative E also provides additional collaborative opportunities for Tribes. Based on a review of estimates and analyses of collaboration costs completed for previous planning rules with extensive collaboration requirements (USDA Forest Service 2002b, 2007), total collaboration costs under Alternative E, over a 15-year planning period, are estimated to be 35 percent higher than collaboration costs estimated for Alternative A.

Based on the percentage costs increases for monitoring (60 percent) and collaboration (35 percent) planning activities, annual planning costs under Alternative E are projected to be $134.4 million per year to the Agency, which is $32.0 million per year (31 percent) higher than the proposed rule (Alternative A). Total planning costs under Alternative E are estimated to be $30.4 million per year (29 perchent) higher than the 1982 rule procedures (Alternative B, No Action) (Apendix Table B-2). Annualized costs for Alternative E are estimated to be $133.8 million and $133.0 million for discount rates of 3 percent and 7 percent respectively (Tables 3 and 5).

EFFICIENCY AND COST-EFFECTIVENESS IMPACTS

Alternative A (Proposed Rule) and Alternative B (No Action) Efficiency

Substantial changes in planning costs over a 15-year period are not projected to occur under the proposed rule compared to the 1982 rule procedures; however, long-term gains in planning efficiency are expected as a result of procedural changes and reallocation of effort (and costs) across key planning activities under the proposed rule. These gains would be reflected in part through reduced time needed to complete plan revisions (e.g., it is assumed that revisions are completed within 3 to 4 years under the proposed rule). Costs associated with planning activities such as analyzing and revising plan components are anticipated to be streamlined as resources are shifted to other activities such as collaboration, assessments, and monitoring under the proposed rule. These shifts in emphasis and resources are also projected to improve the currency, reliability, and legitimacy of plans to serve as a guide for: (1) reducing uncertainty by increasing opportunities to gather (and exchange) new information from a wide spectrum of sources, stakeholders, and other interested parties about conditions, trends, risks, stressors, contingencies, vulnerabilities, values/needs, contributions, and management constraints; (2) integrating and assessing ecological, social, and economic information to determine if outputs and outcomes related to unit contributions to ecological, social, and economic conditions constitute a need for change; and (3) responding to a need for change through management activities and projects or revisions and amendments to plan components (for details about rationale for reallocation of costs across planning activities, see Appendix A).

New requirements to consider diversity and sustainability in monitoring, assessments, and plan components are expected to improve the cost-effectiveness of project-level

analysis and decisionmaking, recognizing that project-level costs are not included in the analysis of planning costs. Details about the potential effects of specific procedural changes on Agency costs and planning efficiency are described below, by activity category.

Assessment

Slight increases in assessment costs are anticipated under the proposed rule because of increased emphasis on a number of factors (e.g., unit roles and contributions within a broader ecological and geographic context [landscapes], ecosystem and species diversity, climate change, and other system drivers, risks, threats, and vulnerabilities) and the mitigating effects of other elements such as requirements to rely on existing information and removal of prescriptive benchmark analysis. Changes in the following assessment requirements and guidance are expected to increase planning efficiency by improving capacity to assimilate and integrate new information for determining need for change:

- Assessments are to be conducted at landscape levels and at a geographic scale based on ecological, economic, or social factors, rather than strict adherence to administrative boundaries, thereby enhancing capacity to incorporate information about conditions outside of National Forest System (NFS) boundaries that affect or are affected by forest contributions.
- Risks and vulnerabilities to ecosystem sustainability are to be considered in assessments, thereby encouraging consideration of the effects of long-term environmental or social/economic variability, events, and trends on future outputs, ecosystem services, and outcomes (e.g., climate change).
- Agency costs for broad-scale assessments may be offset in part by considering and referencing existing assessments completed by States and other entities (e.g., under the Farm Bill).

Collaboration

Costs associated with collaboration are projected to increase under the proposed rule primarily because of requirements that opportunities for collaboration be provided at all stages of planning. Gains in cost effectiveness could occur, in part, by providing responsible officials with discretion to design collaboration strategies that meet unit-specific needs and constraints and recognize local collaboration capacity. Collaboration costs for some units could be higher where potential barriers to collaboration are present (e.g., pre-existing relationships might exacerbate perceived inequities; substantial trans-boundary or broad-scale resource or environmental effects; complex economic and social interactions, contingencies, or trends; absence of pre-existing social networks or capacity; continuous and uncertain change in market opportunities and resource demands) (see for example, Sick 2008). Changes in guidance and requirements for collaboration under the proposed rule are expected to increase planning efficiency as a result of the following:

- Improved capacity to address uncertainty by gathering, verifying, and integrating information from a variety of sources, including tribal or other forms of knowledge and land ethics, within and beyond unit boundaries.

- Improved analysis and decisionmaking efficiency during latter stages of planning due to increases in collaborative efforts during early phases (e.g., assessments).
- Potential to offset or reduce Agency monitoring costs as a result of collaboration during monitoring program development and monitoring itself.
- Improved capacity for identifying and integrating ecological, social, and economic indicators for determining need for change during assessments.
- Reduced need for large numbers of plan alternatives as well as time needed to complete plan revisions as a consequence of broader support and resolution of issues achieved through collaboration during early phases of proposed plan development.
- Improve perceptions about the legitimacy of plans and the planning process and reduce Agency costs associated with resolving objections (or conflict) by increasing transparency, developing awareness about the values and expected behavior of others[3], and seeking greater consensus about values, needs, tradeoffs, and outcomes during earlier stages of planning.
- Expectations about building unit (and regional) capacity to overcome existing barriers to collaboration (e.g., absence of social networks or capacity; perceptions about pre-existing power relationships) through training and facilitation.

Analysis and Decisions (Plan Revision or Amendment)

Costs associated with analysis and decisions are estimated to decrease under the proposed rule due to the net effect of: (1) fewer prescriptive requirements (relative to 1982 rule procedures) regarding probable (management) actions, timber program elements, number and types of alternatives, evaluation of alternatives, and minimum management requirements; (2) increased emphasis on consideration of resource attributes and conditions such as sustainability, watershed health, and water supply; and (3) more efficient approaches for addressing species viability and diversity. The following elements associated with the proposed rule are expected to increase planning efficiency by facilitating plan revisions and amendments, increasing capacity for adaptive management, and improving guidance for responding to need-for-change determinations:

- The adoption of new approaches for addressing species viability and diversity within plan components, while recognizing local land and unit capabilities and limits, is expected to increase the flexibility and feasibility of responding to species and ecosystem sustainability and recovery needs.
    - Habitat quality and quantity would be expected to increase under Alternative A (as well as Alternatives D and E).
- Consideration of sustainability and resiliency in plan components is expected to facilitate restoration responses triggered by new information regarding

[3] *The Office of Management and Budget (OMB) notes that individual behavior, in relation to a regulated action, is a function of beliefs or perceptions about the behavior of others (OMB 2009). Recommendations for regulatory approaches therefore include transparent disclosure of information and procedures for revealing and understanding behavior (and values).*

environmental, social, and economic risks and stressors, including climate change and market trends.

  - Implementation of plans under Alternative A (as well as D and E) would reduce anthropogenic stressors, thereby restoring healthy terrestrial and aquatic ecosystems and compatible uses, especially in areas sensitive to disturbance and changing conditions,
  - Increased protection of riparian area function would occur under Alternative A (as well as D and E), compared to Alternative B.

- Refocusing the use of the term “restoration” to focus on recovery of resiliency and ecosysem function (instead of historical reference points) provides greater flexibility to respond to need-for-change regarding damaged ecosystems.
- Additional emphasis on evaluating links between ecosystem resiliency and sustaining economic opportunities should facilitate restoration action responding to need for change linked to local or rural community conditions.
- More frequent amendments expected under the proposed rule could potentially lead to more focused descriptions of the need for change to guide future revisions.
- Flexibility to adopt plan components that provide similar levels of protection afforded by 1982 rule procedures regarding minimum management requirements.
- Greater emphasis placed on identifying each unit's role in providing ecosystem services within a broader landscape or region should facilitate the design of management responses that recognize the marginal effects or contributions of ecological, social, or economic conditions outside of the traditional unit study area boundaries.
  - Plan components would reflect consideration of influences from climate change.
- Fewer prescriptive descriptions of timber harvests, sale schedule, and management practices under the proposed rule are likely to provide the flexibility needed to develop actions that are responsive to unit-specific vegetation management and ecosystem restoration (sustainability) needs.

Science Support

Slight increases in costs for science support could occur under the proposed rule in part because of more prescriptive language about taking into account best science. The guidance and requirements for how to account for science under the proposed rule contributes to planning efficiency by maximizing coverage of scientific input from diverse sources, integrating science throughout all stages of planning, and taking advantage of scientific knowledge from external partners and agency research stations.

Resolutions

The effect of a shift from a post-decisional appeals process (under the 1982 rule procedures) to a pre-decisional objection period under the proposed rule is difficult to project; however, the anticipated success of collaboration in achieving greater consensus

about plan components and perceptions of legitimacy and trust in the planning process is expected to have a beneficial effect on resolution activity and corresponding costs. Procedural changes related to collaboration are expected to provide opportunities for resolving potential objections or conflict at earlier stages of planning, thereby reducing the need for and cost of resolutions at later stages.

Monitoring

Relative increases in monitoring costs are anticipated as a consequence of greater emphasis on broader input and participation in design and implementation of monitoring, new approaches for characterizing diversity and resiliency, and two-tier (unit and broad-scale) monitoring programs. Monitoring requirements such as coordination of broad-scale monitoring, as well as adoption of "focal species" and key ecological conditions as measures for diversity are expected to contribute to monitoring cost-effectiveness. The following changes in guidance and requirements for monitoring under the proposed rule are expected to increase planning efficiency by improving capacity to gather information and reduce uncertainty for a number of integrated ecological, social, and economic conditions, trends, risks, stressors, constraints, and values, within and beyond unit boundaries:

- Monitoring under the proposed rule focuses to a greater extent on ecosystems, habitat diversity, and smaller numbers of focal species, with the intent that tracking of species diversity and habitat sustainability will be reflective of unit-specific capacities and therefore cost effective.
- Two-tiered monitoring (unit-specific and broad-scale) is intended to create a more systematic and unified monitoring approach to detect effects of management within unit boundaries as well as track risks, stressors, and conditions beyond unit boundaries that affect or are affected by unit conditions and actions.
    - Monitoring programs would track influences of climate change.
- Emphasis on coordination between unit and broad-scale monitoring helps ensure information is complementary and gathered at scales appropriate to monitoring questions, thereby reducing redundancy and improving cost-effectiveness.

Alternative C Efficiency

Alternative C would eliminate a majority of the prescriptive requirements designed to enhance, assimilation and evaluation of new information for determining need for change, and response to need for change during plan revision or amendment that would occur under Alternative A. Agency costs would be substantially lower as a consequence of these changes. However, in the absence of these requirements, management units are less likely to be able to reduce uncertainty and respond to new information about environmental, economic, and social stressors and risks in a manner that allows them to establish plans that "sustain multiple uses, maintain long-term productivity, and meet the needs of the public."

The numerous public meetings, forums, and roundtable discussions convened as a result of this rule-making effort revealed growing concern about a variety of risks and stressors

(e.g., climate change; insects and disease; recreation, timber, and shifts in other local demands and national market trends; population growth, demographic shifts, and concerns about water supply and other ecosystem support services). Addressing these types of risks requires a larger landscape perspective, exchange of information with an expanding spectrum of sources and users, and a framework that can facilitate adaptation to new information about risks and stressors. The new procedural requirements in Alternative A are designed to recognize these needs and increase Agency as well as unit capacity for adapting management plans to new and evolving information about risks, stressors, contingencies, and management constraints, as described in the section above. In the absence of new prescriptive direction for plan development, revision, and maintenance, it is anticipated that management units will have less capacity to establish plans that are perceived as being efficient and legitimate frameworks for managing resources in a manner that meets public demand in a sustainable and acceptable fashion (i.e., satisfies the goals of MUSYA and NFMA).

Most of the potential planning efficiency gains listed for Alternative A (see previous section) would be absent or reduced under Alternative C for individual management units; losses in planning efficiency are also likely to occur as a result of decreased capacity for the Agency's research units, regional offices, and the Washington Office, as well as other government agencies and organizations, to coordinate with and support planning at the unit level. The extent to which these losses might be reflected in potential changes in time needed to complete plan revisions is difficult to estimate; however, it is likely that revision times under Alternative C would be longer than Alternative A and closer in length to times under Alternative B (1982 rule procedures). Even though Agency costs are substantially lower under Alternative C compared to Alternatives A or B, overall planning efficiency is expected to decrease because of the inability of management units to revise and maintain management plans that adequately address uncertainty and reflect current knowledge about social, economic, and ecological risks, stressors, and contingencies.

Alternative D Efficiency

New prescriptive requirements under Alternative D could provide greater assurances about consistent and comprehensive coverage of issues related to riparian and watershed health protection, resiliency of aquatic environments, and vulnerability to climate change within management plans. Specific assessments of ecosystem diversity characteristics would be expected to achieve increased levels of habitat quality and quantity, especially for aquatic and riparian species. However, Agency planning costs are estimated to be greater (13 percent) under Alternative D, compared to Alternative A, and potential improvements in planning efficiency may be limited to those management units where uncertainty and concerns about potential watershed problems and vulnerability to climate change are greatest.

Many of the explicit requirements regarding consideration of watershed health in plan components under Alternative D are implicit within plan component requirements under Alternative A, suggesting limited potential for incremental improvements in planning efficiency under Alternative D, even for units where watershed and climate change concerns and uncertainty are greatest. For those units where watershed issues are better

understood and accounted for, compliance with additional prescriptive requirements may increase Agency costs with limited effect on planning efficiency. Information and feedback about determinants of aquatic ecosystem integrity and resiliency, restoration strategies, and priority watersheds received as a result of existing collaboration, consultation, and broad-scale monitoring requirements already specified in Alternative A could reduce the incremental gains or benefits of having more prescriptive requirements regarding vulnerability assessments and conservation boundaries under Alternative D. These requirements might help reduce the amount of time needed to complete plan revisions for some management units but could increase revision time for other units; it is difficult to project the overall impact of these requirements on time for completing revisions.

Isolated improvements in planning efficiency for some units could result from more explicit requirements about vulnerability assessments, refining conservation area boundaries, and consideration of watershed sustainability and health guidelines in plan components under Alternative D; however, overall potential for increased planning efficiency as a result of these requirements could be limited given the magnitude of estimated increases in Agency costs combined with uncertainty about changes in plan revision time and variability in unit-specific conditions related to watershed needs and vulnerabilities.

Monitoring under this alternative would focus more on focal species rather than key ecosystem characteristics. The alternative requirements aimed at species diversity in Alternative D rely more heavily on population surveys of focal species as the primary measurement for assessing overall effectiveness of plan components for supporting species diversity. The additional required plan monitoring elements under this alternative are more likely to assess the overall effectiveness of plan components toward maintaining biological diversity within the plan area in a more accurate and timely manner than under the other alternatives.

Alternative E Efficiency

New prescriptive requirements regarding monitoring program questions, monitoring indicators, and program performance under Alternative E could contribute to improvements in the consistency of monitoring program reliability, recognizing that improvements or benefits might be concentrated in management units where existing uncertainty is high regarding significant issues and/or where monitoring programs are dated. Added climate change information could lead to more rapid adjustment of projects compared to other alternatives. Signal points in monitoring could increase the likelihood that monitoring will help identification of restoration needs. Implementation of plans under this alternative would be expected to improve watershed and riparian conditions and resilience. However these benefits are achieved through additional costs (Agency costs are estimated to be 31 percent higher than Alternative A) to achieve monitoring consistency across all management units, some of which may have greater existing capacity to maintain or develop monitoring programs that satisfy known unit-specific assessment needs. Input and reviews received as a result of collaboration during monitoring program development, as well as consultation with research stations and other agencies during broad-scale monitoring under the proposed rule (Alternative A), could

serve as a substitute, in part, for the assurances regarding monitoring program reliability achieved through the additional prescriptive monitoring requirements under Alternative E.

Additional assurances about the extent and success of collaboration during planning might be achieved under Alternative E as a result of more procedural requirements regarding development of public participation plans. The benefits from these assurances could be most apparent for management units where potential barriers or challenges to collaboration are present. However, potential benefits from additional collaborative requirements might be offset by reduced flexibility and the added expense of complying with collaborative requirements in situations where collaborative capacity already exists or where fewer challenges are present. Correspondingly, the effect of additional collaboration (and monitoring) requirements on time needed to complete plan revisions is likely to be function of unit-specific conditions, with the average net effect being difficult to estimate.

Similar to Alternative D, isolated improvements in planning efficiency for some units could result from more explicit requirements about signals for monitoring questions, factors to consider in monitoring questions, periodic evaluations of monitoring programs, and the process for developing a strategy for public participation (collaboration) under Alternative E; however, overall potential for increased planning efficiency as a result of these requirements could be limited, given the magnitude of estimated increases in Agency costs combined with uncertainty about changes in plan revision time and variability in unit-specific conditions related to monitoring performance and collaborative capacity.

DISTRIBUTIONAL IMPACTS

Because of the programmatic nature of this rule, it is not feasible to assess distributional impacts (e.g., changes in jobs, income, or other measures for socio-economic conditions across demographics or economic sectors) in detail. Impacts on economic activities, jobs, and income are more significantly influenced by congressional funding of Agency programs, Agency priorities, and site-specific projects, rather than any particular planning rule. The economic effects of these budget and administrative influences will be analyzed at the unit level during plan revision, with public participation.

In general, the proposed rule is designed to facilitate engagement and involvement throughout all phases of land management planning, thereby improving capacity to consider and incorporate values and concerns for all economic sectors and social segments affected by any given plan, plan revision, or amendment. The proposed rule is also intended to facilitate assimilation of new information about local or rural (as well as national) concerns and values through adaptive management (i.e., continuous cycle of assessment, revision/amendment, and monitoring). The effects associated with the proposed rule are therefore assumed to be evenly (and beneficially) distributed across all sectors and populations.

Under all alternatives, units would continue to use their timber sale program and other forest management activities to enhance timber and other forest resource values and

benefits over time. Recreation use would be expected to be monitored in all alternatives because use of the current national visitor use monitoring system is expected to continue.

The proposed rule is more prescriptive about considering and facilitating restoration of damaged resources as well as improving resource capacity to withstand environmental risks and stressors (i.e., resiliency), thereby providing greater capacity for sustaining local or rural economic opportunities to benefit from forest resources and ecosystem services, including recreation/tourism and water supply/watershed health. Under the proposed rule (as well as Alternatives D and E) collaboration would assure consideration of a broad spectrum of recreational values and an integrated mix of sustainable recreation opportunities relevant to each NFS unit. Plans would include components to maintain or restore healthy rangeland conditions and allotment management plans would be expected to be modified to achieve these objectives.

In addition to meeting the NFMA timber requirements described above, planning under 1982 procedures (Alternative B) would continue to include identifying recreation opportunities on NFS lands and their ability to meet present and future recreation demands and identifying the suitability of NFS lands for producing forage for grazing animals.

The capacity to efficiently consider, assimilate, and adapt to new values and concerns from all sectors and social segments is expected to decrease under Alternative C, compared to Alternative A, because of the elimination of most prescriptive requirements designed to enable planning efficiency. Plans under Alternative C would include provisions for sustainable recreation, but planning would vary widely from unit to unit in analysis of roles and contributions to recreation opportunities. Where livestock grazing is currently authorized, lands would be expected to be identified as suitable for this use; however, there would be a low probability of consistency in assessment of the rangeland resource, plan components to guide its management, or monitoring across NFS units. Timber direction in plans would be expected to not exceed the minimum NFMA requirements common to all alternatives. In contrast, there could be increased opportunities to recognize values and concerns from multiple sectors and segments under Alternative E where additional requirements for developing public participation plans could provide greater assurances about coverage of diverse interests (e.g., full spectrum of recreational values), depending on local collaborative capacity and barriers to collaboration, relative to Alternative A.

More explicit requirements about vulnerability assessments, conservation area refinements, consideration of watershed sustainability and health guidelines in plan components, and consideration of species viability within plan components and assessments under Alternative D have the potential to increase opportunities for sustaining local economic opportunities that rely on the resiliency of forest ecosystems. However, as noted in discussions of efficiency effects, the extent to which Alternatives D and E generate distributional effects could be highly unit-specific. Plans under Alternative D would be expected to focus unit timber programs on restoration and protection of watersheds and riparian areas. Consequently, harvest volumes could go up in some areas and down in other areas. Overall, the Agency timber program would be expected to remain near the current level with a probable shift toward smaller diameter

material. In general, average net distributional effects across all regions would be not different noticeably from Alternative A.

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APPENDICES

APPENDIX A – RATIONALE FOR AGENCY COST DIFFERENCES: ALTERNATIVE A (PROPOSED RULE) AND ALTERNATIVE B (NO ACTION)

Activity (and Overall Cost Change)	Factors Affecting Costs Under the Proposed Rule (Alternative A) Compared to 1982 Rule Procedures (Alternative B)
Assessment (Slight increase in costs)	Factors contributing to costs increases[a]: • More emphasis on characterizing unit roles and contributions within broader ecological and geographic context, as well as landscape level assessments. • Requirements to identify and evaluate characteristics of ecosystem and species diversity[a]. • Requirements to consider climate change; other system drivers and disturbances; habitat connectivity; and risks, threats, stressors, and vulnerabilities to sustainability. • Assessment report preparation and distribution. Factors contributing to cost decreases or unknown effects: • Assessments are to be based on existing information. • Removal of requirements for 5-year evaluations and prescriptive benchmark analysis.
Collaboration (Increase in costs)	Factors contributing to cost increases: • Requirement for collaborative opportunities at all stages of planning. • Requirements to consider native and other forms of knowledge and land ethics. Factors contributing to cost decreases or unknown effects: • Responsible official has discretion to develop collaboration strategy or plan. • Expectations that training and/or facilitation will increase collaborative capacity within and outside the Forest Service management units.
Analysis and revision or amendment decisions (Decrease in costs, primarily during periods of revision)	Factors contributing to cost increases in developing plan components or analyzing alternatives[a]: • Additional consideration given to sustainability, watershed health, water supply, and ecosystem restoration. • Codifying alternative approaches for addressing ecosystem and species diversity and viability[a] . • Additional public notifications required. Factors contributing to cost decreases or unknown effects: • Plans should describe capability to respond to climate change, recognizing that 1982 rule procedures also require consideration of relationships with air and other environmental factors. • Requirements to consider the capabilities of the land and limitations on agency resources when incorporating species and ecosystem viability into plan components could improve project-level efficiency and decrease costs of meeting viability objectives. • Less prescriptive language regarding listing of probable actions, development of regional guides for standards and guidelines, and NFMA requirements regarding expected timber harvests and sales. • Amendments may be completed using an EIS, EA, or CE, under the proposed rule or 1982 rule procedures, depending on potential for significant effects; however, process requirements for amendments are reduced under the proposed rule. Amendments to plans, or parts of plans, may be smaller but more frequent under the proposed rule. • Fewer prescriptive requirements for numbers of alternatives and evaluation of

Activity (and Overall Cost Change)	Factors Affecting Costs Under the Proposed Rule (Alternative A) Compared to 1982 Rule Procedures (Alternative B)
	alternatives. • Increases in up-front effort and costs applied to collaboration and assessments are likely to help reduce analytical costs and time needed to complete revisions. • Fewer prescriptive requirements for addressing recreational issues in plan components (although the proposed rule includes the need to consider social and economic conditions when designing guidance for recreational management). • Fewer minimum management requirements, with flexibility to adopt plan components that provide similar levels of protection afforded by minimum management requirements under 1982 rule procedures.
Science support (Slight Increase in costs)	• The proposed rule provides more prescriptive language about ensuring the use of best science and diverse sources for scientific input (e.g., monitoring consultation, requirements for assessment reports, decision documents, and monitoring evaluation reports).
Resolutions (Indirect decrease in costs during revisions and amendments)	• The effect of a shift from a post-decisional appeals process (under the 1982 rule procedures) to a pre-decisional objection period under the proposed rule is difficult to project; however, the anticipated success of collaboration in achieving greater consensus about plan components and perceptions of legitimacy and trust in the planning process is expected to have a beneficial effect on resolution activity and corresponding costs. The Agency seeks to shorten the time to resolve administrative reviews by setting less time to issue a written response under the proposed rule.
Monitoring (Increase in cost, primarily during periods of maintenance or amendments)	Factors contributing to cost increases[a]: • More emphasis on input and participation by other units, agencies, Indian Tribes, partners, or other members of the public when designing and implementing monitoring programs. • Requirement for biennial monitoring evaluation reports. • Adjusting to new monitoring requirements for diversity and resiliency (e.g., focal species, key ecological conditions)[a]. • Two-tier monitoring (unit and broad-scale) recommended, with input from regions and research stations. • Indicators must address watershed health, water supplies, and carbon storage. Factors contributing to cost decreases or unknown effects: • Increased emphasis on broad-scale monitoring coordination may help reduce redundancy. • Monitoring addresses a smaller set of focal species (rather than larger list of MIS) and status of key ecological conditions. • Monitoring landscape features (e.g., vegetation type, structure, watershed conditions) to help assess diversity may be more cost-effective compared to species populations under 1982 rule procedures. • Opportunities for collaborative monitoring.

Footnotes: (a) Potential increases in costs associated with new requirements to consider diversity and sustainability in monitoring, assessments, and plan components are expected to improve the cost-effectiveness of project-level analysis and decisionmaking.

APPENDIX B COST ESTIMATIONS

Appendix Table B-1 – Annual Cost Calculations (Alternatives A and B)

PROPOSED RULE																	
PLAN REVISION																	
Assessments	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**TOTAL**	**Average**
$/unit/yr ($1,000)	350																
number of plans	8	16	20	20	20	20	20	20	20	20	20	20	20	20	20	284	
Undiscounted costs ($1,000)	2800	5600	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	7000	99400	6627
Collaboration	$/unit/yr ($1,000)			315													
number of plans	8	16	24	24	24	24	24	24	24	24	24	24	24	24	24	336	
Undiscounted costs ($1,000)	2520	5040	7560	7560	7560	7560	7560	7560	7560	7560	7560	7560	7560	7560	7560	105840	7056
EIS/NEPA	$/unit/yr ($1,000)			600													
number of plans	0	8	16	24	24	24	24	24	24	24	24	24	24	24	24	312	
Undiscounted costs ($1,000)	0	4800	9600	14400	14400	14400	14400	14400	14400	14400	14400	14400	14400	14400	14400	187200	12480
Science support	$/unit/yr ($1,000)			75													
number of plans	0	8	16	24	24	24	24	24	24	24	24	24	24	24	24	312	
Undiscounted costs ($1,000)	0	600	1200	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	23400	1560
Objections	$/unit/yr ($1,000)			100													
number of plans	0	0	0	8	8	8	8	8	8	8	8	8	8	8	8	96	
Undiscounted costs ($1,000)	0	0	0	800	800	800	800	800	800	800	800	800	800	800	800	9600	640
Total																	
Undiscounted costs ($1,000)	5320	16040	25360	31560	31560	31560	31560	31560	31560	31560	31560	31560	31560	31560	31560	425440	28363

PROPOSED RULE

PLAN MAINTENANCE/AMENDMENTS

Assessments	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**TOTAL**	**Average**
$/unit/yr ($1,000)	200																
number of plans	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	450	
Undiscounted costs ($1,000)	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	90000	6000
Collaboration	$/unit/yr ($1,000)			50													
number of plans	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	450	
Undiscounted costs ($1,000)	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	1500	22500	1500
EIS/NEPA	$/unit/yr ($1,000)			320													
number of plans	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	450	
Undiscounted costs ($1,000)	9600	9600	9600	9600	9600	9600	9600	9600	9600	9600	9600	9600	9600	9600	9600	144000	9600
Science support	$/unit/yr ($1,000)			20													
number of plans	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	450	
Undiscounted costs ($1,000)	600	600	600	600	600	600	600	600	600	600	600	600	600	600	600	9000	600
Objections	$/unit/yr ($1,000)			10													
number of plans	0	30	30	30	30	30	30	30	30	30	30	30	30	30	30	420	
Undiscounted costs ($1,000)	0	300	300	300	300	300	300	300	300	300	300	300	300	300	300	4200	280
min. maintenance	$/unit/yr ($1,000)			100													
number of plans	87	79	71	71	71	71	71	71	71	71	71	71	71	71	71	1089	
Undiscounted costs ($1,000)	8700	7900	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100	7100	108900	7260
Total																	
Undiscounted costs ($1,000)	26400	25900	25100	25100	25100	25100	25100	25100	25100	25100	25100	25100	25100	25100	25100	378600	25240

MONITORING

During revision	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	**TOTAL**	**Average**
$/unit/yr ($1,000)	260																
number of plans	8	16	24	24	24	24	24	24	24	24	24	24	24	24	24	336	
Undiscounted costs ($1,000)	2080	4160	6240	6240	6240	6240	6240	6240	6240	6240	6240	6240	6240	6240	6240	87360	5824
During non-revision	$/unit/yr ($1,000)			400													
number of plans	117	109	101	101	101	101	101	101	101	101	101	101	101	101	101	1539	
Undiscounted costs ($1,000)	46800	43600	40400	40400	40400	40400	40400	40400	40400	40400	40400	40400	40400	40400	40400	615600	41040
Collaboration for monitoring	$/unit/yr ($1,000)			20													
number of plans	117	109	101	101	101	101	101	101	101	101	101	101	101	101	101	1539	
Undiscounted costs ($1,000)	2340	2180	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	2020	30780	2052
Total																	
Undiscounted costs ($1,000)	51220	49940	48660	48660	48660	48660	48660	48660	48660	48660	48660	48660	48660	48660	48660	733740	48916

1982 Rule Procedures

PLAN REVISION

Assessments	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**TOTAL**	**Average**
$/unit/yr ($1,000)	240																
number of plans	8	16	20	20	20	20	20	20	20	20	20	20	20	20	20	284	
Undiscounted costs ($1,000)	1920	3840	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	4800	68160	4544
Collaboration	$/unit/yr ($1,000)			35													
number of plans	8	16	24	32	40	40	40	40	40	40	40	40	40	40	40	520	
Undiscounted costs ($1,000)	280	560	840	1120	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	18200	1213
EIS/NEPA	$/unit/yr ($1,000)			875													
number of plans	19	16	24	32	40	40	40	40	40	40	40	40	40	40	40	531	
Undiscounted costs ($1,000)	16625	14000	21000	28000	35000	35000	35000	35000	35000	35000	35000	35000	35000	35000	35000	464625	30975
Science support	$/unit/yr ($1,000)			35													
number of plans	8	16	24	32	40	40	40	40	40	40	40	40	40	40	40	520	
Undiscounted costs ($1,000)	280	560	840	1120	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	18200	1213
Appeals	$/unit/yr ($1,000)			200													
number of plans	9	11	0	0	0	8	8	8	8	8	8	8	8	8	8	100	
Undiscounted costs ($1,000)	1800	2200	0	0	0	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	20000	1333
Total																	
Undiscounted costs ($1,000)	20905	21160	27480	35040	42600	44200	44200	44200	44200	44200	44200	44200	44200	44200	44200	589185	39279

1982 Rule Procedures																	
PLAN MAINTENANCE/AMENDMENTS																	
Assessments	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**TOTAL**	**Average**
$/unit/yr ($1,000)	120																
number of plans	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	525	
Undiscounted costs ($1,000)	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200	4200	63000	4200
Collaboration	$/unit/yr ($1,000)			0													
number of plans	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	525	
Undiscounted costs ($1,000)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
EIS/NEPA	$/unit/yr ($1,000)			350													
number of plans	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35	525	
Undiscounted costs ($1,000)	18375	18375	18375	18375	18375	18375	18375	18375	18375	18375	18375	18375	18375	18375	18375	275625	18375
Science support	$/unit/yr ($1,000)			10													
number of plans	35	35		35	35	35	35	35	35	35	35	35	35	35	35	525	
Undiscounted costs ($1,000)	350	350	350	350	350	350	350	350	350	350	350	350	350	350	350	5250	350
Appeals/Objections	$/unit/yr ($1,000)			25													
number of plans	0	35	35	35	35	35	35	35	35	35	35	35	35	35	35	525	
Undiscounted costs ($1,000)	0	875	875	875	875	875	875	875	875	875	875	875	875	875	875	12250	817
min. maintenance	$/unit/yr ($1,000)			90													
number of plans	71	74	66	58	50	50	50	50	50	50	50	50	50	50	50	819	
Undiscounted costs ($1,000)	6390	6660	5940	5220	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	4500	73710	4914
Total																	
Undiscounted costs ($1,000)	29315	30460	29740	29020	28300	28300	28300	28300	28300	28300	28300	28300	28300	28300	28300	429835	28656
MONITORING																	
During Revision	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**TOTAL**	**Average**
$/unit/yr ($1,000)	260																
number of plans	8	16	24	32	40	40	40	40	40	40	40	40	40	40	40	520	
Undiscounted costs ($1,000)	2080	4160	6240	8320	10400	10400	10400	10400	10400	10400	10400	10400	10400	10400	10400	135200	9013
During Non-revision	$/unit/yr ($1,000)			300													
number of plans	117	109	101	93	85	85	85	85	85	85	85	85	85	85	85	1355	
Undiscounted costs ($1,000)	35100	32700	30300	27900	25500	25500	25500	25500	25500	25500	25500	25500	25500	25500	25500	406500	27100
Total																	
Undiscounted costs ($1,000)	37180	36860	36540	36220	35900	35900	35900	35900	35900	35900	35900	35900	35900	35900	35900	541700	36113

Appendix Table B-2. Estimated Average Annual Agency Planning Costs, For All Units

Planning Activity	Proposed Rule Alternative A	1982 Rule Procedures Alternative B	Proposed Rule Modified Alternative C	Proposed Rule Modified Alternative D	Proposed Rule Modified Alternative E
	---------- thousands of dollars ----------				
Assessment	12,627	8,744	6,558	14,521	12,627
Collaboration	10,608	1,213	1,213	10,608	14,321
Analysis/decisions	22,080	49,350	33,120	24,288	22,080
Science support	2,160	1,563	1,563	2,160	2,160
Resolutions	920	2,150	2,150	920	920
Minimum maintenance (a)	7,260	4,914	4,914	7,260	7,260
Monitoring	46,864	36,113	30,696	56,237	74,982
TOTAL	**102,519**	**104,048**	**80,215**	**115,993**	**134,350**

(a) Minimum maintenance includes minimum expenses to maintain a plan during non-revision years, excluding assessment, collaboration, and analysis/decision costs associated specifically with amendments.

Appendix Table B-3. Average Annual Agency Costs Comparison ($1,000 per year)

Planning Process Requirements	Alternative B 1982 Rule Procedures Description/ Annual Cost	Alternative A Proposed Rule Description/ Annual Cost
Assessments		
Assessments for revision	$4,544	$6,627
Assessments for amendments	$4,200	$6,000
Total Assessments	$8,744	$12,627
Collaboration		
Collaboration for revision	$1,213	$7,056
Collaboration for amendments	$0	$1,500
Collaboration for monitoring	$0	$2,052
Total Collaboration	$1,213	$10,608
EIS/NEPA (Analyze Effects, Develop Decisions, Document the Plan)		
for revision	$30,975	$12,480
for amendments	$18,375	$9,600
Total Analysis	$49,350	$22,080
Science Support		
for revision	$1,213	$1,560
for amendments	$350	$600
For Monitoring	$0	$0
Total science support	$1,563	$2,160
Consider and Resolve Appeal/ Objection		
for revision	$1,333	$640
for amendments	$817	$280
Total Resolution	$2,150	$920
Minimum Maintenance	$4,914	$7,260
Monitoring	$36,113	$48,916
Total	$104,048	$102,519

APPENDIX C - SUMMARY OF SIGNIFICANT ISSUES AND EFFECTS (FROM DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT NATIONAL FOREST SYSTEM LAND MANAGEMENT PLANNING)

Significant Issues

The Forest Service identified the following significant issues from public comments on a *Federal Register* notice of intent to prepare an environmental impact statement and feedback during over 40 public meetings and Tribal consultations. The issues are generally centered on the Agency's purpose and need for a new planning rule, which states:

There is a need for a planning rule that protects, reconnects, and restores national forests and grasslands for the benefit of human communities and natural resources. A new planning rule is needed to ensure that all plans will be responsive to issues such as the challenges of climate change; the need for forest restoration and conservation, watershed protection, and wildlife conservation; and the sustainable use of public lands to support vibrant communities. It must be clear, efficient, and effective, while meeting NFMA, MUSYA, and other legal requirements. It also must ensure a transparent, collaborative process that allows for effective public participation. The rule should also be within the Agency's capability to implement on all NFS units.

This appendix summarizes all eight issues and corresponding effects from the DEIS. However, the effects associated with four of the issues are more programmatic in nature and therefore addressed in greater detail in the main body of this Cost Benefit Analysis document. The more programmatic issues include *Sustainable Uses and Support for Vibrant Communities* (see "Distributional Impacts"); *Efficiency and Effectiveness*; *Transparency and Collaboration;* and *Coordination and Cooperation Beyond NFS Boundaries* (see "Efficiency and Cost-Effectiveness Impacts").

Climate Change — Two general perspectives have been expressed about how the issue of climate change should be addressed in the rule. The first perspective is that climate change does not need to be mentioned in the rule. The second is that climate change is such a fundamental ecosystem stressor that it must be addressed explicitly in the rule. Subscribers to the first viewpoint have said there is too much uncertainty about the causes and effects of climate change (particularly at the forest level) to address in a planning rule. Others suggest that the rule should require a thorough consideration of climate change in the planning process including an acknowledgement of the local climate conditions and uncertainties.

Restoration and Resilience — Some stakeholders have expressed the view that restoration should not be mentioned explicitly in the rule. Support for this perspective includes the points that the NFMA is silent on the concept of restoration; restoration is just one tool of many available to managers; and the concept of restoration will be implicitly addressed as part of habitat management. Others have expressed a desire for

the rule to be explicit about restoration because the topic is simply too important to leave out.

Watershed Protection — Many people concur with the general notion that, because water quality provides a foundational reflection of landscape health, a key element of the rule should be protection and enhancement of water resources. There is less agreement about what exactly the rule should require, although there seems be support for some kind of accountability for forests to protect and enhance water resources balanced with the need for flexibility. There is a divergence of opinions on whether to include specific standards for watershed health in the rule. Some people suggest that the planning rule should require plans to determine standards or provisions for watershed health rather than including those standards in the rule itself. Others have expressed a belief that to ensure that the responsible official is held accountable, the rule should have standards and guidelines to protect and enhance water resources and overall watershed health.

Diversity of Plant and Animal Communities — People have differing opinions about the most appropriate way for the rule to provide guidance for maintaining plant and animal diversity, contributing to the recovery of threatened and endangered species, and maintaining the viability of native species within the plan area. Some people believe the planning rule should include requirements that are focused on wildlife, fish, and plant species and populations like the 1982 rule requirements are. Others suggest the planning rule should consider an ecological condition or habitat-based approach to maintaining viability by focusing on maintenance or restoration of the structure, composition, processes, connectivity, and diversity of healthy and resilient terrestrial and aquatic ecosystems in the plan area.

Sustainable Use of NFS Lands to Support Vibrant Communities — Many people note that the Forest Service does not really have much ability to influence economies, and should focus instead on the land management business it knows best. Others suggest that the Forest Service needs to elevate the importance of vibrant local economies through effective involvement of and collaboration with representatives of the local communities that are impacted by Forest Service land management. There is broad agreement that recreation is a sustainable use of NFS lands that contributes significantly to local economies. People generally agree the rule should reflect recreation as a core value, although views vary about how this core value should be reconciled with other core values and legal requirements.

Efficiency and Effectiveness — Some people argue for a simple planning process because planning has taken too much funding away from important resource management projects and has taken too much of people's time. Others agree with keeping the rule simple, but advocate for prescriptive rule provisions which would establish specific, detailed requirements to address a particular resource or use of NFS lands. Throughout discussions on the other issues, there was amicable tension between those who desire a prescriptive planning rule and those who want flexibility to address local concerns.

Transparency and Collaboration — People recognize that there are many stakeholders involved in these issues and all should have the opportunity to be engaged in the collaboration process. Many have expressed frustration with traditional input

mechanisms, where input was gathered but not necessarily used – a feeling intensified by a less-than-transparent processes. Some people suggest the planning rule should establish a structured public involvement and collaboration process for plan development, revision, and amendment.

Coordination and Cooperation Beyond NFS Boundaries — People note that boundaries are permeable and that an "all lands" approach could be useful for achieving many different management objectives, including protecting at-risk species, creating resilient ecosystems, protecting watersheds, historic preservation, supporting trails that cross jurisdictions, and providing recreational access.

Summary of Effects from the DEIS

The significant issues define the scope of the effects analysis.

Climate Change

The current trend of increased focus on climate change in plan revisions would continue, under all alternatives. Assessments for plan revisions under alternatives A, D, and E would include evaluation of the impact of climate change on the planning unit; plan components would reflect consideration of the influences of climate change, and monitoring programs would include questions that track the influence of climate change on the unit.

Because of a lack of climate change-specific requirements in alternatives B and C, there would be less certainty and consistency about inclusion of climate change in the planning process than in alternatives A, D or E.

Compared to the other alternatives, planning under Alternative D would involve more extensive coordination with other agencies and more broad-scale monitoring related to climate change issues. The requirements of Alternative D would result in a greater likelihood of consistent strategies for climate change and less opportunity for local units to develop their own unique strategies.

Compared to the other alternatives, planning under Alternative E would involve more monitoring of key ecological conditions with a focus on climate change effects and monitoring to evaluate where species might need to migrate to maintain viability under climate change. This added climate change information could lead to more rapid adjustment of projects based on this information than might be expected under the other alternatives.

Restoration and Resilience

Plans under alternatives A, D, and E would emphasize ecosystem resilience, and restoration measures needed to achieve such resilience. All plans would have a number of plan components designed to protect, maintain, and restore terrestrial and aquatic ecosystems. Implementation of plans would result in lessening various anthropogenic stressors, restoring various terrestrial and aquatic elements associated with healthy ecosystems, and maintaining uses that are compatible with this emphasis.

Achievement of ecosystem resilience and restoration under Alternative B would be balanced with needs to maximize net public benefits and provide for multiple uses in both plans and projects.

Plans under Alternative C would be expected to have some components for resilience and restoration. Absent any prescriptive requirements for restoration in Alternative C, inconsistent analysis and plan guidance for restoration and resilience would be expected. Implementation of plans developed under this alternative would seek to restore conditions for the purpose of maintaining multiple uses and ecosystem services of interest to the public.

In addition to the effects described for Alternatives A, D, and E, planning under Alternative D would involve landscape-level and watershed-scale assessments and landscape-level restoration strategies developed with multiple partners. Restoration would focus on road removal and remediation in riparian conservation areas and key watersheds. Other restoration activities would be given a lower priority.

In addition to the effects described for Alternatives A, D, and E, planning under Alternative E would involve more evaluation of ecological conditions during assessment for plan revisions and more monitoring of specific conditions and response to resilience and restoration. Additional monitoring information could further focus restoration on some units or prove to be irrelevant on other units. Signal points in the monitoring program would alert responsible officials when monitoring results are outside of expected levels leading to a greater likelihood that monitoring would help to identify restoration needs.

Watershed Protection

Plans under alternatives A, D, and E would include direction for maintenance and restoration of watershed composition, structure and function and protection for aquatic resources. Plans would include plan components for riparian protection and restoration and as plans are implemented, watershed conditions would be expected to improve and resilience in the face of changing conditions would be increased. Values of riparian areas such as temperature regulation, large woody debris recruitment, bank stabilization, and sediment retention would be expected to be maintained or restored.

Planning under alternatives B and C would result in plans with variable guidance for water-related resources and a wide range of potential outcomes. Plans under Alternative B would be expected to focus to a large extent on mitigating the effects of other activities, particularly timber harvest. In times of changing climate and increasing stressors both on and off NFS lands, riparian area function would be expected to deteriorate under a strictly mitigation management approach.

In addition to the effects described for Alternatives A, D, and E, planning under Alternative D would include standards and guidelines that require management activities within riparian areas to be primarily for restoration and be designed so as not to impair riparian function. The prescriptive nature of this alternative might not be efficient or effective across highly variable systems and could lead to plans that are rapidly outdated.

Identification of climate change vulnerability would be expected to result in plan components designed to increase resistance and resilience in areas especially sensitive to disturbance and changing conditions.

In addition to the effects described for Alternatives A, D, and E, monitoring under Alternative E would include signal points that could be effective for adaptive management, although might not be efficient or effective for all units and the focus on monitoring could be at the expense of other management activities.

Diversity of Plant and Animal Communities

Plans under alternatives A and E would require maintaining biological diversity through a complementary ecosystem diversity and species conservation (coarse-filter/fine-filter) strategy, which is supported by current scientific literature. Plans would focus heavily on maintaining or restoring ecological conditions to retain ecological integrity and sustainability, and would include specific requirements to maintain or restore the compositional, structural, and functional characteristics of ecosystems at a variety of scales providing for ecological connectivity. Monitoring under these alternatives would be focused on measuring the status of key ecosystem characteristics and a small set of focal species to assess the effectiveness of plan components.

Plans under Alternative B would continue to focus on a species-by-species approach that uses management indicator species (MIS) and their habitats as a measure for assessing the viability of vertebrate species within the plan area. Habitat management under this alternative would focus on providing habitat for MIS with the assumption that by maintaining habitat conditions for selected MIS, the habitat requirements for all other associated vertebrate species would be provided. Monitoring of MIS and in some cases their habitats, would be used to assess habitat conditions and trends for other species associated with those habitat conditions.

Alternative C plans would be expected to vary in their approach to maintaining species diversity. At a minimum, plans would include components to provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives. The approach to providing for diversity would be expected to reflect current science and therefore use the coarse-filter/fine-filter strategy that would be used in alternatives A and E.

In addition to the effects described for Alternatives A, and E, planning under Alternative D would include specific assessments of ecosystem diversity characteristics which would be expected to result in greater assurances that an effective coarse-filter for maintaining biological diversity would be designed. Over time, as management activities are implemented to achieve the desired ecological conditions, habitat quantity would be expected to increase and habitat quality would be expected to improve for all native species within the plan area. Plans would contain requirements specific to watershed and riparian protection and restoration that would be expected to result in greater emphasis placed on ecosystem restoration within priority watersheds. Overtime, as plans are implemented, the resulting plan areas would be expected to yield habitat benefits, especially for aquatic and riparian species.

Plans under all but Alternative C would include explicit guidance to contribute to the recovery of federally listed species.

Sustainable Use of NFS Lands to Support Vibrant Communities (see "Distributional Impacts" section of this Cost Benefit Analysis document for more details)

In all alternatives, plans would identify lands not suitable for timber production, identify expected timber harvest levels, outline a planned timber sale program, and describe the proportion of probable methods of forest vegetation management practices expected to be used, as required by NFMA. Units would continue to use their timber sale program and other forest management activities to enhance timber and other forest resource values and benefits over time. Recreation use would be expected to be monitored in all alternatives because use of the current national visitor use monitoring system is expected to continue.

Under Alternatives A, D, and E, collaboration would assure consideration of a broad spectrum of recreational values and an integrated mix of sustainable recreation opportunities relevant to each NFS unit. Plans would include components to maintain or restore healthy rangeland conditions and allotment management plans would be expected to be modified to achieve these objectives. Plans would include components to maintain or restore the structure, composition, processes, and connectivity of healthy ecosystems, which is consistent with current forest management objectives.

In addition to meeting the NFMA timber requirements described above, planning under Alternative B would continue to include identifying recreation opportunities on NFS lands and their ability to meet present and future recreation demands and identifying the suitability of NFS lands for producing forage for grazing animals.

Plans under Alternative C would include provisions for sustainable recreation, but planning would vary widely from unit to unit in analysis of roles and contributions to recreation opportunities. Where livestock grazing is currently authorized, lands would be expected to be identified as suitable for this use; however, there would be a low probability of consistency in assessment of the rangeland resource, plan components to guide its management, or monitoring across NFS units. Timber direction in plans would be expected to not exceed the minimum NFMA requirements common to all alternatives. However, the trend in public and Agency values toward restoring and maintaining healthy ecological conditions would be expected to supplant the absence of prescriptive plan direction.

The additional watershed restoration emphasis in Alternative D, including road removal and remediation, could shift the mix of recreation opportunities away from developed and motorized in some areas to more undeveloped and non-motorized forms of recreation. Plans under Alternative D would be expected to focus unit timber programs on restoration and protection of watersheds and riparian areas. Consequently, harvest volumes could go up in some areas and down in other areas. Overall, the Agency timber program would be expected to remain near the current level with a probable shift toward smaller diameter material.

Collaboration under Alternative E would follow a prescribed process to assure consideration of a full spectrum of recreational uses and values relevant to each NFS unit and identification of the distinctive roles and contributions of the unit within the context of the broader landscape. Signal points in monitoring programs under Alternative E would alert responsible officials to needs for plan amendments or revisions, thereby assuring timely and effective guidance for sustainable uses of NFS lands.

Efficiency and Effectiveness

See "Efficiency and Cost-Effectiveness Impacts" section of this Cost Benefit Analysis document for discussion of efficiency and cost-effectiveness effects. A summary of those effects is provided in the Executive Summary to this document.

Transparency and Collaboration (see "Efficiency and Cost-Effectiveness Impacts" section of this Cost Benefit Analysis document for more details)

The current trend of more transparent and collaborative public involvement efforts would be expected to continue. Responsible officials would continue to engage State and local governments, Tribes, private landowners, other federal agencies, and the public at large in all alternatives. Under all alternatives except Alternative B, the forest or grassland supervisor would be the responsible official, thereby affording greater opportunity for people to interact directly with the decision maker than under current rule procedures. The current option to use either a post-decisional administrative appeal process or pre-decisional objection would be replaced with a pre-decisional objection process as the sole means to administratively challenge a decision, resulting in more consistency than currently found in the administrative review process across all NFS units. All alternatives except Alternative C would require preparation of an environmental impact statement for plan development and revision.

Planning under Alternatives A, D, and E would encourage participation by youth, low-income and minority populations, who have traditionally been underrepresented in the planning process so that the process would be expected to identify all the social, economic, or ecological factors of importance in the plan area.

Under alternatives B and C, people not traditionally involved in the planning process might continue to be overlooked and it is possible that the process would not identify all the social, economic, or ecological factors of importance in the plan area. Under alternatives B and C, responsible officials would have considerable flexibility to design a collaborative process that addresses the unique constituency of the unit and to change processes as best practices evolve. However, this flexibility does not provide assurance that all units would follow best practices. The regional forester would be the responsible official under these alternatives and might not have an understanding of local concerns but might be more aware of regional and national issues.

Alternative D contains the same requirements for collaboration and transparency as Alternative A and would, therefore, have the same effects with respect to those requirements.

Alternative E would standardize the public involvement process for plan development or revision, resulting in more stakeholders potentially being identified who could add additional value to the planning process. The process might work well for some units while other units might find that some required steps are not relevant to their public involvement needs. The effects of this alternative would otherwise be similar to Alternative A.

Coordination and Cooperation Beyond NFS Boundaries (see "Efficiency and Cost-Effectiveness Impacts" section of this Cost Benefit Analysis document for more details)

The general trend in the planning process for more coordination across all lands would continue under all alternatives. Responsible officials would continue to coordinate planning activities with the planning efforts of other federal agencies, State and local governments and Indian Tribes and coordinate with adjacent private land owners no matter which alternative is selected.

Under alternatives A, D, and E, the responsible official would engage other agencies and governments earlier in the process than currently practiced — inviting them to participate in the assessment process and the development of a proposed plan, plan amendment, or plan revision — instead of waiting until the proposed plan is issued for comment. Under these alternatives A, D, and E, the responsible official would consider all lands and look across boundaries throughout the assessment, plan development/revision, and monitoring phases of the planning process. Units would be expected to leverage their resources and knowledge with that of other agencies to gain efficiency in planning and future implementation of their plans.

As described above for all alternatives, coordination would continue under alternatives B and C, but there would be considerable variation across units in the amount of coordination and what specific plan content would result.

Planning under alternative D would involve substantial cooperation and coordination with other agencies for purposes such as restoring watershed connectivity, reducing road density, and maintaining viable populations across jurisdictional boundaries. Planning would take a consistent approach to issues of ecological conditions and species viability across the landscape. The effects of this alternative would otherwise be similar to Alternative A.

Under Alternative E, several items related to lands outside of NFS boundaries would be monitored on each NFS unit; however coordination and cooperation beyond NFS boundaries would be generally the same as in Alternative A.