Part 600 – National Planning Procedures Handbook

Subpart C – NRCS Planning Process

600.20 Planning Steps

A. The conservation planning process consists of nine steps, divided into three phases, which cover development, implementation, and evaluation of a conservation plan. The planning process is not linear, but dynamic and iterative, and previously completed steps may be revisited and refined as more information is gathered and the process proceeds. Complete and proper documentation is critical at each step of the planning process. The three phases and nine steps are briefly explained below.

(1) Phase I – Collection and Analysis
  (i) Step 1 – Identify Problems and Opportunities.—Identify existing resource problems and concerns and potential opportunities in the planning area.
  (ii) Step 2 – Determine Objectives.—Identify and document the client's objectives.
  (iii) Step 3 – Inventory Resources.—Inventory and document the natural resources and their current onsite and offsite conditions and effects, as well as the economic and social considerations related to the resources.
  (iv) Step 4 – Analyze Resource Data.—Analyze the resource information gathered in Step 3, "Inventory Resources," to clearly define the existing natural resource conditions, along with economic and social issues related to the resources. Information from this step will help to further define and clarify problems, concerns, and opportunities.

(2) Phase II – Decision Support
  (i) Step 5 – Formulate Alternatives.—Formulate alternatives that will achieve the client's objectives, solve identified natural resource concerns, and take advantage of opportunities to improve or protect resource conditions, and demonstrate a variety of technical and economic implementation strategies.
  (ii) Step 6 – Evaluate Alternatives.—Evaluate the alternatives to determine their effects in addressing the client's objectives and the identified natural resource concerns and opportunities. Evaluate the projected effects on social, economic, and ecological concerns. Special attention must be given to those ecological values protected by law or Executive order.
  (iii) Step 7 – Make Decisions.—The client selects their preferred alternatives and works with the planner to schedule the conservation system and practice implementation.

(3) Phase III – Application and Evaluation
  (i) Step 8 – Implement the Plan.—The client implements the selected alternatives. The planner or technical expert provides the land manager with detailed practice implementation information, including engineered designs. Conservation staff will also provide practice layout, construction inspection, and certification. Each land manager directs the implementation of each practice. The planner provides encouragement to the client for continued implementation.
  (ii) Step 9 – Evaluate the Plan.—Evaluate the effectiveness of the plan in solving the resource concerns as it is implemented and work with the client to make adjustments as needed.

B. The next portion of the handbook describes the details for carrying out the nine steps of planning. Each step contains a planning standard, a list of inputs, and a list of products. The planning standard sets the minimum quality level for each step. The inputs provide sources of information to plug into

the process, while the products describe the outputs of each step. These lists are not all-inclusive; therefore, planners are encouraged to supplement them as needed.

C. A detailed description is included of "what" items occur during each planning step along with recommendations on "how" to accomplish the items.

600.21 Step 1 – Identify Problems and Opportunities

A. Description.—Onsite visits are required to identify existing, potential, and perceived natural resource problems, opportunities, and concerns in the planning area. This also provides the first opportunity to determine associated resource concerns and opportunities in interrelated planning areas. The identified problems and opportunities and the client objectives guide the remainder of the planning process and are the basis for the purpose and need for action that are documented on Form CPA-52, "Environmental Evaluation Worksheet." Initially, the client and planner may identify only one or two resource concerns. As planning progresses and additional information is gathered, other resource concerns and opportunities may be identified.

B. General.—Problem identification frequently begins the planning process and continues through the resource inventory and data analysis steps. Initial problems and opportunities are identified onsite based on readily available information and discussion with the client. The planner may have additional information available relating to natural resource needs based on information available from the conservation district or an areawide conservation plan. Generally, this step will not be finalized until the resource data are analyzed in Step 4, "Analyze Resource Data," although additional problems, opportunities, and concerns may be identified throughout the entire planning process. Some conservation alternatives may create additional indirect resource related issues and concerns that will need to be addressed by the planner and client.

Figure 600-C1: Conservationist and client discussing concerns and opportunities in the field

C. Planning Standard.—The client's resource problems, concerns, and opportunities are identified and documented.

D. Inputs

(1) Client information regarding their goals and objectives, description of their agricultural operations, etc.
(2) The planner's experience and knowledge of the area
(3) Planning and implementation information from other locally associated clients
(4) Conservation district long-range plan, annual plan, and priorities
(5) Locally led assessments
(6) Areawide conservation plans
(7) Information from other sources, such as State, Tribal, Territorial, and Federal agency; colleges and universities; or centers of research
(8) Resource data for the planning area and adjacent areas (soils, hydrography, hydrology, climate, land use and land cover, etc.)
(9) Discipline manuals and handbooks
(10) FOTG, Sections I, II, III, and V
(11) State resource assessments

E. Products

(1) Identification and documentation of problems, opportunities, and concerns in the case file; this becomes the basis for the statements of purpose and need in the Form CPA-52, "Environmental Evaluation Worksheet," and any required NEPA documents
(2) Communication with the client
(3) Assistance notes

F. Step 1: Identify Problems and Opportunities – Activities – Conservation Plan

WHAT	**HOW**
1. Complete an initial determination of the client's problems, opportunities, and concerns related to natural resources and human considerations and identify the planning area.	• Identify the clients associated with the planning area and their relationship to the business, land, and the planning process (decisionmaking, ownership, and business association). • Elicit initial information about the client's problems, opportunities, and concerns through email or other electronic contact, office or field visit, or phone conversation between the client and the NRCS. • Gain, and continue to refine, a good general awareness of the kinds of problems that occur within your field office area, as well as the surrounding area. • Utilize sections I and III of the FOTG and any existing locally led assessments, or areawide conservation plans, or similar plans to enhance your understanding of the area's resource issues and potential solutions.

2. Begin recording identified problems, opportunities, and concerns.	• Make a complete record of the client's problems, opportunities, and concerns associated with all natural resources. • Record and organize natural resource problems and opportunities into clear concise statements, using agency planning software and resource concern worksheets. • Document EE data per State, Tribal, Territorial, and Federal guidance (see section 600.71). • Document discussions between planner and client in assistance notes.
3. Discuss the process involved in conducting an inventory and evaluation of the resources.	• Describe to the client the onsite nature of the conservation planning process and the benefits of having the land owner, manager, or operator, who will make planning decisions, present for at least the initial field visit. • Agree to how access to the property will be granted to the planner and if the client always wants to be present. • Discuss any hunting, fishing, or other seasonal impacts to accessing the property.

600.22 Step 2 – Determine Objectives

A. Description.—Determining a client's planning objectives requires developing an understanding with the client of the desired future conditions for the planning area as compared to the existing conditions. This is the purpose for the client to take action. It includes the desired resource uses, resource problem reductions, onsite and offsite ecological protection, and production concerns. As resources are inventoried, their interactions are analyzed, and alternatives formulated, objectives may need to be reviewed and modified.

(1) There may be times when withdrawal of technical assistance becomes necessary.
   (i) Technical assistance may be withdrawn when a client's objectives will result in a negative effect on natural resources, onsite or offsite.
   (ii) Technical assistance may also be withdrawn if a client fails to comply with or will not agree to actions required to be taken by NRCS to comply with local, State, Tribal, Territorial, or Federal regulatory requirements.
(2) For additional information about withdrawing assistance, see Title 440, CPM, Part 525, Subpart A, Section 525.4.

B. General.—The purpose of this planning step is to determine the client's planning objectives, based on the client's needs and values regarding the use, treatment, and management of the planning area.

(1) Help the client think more broadly about the onsite and offsite problems and opportunities for natural resource protection or enhancement and to consider policy issues, such as State, Tribal, Territorial, and Federal laws or mandates.
(2) Assist the client in making informed decisions that result in the wise use and conservation of resources. Due to the dynamic nature of the planning process, objectives may not be finalized until later in the planning process.

Figure 600-C2: Client and conservationist discussing objectives

C. Planning Standard.—The client's objectives are clearly stated and documented.

D. Inputs

(1) Client input
(2) Conservation district long-range plan, annual plan, and priorities
(3) The need for action – the list of problems, opportunities, and concerns to be analyzed
(4) Records from previous planning efforts
(5) Resource data for the planning area and adjacent areas
  (i) Critical resource data (soils, hydrography, hydrology, climate, landuse/landcover, etc.)
  (ii) Additional resource information from partnering organizations
  (iii) FOTG, Sections I and II
(6) Documentation of public concerns from locally led assessments or areawide conservation plans, where they exist

E. Products

(1) A list of the client's objectives recorded in the case file
(2) Assistance notes

F. Step 2 – Determine Objectives, Activities, and Conservation Plan

WHAT	**HOW**
1. Reach agreement on the client's expectations for the planning effort.	• Identify the client's production and business goals for the operation. • Identify the client's desired future conditions for the planning area

WHAT	HOW
	as compared to existing conditions. • Identify the client's recognized or perceived resource problems, concerns, and opportunities. • Identify values the client holds regarding natural resource use and protection, and the client's desires for improving the quality of life. • Identify financial constraints and the client's willingness to accept risk.
2. Document the client's objectives.	• Record and document the client's objectives in terms of the above expectations. • Document discussions between planner and client in assistance notes. • Continue to document the client's objectives as they are better defined and understood, by the planner and client, throughout the planning process.
3. Determine whether the client's objectives are consistent with those of the conservation district and NRCS.	• Utilize the NRCS strategic plan, Chief's priorities, State resource assessment (SRA), district long-range plan, local work group priorities, and other local and State assessments to determine NRCS resource priorities. • If a particular planning area resides within a defined areawide conservation planning area, review the objectives of the larger plan. This activity provides an opportunity to determine if the client's objectives could be broadened to consider the larger area's objectives. • Explain NRCS priorities and targets to the client, so that it is understood why NRCS may need to withdraw assistance if the client's objectives result in a negative effect for other onsite or offsite resources. • Document EE data per State, Tribal, Territorial, and Federal guidance. See section 600.71.
4. Determine if NRCS has appropriate technology or resources.	• Assess the technology and resources needed for this planning effort and their availability from NRCS. • Identify an appropriate agency, group, or other entity to participate as a partner in the planning process, when NRCS does not possess the appropriate technology or resources.
5. Determine the need to continue the planning process.	• Review the stated objectives and available resources with the client and determine if the planning process will continue, be put on hold, or be discontinued.
6. Determine the next steps and	• Schedule a convenient time for the client to meet the planner in the

WHAT	HOW
a schedule to complete the planning process.	field to start resource inventory process. • Discuss with the client, the tasks that need to be accomplished and the timelines for completing the planning process.

600.23 Step 3 – Inventory Resources

A. Description.—Collect appropriate natural resource, economic, and social information about the planning area and related areas. Use this information to—

(1) Identify existing or potential resource concerns or opportunities.
(2) Further define known existing and potential resource concerns and opportunities.
(3) Clarify resource concerns.
(4) Formulate and evaluate alternatives.
(5) Gather pertinent information concerning the affected resources, the human considerations, and operation and management.

B. General.—The resource inventory is the identification of SWAPAE+H resources and special environmental concerns (SECs) that are present and are the basis of all planning efforts. This information furthers the understanding of the presence of the natural resources in the planning area. Planners will inventory all applicable resources (see section 600.75). The inventory will provide the planner the understanding of the existing natural resource conditions necessary to convey resource conditions to the client in a knowledgeable manner. Step 1, "Identify Problems and Opportunities," and Step 2, "Determine Objectives," are normally the planner's best guides to inventory needs and the degree of detail. Objectives relating to the client's enterprises, planned land uses, production, or economic returns provide guidance for the amount of detail needed and the extent of resource inventories.

Figure 600-C3: Conservationist collecting data in the field with client

C. Planning Philosophy – Inventory with the Client.—The basic concepts described require that the client fully participate in the entire planning step, if possible. It is a good practice for the planner to develop a personal goal regarding the client that can be expressed in terms of, "If I am working on your land, I want you with me." It is essential that clients understand their resources and the resource conditions. This is best accomplished in the field while resource conditions are being inventoried. Inventory resources activities:

(1) Assemble general inventory data and information about the planning area before the planning process begins. Information relating to ground water and surface water quality, cultural resources and historic properties, threatened and endangered species, laws and local ordinances, utility rights-of-way, buried utilities, and other ecological considerations are located in section II of the FOTG. The FOTG, Section II, and the certified soils data provide information relating to all land uses in terms of soil interpretations and ecological site descriptions.

(2) Review this information prior to meeting with the client. Be prepared to relate to resource questions and to raise the client's awareness of issues influencing the planning process. The planning process is an educational effort whereby the client and planner acquire additional knowledge regarding the client's enterprises and the resources, and share that knowledge. The inventory phase of planning is a critical part of that educational process.

(3) Different land uses normally require different inventory approaches, and the emphasis changes from one land use to another. For example, both cropland and grazed range require a strong emphasis on soils, but grazed range also requires a more detailed description of the plant community and the factors that affect it.

(4) Use a variety of technical worksheets to inventory specific land uses or modifiers and to assess resource concerns. At a minimum, screen for and assess the required resource concern for the landuse and those flagged as a client objective.

(5) Work together with the client, onsite, to develop a picture of existing conditions, trends, resource concerns, and opportunities. The description of existing conditions, known as the "benchmark condition," may include a description of current crops, farming practices, livestock type, and available equipment and technology. Also document any previously installed or implemented conservation practices that are maintained to NRCS standards and specifications, known as benchmark practices. The benchmark condition will be used in estimating the effects and identifying outcomes of conservation planning efforts.

(6) Though an initial inventory will be completed early in the planning process, be prepared to collect additional resource data during later stages of planning, particularly Step 4, "Analyze Resource Data," and Step 5, "Formulate Alternatives," to more completely refine the resource concerns and opportunities in the planning area, and effects of the alternatives.

(7) Consider all natural and human resources during the inventory process, regardless of complexity or land uses involved. Recognize that some resource concerns will require further assessment. Resource concerns are identified by comparing present conditions with the planning criteria established for the particular natural resource consideration.

(8) Gather sufficient information during the inventory phase to determine the status of the resources. The actual determination as to whether or not current conditions are acceptable is part of planning Step 4, "Analyze Resource Data."

(9) Review the pertinent local, State, Tribal, Territorial, and Federal programmatic and other statutory requirements that could have an effect on current or potential activities of the client. While it is ultimately the responsibility of the client to be aware of and comply with all pertinent Federal, State, Tribal, Territorial, and local laws and regulations, help the client in making conservation planning decisions by providing relevant information to the client. Begin to consider the client's ability and willingness to meet the financial obligations necessary to implement conservation systems.

(10) Obtain information needed to comply with NEPA and other environmental laws, (see Section 600.1, "References"), and to satisfy specific State, Tribal, Territorial, or Federal program requirements (e.g., State nonpoint source pollution abatement mandates).

(11) If not properly equipped to discuss a client's resources, it is best for the planner to admit that he or she "doesn't know," and offer to find out more and get back to the client with the needed information.

(12) Share natural resource and related information with the client. This opportunity must not be missed. In most cases, the landowner or client also has a great deal of knowledge about the planning unit to share with the planner. By involving the client in inventory activities, the planner can take advantage of the client's experience and knowledge to understand the resources more completely.

(13) When beginning planning Step 3, "Inventory Resources," take the opportunity to enhance the client's knowledge of natural resource conservation principles, utilizing the land unit or plant community. The natural environment is often the best-equipped classroom available to demonstrate effects of erosion, costs of overgrazing, or benefits of water management to the client. These concepts cannot be as effectively discussed or demonstrated in an office or kitchen as they can while looking at, measuring, digging, comparing, or evaluating the real thing.

(14) Utilize the inventory process to acquire the information and data necessary to assist the client in planning for the correct use of the resources. Use this opportunity to demonstrate your technical ability and earn the professional respect of the client. This will promote the client's confidence in your professional skills and lead to a higher quality of planning.

D. Planning Standard.—Sufficient data and information are gathered for analysis.

E. Inputs

(1) Knowledgeable land managers, past and present
(2) Stated objectives, and resource problems and opportunities identified
(3) Imagery
(4) Inventory tools and procedures, including discipline-specific manuals and procedural documentation (see subpart D, section 600.40)
(5) State, Tribal, Territorial, and Federal reports and evaluations (e.g., soil surveys, highly erodible land determinations, and census data).
(6) Areawide plans, including State resource assessments, rapid watershed assessments, and watershed plans.
(7) Previous resource inventories completed by NRCS or others
(8) Field observations and measurements
(9) FOTG resource references, soils information, planning criteria, and practice standards, sections I, II, III, and IV

F. Products

(1) Detailed resource inventories of the planning unit, as well as related offsite information
(2) Information on human considerations
(3) Identification of special environmental concerns, such as threatened and endangered species
(4) Identification of cultural resource and historic property and areas of potential impacts
(5) Planning land units, locations, determinations, and client-land relationships described
(6) Onsite soil investigation report prepared by the planner or the resource soil scientist
(7) Identification of infrastructure physical features, such as roads, houses, fences, power lines and other utilities, right of ways, and easements
(8) Identification of how the client manages resources, including kinds, amounts, and timing of management activities
(9) Benchmark data for the planning area, including benchmark practices
(10) Assistance notes for completing the inventory step.
(11) Receipts for service (upon request by client)

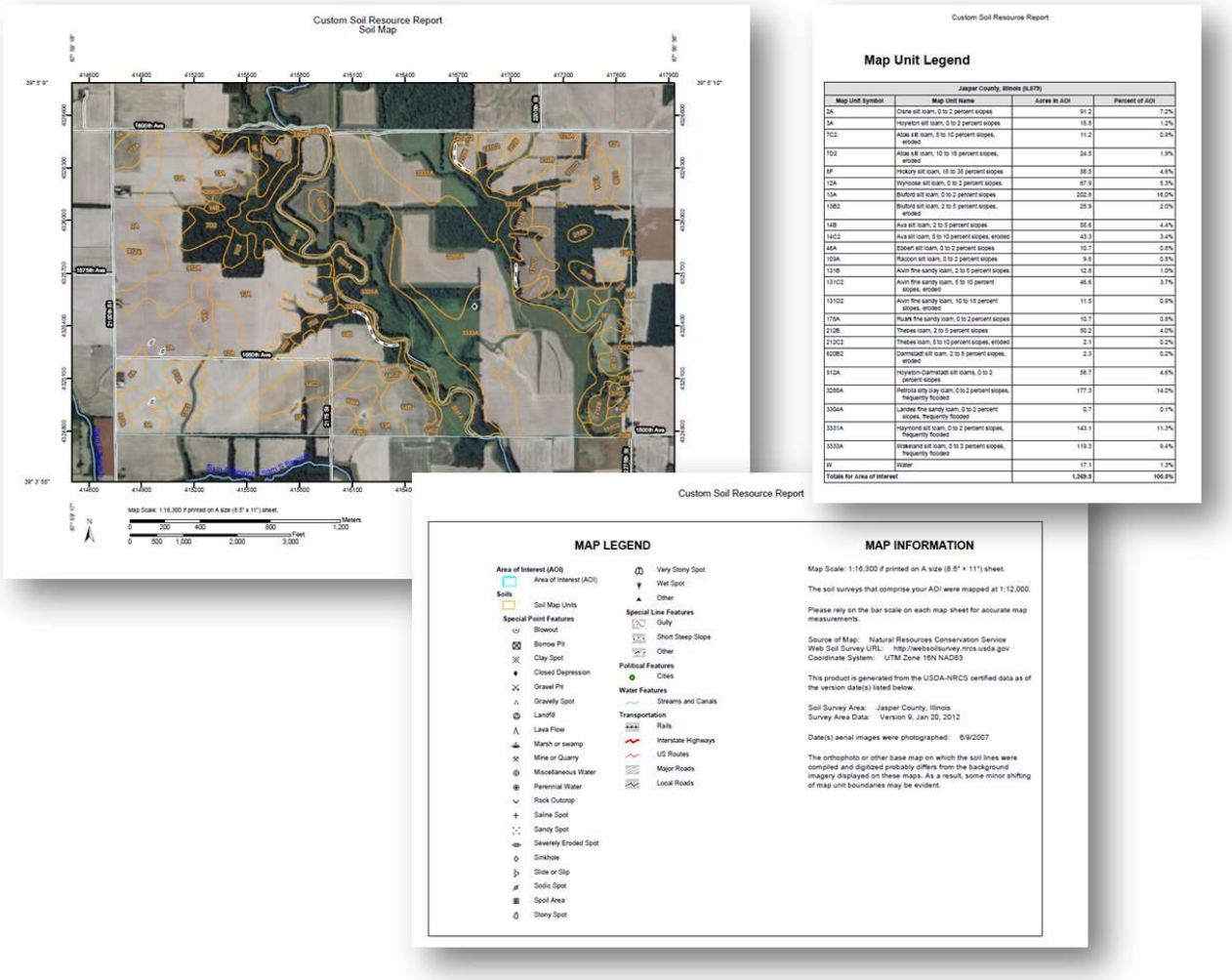

Figure 600-C4: Example of a resource inventory map with legends

G. Tools and Support Information

(1) Inventory Collection Tools and Procedures.—Each discipline has acceptable procedures and tools for conducting resource inventories. Many of these are described in detail in discipline manuals and handbooks, such as the National Agronomy Manual, National Biology Manual, National Forestry Manual, National Range and Pasture Handbook, the Stream Visual Assessment Protocol (SVAP2), and soil quality/health score card or test kit.

(2) GIS Tools and Resource Models.—GIS and resource models are valuable tools to assist the planner in assembling data and predicting resource conditions. The information gathered and documented during the inventory process can benefit the planner and client in analysis and evaluation of the resources.

(3) Reference and Support Materials.—Reference and support materials are essential tools for the planner. The FOTG is the basic support document for all NRCS technical assistance to land users.

(4) Natural Teaching Tools.—In addition to the more common, traditional tools listed above are those of perhaps the greatest importance, the "natural teaching tools." Planners need to know how best to use these tools to their advantage. This includes using the clients' existing

natural resources as teaching aids or tools to increase the client's understanding and knowledge of resource management needs and potentials. The best time to carry out this vital element of planning is while the resource inventory is being conducted.

(5) The planning criteria established by the States (FOTG, Section III) provide guidance as to the appropriate inventory or assessment method or combination of methods to use for each resource consideration. Some of these are shown in Figure 600-C6, "Inventory Methods," with brief notes describing the most common approaches to inventory methods, reference to guidance sources, and basic data that must be collected during the inventory process. Methods and terminology indicated are shown from an NRCS field perspective and do not imply that procedures, models, or methods used by other agencies or research institutions are not adequate. The information in this figure is not to be considered complete or definitive. It may vary between States. Methods listed in Figure 600-C6, "Inventory Methods," may be used in combination or separate. Some professional judgment must be exercised in determining which method or combination of methods shown will be most appropriate for the field conditions the planner is experiencing.

H. General Inventory and Assessment Methods

(1) Procedural
(2) Predictive
(3) Observation
(4) Deduction

I. Special Environment Concerns (SECs)

(1) Clean Air Act
(2) Clean Water Act and waters of the United States
(3) Coastal zone management areas
(4) Coral reefs
(5) Cultural resources and historic properties
(6) Endangered and threatened species
(7) Environmental justice
(8) Essential fish habitat
(9) Floodplain management
(10) Invasive species
(11) Migratory birds and the Bald and Golden Eagle Protection Act
(12) Prime and unique farmlands
(13) Riparian areas
(14) Wetlands
(15) Wild and scenic rivers

J. Step 3 – Inventory Resources, Activities, and Conservation Plan

WHAT	**HOW**
1. Establish the types of inventories and degree of detail needed in the inventory.	• Review the objectives developed in planning Step 2, "Determine Objectives," as they relate to land uses, production goals, problems, opportunities, and other concerns. • Select the appropriate inventories for each proposed land use, using the appropriate discipline handbooks for detailed guidance. • Tailor the level of inventory detail to the complexity of the resource setting and the identified problems, opportunities, and objectives.
2. Collect available information.	• Establish a list of potential resource concerns and opportunities by reviewing the conservation district long-range plan, other available plans and information, locally led assessments, any areawide conservation plans that exist, and appropriate FOTG, Section III, guidance documents. • Utilize the resources and expertise of others. • Identify factors that could hinder plan development and implementation, such as the client's financial constraints, managerial skill levels, or commitment. • Develop a list of State, Tribal, Territorial, and Federal mandates that currently affect or could affect existing operations. The FOTG, Section I, can be used to help develop the list. • Use available and applicable soil survey information and other resource data.
3. Maintain good communications between the client and the planner through the resource inventory process.	• Discuss the purpose and importance of the inventory process with the client. • Emphasize to the client the importance of their knowledge of the planning area and associated resources. Emphasize that their input is essential. • Explain what will be done during the inventory process and why. • Estimate how much time is required to carry out the field inventories. • Always obtain permission from the client before conducting onsite visits.

WHAT	HOW
4. Conduct the inventory onsite. Include the client in the field inventory activities.	• Familiarize yourself with the resource inventory methods described in Figure 600-C6, "Inventory Methods." • Follow inventory procedures as described in appropriate discipline handbooks and manuals. • Use procedures and guidelines available for specific resource inventories, such as the Water Quality Indicators Guide and other assessment tools listed in the FOTG, Section I. • Collect the information necessary to describe the benchmark condition (e.g., resources; kinds, amounts, and timing of operations and activities) and document. • Document EE data per State, Tribal, Territorial and Federal guidance. See section 600.71. • Determine the effectiveness of existing management measures and practices in addressing resource concerns.
5. Use natural resources as teaching aids while in the field with the client.	• Encourage the client to experience "hands-on" participation in the inventory process by helping with data collection. This provides an opportunity for the client to learn conservation principles. • Encourage the client to conduct actual measurements, such as clipping vegetation, checking soil conditions, boring trees, and recording information.

WHAT	HOW
6. Record the resource inventory data to facilitate analysis in Step 4, "Analyze Resource Data."	• Identify the client's planning land units. • Review, and update as necessary, planning land units with key information, including current land use. • Update information on the relationships of the clients to planning land units determined in planning Step 1, "Identify Problems and Opportunities," and Step 2, "Determine Objectives." • Record utilities, easements, legal constraints, and determinations. • Review soils information for each planning land unit. • Document the existing conservation practices found, using the standardized NRCS practice symbols. Include both those that do and do not meet NRCS standards, as appropriate, to facilitate the current planning effort. Include estimates of quantities and the approximate implementation date, if known. • Record benchmark data, including— o Current crop rotation data. o Pasture inventory. o Range inventory. o Forest management inventory. o Developed land inventory. o Associated land inventory. o Cultural resource and historic property inventory. • Document natural resource information on the appropriate technical worksheet. • Document discussion between planner and client in assistance notes.

600.24 Step 4 – Analyze Resource Data

A. Description.—Study the resource data and clearly define the existing natural resource conditions, including any limitations to their use and potentials. This step provides the information needed to determine resource concerns to be addressed and formulate alternatives. The analyses clearly establish the cause-and-effect relationships and provide information about existing and future conditions.

B. General.—To use the information gathered during the inventory process to full advantage, the planner must interpret the inventory data. Analysis is done to provide insight into natural resource information for the planner and to present that information in a meaningful and understandable form to the client. The format in which information is presented to the client has a significant influence on the decisionmaking process.

(1) For some resources, analysis methods are well established. They are described in corresponding discipline handbooks and manuals. The FOTG, Section I, provides a list of technical references that relate to natural resource analysis. Approved automated analysis tools and reports generated can provide the planner and client with basic inventory analysis information.

(2) Often each of the first four steps, "Identifying Problems and Opportunities," "Determining Objectives," "Inventorying Resources," and "Analyzing Resource Data," are very closely associated and occur concurrently and iteratively, before a complete analysis of resource concerns is accomplished. While resource concerns and opportunities initially identified by the client and planner during Step 1, "Identify Problems and Opportunities," result in collecting and analyzing certain data, other resource concerns and opportunities may come to light during the inventory and analysis steps.

(3) At this point in the planning process, there must be agreement between the planner and the client on resource concerns, opportunities, and objectives. It may also be discovered that perceived problems are not resource concerns when compared to planning criteria. Upon completion of this planning step, the planning process moves into phase II. If other issues are identified, the planner may need to return to previous planning steps.

Figure 600-C5: Client and conservationist viewing data from laptop in the field.

C. Planning Standard.—The benchmark condition is documented by describing the current condition, crops, soils, existing conservation practices, and identified resource concerns in a benchmark narrative. The causes of the resource concerns are identified.

D. Inputs

(1) Client's objectives
(2) Identified problems, opportunities, and concerns
(3) Resource inventory data
(4) FOTG, Sections I, II, III and V
(5) Results from various resource evaluation tools (e.g., RUSLE2, WEPS, etc.)

E. Products

(1) An analysis of all resources inventoried
(2) A clear statement of the benchmark condition (benchmark narrative)
(3) Environmental evaluation data to meet NEPA requirements
(4) Cultural resource and historic property evaluation data
(5) Endangered Species Act (ESA) resources evaluation data
(6) Other program and legal evaluation data
(7) A complete definition of resource concerns and opportunities identified
(8) Identification of the causes or conditions that contribute to the resource concerns
(9) A complete statement of objectives
(10) Assistance notes

F. Step 4 – Analyze Resource Data Activities – Conservation Plan

WHAT	HOW
1. Determine the method of analyses to be completed.	• Determine the types of analyses to be completed by reviewing the client's objectives, resource concerns, SECs, land and resource uses, and the location of the planning area. • Identify the resource considerations and determine the best method of calculating resource effects and outcomes. For example, use soil capability data, ecological site descriptions, and vegetative production information to determine land carrying capacity to assist the producer in establishing initial stocking rates or use applicable models to evaluate water quality (see FOTG, Section I). • Ask an appropriate agency, group, or entity for assistance after obtaining the decision-maker's permission, in instances where the kind or extent of resource problems exceeds the expertise or resources available.
2. Establish scope, intensity, degree of accuracy, and procedures to be used, utilizing discipline specialists as needed.	• Review the findings of the cultural resource/historic property inventory. • Recognize cause and effect relationships between planning areas. • Identify resource stressors, which are either natural or human-induced actions or events that cause changes in the existing condition of an ecological system. • Use examples, pictures, and visits to similar planning units to help the client develop an understanding of conservation principles and options available to solve the stated resource concerns. Interpretive information from the FOTG, Section III, can aid in defining the elements listed above.
3. Conduct the analysis.	• Use procedures in appropriate discipline handbooks or manuals and automated analysis tools (e.g., RUSLE2, WEPS, etc.). See Figure 600-C6, "Inventory Methods."
4. Compare the results of the analysis with planning criteria, problems, opportunities, and objectives.	• Compare the results of the analysis with the planning criteria in the FOTG, Section III, and with the problems, opportunities, and objectives determined in planning Step 1, "Identify Problems and Opportunities," and Step 2, "Determine Objectives." • Use the inventory data that were collected, based on client objectives, to determine the kind, amount, and extent of existing and potential resource concerns.

WHAT	HOW
5. Describe and record the benchmark condition	• Describe and record the benchmark condition, including existing practices, identified resource concerns, human resources, and special environmental concerns. Include the kind, amount, and location. Quantities are shown in standard units (e.g., tons per acre per year, parts per volume of water, yield per acre, etc.). • Document EE data per State, Tribal, Territorial, and Federal guidance. See section 600.71. • Document discussion between planner and client in assistance notes.
6. Produce resource maps and reports.	• Display the resource information on maps, showing the location and the extent of the condition.

Figure 600-C6: Inventory Methods

Note: Methods and terminology indicated are shown from an NRCS field perspective and do not imply that procedures, models, or methods used by other agencies or research institutions are not adequate. The information in this figure is not to be considered complete or definitive. States are encouraged to make adjustments to this information to meet local needs.

SOIL

Resource Consideration or Concern	Measurement and Assessment Tools
Soil Erosion	
Sheet & Rill, Wind	Predictive (RUSLE2, WEPS) Procedural (RHA) Observation
Concentrated Flow	Observation
Streambank, Shoreline, Conveyance Channels	Procedural (SVAP2) Observation
Soil Quality/Health Degradation	**Measurement and Assessment Tools**
Subsidence	Observation Deduction
Compaction	Procedural (PCS, RHA) Observation Deduction
Organic Matter Depletion	Procedural (PCS, RHA) Predictive (RUSLE2) Observation Deduction

Resource Consideration or Concern	Measurement and Assessment Tools
Concentration of Salts or Other Chemicals	Observation Deduction

WATER

Resource Consideration or Concern	Measurement and Assessment Tools
Excess Water	
Seeps, Runoff, Flooding, or Ponding	Observation Deduction
Insufficient Water	
Inefficient Moisture Management	Procedural (RHA) Observation Deduction
Inefficient Use of Irrigation Water	Procedural (IWI)
Water Quality Degradation	
Nutrients	Procedural (PCS) Deduction Leaching Index Phosphorus Index Water Quality Index
Pesticides	Predictive (WinPST) Deduction
Excess Pathogens and Chemicals From Manure, Bio-solids, or Compost Applications	Observation Deduction
Salts	Observation Deduction Soil Test
Petroleum, Heavy Metals, and Other Pollutants	Observation Deduction
Sediment	Procedural (RUSLE2, WEPS, PCS, RHA, SVAP2)) Observation Deduction
Elevated Water Temperature	Procedural (SVAP2) Observation Deduction

AIR

Resource Consideration or Concern	Measurement and Assessment Tools
Air Quality Impacts	

Resource Consideration or Concern	Measurement and Assessment Tools
Emissions of Particulate Matter (PM) and PM Precursors	Predictive (WEPS) Observation Deduction
Emissions of Ozone Precursors	Observation Deduction
Emissions of Greenhouse Gases	Observation Deduction
Objectionable Odors	Observation Deduction

PLANTS

Resource Consideration or Concern	Measurement and Assessment Tools
Degraded Plant Condition	
Undesirable Plant Productivity and Health	Procedural (WEPS) Deduction
Inadequate Structure and Composition	Procedural (RHA) Observation Deduction
Excessive Plant Pest Pressure	Procedural (PCS) Observation Deduction
Wildfire Hazard, Excessive Biomass Accumulation	Observation Deduction

ANIMALS

Resource Consideration or Concern	Measurement and Assessment Tools
Fish and Wildlife - Inadequate Habitat	
Food, Cover/Shelter, Water, Space Continuity	Procedural (WHEG, WHSI, SVAP2) Observation Deduction
Livestock Production Limitation	
Inadequate Feed and Forage	Procedural (GRAS) Observation Deduction
Inadequate Shelter	Procedural (GRAS) Observation Deduction
Inadequate Water	Procedural (GRAS) Observation

Resource Consideration or Concern	Measurement and Assessment Tools
	Deduction

ENERGY

Inefficient Energy Use	
Equipment and Facilities	Predictive (Online Energy Tools) Observation Deduction
Farming/Ranching Practices and Field Operations	Predictive (RUSLE2, Online Energy Tools) Observation Deduction

ECONOMIC

Resource Consideration or Concern	Measurement and Assessment Tools
Land	
Land Use, Land Available for Production, Farm Program Eligibility (base)	Observation Deduction
Capital	
Total Investment, Annual Cost ,Cost Per Unit of Production	Observation Deduction
Labor	Observation Deduction
Management	Observation Deduction
Risk	Observation Deduction
Profitability	Observation Deduction

SOCIAL

Resource Consideration or Concern	Measurement and Assessment Tools
Cultural Resources and Historic Property	Procedural Predictive Observation Deduction
Client Characteristics	

Resource Consideration or Concern	**Measurement and Assessment Tools**
Education, Health, Family Values, Attitudes	Observation Deduction
Community Characteristics	
Recreational Opportunities, Cultural Opportunities (theater, music, shopping, civic organizations, higher education, etc.), Crime, Community Health	Observation Deduction

600.25 Step 5 – Formulate Alternatives

A. Description.—Develop alternatives that will achieve the objectives of the client, solve the identified resource concerns, take advantage of opportunities, and prevent or lessen the possibility of additional problems occurring.

(1) A broad range of technically feasible alternatives will be developed with the client. Alternatives may include an appropriate mix of structural conservation practices, such as terraces, dams, and waterways; nonstructural conservation practices, such as crop residue management, or livestock exclusion; market-based measures, such as cost-sharing, easements, and local tax incentives; and institutional measures, such as zoning or local regulations, and State, Tribal, Territorial, and Federal laws and regulations.

(2) Some conservation practices are primary, resulting in treatment of the identified resource concerns. Others are supporting – they facilitate a primary conservation practice and may not have a direct effect on the identified resource concern (however, they must meet the primary practice standard and achieve the desired treatment). An example of a primary conservation practice is a terrace. When needed for the terrace to function effectively, an underground outlet is an example of a supporting practice that facilitates a primary practice. Because the primary practice will not function properly without the supporting practice or practices, the primary conservation practice will not be certified as complete until all supporting practices are installed.

(3) When developing alternatives, include conservation practices and management measures that mitigate potential adverse effects on the resources. Consider the potential to address regulatory requirements, based on the client's desires and objectives.

Figure 600-C7: Client and conservationist discussing resource data in the field.

B. General.—This planning step begins phase II of the planning process. Revisit earlier steps if new objectives or resource concerns are identified. The purpose of formulating alternatives is to provide a variety of effective, efficient, and economical conservation treatments that meet planning criteria and are acceptable to the client in solving resource concerns, addressing opportunities, and meeting the stated objectives. These alternatives relate to the identified problems, opportunities, and resource concerns, and are developed in view of the cultural, social, ecological, and economic conditions of the planning area.

(1) Include the client in the formulation of alternatives. This enhances practical alternative formulation, improves decisionmaking, and enhances the chances of successful implementation. It also helps ensure that low initial cost measures are developed in limited resource situations where cost is a critical issue.
(2) Develop enough alternatives to provide the client with the opportunity to consider several possibilities. If incorrect or insufficient data has been assembled for formulating alternatives, the planner needs to return to planning Step 3, "Inventory Resources," and Step 4, "Analyze Resource Data," before proceeding.
(3) The planner and the client must have a clear understanding of the resource concerns, including their cause and effect relationships. If the resource concerns and their cause and effect relationships are not clearly understood by the client, return to planning Step 4, "Analyze Resource Data," and review these concerns with the client.

C. Planning Standard.—Alternative treatments are developed to meet the resource needs, objectives of the client, and planning criteria for the identified resource concern.

(1) One or more action alternatives will be developed, included in the case file, and presented to the client.

(2) Conservation planning is conducted with the client, working progressively towards an RMS level of management.

D. Inputs

(1) List of resource problems, opportunities, and concerns from Step 1, "Identify Problems and Opportunities"
(2) The client's objectives from Step 2, "Determining Objectives"
(3) Physical, cultural resource and historic property, social, economic, and ecological information pertaining to the planning area and related areas
(4) Resource data and analysis from Step 3, "Inventory Resources," and Step 4, "Analyze Resource Data"
(5) FOTG, Sections II, III, IV, and V

E. Products

(1) A set of alternatives that are compatible with client and NRCS objectives and address the identified resource concerns
(2) Assistance notes

F. Step 5 – Formulate Alternatives Activities – Conservation Plan

WHAT	**HOW**
1. Build the conservation system alternatives.	• Become familiar with resource concerns identified in Step 3, "Inventory Resources," and Step 4, "Analyze Resource Data," and the types of systems commonly used to address those concerns. • Solicit assistance from technical specialists at NRCS or other agencies and organizations if the complexity of resource issues or specific responsibility for certain resource issues requires their input. • Include all requirements to comply with existing laws and special environmental concerns. • Designate the proposed primary land use for each alternative in terms of both the client's and NRCS's designation. • Select the potential practices to meet the client's specific needs and address the identified resource concerns. Take into account existing practices or management measures that do not currently meet NRCS standards. • List the practices and estimated planned amounts for each necessary to meet the planned level of treatment. • Create additional alternatives to provide the client with multiple feasible approaches to address their objectives and identified resource concerns. • Document EE data per State, Tribal, Territorial, and Federal guidance. See section 600.71. • Enter assistance notes, as appropriate, to capture discussions between the client and planner during the development of

WHAT	HOW
	alternatives.

600.26 Step 6 – Evaluate Alternatives

A. Description.—Evaluate the alternatives to determine their effectiveness in addressing the client's identified resource concerns, opportunities, and objectives. Attention must be given to those ecological values protected by law or Executive order. See Section 600.1, "References."

B. General.—The purpose of evaluating alternatives is to provide the client with the information needed to select the desired alternative. This provides the client further opportunity to be involved in the planning process and maximizes the likelihood of full implementation, including proper operation and maintenance. During the evaluation of alternatives, careful consideration must be given to social, economic, and ecological resource factors that influence planning and decisionmaking. The planner may need to revisit any or all of the previous steps during discussions with the client or during any part of the evaluation.

Figure 600-C8: Conservationists and client evaluating forage in pasture.

C. Environmental Evaluation.—Federal law requires NRCS planners to consider the environmental consequences of recommended actions and to provide decisionmakers information about the actions that might significantly affect the human environment. Therefore, planners must assess the physical effects of planned actions during the planning process. Planning to address issues with the natural resources and their interrelationships is complex. A conservation practice with a positive effect on one resource may have a negative effect on another. Therefore, planners must be aware of and consider the effects of recommended actions on all resources even when the assistance provided only addresses individual resource concerns.

D. Purpose.—This guidance emphasizes the reality that resources are interrelated and that the treatment of one resource may affect another. It also shows the importance of formulating alternative conservation systems in recognition of these interrelationships by providing a process that—

(1) Starts with identified client objectives and the determination of resource concerns.
(2) Considers the effects of practices on each resource.
(3) Facilitates combining complementary practices in the alternative systems.
(4) Helps evaluate the potential options against the planning criteria.
(5) Provides a scientific and economic basis for decisions.

E. Conservation Effects.—The conservation effects process is useful in formulating and evaluating conservation system alternatives. Using the CPPE matrix and the Conservation Practice Network Diagrams helps planners communicate with decisionmakers the physical effects of conservation practices, so they can determine if proposed alternative systems solve identified resource concerns, while being reasonably certain that the recommended treatment will not create new problems. See section 600.72.

F. Network Diagrams.—Network diagrams, found in the National Handbook of Conservation Practices, are flow charts that represent an overview of expert consensus on the direct, indirect, and cumulative effects of installing proposed practices. Network Diagrams show the potential positive and negative outcomes of practice installation and are useful as a reference point for evaluating the effects of alternative systems.

G. Conservation Practice Physical Effects (CPPE).—The CPPE documents, found in the FOTG, Section V, and the National Handbook of Conservation Practices, display in subjective terms the physical effects conservation practices have on the natural resources and their associated problems or concerns. See also Subpart E, 600.40, "Support Guidance for Conservation Effects." Technical specialists document in the CPPE the practice effects based on their experience and available technical information. See 450-GM, Part 401, Subpart A, Section 401.1A(5), for additional information.

(1) When creating the CPPE, the question is presented, "When this practice is installed in accordance with NRCS practice standards and is fully functional, what effect will it have on the various resource concerns?" The answer is in the form of a rating that represents the practice's effect on the resource concern, and the magnitude of the effect.

(i) The following terms define "effect" values:

- No Effect.—The conservation practice being evaluated has no discernible effect on the resource concern identified.
- Worsening.—The conservation practice further deteriorates the condition of the resource
- Improvement.—The conservation practice improves the condition of the resource

(ii) The following terms express the magnitude of the effects:

- Slight.—Some effect (positive or negative) of the practice on the resource, but not enough to influence the decision to select the practice to solve the problem.
- Moderate.—A measurable effect (positive or negative) of the practice on the resource.
- Substantial.—A significant measurable effect (positive or negative) of the practice on the resource.

(2) National technical specialists with responsibility for a given practice establish CPPE values for each conservation practice. The effects listed in the national CPPE represent general conditions nationwide.

Example: The national agronomist determines that generally, the implementation of Residue and Tillage Management, No Till/Strip Till/Direct Seed (329) will significantly reduce the sheet and rill erosion problem because of increased surface cover and decreased soil disturbance. Therefore, a value is entered as "Substantial Improvement" to the Soil Erosion – Sheet and Rill Erosion resource concern. However, the implementation of 329 may cause a slight increase in soluble nitrate nitrogen infiltration depending on the time and method of application, rainfall, nutrient form, organic matter, soil texture, and depth to water table, and therefore a value is entered as "Moderate Worsening" to the Water Quality Degradation – Nutrients in Groundwater resource concern.

(3) Since data on the CPPE are national in scope, State-level offices are encouraged to review and localize the information as necessary to reflect those effects expected to occur under local conditions. Each State will review and, if needed, edit the values in the national CPPE based on local knowledge and experience to reflect typical conditions in their State. It is imperative that States use an interdisciplinary group to refine existing entries to ensure proper consideration of all effects to all of the resource concerns.

(4) If a State modifies the national CPPE, the State will provide a description of the local conditions and a depiction of the typical practice installation to justify the change. A well-written description of the typical practice installation will aid the planner when it comes time to conduct site-specific analysis.

Example: The national agronomist determined that, in general, the implementation of Residue Management, Seasonal (344) results in a "Slight to Moderate Reduction" in the Soil Erosion – Wind problem. However, a State agronomist observes that with the implementation of Residue Management, Seasonal (344) the reduction of wind erosion is significant because the critical wind erosion period occurs when the soil is covered with residue or crop. The State agronomist will change the value to "Substantial Improvement" in the Soil Erosion – Wind resource concern, with a rationale statement as to why the practice has been deemed to have a "Significant" rather than a "Slight to Moderate" reduction in the wind erosion resource concern.

H. SmarTech Version of CPPE

(1) A spreadsheet version of the CPPE displaying the effects values in a numerical format is stored in the SmarTech database accessible through the FOTG, Section V, or through the "Technology" tab of the My.NRCS intranet site. Various programs and databases rely on this rendering of the effects data. See 450-GM, Part 401, Subpart A, Section 401.7, for additional information.

(2) The following conversion establishes the national values in the SmarTech CPPE matrix:

(i) Substantial Improvement	+5
(ii) Moderate to Substantial Improvement	+4
(iii) Moderate Improvement	+3
(iv) Slight to Moderate Improvement	+2
(v) Slight Improvement	+1
(vi) No Effect	0
(vii) Slight Worsening	-1
(viii) Slight to Moderate Worsening	-2
(ix) Moderate Worsening	-3

(x) Moderate to Substantial Worsening -4
(xi) Substantial Worsening -5

I. Use the Effects Concept and CPPE in Conservation Planning

(1) After planners formulate an alternative conservation system, they use their State's CPPE and the Conservation Practice Network Diagrams as guides to refine the evaluation of effects of practices to reflect the site-specific environmental conditions and practice design. (See Exhibit 3)

(2) Planners also use the CPPE and Network Diagrams to identify potential negative effects on resources that may result from the implementation of practices. If the CPPE indicated the potential for a negative effect or, if through experience, planners discern that a practice may result in a negative effect, planners may need to add one or more additional practices to the system in order to mitigate for predictable degradation of resources. In such situations, planners will add these newly selected practices to the alternative system and once again evaluate the site-specific practice effects on the identified resource concerns. Planners will repeat this process until they develop a combination of practices that—
(i) Meets the client's objectives.
(ii) Meets the planning criteria for the identified resource concerns.
(iii) Has mitigated all negative effects.

(3) When a client considers a land use change as an option, the planner will evaluate the effects of practices used to facilitate the land use change against present conditions. The planner will evaluate the effects of practices necessary to manage the new land use based on the new land use.

Example: Where cropland is to be converted to pasture, initially evaluate the effects of pasture planting for the resource concerns identified on the crop field. Pasture planting will significantly reduce sheet and rill erosion that occurs with the existing cropping system. Then, evaluate the potential resource concerns that may occur after conversion to pasture. Pasture grazing may cause a water quality concern indicating the need for filter strips and fencing.

(4) Displaying the positive and negative effects of alternative conservation systems allows the decisionmaker to compare the various alternatives and better understand the benefits of all their options so they can select the one that best meets their objectives.

Example: Alternative #1 is very effective in treating soil related resource concerns and is not quite as effective in treating one or more of the other resources. In contrast, alternative #2 is very effective in treating the water and animal resources and not quite as effective in treating the soil resource concerns.

(5) Site-specific evaluations of the effects of conservation system alternatives are required.

J. Cumulative Effects.—When clients apply systems that address the same resource concern to several PLUs in a watershed, significant cumulative or synergistic effects are probable. Planners may consult the Conservation Practice Network Diagrams as they consider the outcomes of treatment applied to surrounding land when conducting effects evaluations. The CPPE does not reflect the potential of cumulative effects.

Example: The evaluation of effects of a conservation system treating a single PLU may indicate a slight improvement to the concern over sediment in surface waters. However, in a watershed consisting of several PLUs treated to reduce sediment delivery to a water body, an evaluation of the cumulative effect may indicate a moderate or significant positive reduction in the amount of sediment reaching the water body.

K. Planning Standard.—The effects of each alternative are evaluated and the results are described. The alternatives are compared to benchmark conditions to evaluate their ability to solve problems, meet planning criteria, and meet the client's objectives. The analysis includes evaluation of the direct, indirect, and cumulative effects.

L. Inputs

(1) List of problems and opportunities developed during Step 1, "Identify Problems and Opportunities"
(2) The client's objectives from Step 2, "Determine Objectives"
(3) Benchmark data from Step 4, "Analyze Resource Data"
(4) List of alternatives from Step 5, "Formulate Alternatives"
(5) FOTG, Sections I, II, III, IV, and V
(6) National Handbook of Conservation Practices – Network Diagrams
(7) Environmental and cultural resource and historic property evaluations
(8) Program information and requirements

M. Products

(1) An evaluation for each alternative that displays the effects (including the rationale supporting the effects determination) for the client to consider and use as a basis for decisionmaking for the conservation plan
(2) Technical assistance notes reflecting discussions between the planner and the client
(3) Cost estimate for each alternative
(4) List of applicable financial assistance programs

N. Step 6 – Evaluate Alternatives Activities – Conservation Plan

WHAT	**HOW**
1. Determine the effects of each alternative.	• Compare the effects of each alternative to the benchmark condition to estimate expected outcomes and determine the degree to which the client's resource objectives will be met by the implementation of each alternative. • Express effects in narrative terms or quantify in physical terms (e.g., tons per acre, parts per million, bushels per acre). Record the effects for each resource concern. • Verify that each alternative would comply with existing national, State, Territorial, local, and Tribal laws and regulations, as appropriate.

WHAT	HOW
2. Evaluate each alternative for potential negative effects.	• Evaluate each alternative for potential negative effects. If an alternative is likely to result in an adverse effect to any resource (environmental, cultural resource/historic property, or human) modify alternative to mitigate potential damage and to conform to client objectives. • Evaluate the risk and uncertainty associated with each alternative. • Obtain State-level technical support in situations where an offered alternative leads to a program, procedure, or activity that has disproportionately adverse human health or environmental effects on minority or low-income populations (environmental justice not being positively served).
3. Identify potential sources of financial assistance.	• Identify sources of financial assistance through NRCS programs, or through other Federal, State, Territorial, Tribal, and local agencies or public interest groups. Awareness of these sources can aid the client in making decisions.
4. Review the alternatives and their effects with the client.	• Prepare an effects summary of each alternative that clearly displays the long-term and short-term ecological, economic, and social outcomes (i.e., land, labor, capital, and management). • Use a format that meets the needs of the client. Effects may be expressed using a range of formats from a simple narrative comparison to a complex, detailed accounting of the effects using automated tools. Often, a limited amount of detailed information is sufficient. • Consider the personal, social, and community background of the client to determine which effects have the most influence on the choice of an alternative. Values that cannot be quantified may be the most important to the client. • If requested by client, express the effects of alternatives in monetary terms. Estimate the monetary effects using least-cost (cost-effectiveness) analysis, cost-return analysis (return on investment), partial budgeting, net present value analysis, break-even analysis, or internal rate of return. Cost information is available in the FOTG, Section I, from discipline specialists, and other sources. • Document environmental evaluation (EE) data per State, Tribal, Territorial, and Federal guidance. See section 600.71. • Document discussions between the client and planner in assistance notes.

600.27 Step 7 – Make Decisions

A. Description.—The client determines which alternatives to implement and the planner prepares the necessary documentation. Documentation includes recording the decision and preparing the conservation plan, the CPA-52, "Environmental Evaluation Worksheet," and any necessary additional NEPA or consultation documents.

B. General.—The planner assists the client in selecting conservation treatment alternatives. This step involves comparing conservation alternatives and the client selecting one or more for implementation.

Figure 600-C9: Conservationist and client shaking hands in crop field.

C. Planning Standard.—A conservation system is selected based on the client's clear understanding of the effects for each alternative. The selection is recorded in the client's plan.

D. Inputs

(1) The analysis of all resources inventoried
(2) A set of evaluated alternatives
(3) Conservation effects information
(4) FOTG, Section V

E. Products

(1) The plan document with the selected alternative, including potential program or implementation opportunities, and operation and maintenance with approval by a certified conservation planner
(2) Schedule of conservation system and practice implementation
(3) NEPA documentation

(4) Revised conservation effects information
(5) Assistance notes

F. Step 7 – Make Decisions Activities – Conservation Plan

WHAT	**HOW**
1. Discuss the alternatives.	• Set a date with the client to discuss the alternatives. • Discuss the advantages and disadvantages of each alternative, including constraints imposed by law. • Point out the beneficial and adverse effects for each alternative to aid the client in reaching a decision. • If the client chooses one or more of the alternatives, proceed to Item 2, "The client makes decisions." • If the client chooses to implement only part of an alternative and a resource concern is not addressed, return to Step 6, "Evaluate Alternatives Activities," and evaluate the client's selected portion. • If the client does not choose one of the alternatives, yet is interested in exploring more options, return to one or more of the previous planning steps. • Discuss financial assistance options.
2. The client makes decisions.	• Record the selected alternative as the planned system. • Schedule selected practices for implementation. • Explain the interdependency of certain practices as practice scheduling is completed. • Explain any Federal, State, Territorial, Tribal, or local regulations that may apply and potential permit requirements. • Adjust effects, if needed. • Inform client that if NRCS funding or other implementation assistance is sought, NRCS may need to meet consultation requirements and that some activities may be modified as a result. • Record assistance notes reflecting discussions with the client.

3. After the client selects an alternative to implement, prepare the plan documents.	Prepare the plan documents. General guidance is provided below. However, detailed training and experience are necessary to understand proper sequence and scheduling of conservation practices, operation and maintenance requirements, and other facets of planning. • Prepare the conservation plan map, in accordance with Section 600.31, "Conservation Plan." • Prepare the conservation plan, in accordance with Section 600.31, "Conservation Plan." • Include appropriate forms, practice overview sheets with practice specifications, and implementation requirements. • Update the environmental evaluation if necessary • Revise conservation effects, if needed. • Include an operation and maintenance plan or information. • As appropriate, refer to specific program requirements.
4. Deliver the plan to the client.	• Schedule a time to meet in person with the client. • Review plan with the client and discuss implementation. • The client signs the plan, indicating acceptance of the conservation system alternatives. • Ensure that a certified conservation planner signs the plan for • NRCS. Provide copies of plan documents to client. • Document discussions with the client in the assistance notes.
5. Discuss the next followup or implementation assistance.	• Discuss need for followup assistance. • Discuss applicable compliance and program status review requirements.

600.27 Step 8 – Implement the Plan

A. Description.—Implementing the plan includes providing technical assistance, and in many instances, financial assistance, for installing conservation practices and management systems. Implementation includes obtaining needed permits, funding, land rights, surveys, initial and final designs, inspections and certifications. It also includes the operation, maintenance, and management needed by the client to assure proper functioning of practices following installation.

B. General.—Implementing a plan is the process of carrying out the conservation treatments that make up the planned conservation systems. Well-documented and understood decisions are a prerequisite to implementation of the plan. The client may be able to implement the plan without additional technical assistance. However, additional technical assistance is usually necessary, and plan revisions may be warranted. Additional information or documentation may be required by an implementation program or funding authority. Thorough and high-quality planning sets the stage for providing efficient and effective technical and financial assistance.

(1) Implementation includes the design, layout, construction, inspection and certification, management, operation, and maintenance of planned systems and practices.
(2) Specific financial assistance conservation program requirements and deadlines may also be involved and need to be considered when scheduling assistance with the client.

Figure 600-C10: Conservationist and contractor reviewing practice design in the field

C. Planning Standard.—The client has adequate information and understanding to implement, operate, and maintain the planned conservation systems. Practices implemented with NRCS technical assistance will be installed in accordance with NRCS standards and specifications.

D. Inputs

(1) Conservation plan
(2) Case file data
(3) Technical studies
(4) Environmental evaluations and documents
(5) Technical assistance
(6) Financial assistance conservation program requirements
(7) FOTG, Section IV, "Practice Standards and Specifications"
(8) National Engineering Handbook
(9) Communication with clients and stakeholders

E. Products

(1) Practice designs and job sheets
(2) Survey notes
(3) All necessary permits
(4) Practice certification notes
(5) Conservation practices applied
(6) Conservation systems applied
(7) Technical assistance notes
(8) Financial Assistance Conservation Program contract, where applicable

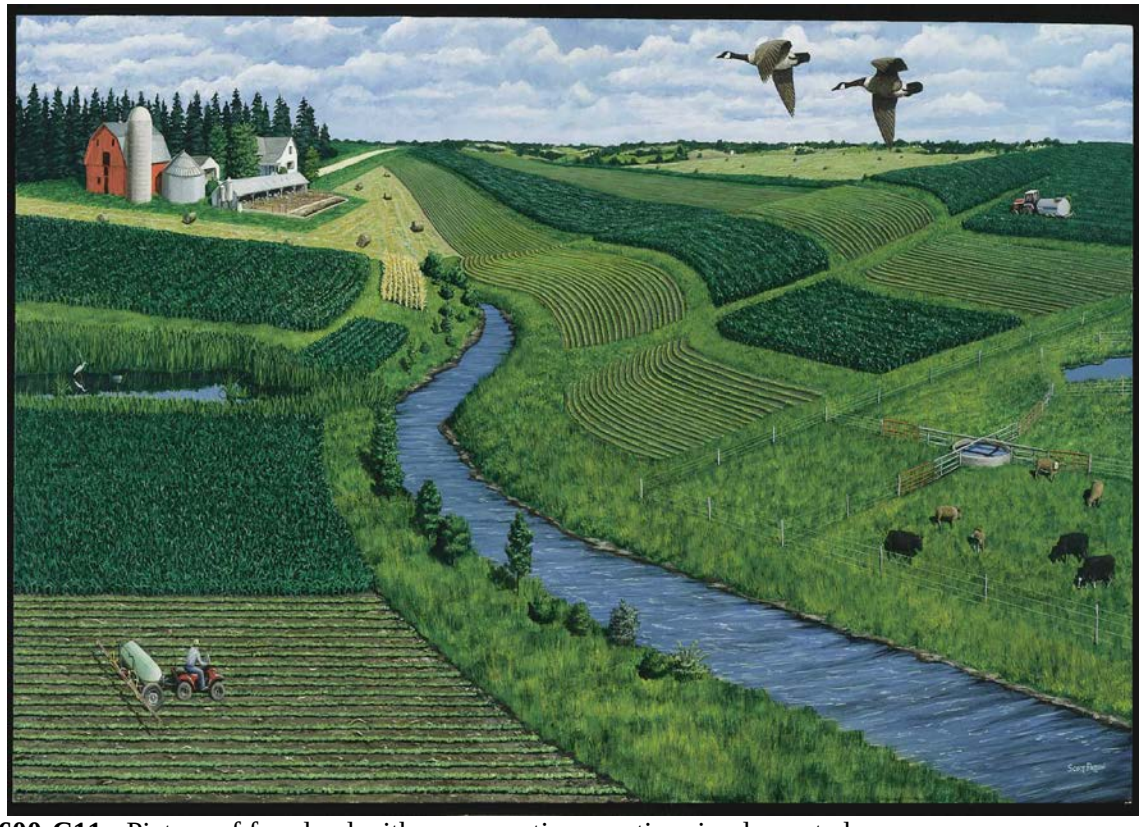

Figure 600-C11: Picture of farmland with conservation practices implemented.

F. Step 8 – Implement the Plan Activities – Conservation Plan

WHAT	**HOW**
1. Initiate NRCS assistance to install practices.	• A personal contact may be initiated by the client, NRCS or cooperating agency. It may be in the form of a letter, telephone call, agency Web tool, email, etc.
2. Become familiar with the conservation plan.	• Review the client's decisions and assistance notes. • Discuss the plan with the person who last updated the plan, if that person is available. If not, discuss with others in your field office familiar with the client or land. • Review the resource data, soils, topography, the environmental assessment, etc.
3. Review the plan with the client. If necessary, revise the existing plan or develop a new plan.	• Contact the client to schedule an appointment. Reconfirm before the date scheduled. • Discuss: o Client objectives o The implementation schedule o Costs o Financial assistance o Sequence of practice implementation o Operation and maintenance o Followup o Other factors • Track progress towards implementing the conservation plan. • Update the plan any time practices are considered for conservation program enrollment, so practice information, such as planned dates and amounts, meet program requirements. • If a plan revision is required, document the reason in assistance notes. Repeat the planning process, beginning with the appropriate planning step.
4. Complete the field data collection, including surveys (if not already done) for practice design.	• Determine the type and intensity of field data needed for design purposes. • Develop job sheets. • Discuss the practices scheduled to be applied. • Discuss needed easements, land rights, and permits. • Discuss timeframes of each step of the implementation process.

WHAT	HOW

5. Complete practice designs and job sheets.	• Verify the practices, as designed, with the appropriate practice standards in the FOTG, Section IV.
	• Design the practice design, using available agency automated design tools.
	  o National (e.g., hydrology, open channel hydraulics, and surveying)
	  o State-approved software
	• Identify the need for area or State office specialist assistance and request it accordingly. Otherwise, have a qualified member of the field office staff complete the design. Obtain and document required practice job approval authority.
	• If cultural resources or historic properties are present, consult with the NRCS cultural resource coordinator or specialist. Alternative designs or practices may be necessary.
	• If threatened or endangered (T&E) species are present, consult with the NRCS T&E specialist.

6. Review the designs, practice job sheets, practice specifications, and estimated costs with the client.	• Schedule an appointment with the client to review the designs. • Encourage the client to involve the contractor and anyone to be involved in managing the practice, in the review of designs and specifications. • Discuss the practice specifications and practice job sheets, in detail, with the client and the contractor. • Discuss permits, easements, and land rights, if needed. • Discuss roles of client, contractor, and NRCS staff during practice implementation. In most cases, clients will hire contractors that will work cooperatively with the client and NRCS staff. • Ensure the client is informed and directing the contractor's progress as needed.
7. Stake the treatment area as needed to define the location and extent of the practice or structure.	• Refer to discipline handbooks as listed in the reference section for procedures. • Involve the client, the contractor and all other appropriate parties in the practice layout. **Remember, however, that the land manager and contractor are not the clients. They are responsible to the client, not to NRCS!** • Make any needed adjustments in practice location, practice extent, and other specifications. • Consider the many safety issues that may be important in the design, layout and construction of conservation practices. See detailed guidance in the Title 210, National Engineering Manual, Part 503,

WHAT	HOW
	"Safety," and Title 210, National Engineering Handbook. • Inform the client of their responsibility to contact all applicable utilities in the project area, or a coordinated entity, such as 811, State One Call system, MISS UTILITY, DIG SAFE, etc., to check for any buried utilities and arrange for having identified utilities marked prior to construction.
8. Provide practice implementation inspections, as needed.	• Perform inspections throughout conservation practice construction or implementation. This activity may extend over 2 or 3 years on some management practices. • Take photographs of all underground components of practices prior to covering to document installation. • Some clients may do their own work and may need more detailed assistance than an experienced contractor would need. This may be especially true when they are constructing practices or dealing with management practices, such as prescribed grazing. • If, at any time during practice installation, it is determined that NRCS specifications, including safety standards, are not being followed, immediately notify the client orally and in writing as to what corrective action is needed. If corrective action is not taken, NRCS assistance will be withdrawn.
9. Conduct a final certification of the practice.	• Conduct the final inspection of the practice and record the installation data. Verify that each practice has been installed and meets standards and specifications, as designed. • Complete the needed measurements to determine the extent of the practices applied using approved methods that meet acceptable standards for accuracy. Example: feet of terraces or acres seeded or planted.
10. Document the completed practice.	• Sign and date the appropriate form certifying that the practice meets standards and specifications consistent with 450-GM, Part 407. • Document, in the case file, the extent of the practice certified and the date the practice was certified. Document only those practices that meet NRCS specifications. • Enter the applied/certified amounts of all completed practices in the practice schedule, using agency approved planning software. • Document all certified practices on plan map with correct symbology. • If financial assistance is involved, forward certification result to appropriate staff.
11. Review the operation and maintenance requirements with	• Explain the need for and the benefits of proper operation and maintenance of the applied conservation practices.

WHAT	HOW
the client.	• Explain that periodic inspections are needed to ensure that the structural practices are functioning properly and to identify any need for repair.
12. Schedule followup assistance.	• Review the planned sequence of practice implementation. • Schedule next practice to be implemented, if possible. • Agree on the implementation dates with the client and record them in the case file. • Revise plan, if necessary.
13. Document technical assistance notes.	• Record all significant activities in assistance notes. • Ensure that discussions with the clients and contractors are adequately documented to reflect agreements. • Include implementation, maintenance, and followup information in assistance notes.

600.29 Step 9 – Evaluate the Plan

A. Description.—Evaluate the effectiveness of the implemented plan to ensure that it is functioning as planned and achieving the objectives. Identify reasons for lack of progress in plan implementation, if applicable. Obtain information on the results of the applied treatment and where the actual results differ from those anticipated, and provide feedback into the planning process. This could include revision of planning criteria, changes to current practice standards and specifications, revision of other FOTG data, and modifications to the plan. Also take the opportunity to encourage the client to continue plan implementation.

B. General.—Conservation planning is an ongoing process that continues after the plan has been implemented. Continue contact with the client to evaluate operation and maintenance needs and to determine if management systems and practices are performing properly and meeting both the client's and NRCS's objectives. Onsite visits are a required part of this process.

(1) Technology may be developed through field observation of practices that have been implemented. Every planning area serves as a potential laboratory to help in the continuous process of improving alternative treatments for natural resource problems and concerns, and to take advantage of opportunities. This type of information can also help to focus on research needed.
(2) The process of monitoring, evaluating, and experimenting in order to add to resource management information and modify decisions is known as adaptive management.
(3) The key to successfully evaluating the results of a plan is to take advantage of the synergistic effect of the client, planner, and technical specialists working together as they make observations and record the data. The planner can enlist the help of the technical specialists and nonagency partners, as appropriate.

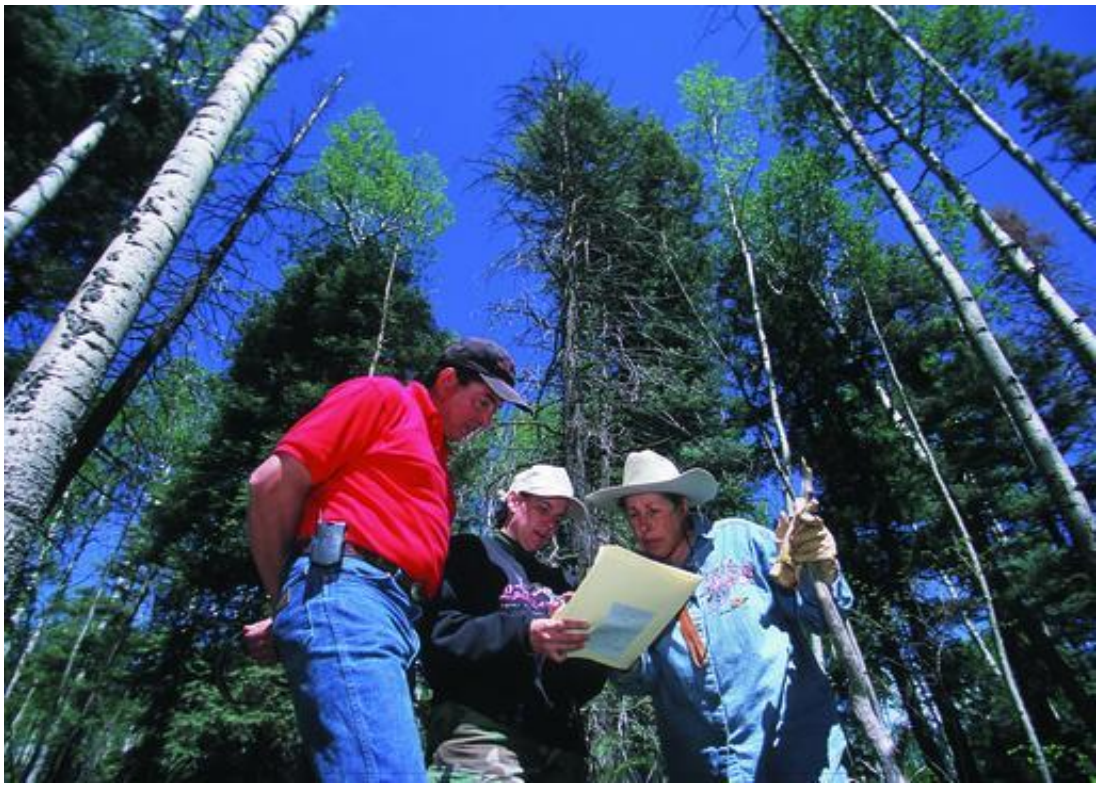

Figure 600-C12: Conservationists and client discussing a plan in the field.

C. Planning Standard.—The planner maintains contact with the client to determine whether the implementation results are meeting ecological, economic, and social objectives and solving resource concerns in a manner satisfactory to the client and beneficial to the resources. Resource effects that are different from those predicted are fed back into the FOTG development process (adaptive management).

D. Inputs

(1) The conservation plan
(2) Results of previous evaluations
(3) Onsite observation and data available from the client
(4) New or modified objectives or needs of the client
(5) Appropriate new technology
(6) FOTG, Sections I, II, III, IV, and V

E. Products

(1) Operations and maintenance (O&M) reports
(2) Outline of maintenance needs or other changes
(3) A decision to update or revise the plan, if needed
(4) Technical assistance notes, indicating the effectiveness of the plan
(5) Case studies, if appropriate, following the guidance provided in the FOTG, Section V
(6) Recommendations for changes in practice standards, specifications, or designs
(7) Recommendations for changes in FOTG materials
(8) A decision to revise or expand implementation strategies
(9) Updated conservation plan effects
(10) Updated CPPE and guidance documents

F. Step 9 – Evaluate the Plan Activities – Conservation Plan

WHAT	**HOW**
1. Meet with the client to evaluate the plan.	• Schedule an appointment with the client to evaluate the plan activities. • This may be initiated by NRCS, the conservation district, TSP, or the client, by means of personal contact, letter, Internet, electronically, email, or telephone call. • If a TSP or other third party service provider was involved in developing the plan or component plans, they will be asked to participate in the evaluation.
2. Prepare for followup and evaluation with the client.	• Review the conservation plan, planning and assistance notes, and the resource concerns for which the system was developed. • Review the client's objectives. • Review the resource data. • Discuss the plan with the last person to provide technical assistance, if possible. • Review the practice implementation information, including designs and construction notes. • Review the operation and maintenance plan. • Confirm the date scheduled with the client.
3. Review and evaluate the plan with the client.	• Observe the performance of each applied conservation practice in the field for structural practices and review component management plans for management practices. • Determine if the practices and management systems are solving the identified resource concerns and meeting ecological, economic, and social objectives. • Solicit feedback from the client concerning the effectiveness of applied practices and management systems. Discuss with the client routine operation and maintenance as well as needed maintenance of damaged or nonfunctioning practices. • Determine the type of technical assistance needed to restore a practice, if needed. • Encourage the client to make repairs promptly, so the function of the practices is not further impaired. • Encourage the client to complete any additional planned conservation practices on schedule. • Revisit the plan and determine if the client is ready to progress to a higher level of planning.

WHAT	HOW
4. Determine if adjustments are needed for management practices or systems.	• Compare the actual effects of practices with the planned effects. • Consider the effects in terms of ecological, economic, and social factors considered important by the client and NRCS. • Determine the actual effects of applied conservation treatment by measurement, judgment, models, and observation. • Review the effects, onsite and offsite. • Where the effects are significantly different than anticipated, submit a summary of the effects to the State Conservationist for possible inclusion into the FOTG. • Adjust the conservation system evaluations to reflect actual or predicted effects of the system. • Determine the client's acceptance of and satisfaction with, the conservation treatment applied and the technical assistance provided. • Determine if the client's objectives have been met.
5. Evaluate the status of conservation district cooperator working arrangements.	• Inform the conservation district of the client's progress in carrying out planning and implementation consistent with district program objectives, NRCS program objectives, or both. • Keep the conservation district informed of any problems.
6. Determine the need for a plan revision, development of a new plan, or cancellation of the plan.	• Determine if the client no longer owns or operates the land included in the conservation plan. Make changes as necessary. • If the conservation plan needs revision, or a new plan is needed, repeat Step 1, "Identify Problems and Opportunities," through Step 7, "Make Decisions."
7. Revise the plan	• Revise the plan if necessary.
8. Update the assistance notes.	• Enter assistance notes to capture planner interactions with the client.
9. Conduct a case study, if appropriate.	• Follow the procedures in the FOTG, Section V. Utilize assistance from other agencies, etc., as appropriate.