Building a Forest Plan

USDA Forest Service
January 2005

Preparing a Forest Plan

This is a concept book and a work in progress. It contains some initial ideas and concepts. Responsible Officials and collaborators have a great amount of flexibility to craft a document making it as useful as possible. This should be exciting to those who wish to become involved in the business of shaping the future of public lands.

The ideas contained in this document are based on the experiences of folks who have created Forest Plans. It reflects what has worked in the past and may work well in the future. However, each planning process must begin with an opportunity for collaborators to help define what a Forest Plan will be. This document is only a starting point in that discussion.

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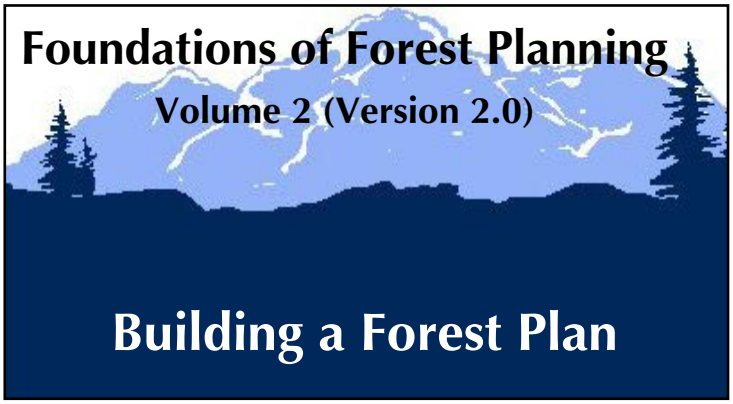


Reach the Vision through a Strategy guided by the Design Criteria.

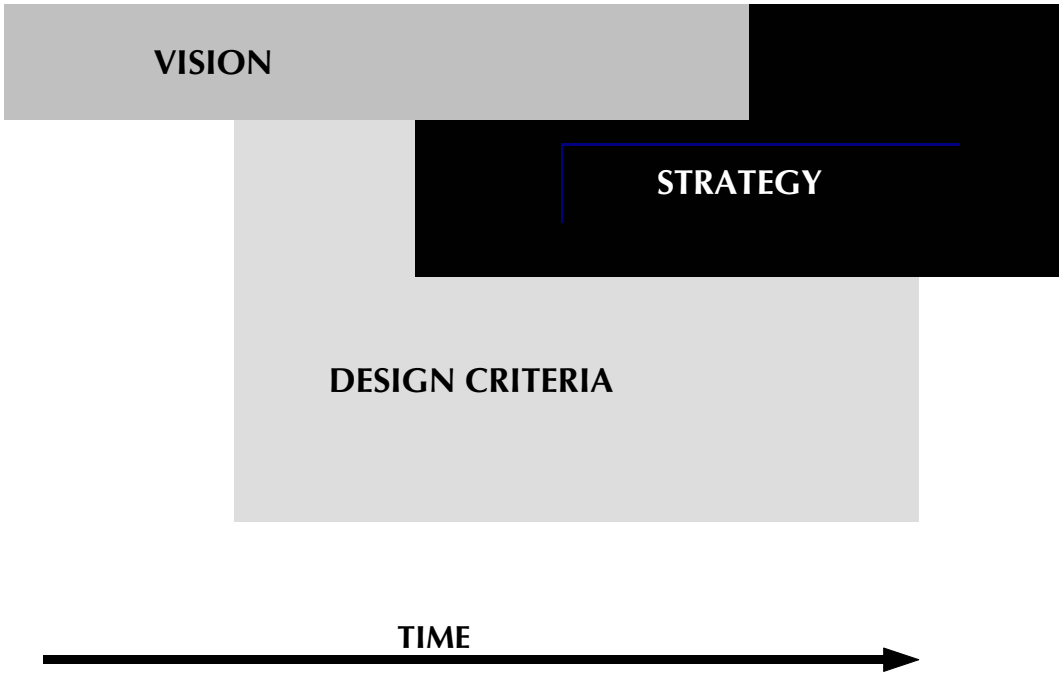
Three parts of a Forest Plan:

Vision (Roles and Contributions and Desired Conditions)

Strategy (Suitability of Areas and Prospectus)

Design Criteria (Guidelines and other Guidance)

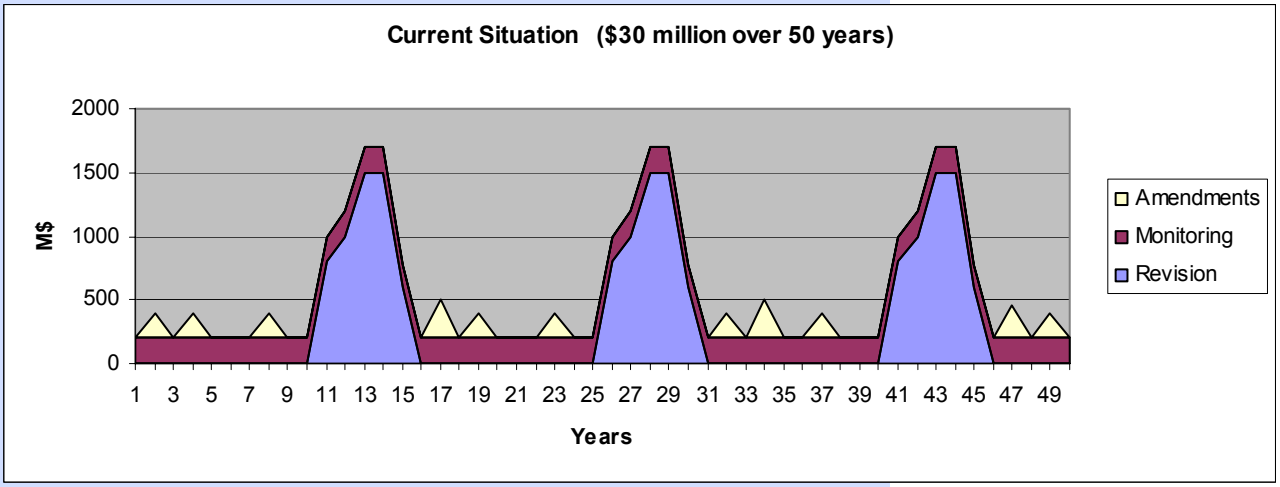
CHICKEN OR EGG?

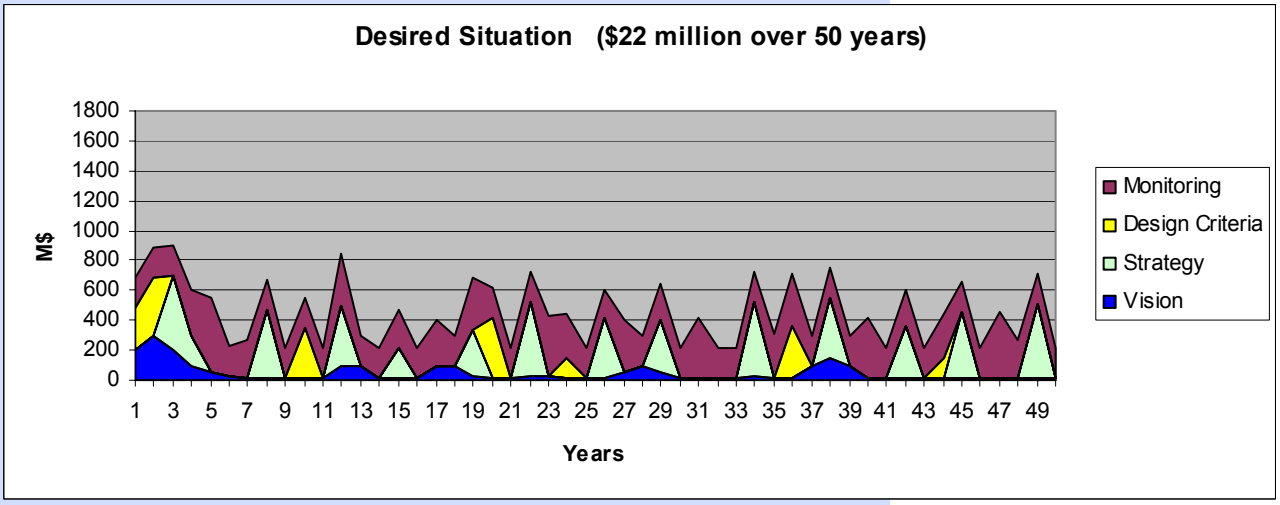


Parts of the Plan can be developed separately, or simultaneously. Initially, there would be some overlap between development of each part. Later, updates could be made to one or all parts, as desired.

Adaptive Planning Instead of Big Event Planning

Each of the three parts of the Plan are updated as needed over time through amendment or revision.



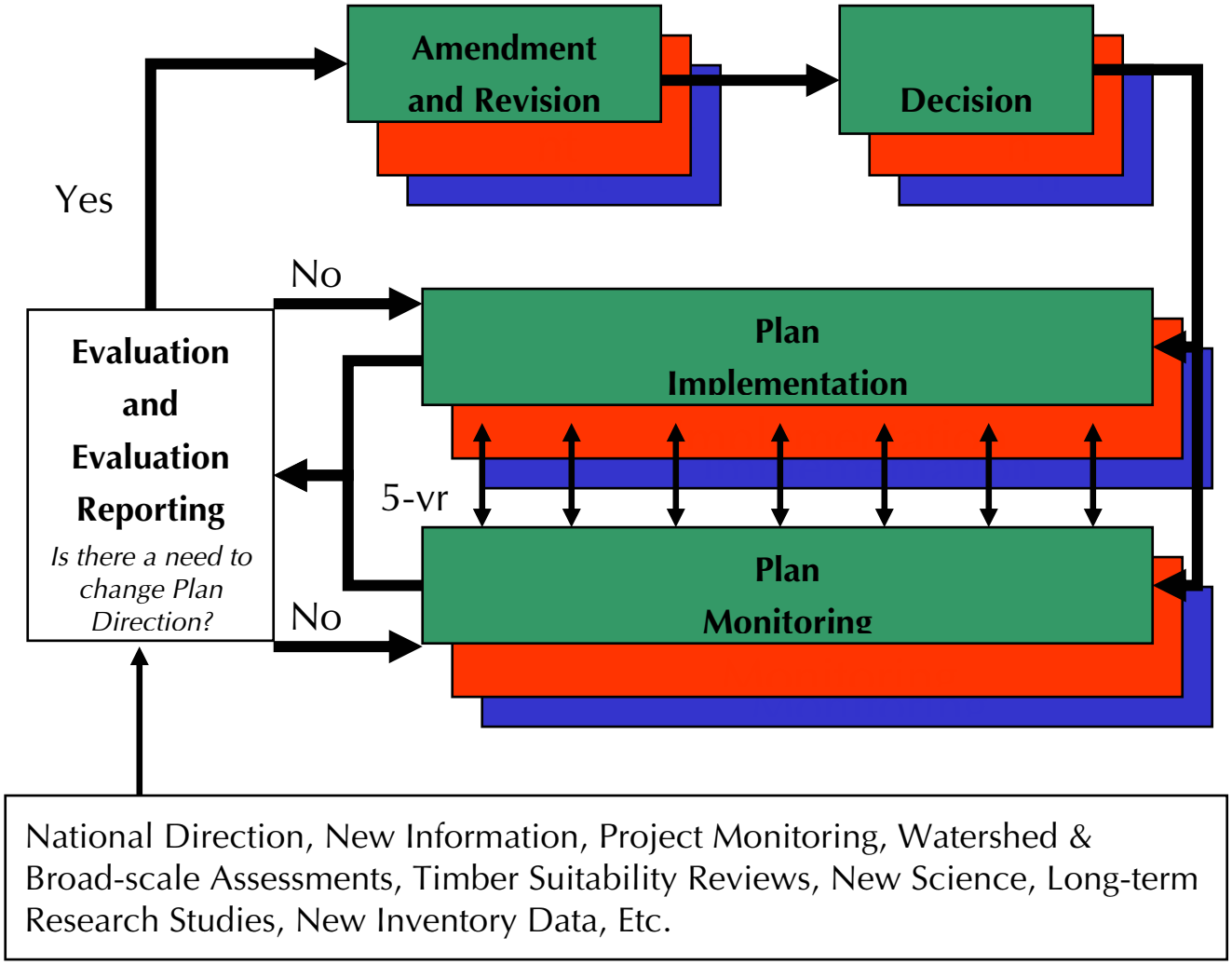


Adaptive planning emphasizes continuous monitoring, versus large revision "events." It is comprised of frequent updates of the three parts of the Plan, with each update costing less and taking less time than commonly experienced.

The Adaptive Planning Process

Revisions and amendments are part of an adaptive planning process of plan development, plan implementation, plan monitoring, inventory and assessment, and plan adjustment.

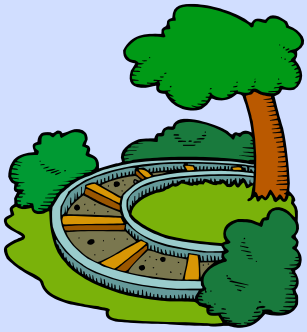
The Adaptive Planning Cycle given the Plan Model (Vision in green, Strategy in red, and Design Criteria in blue)



Each Forest must find its place within this cycle, and prepare to revise or amend its Plan by focusing on monitoring, evaluation, assessment, or amendment activities, as appropriate to their situation. The Forest Plan guides development of the budget and project activity designed to bring about the desired outcome.

The Six Tracks of Planning

1. Adaptive Decisions (Amendments and Revisions)
2. Inventory
3. Plan Implementation
4. Assessments
5. Continuous Monitoring
6. Evaluation



Revisions and amendments do not begin on the decision track. They begin with work on the other tracks in anticipation of information needs.

Each of the six tracks must be:

- **managed,**
- **coordinated with each other, and**
- **based on the appropriate scale.**

The Six Tracks of Planning Over Time

Activities and dates are typical, but will vary by Forest.

YEAR	1	2	3	4	5	6	7
Decisions Track			Amendment of Strategy			Amendment of Strategy and Design Criteria	
Inventory Track	Inventory Update			Inventory Update			Inventory Update
Implementation Track	TACTICAL PLANS AND PROJECTS						
Assessment Track			Watershed Assessment	Broad Scale Assessment Update	Watershed Assessment	Broad Scale Assessment Update	
Monitoring Track	CONTINUOUS MONITORING						
Evaluation Track			Evaluation of Strategy		Evaluation of Vision, Strategy, Design Criteria	Evaluation of Strategy and Design Criteria	

8	9	10	11	12	13	14	15
	Amendment of Strategy		Amendment of Design Criteria	Amendment of Strategy		REVISION	
		Timber Suitability		Inventory Update for Revision			
TACTICAL PLANS AND PROJECTS							
Watershed Assessment				Pre- Revision Assessment			Watershed Assessment
CONTINUOUS MONITORING							
	Evaluation of Strategy	Evaluation of Vision, Strategy and Design Criteria	Evaluation of Design Criteria	Evaluation of Strategy	Pre-Revision Evaluation		

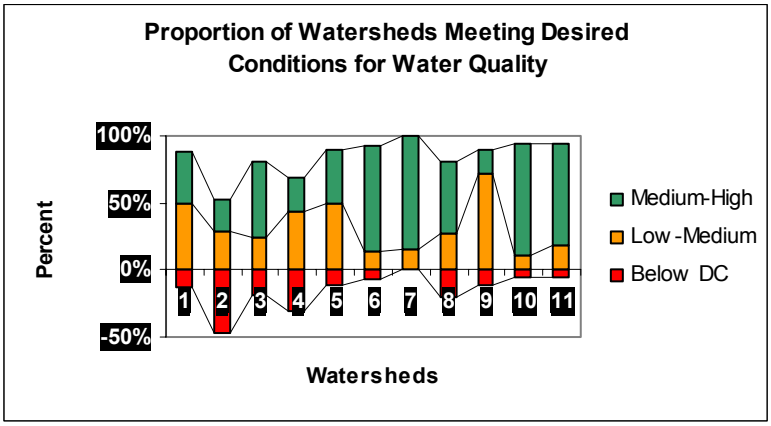
Implementation of projects would occur simultaneously with these planning activities. As the land changes—because of management activities and natural processes—inventory, assessment and monitoring data will be evaluated to detect these changes. The evaluation process may lead to a plan amendment or revision.

Monitoring of all Plan Parts is Essential

- Roles and contributions
- Desired conditions
- Suitability of areas
- Use strategies
- Program objectives and accomplishments
- Design criteria

"If you can't measure it, it didn't happen..."

— Robert McGurk
Turner Broadcasting System



Steps in Revising a Plan

Pre-work: Reformat the Current Plan

1. Gather Resources and Information
2. Design and Collaborate on the Process
3. Evaluate the Need for Change
4. Develop Changes to the Plan

"In the development and maintenance of land management plans for use on units of the National Forest System, the Secretary shall use a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences."

—National Forest Management Act, Section 6(b)

Steps in Revising a Plan

Pre-Work: Reformat the Current Plan

Put your existing Plan into the new format.

Step 1: Gather Resources and Information

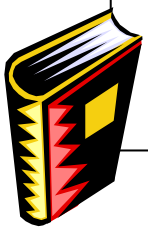
Gather any inventories, monitoring results, assessments, or other information you initially think will be helpful for the process.

Step 2: Design and Collaborate on the Process

Engage with interested stakeholders to design the process.

Step 3: Evaluate the Need for Change

Using a process designed in Step 2 above; evaluate the current Plan and determine what elements of the Plan need to change.



Step 4: Develop Changes to the Plan

Using a process designed in Step 2 above—based on the information in this guidebook—develop changes to each of the three parts of the Plan.

Pre-work: Reformat the Current Plan

Planners can begin the process by reading through the existing Plan and finding the pieces that best match the Vision, Strategy, and Design Criteria. Keep track of the pieces by placing them into appropriately titled new draft documents.

Develop an overall layout, including text, maps, photographs, and other hyperlinked information.

Think ahead to how any missing parts might be developed.

Step 1: Gather Resources and Information

Make sure inventories are current or can be completed in short order. Assemble monitoring reports completed since the last plan revision. Gather together recent assessments of ecological, social, and economic conditions and trends. Collect only the information needed to address what you think the planning issues are going to be.

Assemble a core planning team and secure adequate funding to proceed in an efficient manner. Identify needs for extended interdisciplinary team members, contractors, or other support personnel.

Step 2: Design and Collaborate on the Process

A planning process should begin by engaging with interested stakeholders to understand the situation and design the process.

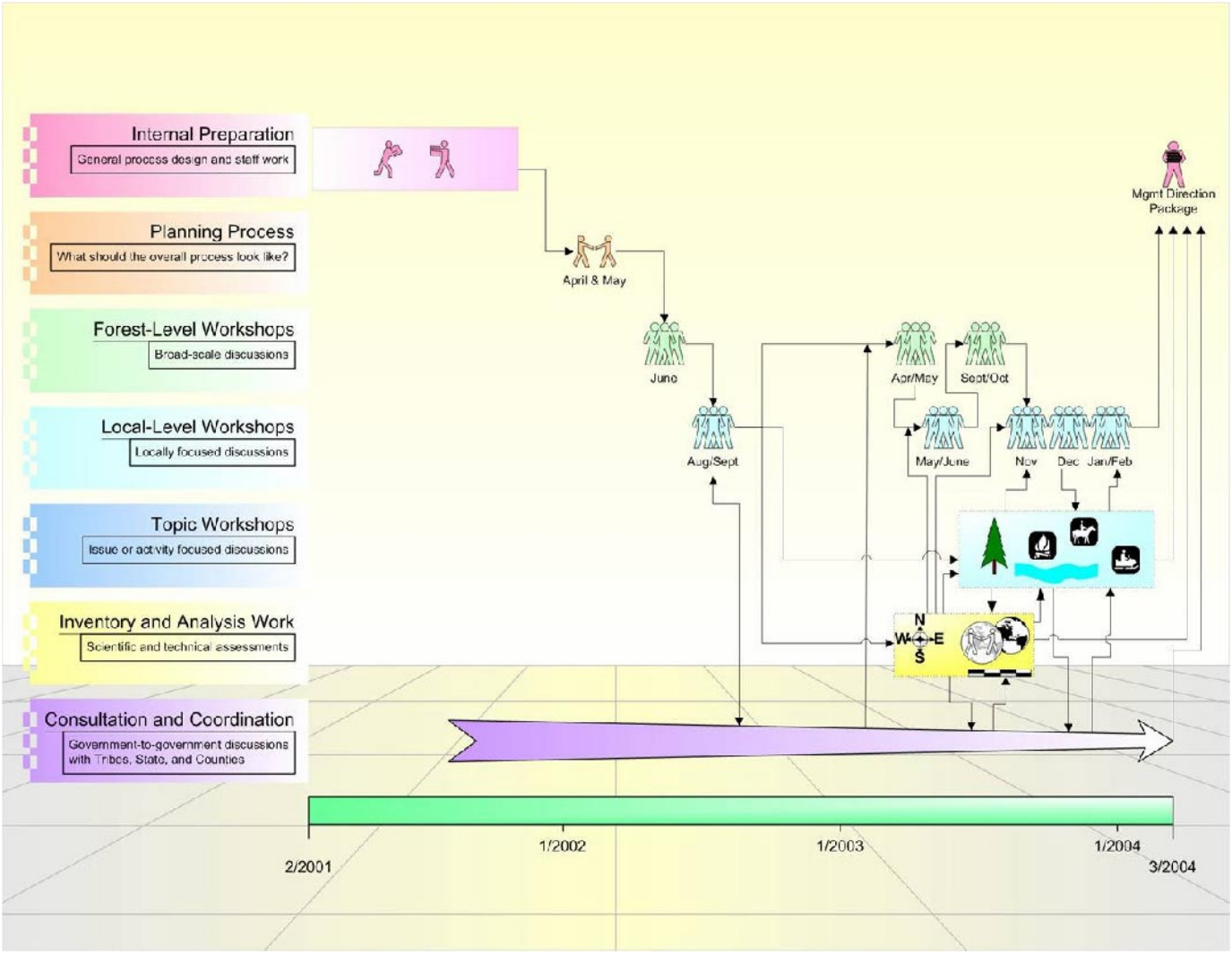
Process items to collaborate on include:

- Who will be involved?
- When will tasks be completed?
- What will be the type and scope of analysis?
- How will information be shared?
- How will alternative viewpoints be considered?
- How will decisions be made?

> "The stakeholders—not the facilitators—must understand the situation.
>
> The stakeholders—not the facilitators—generate potential improvements to the situation.
>
> The stakeholders—not the facilitators—ultimately judge the desirability and feasibility of potential improvements. "
>
> —Steven Daniels and Gregg Walker,
> "Working Through Environmental Conflict:
> The Collaborative Learning Approach"

Collaboration can seem very unstructured and frustrating compared to more common planning approaches. Designing a process strategy and depicting the flow of activities on a process map can help participants feel more comfortable. Participants can understand the basic *process* structure while still seeing that decision *content* is not predetermined.

Here is one example of a process map.



Process Map provided by Peter B. Williams, USDA Forest Service

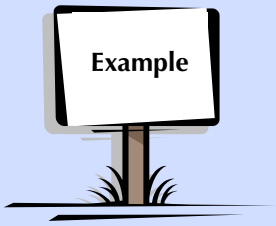
Step 3: Evaluate the Need for Change

Each of the three parts of the Plan (Vision, Strategy, and Design Criteria) are developed differently. The analysis needs are also different because the questions that would be asked are different. However, one question is common to the revision of all three parts: *What is changing?*

What is really changing?

A TV picture needs 30 new frames of video every second. Storing that much information takes up a lot of space and would fill a DVD in no time …then someone notices that in almost all cases a relatively small portion of the picture changed from one frame to the next. In many cases, not much is happening at all. Rather than record every portion of all 30 frames of video, DVD encoders only record the portion that change from one frame to the next.

We can use the same approach for analysis and monitoring: learning to detect change and measure it against a constant background.



An existing forest plan relies on prescribed fire to control invasive species.
New research concludes that fire actually facilitates the spread of the invasive species.

The current plan strategy needs to change.

Practical Considerations for Possible Changes

The Responsible Official has broad authority to determine what potential changes are timely for consideration within a revised forest plan.

Here are some considerations.

Laws and Regulations: Are there laws, regulations, or court interpretations that are relevant? Are there existing legal, valid rights to consider?

Time: Is this ripe for decision? Are there factors that make it more prudent to resolve at another time?

Scale: Are the scope, complexity, intensity, and scale appropriate to be address in the Forest Plan and at the Forest Plan scale?

Information: Does information and analysis exist and is it available? What is the scientific merit of that information? In some cases, scientific controversy, or uncertainty, or lack of peer review may be sufficient reason to not address a topic.

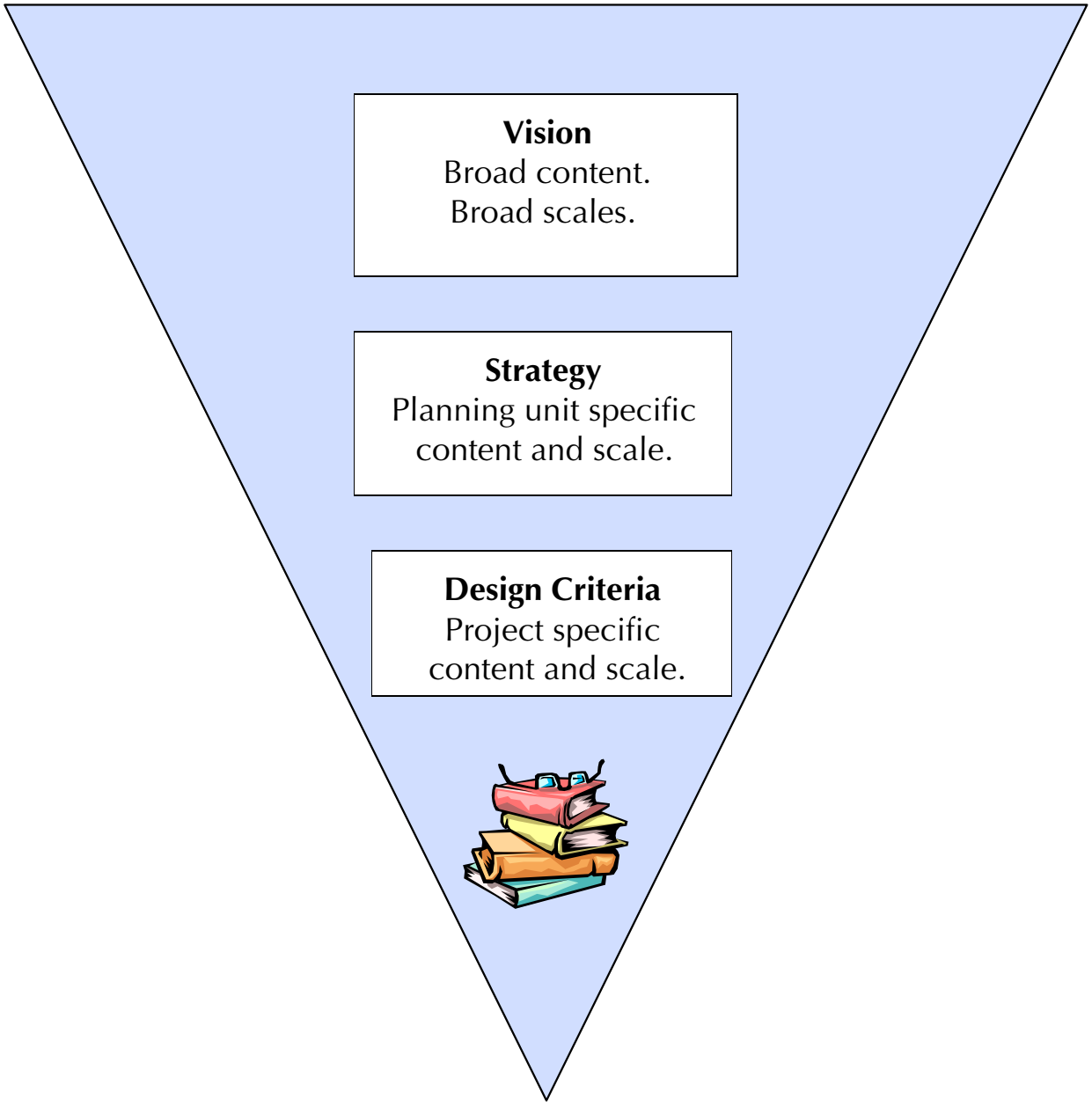
Resources: Are resources (people, money, and equipment) available? Are resources available to resolve the issue and opportunity? What is the "opportunity cost" of resolution?

What do people think? How controversial is this?

What range of attitudes, values, and beliefs do people express regarding the proposed changes?

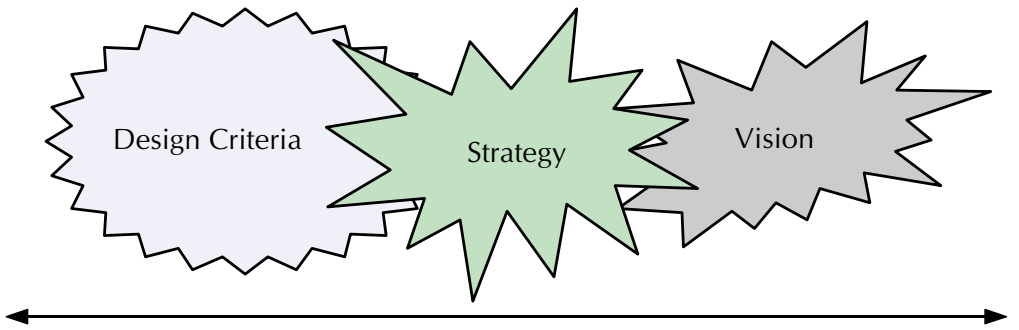
What do political leaders have to say?

Focus of Change: Content and Scale



Step 4: Develop Changes to the Plan

Engaging the Public in Changes



Disclosure	Coordination	Consultation	Collaboration
Public Review of Technical Work		Working toward common objectives.	Public ownership of the process

Approaches to Consideration of Alternatives or Options

Vision—Seek common understanding. Propose refinements to the current Vision. Understand values, beliefs, attitudes, and work toward mutual acceptance.

Strategy—Explore alternative approaches toward reaching the Vision. Vary the rate of progress, or the scope of activities. Respond to differences in assumed budgets.

Design Criteria—Develop scientifically and technically credible Design Criteria, then ask if other formulations might be more effective, cost less, or be easier to implement.

Analyzing Changes to Each Plan Part

Plan Part	Analysis Questions
VISION Roles and Contributions Desired Conditions	What is changing? What is possible? What is desired? Is the Vision integrated across resources? What are the patterns and trends? Would the desired conditions change over time?
STRATEGY Suitable Uses and Use Strategies Prospectus of Objectives	What is changing? Which Strategy best achieves the desired conditions? Which Strategy is most cost effective? Which Strategy has the least unintended consequences? How certain are we of the expected outcomes? What are the cumulative effects of the Strategy and baseline conditions and trends? Can the Strategy be implemented with the resources expected to be available? How controversial is the Strategy and how will that effect the ability to implement?
DESIGN CRITERIA Guidelines Link to Other Handbooks	What is changing? Do the Design Criteria work? Are they possible to implement? Will Design Criteria limit unintended consequences?

Part One—Building the Vision

Key Considerations:

- Collaborative learning
- Visualization of desired outcomes

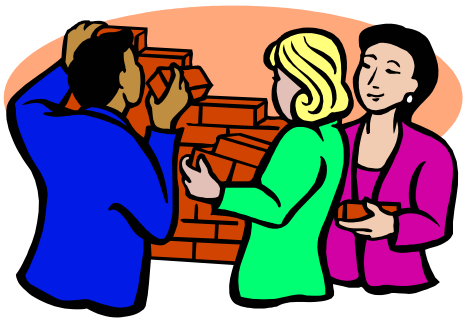
"No longer is plan revision a good reason to retire"

—Forest Staff

The Vision is the most highly collaborative component. Ideally, a Forest would begin working with its cooperating agencies and encouraging stakeholder discussions ahead of time, as part of a healthy public engagement process. Numerous techniques are available to help Forests structure their interaction with interested parties.

Appreciative Inquiry—Identify and enhance the conditions where the organization is performing optimally. Appreciate means to recognize what we like about the present situation and to add value or meaning to the situation. (See J. Watkins and B. Mohr, Appreciative Inquiry -Change at the Speed of Imagination, 2001, John Wiley and Sons, Inc.)

Collaborative Learning—Design and implement planning events to promote creative thought, constructive debate, and the effective implementation of proposals that the stakeholders generate. (See S. Daniels and G. Walker, Working Through Environmental Conflict: The Collaborative Learning Approach, 2001, Praeger)



Communities of Interest—Identify and encourage dialogue among groups interested in National Forests.

Scenario Building

Scenario building is a commonly used planning process that systematically looks at the future.

The process involves the development of mental images of the most likely possibilities that might evolve, developed around specific topics of interest to collaborators.

The process, if done well, will essentially produce a spectrum of plausible futures that effectively brackets the horizons.

Using maps, drawings, photos, and other tools, these scenarios can illuminate each person's perspective and provide a larger, sophisticated, future-oriented context for projects and activities.

Participants can see in front of them most, if not all, of the likely big possible situations.

Steps in Scenario Building

1. Clarify the strategic decisions that need to be made in the Plan.
2. Explain roles and contributions, and define what elements of the desired conditions will be described.
3. Identify the forces that could impact the Forest.
4. Describe the impact of those forces, their importance and the degree of uncertainty.
5. Ask "what if" questions.
6. Develop scenario plots (stories or narratives of how events might unfold).
7. Test intended roles, contributions, desired conditions and current strategies against those scenarios.

Desired Conditions can be Actual...

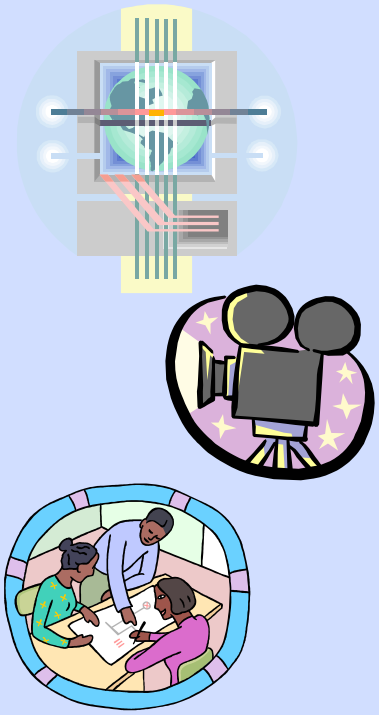
"We like how the forest looks now!"

Not all desired conditions are potential. Some are actual, that is, they exist now. An important tool is the use of photos or other descriptions of conditions that are functioning well now and need to be maintained.

...or Potential

Analysis of What is Possible

- ***Analysis*** tools help the collaboration process by informing stakeholders about possibilities.
- ***Survey*** tools can explore people's shared values and priorities.
- ***Simulation*** tools can display how things might change over time and if the Vision can be sustained. Simulation tools can also clarify if the Vision is integrated and consistent, or if there could be unintended consequences.



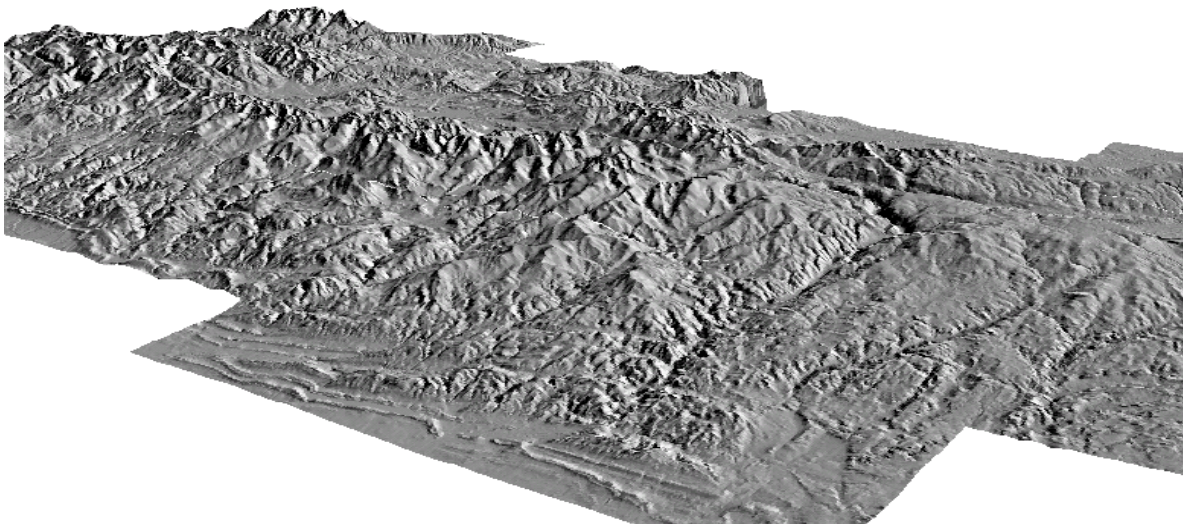
Examples of Simulation Tools

- Change detection
- Satellite imagery analysis
- Map series over time
- Simulated pictures
- Simulated movies
- Computer models
- Narrative descriptions

Use of Assessments

In the collaborative process, the Forest Service brings information to the table about what is possible and what is necessary to fulfill the agency's mission.

Assessments provide information about social, economic, and ecological sustainability. They also provide information about demand trends, and describe conditions, trends, and contributions, both intended and unintended.



What is the appropriate scale for assessing conditions, trends, and contributions?

The following might be considered in choosing the scale for assessments.

- What external factors and other ownerships should be considered?
- What is the extent of the influence of the Plan?
- Does the Forest Plan have a cumulative effect with other Plans outside the Forest Service?
- Are there efficiencies to addressing an issue at a broader scale?

When There is No Common Vision

Developing the Vision may be hard work. Natural resource issues can be contentious; sometimes there will be no common Vision. **A collaborative process does not imply consensus.** There may be situations or times when a collaborative public land management effort does not work. How these situations are handled will say much about the Forest Service and other participants. These two pages describe some considerations.

The Forest Service is the agency with land management responsibility and, therefore, accountability. Even if an attempt to conduct a planning effort in a collaborative manner seems not to work, the Forest Service still has responsibility to make and implement a decision.

Having a Fallback Plan

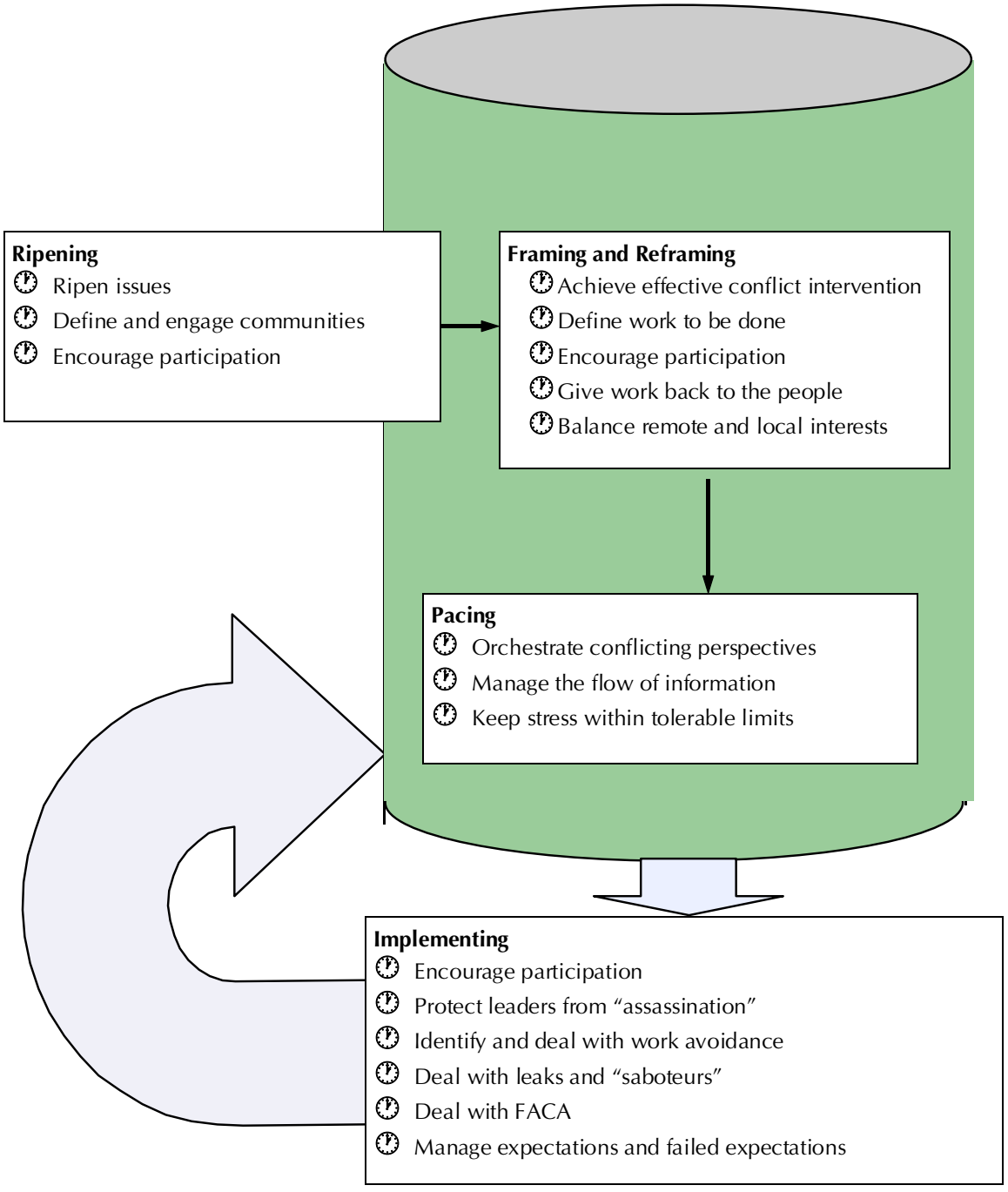
In a collaborative process, having a clearly understood "fallback plan" is essential so that everyone understands how necessary decisions will occur if the collaboration effort becomes a problem.

Process fallback—Even during a collaborative process, a Responsible Official makes the eventual decision. The "process fallback" might be for the Responsible Official to make the best decision possible given the circumstances, resources, or ideas available. Another fallback might be to create a study team to look at the issue further.

Content fallback—A fallback position might be to maintain the vision from the previous plan. Another fallback might be to adopt a more general vision, with the specifics developed at a later date.

Holding Issues Until They are Ready to be Addressed

Ronald Heifetz, of Harvard University's Kennedy School of Government, describes a "holding environment" for issues through ripening, framing and reframing, pacing, and finally implementing the adaptive work. It is a "holding" environment because people must truly be suspended in this environment together in order to carry out the adaptive work.



Part Two—Building the Strategy

Key Considerations:

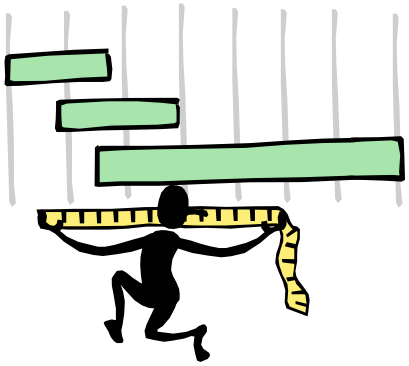
- Informed decision making
- Managerial accountability

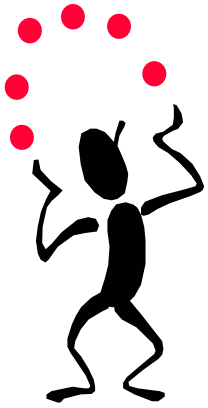
Timeframes

- No time frame is set to accomplish the desired conditions, although eventual accomplishment should generally be in the 10 to 50 year time horizon.
- During the life of the plan, progress toward achieving desired conditions is expected with the ultimate intent of complete accomplishment.
- Implementation rates may vary due to budget and other constraints outside the agency's control.
- Although a 10 to 50 year time horizon may be used, longer time frames may be considered for analysis of our sustainability obligations under multiple use sustained yield.

Discovering What is Achievable

A Strategy is developed by analyzing trade-offs between different levels or rates of implementation, or relative priorities among programs.





Base change in the Strategy on:

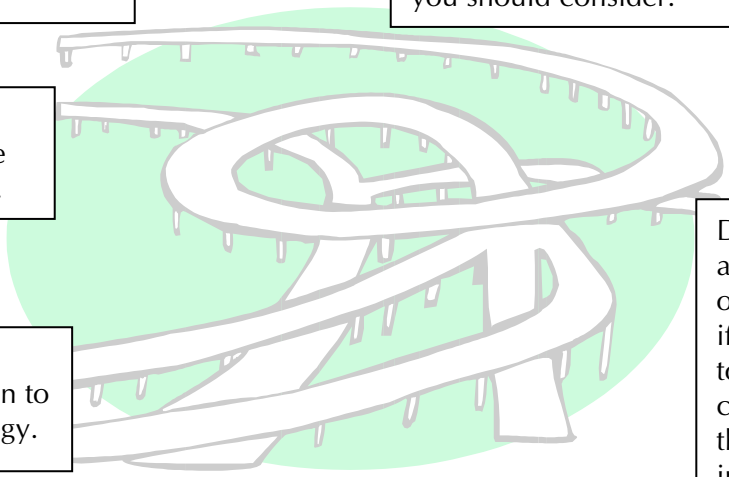
- the history of the area,
- trends in land uses on adjacent or intermingled ownerships,
- monitoring of use levels and patterns,
- balance among resource programs, and
- the ability to measure progress toward desired conditions.

Choosing Among Alternative Strategies

There are many different ways (strategies) to move toward the vision.

Analyze different strategies to determine which to choose.

Your vision, long-term goals, and desired conditions help frame the kinds of strategies you should consider.



Keep in mind that the strategy is intended to be updated every 3-5 years.

Do not spend time analyzing a wide range of alternative strategies if they don't move toward the desired condition or are beyond the agency's ability to implement.

You do not have to have precise data or information to choose a short-term strategy.

Build strategies with input from collaborative partners.

Each alternative would describe a different approach for moving toward the desired conditions in the Vision and would appropriately apply the Design Criteria.

Each alternative could have different suitable use decisions, different special area designations, a different prospectus, and appropriate monitoring requirements.

Designing a Strategy in an Uncertain World

Cumulative Effects Analysis

The cumulative effects analysis associated with the Strategy can best be described as a "moving window" of changes added to baseline condition and trends. Due to the speculative nature of Forest Plans, cumulative effects of projects cannot be initially analyzed. However, the scope and scale of the program can be described in terms of ranges or changes in direction from baseline trends. The key indicators selected for analysis and subsequent monitoring and evaluation should be used for this cumulative effects analysis.

Managing for the Unexpected

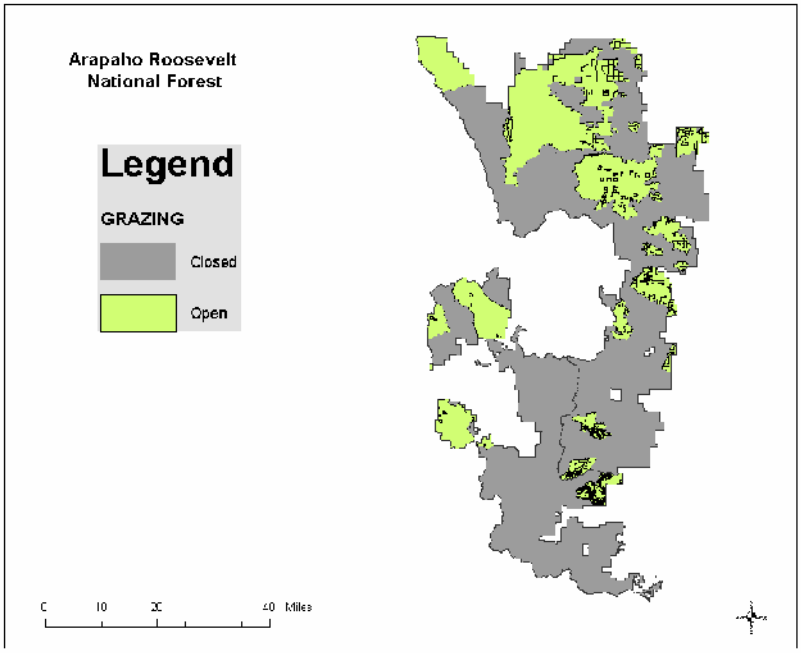
Because strategies can only address known factors, they are vulnerable to the many unexpected events, including budget changes, political factors, environmental changes, etc. There is also scientific uncertainty when dealing with forest or grassland ecosystems. Strategies can only guide Forest Service employees, not substitute for them.

"To manage the unexpected is to be reliably mindful, not reliably mindless. Obvious as that may sound, those who invest heavily in plans, standard operating procedures, protocols, recipes, and routines tend to invest more heavily in mindlessness than in mindfulness. A heavy investment in plans restricts sensing to expectations built into the plans and restricts responding to actions built into the existing repertoire. The result is a system that is less able to sense discrepancies, less able to update understanding and learn, and less able to recombine actions into new ways to handle the unexpected."

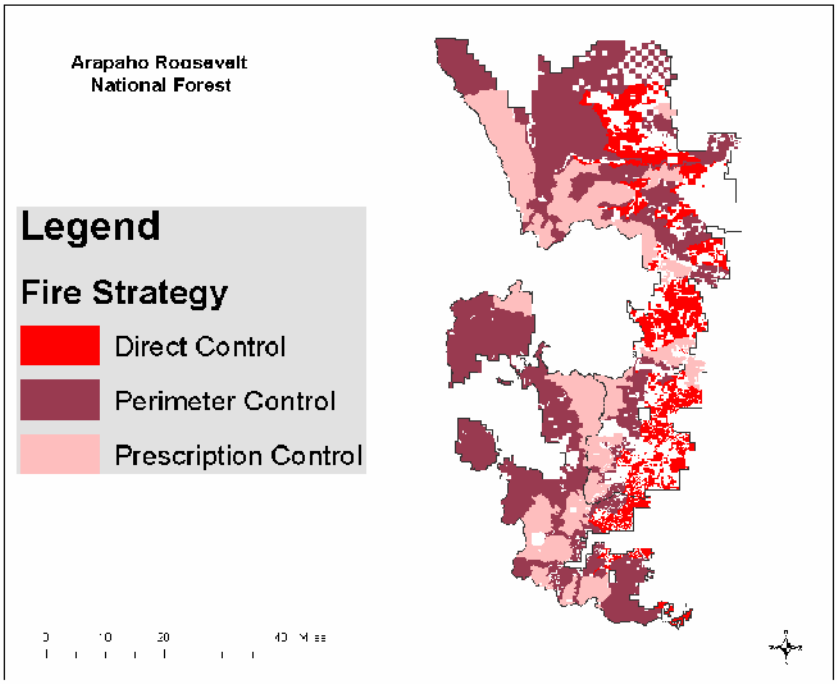
Karl Weick and Kathleen Sutcliffe—
Managing the Unexpected

The Strategy must be Achievable

The pattern of suitable uses must make sense on the land and minimize user conflicts.



Ensure that different uses and use strategies are compatible by overlaying them or otherwise checking for inconsistencies.



Within the strategy, the prospectus is an indication of the direction and rate of growth of your programs. It does not start from zero, but rather, assumes an ongoing Forest "enterprise" as a base.

This history influences (but does not dictate) future choices. Use your last three to five years' worth of performance data to establish the base.

The base and the Strategy provide a means to estimate levels of future activities.

Objectives and Activities	Units	2000	2001	2002	Future Estimate
Road and trail obliteration	Miles	31	40	57	40-60
Wildlife habitat investment	Acres	975	1785	2500	2200-2700
Fuels treatment	Acres	600	583	686	550-700
Trail construction and reconstruction	Miles	12.7	4.1	5.2	3-5
Timber offered for sale	MBF	3033	2500	2107	2000-2500
Land boundaries maintained	Miles	15.8	13	8.5	10-15
Land ownership adjustments	Acres	0	1322	1053	500-1000
System road construction	Miles	3.3	3.9	2.4	2-4

Objectives in the prospective should be prioritized in the order we hope to achieve them. They should be measurable and subject to cost analysis.

- Reduce the risk from catastrophic wildland fire
- Improve watershed function
- Provide outdoor recreation opportunities
- Reduce the impacts from invasive species

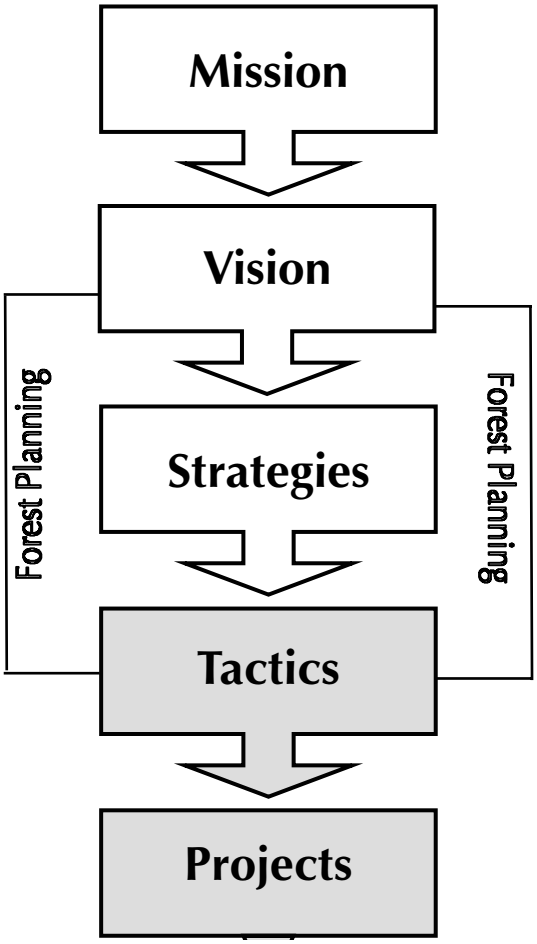
Part Three—
Building the Design Criteria

Key Considerations:

- Appropriate use of science
- Determining what is essential

"Always design a thing by considering it in its next larger context—a chair in a room, a room in a house, a house in an environment, an environment in a city plan."

-Eliel Saarinen,
"Time", July 2, 1956



To develop effective design criteria, you must focus your thinking at the tactics and projects level of the overall planning model.

True Design Criteria are the technical and scientific specifications that must be met to create an acceptable project. They are analogous to building codes in providing the minimum requirements that are needed to protect resources and ensure fulfillment of plan outcomes.

Screening Design Criteria

Often, development of Design Criteria for a Forest Plan is a process of screening existing scientific and technical criteria, rather than writing new criteria.

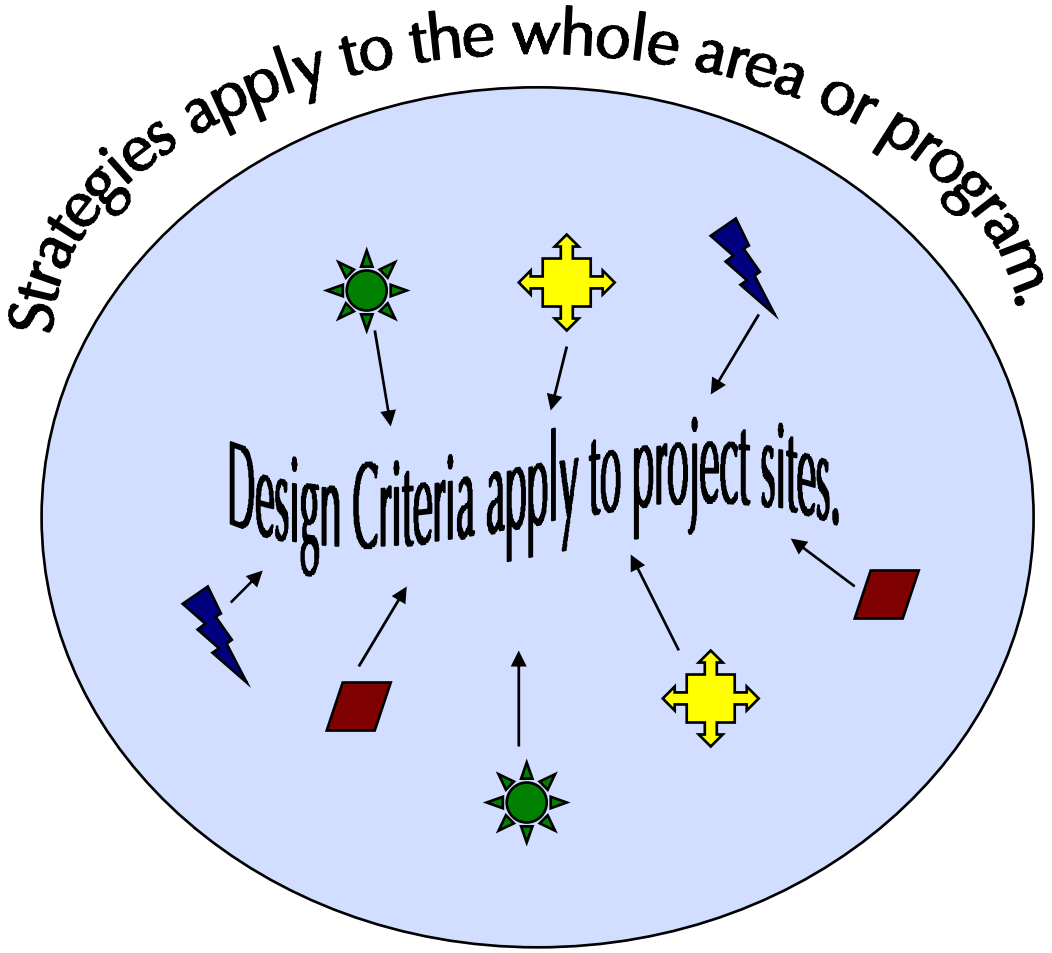
The screening process should focus on the question of what is essential to meet legal requirements and to guide the strategy in moving toward desired conditions.

Design criteria can be developed using "prepackaged" direction developed from other plans, regionwide guidebooks, or broad-scale assessments. Before adopting them, find out if they have been applied anywhere, how easily they were implemented, how much they cost, and whether they were effective.

The Difference between Changing a Strategy or Changing Design Criteria

Needed protection measures can be established either in the Strategy or the Design Criteria. Protection measures in a Strategy are programmatic measures to actively pursue an outcome or to provide general direction for the program. An example might be to limit timber harvest to 25 percent of any drainage.

Protection measures, which are Design Criteria, are guidance to projects once they are proposed. An example might be to limit types of precommercial thinning within a project area.



An Analysis of Causes and Effects can Aid in the Development of Design Criteria

Review potential activities and projects to identify their "aspects" which can cause significant environmental effects.

Cause:

Heavy recreation use on steep trails.

Effect:
Soil erosion.

Effect:
Sedimentation in a stream.

Concern:

Legal requirements. (Clean Water Act, Etc.)

Attainment of a desired condition.

Avoidance of undesirable effects.

Possible design criteria:

- Trails will be hardened if use is above 50 hikers per day on trails greater than 8 percent slope.

OR

- Design trails where use is above 50 hikers per day so that slopes are less than 8 percent.

OR

- Other variations proposed by public or scientific findings.

Selection of design criteria considering effectiveness, ease of implementation, cost, or other factors.

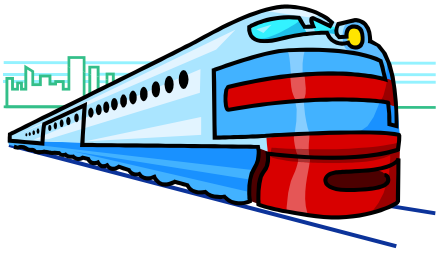
Final Thoughts:

A New Way to Think about the Forest Planning Process

Focus on vision instead of detail.

Three parts, with a planning process tailored to each part.

An adaptive approach with frequent updates.



An adaptive planning process is streamlined, focused, and rapid,
but constant attention and maintenance is required!

Website References

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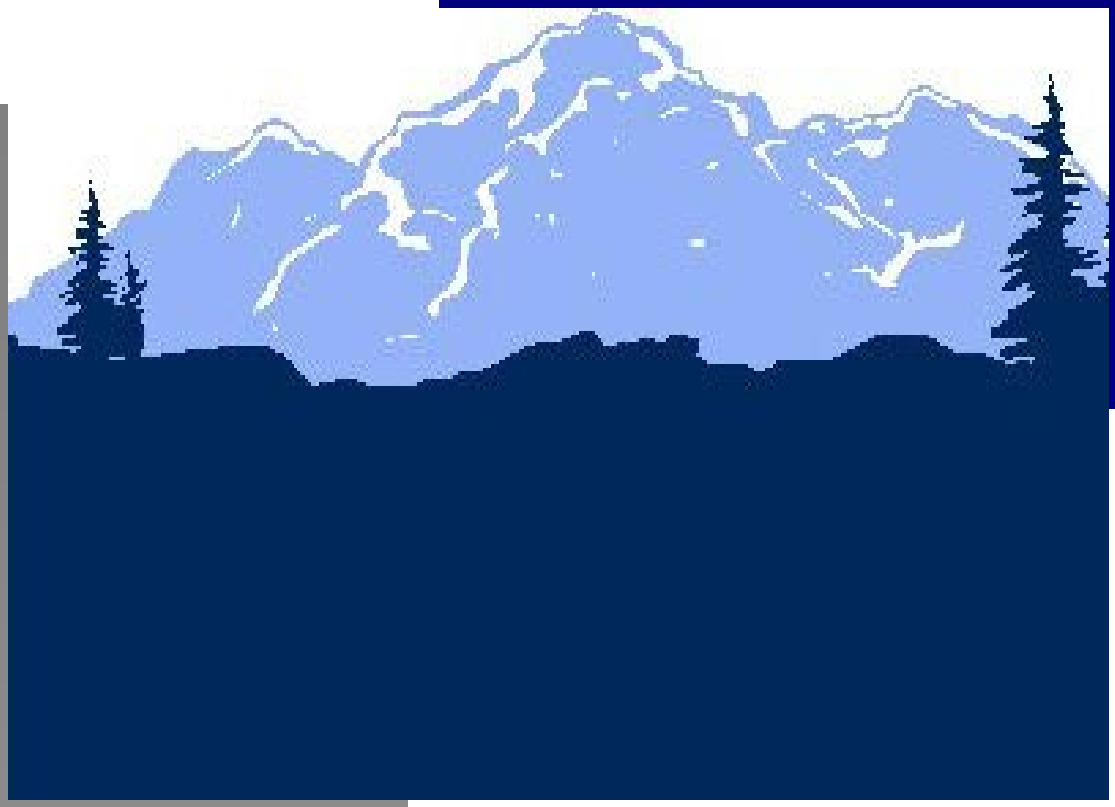

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