

# **How to Develop Social, Cultural, and Economic Forest Plan Components**

**A Technical Guide for Implementing the 2012 Planning Rule:  
Forest Service Handbook 1909.12, Chapter 20**



**Forest Service**

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## Introduction

Forest Service Handbook directives for completing the second major phase of forest planning—developing forest plan components—are provided in the Planning Handbook 1909.12, chapter 20. The directives discussed in chapter 20 are a continuation of the overall planning process begun in chapter 10 (assessment based on those assessment findings). That is, throughout the direction of chapter 20 it is expected that social, cultural, and economic considerations be identified, together with other resources, as part of a well-integrated and multi-disciplinary approach.

Note that this guide is one of several guides provided to assist national forest units in planning activities as required by the 2012 Planning Rule and chapters [10](#), [20](#), and [30](#) of the Forest Service Handbook 1909.12, Assessment, Planning and Monitoring, respectively. Public participation is also covered in a separate technical guide for chapter 40 of the Handbook. These guides are advisory documents to assist planning teams in plan revision. Apart from references to other regulatory or policy documents, these guides should not be interpreted to convey any mandatory direction.

## Chapter 20 Guide Background and Contents

The 2012 Planning Rule requires that forest plans guide management of National Forest System lands so they are ecologically sustainable and contribute to social and economic sustainability. Ecosystem services, multiple uses, and infrastructure are important considerations when evaluating a plan area's contribution to social and economic sustainability. Key points and requirements under the planning rule and directives for plan revision are as follows:

- Ecosystem services, multiple uses, infrastructure and operations, are contributions that a national forest makes to people and their social and economic conditions.
- Contributions depend on underlying national forest resources, ecological conditions, and program operations.
- Plan components for a variety of resource and program areas should be written and integrated to ensure they work together in providing contributions to social, cultural, and economic conditions.
- The planning team should demonstrate how different sets of plan components applied to different spatial areas, provide for alternative social, economic and ecological conditions within the plan area, and how those conditions produce different levels or bundles of contributions to social, cultural, and economic conditions in the area of influence and the broader landscape.
- The impacts of national forest lands contributions on social and economic conditions will be uncertain. For example, the plan provides opportunities for use of timber through timber suitability determinations. However, local employment impacts from use of timber will be a function of other factors (such as market

trends) outside the control of the Forest Service. The national forest or grassland therefore contributes to social and economic conditions, but is not solely responsible for those conditions.

- The planning team should try and demonstrate how different levels of national forest lands contributions (ecosystem services, multiple uses, and infrastructure) resulting from the plan components could impact or help sustain social and economic conditions over time, without committing to providing for specific social or economic conditions. Planning teams have flexibility on how they demonstrate forest contributions and potential impacts to social and economic conditions during plan revision. This document provides advice that can help with those tasks.
- Section A discusses the potential role of social, cultural, and economic conditions in plan component development.
- Section B discusses a process for revising plan components that guide ecosystem service contributions to social and economic sustainability.
- Section C provides examples of plan components.
- Section D provides advice on conducting effects analysis for ecosystem services and social and economic conditions.
- Section E comments briefly on public participation, covered in more detail in the guide for chapter 40.
- Section F provides concluding comments.

The approach outlined below requires collaboration among resource specialists in a systematic process that will benefit from an ecosystem service and socioeconomic coordinator. This may be a social scientist, economist, interdisciplinary team leader, or other specialist who can take on the tasks of implementing and orchestrating efforts to address social, cultural, and economic considerations throughout the planning process.

## A. General Role of Social, Cultural, and Economic Conditions during Plan Component Development

Ecological, social, and economic systems are recognized as interdependent. Contributions to social, cultural, and economic sustainability are therefore expected to be supported by a number of integrated plan components that help provide for goods and services, as well as underlying biophysical conditions and ecological functions necessary to maintain goods and services.

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Social, cultural, and economic plan components must be integrated with ecological components both early and throughout the plan component development phase.

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Development of plan components focuses on responding to significant issues determined during the environmental analysis process. Under the 2012 Planning

Rule and directives, communities are considered during plan component development in the same way as described above; largely in the identification of the need for change and through the public comments received on the proposed action. The planning rule lays the foundation for considering a broad spectrum of concerns from affected communities in developing significant issues that, in turn, help drive the development of plan components as noted in the steps above. The planning rule and directives also ask us to develop components that guide plan area contributions to social and economic sustainability, which accounts for a more complete package of ecosystem service benefits. These requirements help ensure that key social, cultural, and economic issues are reflected throughout plan revision.

The process for considering social, cultural, and economic conditions in planning are presented in the following steps:

1. The assessment highlights social, cultural, and economic conditions that depend on national forest lands resources, and the issues that affect sustainability of those resources related to social, cultural, and economic conditions. For example, review social, cultural, and economic conditions in communities from the assessment.
2. Compare the assessment results to the current forest plan direction and guidance and identify needed changes to better address contributions to social, cultural, and economic conditions. This is much like a gap analysis.
3. The summation of the “need to change” information based on ecological and social, cultural, and economic needs leads to a proposed action to revise the current plan as expressed in the formal notice of intent to revise the current forest plan. For example, the need for change may in part be based on information by communities in public participation.
4. Comments received on the proposed action during the NEPA scoping period highlight public concerns with the proposed action. Relative to communities, evaluate public comments with regard to social, cultural, and economic concerns for the community.
5. Issues are derived from public scoping comments that drive alternative development for consideration in the environmental impact statement. For example, identify social, cultural, and economic issues from the public comments.
6. In response to the significant issues and need for change, the planning staff develops their proposed revised plan (composed of plan components: desired conditions, objectives, standards, guidelines, and suitability), evaluates the proposed plan and alternatives in the context of significant issues, and summarizes effects in an environmental impact statement. For example, develop plan components that address the community social, cultural, and economic issues.

As described in chapter 10 of the Planning Handbook as well as the technical guide to chapter 10, plan assessments (step 1 above) describe how management of the plan

area contributes to social, cultural, and economic conditions. The assessment also identifies the risks that can affect or sustain those contributions. Plan components should therefore be designed to address the effects of reasonably foreseeable risks and uncertainties on plan area contributions to social, cultural, and economic conditions.

Building on the plan assessment, the process for developing the need-for-change may be an iterative and evolving source of information about desired contributions to social, cultural, and economic sustainability (or the underlying resource conditions necessary to maintain or restore desired contributions), which will assist with developing plan components (step 3 above).

The requirements for integrated plan components under the planning rule make clear the need to evaluate and consider potential social, cultural, and economic impacts as part of revising or developing forest plan components, rather than evaluating those impacts solely as an isolated task in finalizing the environmental impact statement (see step 6 above). Considering social, cultural, and economic impacts as one develops plan components provides a way to demonstrate that the plan guides contributions to social and economic sustainability.

Social, cultural, and economic considerations are equally important as ecological considerations in the development of plan components, and ideally involve the participation of a social scientist, an economist, or both. Further, their role is not to simply evaluate the effects of new plan direction, but to actively take part in the shaping of plan components. It is therefore important to be well prepared to proactively and reactively communicate the findings from the assessment, as well as potential social, cultural, and economic impacts, to help assist with the plan revision process (see step 6 above).

## **B. How Plan Components Contribute to Social, Cultural and Economic Sustainability**

Section 23.21 of the Planning Handbook provides the following considerations to help build plan components that contribute to social and economic sustainability:

1. What contributions are needed or desired from the plan area to contribute to social, cultural, and economic conditions?
2. Will the plan area (under the management of the plan) be able to sustain these contributions?
3. How will the plan components influence the contributions of the plan area to social and economic sustainability?
4. How will the plan affect social, cultural, and economic conditions in the plan area and area(s) of influence and the broader landscape? Will the plan adversely and disproportionately affect (in either a positive or negative way) minority or low income populations?

5. Will the plan be able to sustain the plan area’s contributions to social, cultural, and economic conditions considering the reasonably foreseeable risks and uncertainties affecting the plan area, the area of influence, and the broader landscape?
6. Are the plan components related to social and economic sustainability well integrated with the plan components that provide for ecological sustainability, including those that provide for ecosystem integrity and species diversity?

These considerations build on one another and help guide the process for revising plan components. Questions overlap—that is, the answers to some questions shed light on answers to other questions. In addition, these questions frame the relevant dimensions of social, cultural, and economic considerations that not only facilitate plan component development but also effects analysis (see sections below). The figure below demonstrates how these considerations build on one another and should be conceptualized as an iterative process for evaluation of plan components.

Figure 1 on the next page represents the six considerations listed on the previous page in the form of a decision tree. The decision tree asks the question “is the plan area providing or capable of providing contributions that support current and future social and economic conditions?” Answers to this question should be available in the plan assessment. If the answer is no or maybe, then the flow chart asks, “Can plan components be revised” to better provide those contributions? Need for change documentation helps answer this question. If plan components can be revised, the bottom of the decision tree shows how the planning team can conduct effects analysis to demonstrate how revised plan components might change the plan area’s capacity to better support current and future social and economic conditions. Multiple iterations of this process may occur.

The flow chart in figure 1 also shows how risks, including stressors or drivers, can influence the plan area’s ability to provide contributions that support social, cultural, and economic conditions.

Risks should therefore be accounted for when revising or modifying plan components to help ensure contributions are sustainable. Make sure to identify which risks and stressors are ecological or environmental in nature (for example insects and disease or climate change) as these are likely addressed by specialists other than social science or economic interdisciplinary team members.

Review which identified risks or stressors are social, cultural, and economic in nature (examples might be population increases, residential development, or crowding) and decide if there is anything that can be done in plan components to address changes that might occur due to these stressors. Integrate with other resource areas to better consider a broader spectrum of possible risks affecting the ability of the plan to sustain these major contributions.

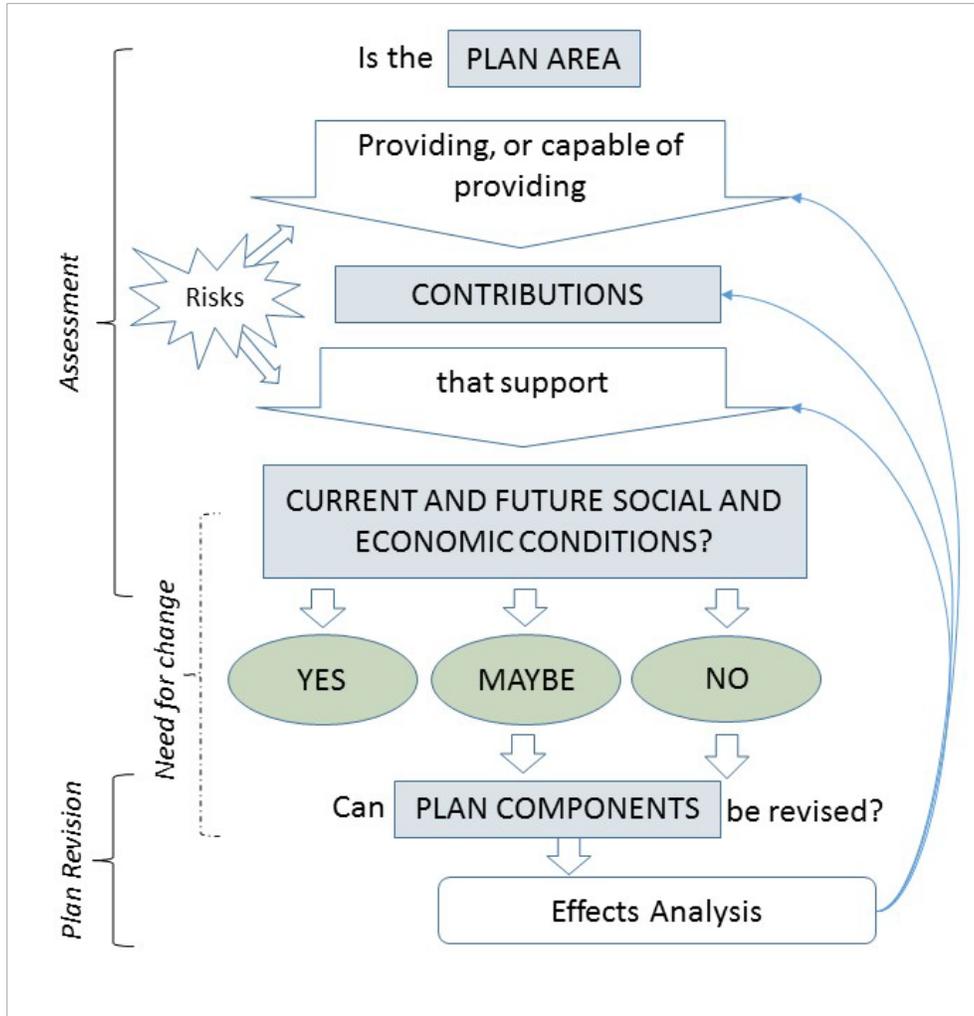


Figure 1. Iterative process of evaluating plan area contributions

The interdisciplinary team is expected to examine plan components internally and ask:

- Are contributions to social, cultural, and economic conditions sustainable, in the context of uncertain risks, stressors, and drivers?
- Are consequences to social, cultural, and economic conditions acceptable, now and into the future?

These examinations may require collaboration among specialists to adequately describe contributions to social, cultural, and economic conditions as a function of resource and program conditions. If answers to these above questions are “no” (or “maybe”), then plan components or the need for change may be revised or added within the authority of the agency, the inherent capability of the land, and the fiscal capability of the planning unit. In this manner, the Handbook considerations above help with an iterative analysis of plan components for characterizing effects in the environmental impact statement and during plan component development.

Plan component language is often drafted for resource areas in response to the need-for-change documentation. The need-for-change is based on the plan assessment, which contains information on the national forest's or grassland's contributions to social, cultural, and economic sustainability, or the underlying resource conditions necessary to maintain or restore contributions. Because of this, it would be easy to assume that contributions to sustainability have been included in the development of plan components. To be sure, have a social scientist or economist involved in cross-examining specific plan components, relative to the six considerations described in this section. See the technical advice bulletin "[Addressing Ecosystem Services and Social and Economic Sustainability in Forest Plan Components and Environmental Analysis](#)"<sup>1</sup> for more information on frameworks for analysis of sustainability.

Approaches for addressing the acceptability of social, cultural, and economic conditions may arise from inputs from public participation. For example, integrating social, cultural, and economic sustainability with ecological sustainability could include using a beneficiaries-based framework to link national forest lands contributions to social, cultural, and economic conditions (such as affected populations, communities, or lifestyles). Another consideration might be consistency with environmental justice for minority and low income populations. Knowing who benefits helps reveal the social, cultural, and economic consequences of plan components. Beneficiaries include those people, groups, or communities impacted by key ecosystem services (see "[A Brief Guide to Assessing Ecosystem Services for Forest Plan Revision](#)"). Other beneficiaries should be considered, such as low income and minority populations, those who benefit from physical infrastructure, and communities benefiting from resources not characterized during the identification of key ecosystem services but relevant to social and economic considerations. See the discussion of effects analysis in section D below.

## C. Example Plan Components

Many plan components may not explicitly appear to relate to social, cultural, and economic contributions or conditions. For example, plan components for botanical resources, fire management, or infrastructure may not be commonly associated with contributions to social, cultural, and economic conditions, but these plan components may still be connected to such conditions identified in the assessment. Some of those connections may require planning teams to demonstrate further linkages and explanations (for example, effects might be nonmarket in nature, like the "benefit of a healthy forest" or the "benefit of the forest as a backdrop for life in local communities"); while other connections to the social, cultural, and economic conditions may be more self-evident. Connections can be made using information from the assessment on beneficiaries or connected communities. When these connections are established, they help reflect the integrated resource management

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<sup>1</sup> Although this link and the one below it lead to an internal Forest Service website, the documents are available to anyone upon request.

and ecosystem services emphasis of the planning rule. Account for these links by adding descriptions to one or more of the following:

- to the plan components themselves,
- to introductory or other plan content (not plan components) sections of the plan such as paragraphs describing plan components for specific resource areas, or
- to the plan's environmental impact statement.

Section 23.21 of the Planning Handbook provides considerations for development of plan components (see beginning of section B above). Desired conditions (and other plan components) should describe the social, cultural, and economic conditions to work towards **in the plan area**, and major contributions to those conditions **outside the plan area**, for example in the area of influence (see the technical guide for chapter 10 for further discussion). Contributions include ecosystem services and multiple uses, infrastructure, and operations.

Given that many social, cultural, and economic effects may occur outside the plan area, plan components can clarify how management within the plan area may affect social, cultural, and economic conditions outside the plan area. Often, a number of factors outside the control of the Forest Service are affecting social, cultural, and economic conditions, so it is critical to be able to distinguish what national forest land contributions can and cannot do to affect those conditions in the environmental impact statement. Ultimately, from the plan components the interdisciplinary team must determine how the contributions of the plan area will change under the plan; and how social, cultural, and economic conditions in the area of influence and the broader landscape may be affected by those changes. These effects are documented in the environmental impact statement.

The examples in the following section demonstrate how different types of plan components can be written to show how the plan area contributes to social and economic sustainability. Plan components may also be written to show how the plan area contributes to social and economic effects of multiple uses, ecosystem services, and infrastructure (sections 23.23 and section 24.4).

## Desired Conditions

The chapter 20 directives (section 23.21) provide specificity on the plan components that may contain social, cultural, and economic considerations:

“The desired conditions of the plan should describe the desired social, economic, and cultural conditions in the plan area and the major contributions the plan area makes to social, cultural, and economic conditions outside of the plan area. Plan objectives can describe intended outcomes related to these contributions intended for accomplishment by a certain time. Suitability, standards, and guidelines should clarify how and where certain kinds of uses, projects and activities may or may not occur for reasons such as maintaining or restoring ecological sustainability and species diversity, or avoiding conflicts among uses.”

Desired conditions may also include public uses, the type of environment the plan area can provide in terms of social, cultural, and economic conditions, cultural and community aspects and activities, and types of employment opportunities and resource uses within the plan area (chapter 20, section 23.22). Descriptions of desired social, cultural, and economic conditions outside the plan area are not to be included in plan components.

In general, desired conditions must be described in terms that are specific enough to allow progress toward their achievement, but do not include completion dates. Desired conditions describe the social, cultural, and economic conditions within the plan area and the contribution of the plan area to the area of influence and the broader landscape. Therefore, desired conditions can clarify how the plan area will contribute to those desired social, cultural, and economic conditions through land management without explicitly stating desired social, cultural, and economic conditions for the communities themselves.

**Example of a desired condition statement that is not consistent with the 2012 planning rule:**

“The local economy and communities surrounding the national forest are vibrant, with a strong presence of timber and tourism industries, providing year-round and high-paying jobs for the local work force.”

The statement above creates a perception that the Forest Service will provide for certain economic conditions, which is not practical given the inherent capabilities of the agency. It is more consistent with the 2012 Planning Rule for desired conditions to focus on the contributions National Forest System land management can make to local communities and economies (see chapter 20, section 23.22 of the Planning Handbook).

Desired condition statements that incorporate social, cultural, and economic considerations should describe the intended level or nature of the contributions the national forest lands can provide from land uses, resources, multiple uses, and key ecosystem services of the plan area. Desired conditions can also describe how those intended contributions may affect social, cultural, and economic conditions in the broader landscape.

**Examples of desired condition statements that are consistent with the 2012 Planning Rule:**

“Providing sustainable forest goods and services contributes to the well-being of local communities through recreation opportunities (including fishing and hunting), commodities (including timber, forage and minerals), and jobs and income for both local and regional economies.”

It is helpful to make these desired conditions statements more specific to the specific plan area. For example, “Human presence in the National Forest (specify forest) varies with primitive recreation primarily along trails in the adjacent wilderness areas with slightly greater human activity in the backcountry areas. High levels of human presence and limited occupancy occur in the lake recreation complex (specify

actual lake), along the highway (highway number), and in the Mt. Snow ski area. Lands in between have human activity associated with project restoration work, grazing, and motorized use along roads and trails.”

Another more specific example is:

“About half of the plan area (identify Management Areas or other) provides for a variety of wood products primarily small diameter material that can be used as fuel or pulpwood, but also some larger diameter material to support specialized mills. Further, grazing allotments covering (specify how many) acres in (specify management areas) contribute to local ranching economies and lifestyles.”

Other than the relatively all-encompassing example statements above, desired conditions can also be tailored to focus on specific resource areas.

“Ample and wide-ranging recreation opportunities within the plan area contribute to the social and economic sustainability of rural communities dependent on national forest resources and natural amenities, and contribute to a robust tourism sector and related recreation industries.”

There will also be desired conditions concerning social, cultural, and economic elements **within the plan area itself**. Those desired condition statements describe specific social, cultural, and economic characteristics of the plan area (or a portion of it), toward which management of the land and resources should be directed. They may include the type of public uses and social environments the plan area can provide, cultural and community aspects and activities, and types of employment opportunities within the plan area.

**Example of a desired condition statement tailored to social, cultural, and economic elements within the plan area (names of specific geospatial elements to be specified):**

“The plan area provides opportunities for various connections with nature as follows: Interpretative Centers are featured at the High Lake and Fished Lake developed campgrounds. Excellent fishing opportunities are found in the Fishy River and Fished Lake. The public will have a sense of natural ecosystems and how they function in the A, B and C wilderness areas. Motorized recreation is featured in the snowmobile (specify) area and the OHV area. Remote nonmotorized opportunities are found in the A, B and C wilderness areas, and the X, Y, Z backcountry areas that can connect visitors with a natural environment. Passenger cars enjoy outstanding scenery along the lowland scenic highway and route 99. Along these routes are several small special waterfalls, botanical areas, and mountain views that can attract visitors.

The variety of recreation opportunities provided in the plan area attracts visitors to the forest who associated with their visitation often stay in hotels, eat in restaurants, purchase recreational equipment and other supplies in (specify) town, (specify) village, and (specify) rural area. This helps to support employment and income in these communities.”

As stated previously, connections between plan components and contributions to social, cultural, and economic conditions reflect the integrated resource management and ecosystem services emphasis of the 2012 Planning Rule. This becomes

particularly apparent in the design of plan components such as objectives, standards, and guidelines. Plan objectives can describe intended contribution outcomes within or by a certain time. Suitability determinations, standards, and guidelines should clarify how and where different uses and activities may occur in order to maintain or restore ecological sustainability and species diversity, as well as minimize the impacts of conflicting uses or other social or economic stressors.

## Objectives

Objectives in forest plans are concise, measurable, and time-specific statements of a desired rate of progress toward one or more desired conditions, based on reasonably foreseeable budgets (36 CFR 219.9(e)(1)(ii)). Therefore, objective statements featuring plan area contributions and social and economic elements should describe priority achievements or outcomes intended during the plan period (10-15 years). They should be related to the plan area contributions of multiple uses, key ecosystem services, infrastructure, and management operations of the national forest land. If needed, further clarifications can be made to describe how those intended contributions may affect social, cultural, and economic conditions in the broader landscape. The objectives should be measureable and written so it is clear as to whether or not they are achieved. In the first two examples below, quality water and livestock grazing are the key ecosystem services linked to the objective:

### **Examples of objectives demonstrating achievement and outcome:**

“Replace 150 undersized culverts in the next 10 years to improve water quality and other aquatic health benefits. Water quality is important to downstream communities including two adjacent municipal watershed.” (Achievement)

“Maintain transitory early seral conditions for grazing on 5 percent of lands suitable for livestock grazing throughout the planning period. Favorable forage condition is critical for livestock grazing as it supports an economically viable livestock industry and contributes to rural agricultural community lifestyles, traditions, and culture.”

## Suitability

Specific lands within a plan area will be identified as suitable or not suitable for various multiple uses and ecosystem services or activities based on the desired conditions applicable to those lands. Through suitability analyses of various resources or uses, suitability may determine what services could occur on those lands, and on what lands certain uses or activities cannot occur to provide for or protect other national forest lands contributions. Suitability, in a general sense, is expressed in terms of “yes” or “no.” A “yes” is inherently further conditioned by standards and guidelines to achieve desired conditions and objectives. For example, the plan may designate:

- Areas suitable/not suitable for off-highway vehicle recreation (thus providing a certain recreation experience or cultural service in these areas).
- Areas not suitable for road construction to protect watersheds,).

- Areas suitable/not suitable for timber production. Note plans must have plan components to guide timber harvest (219.11(b) and (c))

In many cases, a suitability determination implies contributions to one or more social, cultural, and economic conditions; yet in other cases, making connections to social, cultural, and economic conditions may need additional explanation. Clearly identifying and connecting those relationships reflects the integrated resource management and ecosystem services ideal set forth by the Planning Rule.

## Standards and Guidelines

A standard is a mandatory constraint on project and activity decisionmaking, established to help achieve or maintain specified desired conditions, to avoid or mitigate undesirable effects, or to meet applicable legal requirements. A guideline is the same as a standard except that there is flexibility as to how it is followed so long as the purpose of the guideline is met. Therefore, standards and guidelines apply constraints to projects and activities so that the quantity or quality of multiple uses, key ecosystem services, infrastructure, and the management operations of national forest lands are maintained or increased. Examples of differences between standards and guidelines are shown below.

### Standard examples (note the “must” language here):

“Prescribed fire projects must provide for clear perimeters that are effective in preventing fire spread into riparian management zones to protect water quality, water filtration, and soil protection services.”

“Allotment management plans for livestock must include effective methods to prevent livestock encroachment in areas with plant species of conservation concern populations.”

### Guideline examples (note the “should” language here):

“To protect water quality, new roads should not be constructed across riparian zones.”

“To provide for ecotourism opportunities and recreation, harvest units should not exceed the opening sizes for the following scenery management zones.”

“To provide for scenic quality and related cultural services, harvest units should not exceed the opening sizes for the following scenery management zones.”

(Note how the guideline examples also identify the purpose of the guideline.)

## Other Contents of the Plan

Other required plan components include distinctive roles and contributions, priority watersheds, proposed and possible actions, and the monitoring program. These components may also have direct or indirect relationships with social and economic elements. For instance:

- **Proposed and possible actions** may describe vegetation management and its contribution to key provisioning ecosystem services.

- **The monitoring program** may identify certain questions and indicators related to multiple forest uses for monitoring and evaluation. Generally, these uses consist of commodity outputs and visitor uses. For more information, see the technical advice bulletin on “Monitoring Ecosystem Services and Contributions to Social and Economic Conditions.” (Also see the technical guide for chapter 30)
- **Management areas or other land designations** apply different sets of plan components to specific areas of the plan area. These plan components determine how national forest lands are allocated for different uses and activities, reflecting biophysical, social, cultural, or economic considerations.

In some respects, the process of developing and allocating management areas or other land designations as plan components is the most important consideration in plan development. This phase requires information be as accurate and complete as possible from the first phase, and it subsequently grounds the monitoring of whether the plan objectives are meeting expected desired conditions in the third phase. It also produces the actual details of how the agency expects to integrate the many social, cultural, economic, and ecological components in ways that guide daily management; react to changes in social, cultural, economic, and ecological environments over time; and create benchmarks for measuring progress towards management objectives.

It is worth reiterating that social, cultural, and economic plan components need to be integrated with ecological components both early and throughout the development of plan components. This requires social scientists and economists be actively engaged with the interdisciplinary team throughout the plan development process. Social and economic considerations may be equally important with biophysical considerations and criteria when allocating land uses across different management areas.

An example of an undesirable social, cultural, and economic impact on management area objectives could be a situation where motorized recreation (such as off-highway vehicle use) in a geographic area conflicts with other recreational uses (such as horseback riding). In the long run, this situation could produce conflict and the potential for one set of outfitters and guides to experience negative economic consequences while another set benefits economically due to a decline in a particular use and the increase in another use. Another example might include access restrictions that could benefit one set of users at the economic expense of others (such as closing roads in a proposed wilderness study area at the expense of timber sales, oil and gas interests, or other ecosystem services). Identifying the social and economic impacts of such decisions should include a defensible approach to estimating benefits and costs for various groups. Making such estimates may be served best by the ongoing engagement of a social scientist or economist by the interdisciplinary team.

- **Management approaches and strategies, partnership opportunities, or coordination activities** may describe how the national forest intends (either by itself or in partnership with others) to achieve desired outcomes related to agency operations, infrastructure, or key ecosystem services.

## D. Analyzing Plan Component Effects

Analyzing the social, cultural, and economic effects of the plan may be helpful to the process of incorporating social, cultural, and economic considerations during the iterative development of plan components and plan alternatives. Guidance on composing an affected environment section is not covered here but should tier to and expand on available information from the assessment. Assessment information should be carefully examined to suggest relevant indicators for effects analysis. In fact, indicators and an approach for effects analysis should be formulated while the assessment is underway. Information from the assessment then can be compiled and updated if needed in an “Affected Environment” section intended to provide context for the effects analysis.

The effects of plan components on social, cultural, and economic contributions have two dimensions:

- **Provision or supply:** What amount, quality, and scale of national forest lands contributions (ecosystem services, multiple uses, or infrastructure) are provided over time?
- **Social, cultural, and economic effects:** Are national forest lands contributions meeting social, cultural, and economic needs, preferences, desires, or demand? (Note that contributions may have ancillary or conflicting effects on some populations, resulting in a potential for adverse social, cultural, and economic impacts—such impacts highlight tradeoffs or potential conflicts for managers to consider.) For example, more acres available for motorized backcountry recreation may satisfy off-road vehicle users at the expense of national forest lands visitors who prefer quiet recreational experiences in the backcountry.

The advice below attempts to strike a balance between characterizing effects that inform decisionmaking early in the process (preemptively addressing potential conflicts later in the process) and placing demands on time and planning resources.

### **Describing Effects on the Provision (or Supply) of National Forest Lands Contributions**

Analysis of forest land contributions (ecosystem services, multiple uses, or infrastructure) can rely on common measures or indicators. Those indicators may be explicit in plan components or used in resource area effects analysis.

Begin by identifying the resource or program areas that provide for a given plan area forest contribution (good or service). Then rely on the indicators used to track effects or significant issues for those resource or program areas to describe effects on the relevant contribution (for example, use or build on indicators for range, wildlife, or recreation access to describe overall provision of hunting recreation services). The advantage of this is consistency with work done by other resource specialists.

Some indicators of change may be qualitative in nature, which may be the best that is possible. It may be possible to augment or expand those indicators to better characterize changes in provision of the national forest lands good or service across alternatives. In general, it is helpful to work from information that is already being used, and augment that information if needed to tell a better story about potential changes in the provision of national forest lands contributions.

If it is felt that one or more significant gaps remain in being able to describe effects on a plan area contribution, then flag the plan components that play key roles in that contribution, and build on indicators of resource or program outcomes associated with those components. Indicators may be explicitly stated within components, or implied by the language of the component. See the examples that follow the next paragraph.

It is helpful to compile plan components affecting comparable plan area contributions across alternatives. It is that various plan components throughout the plan will provide for a common contribution. The following types and examples are areas for which plan components could be written to address the provision of flood control (as an ecosystem service).

**Examples of flood control combinations of complimentary plan components might include:**

- [Objective] Description of a planned restoration program to enhance the ability of existing streams and wetland buffers to retain water in large precipitation events.
- [Standard] Restrictions on any modifications of streams or watercourses that would lead to increased runoff during major precipitation events.
- [Guideline] Limitations on grazing activities that could contribute to additional runoff.
- [Guideline] Limitations on fire management activities that could contribute to additional runoff.
- [Guideline] Limitations on mineral development that could contribute to soil compaction.
- [Guideline] Limitations on timber harvest could contribute to sedimentation or runoff.
- [Guideline] Limitations on motorized recreational uses that could contribute to soil compaction.

These examples demonstrate that various plan components could be written to provide for the same national forest lands contributions, even when those plan components apply to different resource and program areas within the forest plan (such as soil productivity, hydrology, motorized recreation, or other related sections). Individual resource areas will analyze their respective effects, and national forest lands contributions other than flood control benefits (like recreational fishing) may be impacted by these same components. Therefore, systematically organizing related plan components that affect common national forest contributions will assist with

the evaluation of their effects. Such an approach allows for integrated consideration of plan components and helps planning teams identify the different specialists needed to evaluate effects on the national forest lands contribution and corresponding beneficiaries.

Following the examples above, indicators used in effects analyses by resource specialists might include the probabilities of flood events, sediment loadings downstream, or other indicators to compare among alternatives. Indicators or measures relevant to national forest lands contributions can also be characterized qualitatively and include statements such as “under this alternative, the absence of motorized use restrictions would increase sediment loadings downstream.” Some of the connections between national forest lands contributions and indicators from other resource sections may require explanation of their linkages.

Discussion of national forest lands contributions and indicators with the interdisciplinary team early in the planning process (like during assessment) may reveal if and how resource specialists can modify indicators or analytical methods to link national forest lands contributions to respective resource areas. In some cases, traditional resource indicators or measures (like animal unit months for grazing or volume for timber) may be sufficient for characterizing national forest lands contributions. In other cases, collaboration among resource specialists may be needed to explore options for modifying or developing indicators that help clarify how a resource (like soils or wildlife) contributes to benefits from national forest lands contributions, as well as to social, cultural, and economic conditions.

In addition, indicators need to be relevant to potentially affected communities. While communities may have indicators that matter a great deal to them, the indicators may not represent social, cultural, and economic conditions, goods, or services directly attributable to forest lands management (such as literacy rates, corporate capitalization, or other factors). Likewise, exercise care to avoid selecting indicators just because they are simple or accessible; be sure they have true value in assessment and planning.

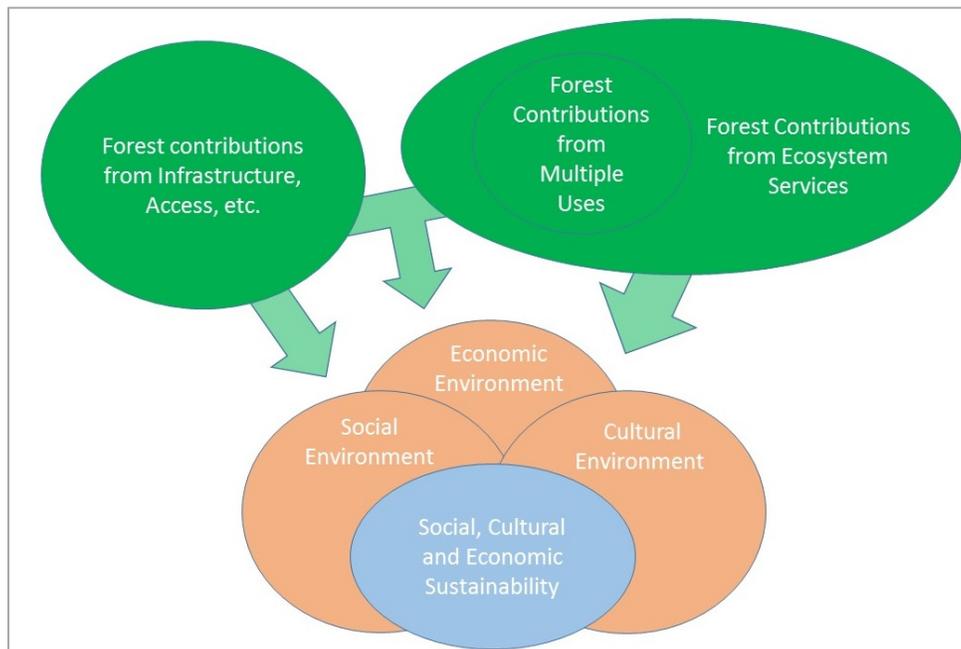
## **Describing Effects on Social, Cultural, and Economic Conditions**

Information from the assessment on who benefits from national forest lands contributions provides the context for evaluating social, cultural, and economic effects and sustainability. For example, consider how an increase or decrease of flood probability affects the health and safety of downstream resident populations, communities, or agricultural water users. How would the increase or decrease of sediment loadings affect municipal water users now, and into the future?

There are many relationships between national forest lands and people. The analyst should describe effects in the area of influence (such as effects to municipal water supplies) and effect on any important relationships in the broader landscape outside the area of influence that were identified in the assessment. Recall during the assessment stage, one of the two criteria for determining key ecosystem services is the importance to people outside the plan area. Logically, during the effects analysis,

importance in the area of influence or certain relationships in the broader landscape would be evaluated as context for effects on people. See also guidance on delineation of social and economic areas of influence, presented in the technical guide for chapter 10.

National forest lands contribute to human well-being through ecosystem services, multiple uses, associated infrastructure, and access, as illustrated in figure 2.



**Figure 2. Diagram showing influences of national forest lands contributions on the social, cultural, and economic environment and sustainability**

Effects analysis for forest plans should describe the relationship between ecosystem services, multiple uses, and social, cultural, and economic sustainability. Analysts should explain how plan alternatives guide national forest lands contributions to social, cultural, and economic sustainability. Analysts should try to link indicators of forest plan area contributions (such as animal unit months) to social and economic conditions or beneficiaries (livestock operator conditions and trends). In some cases, tools such as IMPLAN/Aphelia can be used to quantify impacts of forest contributions to social and economic conditions such as employment and income for populations that benefit from multiple uses or ecosystem services.

Not all relevant communities or beneficiaries will be captured in an initial discussion of ecosystem services and multiple uses effects (see figure 3). For example, low income and minority communities with environmental justice concerns may be present that rely on resources not initially characterized as key ecosystem services (like forest products such as grasses or other plant materials used to make baskets or for other small-scale commercial or cultural uses). In these cases, lists of key ecosystem services can be modified to reflect these communities. In other cases,

evaluations of potential beneficiaries may reveal important populations affected by plan components that change forest contributions not directly related to ecosystem service, such as access, rights-of-way, or infrastructure. As an example, minority or rural populations in need of improved transportation options or updated communication technology may benefit from plan components that affect development of roads and utility corridors. To ensure a comprehensive analysis of communities, the list of potentially affected groups should be crosschecked against the social and economic context related to the significant issues identified during scoping or public involvement.

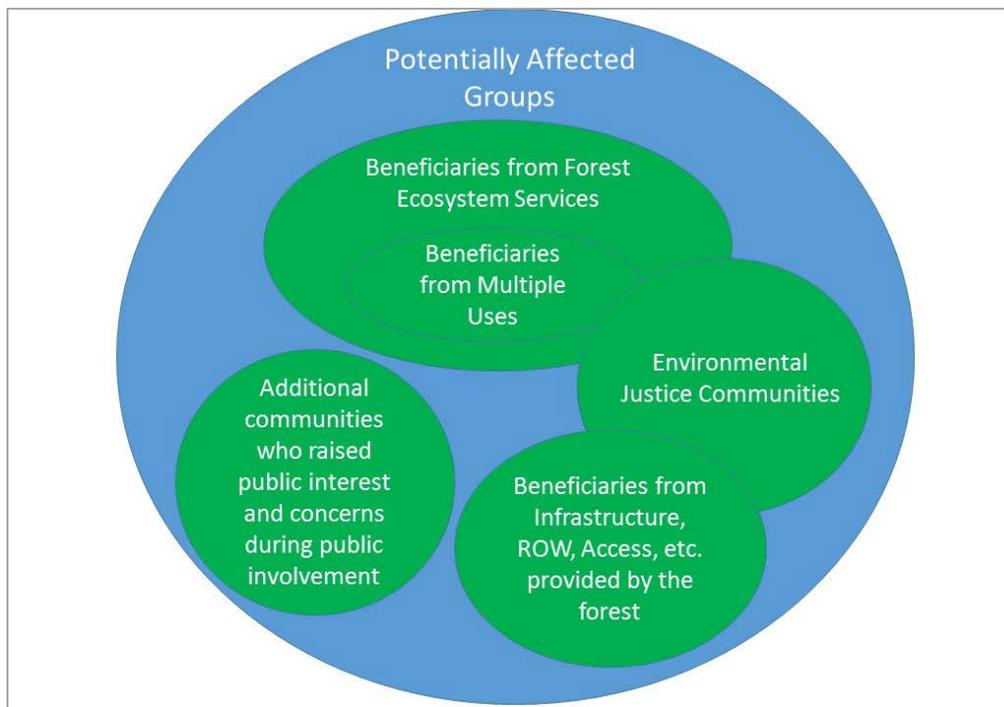


Figure 3. Groups potentially affected by forest contributions

Distinct analyses for each forest contribution are often not needed because multiple ecosystem services, multiple uses, and types of infrastructure may act in a complementary manner to provide benefits (for example, roads, trails, wildlife populations or habitat, and campgrounds work together to provide wildlife viewing recreation benefits). It is also important to recognize that analyses of social, cultural, and economic effects can often focus on differences in effects between alternatives, and not absolute effects for a single alternative. As an example, qualitative descriptions of changes in recreational visitors, relative to baseline visitor numbers, may be adopted to help characterize social, cultural, and economic effects related to alternative recreational services.

The social, cultural, and economic contributions that national forest lands provide or supply are frequently linked to indicators or measures of forest outputs (like animal unit months, timber volume, or recreation visits). In contrast, descriptions of people's needs, desires, or preferences for those forest contributions rely on other

social, cultural, and economic measures or attributes, including discussions of demand, and values underlying demand for forest contributions. Such descriptions help illustrate how potential changes in forest contributions can affect social, cultural, and economic sustainability. Examples include trends in populations, or preferences of populations of motorized recreation visitors as a means for describing the social needs or demand for changes in contributions to developed recreational opportunities and settings. Descriptions of how forest contributions meet future social, cultural, and economic needs help demonstrate how alternative forest plans guide contributions to social, cultural, and economic sustainability.

Many factors outside the control of the Forest Service affect social, cultural, and economic conditions and needs. For example, a weak housing market is likely to cause timber harvests from national forest lands to decline regardless of Forest Service management actions. Yet, some evidence should still be referenced about projected demand or need for the good or service, even if qualitative, to help justify targeted changes in the supply of goods and services from national forest lands. Advice on evaluating contributions to social and economic sustainability are presented in the technical guide “[Addressing Ecosystem Services and Social and Economic Sustainability in Forest Plan Components and Environmental Analysis](#).”<sup>2</sup>

Monetized valuation of forest contributions may be feasible to help clarify benefits to people, or as a component of monetized cost benefit analysis to compare economic efficiency of plan alternatives. The Planning Rule does not require or prohibit monetized valuation, but analysts should take care when assigning values to avoid the incorrect use of data or misleading results (for example, applying inappropriate values or failing to comprehensively assign values to other affected resources). Staff with social science or economic expertise should be consulted about the validity of valuation methods.

If valuation is considered, plans should acknowledge the complexities and uncertainties associated with placing values on needs, desires, or preferences for forest contributions. These complexities are compounded by changing demographics and preferences, and efforts to account for the quality of goods and services, as well as the availability of complementary or substitute goods or services in the broader landscape. Further, the feasibility and defensibility of valuation is dependent on how important national forest lands contributions are relative to cumulative contributions to a good or service from all land ownerships in a broader region. For more information on valuation in the context of assessing tradeoffs, see the technical advice bulletin on “Ecosystem Services Tradeoffs” and “Notes on Valuation” (see the [Ecosystem Services and Benefits in Planning SharePoint](#) site).

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<sup>2</sup> Although this link and the one below it lead to an internal Forest Service website, information is available to anyone upon request.

## **Consider How Plan Contributions to Social, Cultural, and Economic Conditions can be Appropriately Monitored**

Though it is the focus of the next chapter on plan monitoring, there is value in considering the ability to create or have valid and reliable monitoring questions, indicators, and techniques during plan development. If it is not possible to conduct such monitoring, then the ability of the forest to fully implement adaptive management is hampered from the beginning. This may be particularly true given that human populations, activities, and values, may change rapidly due to outside influences. Monitoring questions related to plan components should satisfy the “SMART” criteria—that is, any measure is most useful if it is (1) specific, (2) measurable, (3) attainable, (4) relevant, and (5) time-bound. Plan monitoring programs should be concise and reflect reasonably foreseeable budgets.

Refer to the technical guide for chapter 30 of the Planning Handbook for more information about monitoring social, cultural, and economic plan components.

## **E. Public Participation**

Public participation during this phase is both essential and required by regulation and directive. Public input is particularly valuable in creating desired condition statements. Public participation can also influence management objectives, standards and guidelines, and land allocations that are relevant to social, cultural, and economic issues and concerns. More details on the public participation required for this phase of plan revision are found in the technical guide for chapter 40.

## **F. Conclusion**

This second phase of plan revision—developing plan components—is perhaps the most important of the three. This phase requires information as accurate and complete as possible from the first phase and subsequently grounds the monitoring of whether the plan achieves expected desired conditions and objectives in the third phase. It produces the actual details of how the Forest Service expects to integrate the many social, cultural, economic, and ecological considerations in ways that guide daily management; react to changes in social, cultural, economic, and ecological environments over time; and create benchmarks for measuring progress.

It is worth reiterating that social, cultural, and economic plan components must be integrated with ecological components both early and throughout the plan component development phase. The guiding principle here is that social, cultural, and economic conditions, factors, and processes affect and are affected by ecological conditions, factors, and processes.