

SECTION 3 – PLANNING PROCEDURES

INTRODUCTION

Selection and design of best management practices (BMPs) must involve more than choosing a practice from a list and installing it on a site. It also involves a planning process which considers the problem to be avoided, or remediated, and also factors in the characteristics of the site. Advance planning should occur first in the development of local ordinances in which local governments identify appropriate BMP requirements for new development. Such advance planning will reduce the burden on developers and facilitate the selection of BMPs.

In the context of remedial projects, however, there typically will be no ordinance or "cookbook" to follow. In this setting, planning becomes even more critical in the selection and design of appropriate BMPs.

Planning involves more than simply managing or treating individual problems or resources. It involves a careful, deliberate, and organized approach that is centered on purpose, problem identification, analysis, evaluation, decision-making, and maintenance.

This section of the manual outlines and explains a procedure to identify problems, needs, and objectives; how to inventory, analyze and evaluate BMP alternatives; and finally, how to select and implement practices based on social, environmental, and economic considerations.

Although this manual was developed primarily to address non-point source (NPS) pollution issues, the use and application of the standards are intended to protect, conserve, and enhance natural resources. If planning is approached in this manner, the human impact on the ecosystem will be minimized and related adverse impacts, such as increased flooding, will be minimized.

The Procedures section will cover the following major issues:

- A. Planning process;
- B. Criteria for BMP selection;
- C. Practices and systems; and
- D. Evaluation and monitoring.

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All sites being developed will vary in their suitability for different types of development. Knowing the soil type, topography, natural landscape values, drainage area, on and offsite hydrology, flooding potential, and other pertinent data helps identify both beneficial features and potential problems of a site and adjacent areas. Generally, the location of the site has already been determined. What is needed then are the best procedures for identifying and addressing potential or existing problems, or to address established restrictions, ordinances, or regulations to develop a site in a quality manner.

A. Planning Process

The process outlined in this manual is a standard process used by NRCS and others. It is a nine-step process that is fully explained in NRCS's National Planning Procedures Handbook.

The nine steps are outlined below:

1. Identify problems - Identify existing, potential, and perceived natural resource problems, opportunities and concerns, including short-term and long-term issues relating to site resources and offsite impacts. As planning progresses and additional information is gathered, other problems and opportunities may be identified.
2. Determine objectives - Determine how the site will be used, what are the site features, what should be enhanced, and what rules, codes, or restrictions need to be addressed. Develop an understanding of the desired future conditions for the planning area as compared to the existing conditions. This includes the desired resource uses, resource problem reductions, and on-site and off-site ecological protection. Non-point source control processes and planning principles are discussed in Section 2. As resources are inventoried, their interactions analyzed, and alternatives formulated, objectives may need to be reviewed and modified.
3. Inventory resources - Collect appropriate natural resource (soil, water, air, plant, and animal), economic, and social information about the planning area. Also consider impacts offsite, such as water running onto or through the site. Use this information to further define existing and potential problems and opportunities, clarify concerns, and to formulate and evaluate alternatives. Gather information as needed concerning the affected resources, the human considerations, and operation and management.
4. Analyze resource data - Study the resource data and clearly define the natural resource conditions, including limitations to their use and potentials. This step provides the information needed to formulate and evaluate alternatives. The analyses should clearly establish the cause and effect relationships and provide information about existing and future conditions. Qualify and quantify resource use and development impacts. Appendix C "Methods for Estimating Water Quality Impacts of Urban and Suburban Development" contains methods to

estimate the impacts of development.

5. Formulate alternatives - Develop alternatives that will achieve the objectives, solve the identified problems, take advantage of opportunities, and prevent additional problems from occurring. Alternative practices are selected from BMPs in Section 4 and may need to be grouped into systems to address multiple problems. Include measures that mitigate potential adverse impacts on the resources and address regulatory requirements.
6. Evaluate alternatives - Evaluate the alternatives to determine their effectiveness in addressing the problems, opportunities and objectives. Alternatives should pass the tests of feasibility and acceptability -- socially, economically and environmentally - or adjustments should be made.
7. Make decisions - The decision-maker determines which alternative(s) to implement and the necessary documentation is prepared. Public review and comment are obtained, if needed, before a decision is reached. Alternatives chosen are in compliance with all applicable regulations.
8. Implement plan - Implementing the plan includes installing BMPs and obtaining necessary permits, funding, land rights, surveys, final designs, and inspections. It also includes the operation, maintenance, and management needed to assure proper functioning of practices following installation. Practices are implemented per the site plan to achieve short term and long term objectives and goals.
9. Evaluate plan - Evaluate the effectiveness of the implemented plan to ensure that it is functioning as planned and achieving the objectives; to identify reasons for lack of progress in plan implementation, if applicable; and to obtain information on the applied treatment. Where the actual results differ from those anticipated, provide feedback into the planning process. This could include revision of quality criteria; modification of indicators/target values; changes to current practice standards; and revision of other Urban Manual data.

The outlined procedure works best if certain pre-planning activities have occurred. Some of these activities include:

1. Define the site planning area on a map.
2. Order or prepare needed work maps and determine map bases and scales.
3. Determine planning objectives and needs, particularly how they relate to ordinances, regulations, and restrictions relating to site development and use.
4. Assemble existing information and data on soil, water, air, plant, and animal resources on and around the site.
5. Determine who needs to be involved in the planning and review processes.

6. Consider data needs for the site.
7. Prepare a draft work plan that identifies action items, responsible parties, and deadlines.

Good pre-planning will expedite and improve the planning process.

B. Criteria for BMP Selection

Once problems or issues are identified, it becomes paramount to establish goals for BMP selection. Many of the goals are established as part of local, state, or federal laws or as part of existing ordinances and codes. The development of the plan and nature and extent of treatment will be guided by these goals.

Section 2 of this manual identifies non-point source impacts and describes the principles for controlling these impacts with the practices contained in Section 4. **Section 8 provides guidance for evaluating the relative impact that individual practices have on identified problems and other soil, water, air, plant and animal resources. This should be used to guide decisions on the best practice or combination of practices that solve the identified or potential problems without creating new problems.**

The NRCS, along with others, have established treatment levels that correspond with soil, water, air, plant, and animal resource concerns. These standards are established in the NRCS's Field Office Technical Guide, Section 3.

C. Practices and Systems

The core of this manual is the BMP standards, construction specifications, material specifications, and standard drawings which are contained in Sections 4, 5, 6 and 7, respectively. These sections are meant to be dynamic and expandable. As new information becomes available, and field experience evolves, updates and additions will be prepared as determined by the agencies supporting the manual.

However, updates and additions will also depend on the needs of units of government and other users. As users, you can guide the nature of changes by personal contact with the agencies involved in preparation of the manual. Practices not currently provided in this manual may be obtained from several of the other sources identified in the reference section. Additional practice standards and related materials will be developed as needs indicate.

Users must understand that typically several practices will be needed to meet established criteria for addressing any given problem or resource concern. When a combination of practices is evaluated together, it is termed a system, or *treatment train*. A system is often needed to fully address any problem or concern. If there are multiple issues to plan treatment for, the complexity of the system may require additional practices. The development of the appropriate system involves the analysis of the following items:

1. Nature and extent of problem(s)
2. Onsite versus offsite considerations
3. Short term versus long term solutions
4. Treatment requirement standards
5. Long term maintenance considerations
6. Economic considerations
7. Regulatory requirements

D. Evaluation and Monitoring

The best practices for addressing key problems and concerns are identified in Table 2.1 in Section 2. **A broader evaluation of the practices on a more complete range of problems or issues is contained in Section 8. On any given site these general rankings may be different than indicated. They are meant to provide a relative range of effectiveness and should be used as a guide. Qualified and experienced professionals in the natural resource field should be consulted to adequately assess the impacts of any proposed actions.**

Monitoring of BMP effects should accompany plan implementation, where appropriate and feasible. The effects of the practice or system should normally be observable and some of the indicators listed in Section 2 might be used to qualify results. Revisions to plans should always be considered if unexpected problems or changes to use and management occur.