

SECTION III

NONPOINT SOURCE POLLUTION CONTROL MEASURES - LOCAL GOVERNMENT AND CITIZEN PROCESSES

SUMMARY OF SECTION III

- Reviews the nonpoint source (NPS) pollution problem in Oregon
- Describes the authorities that allow local governments to address NPS pollution control
- Identifies the management processes local governments can use to plan and implement an NPS pollution control program
- Discusses the importance of community involvement in NPS pollution control efforts
- Gives examples of successful NPS pollution control activities

INTRODUCTION

This section provides a basic introduction to the authorities, processes, and programs that are currently available to local governments, and describes how they can be used to control nonpoint source (NPS) pollution. State and federal agencies responsible for dealing with NPS pollution also have special expertise and authorities, which are explained in Section V.

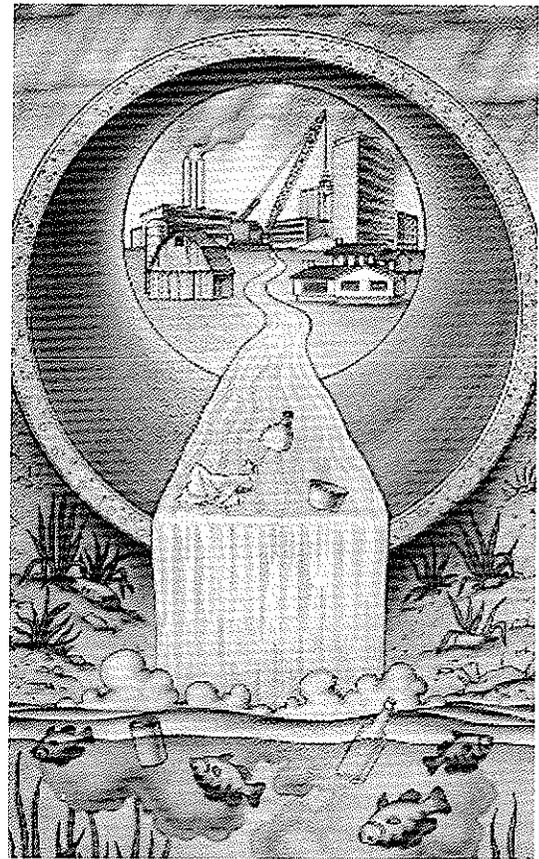
It is important to remember that local processes that can be used to reduce NPS pollution begin, like most regulatory systems, with the general and lead to the more specific. Local governments are granted broad powers and responsibilities. Local comprehensive plans and surface water management plans bring those broad powers to bear on specific sites and problems, through land use or nuisance regulations, capital improvement programs, or other public facility plans and management programs.

It is also important to remember that the creation of a local government regulatory program will not in itself be sufficient. To be truly effective, an NPS pollution control program must recognize and develop opportunities for enhanced stewardship by watershed residents. Through education and involvement, citizens can come to understand how their everyday actions affect water quality, and how they can participate in NPS pollution control strategies. Knowledgeable and committed citizens are an invaluable resource.

THE NPS POLLUTION PROBLEM AND LOCAL GOVERNMENTS IN OREGON

The following description of NPS pollution is provided to help explain where local governments need to become involved in NPS pollution control in Oregon.

Nonpoint source pollution essentially results from land use activities. The effects of NPS pollution in Oregon include reduced fish habitat quality; impaired aesthetics, recreational opportunities, and other beneficial uses; and drinking water supply problems. The risk of downstream flooding can also be increased by increased runoff and by the blockage of drainage systems by silt and debris. NPS pollution can seriously disrupt local economies based upon tourism if the area becomes less attractive to visit, if fishing or wildlife is affected, or if human activities such as swimming are prohibited. Polluted water supplies can make residential areas uninhabitable and can stop or reduce industrial development .



The 1972 Federal Clean Water Act required that states designate "beneficial uses" for all waters of the state. The Oregon Legislature has declared the following to be the beneficial uses of state waters: domestic, municipal, irrigation, power development, industrial, mining, recreation, wildlife and fish uses, and pollution abatement. The Water Resources Commission of Oregon classifies the waters of the state as to their "highest and best use" through adoption of Water Use Programs for each basin.

The DEQ 1988 Nonpoint Source Assessment indicated that over 15,000 miles of streams had one or more NPS-caused water quality problems that resulted in either a moderate or severe impact on a beneficial use. This is out of a total of 27,700 miles of streams in the NPS database. (Approximately 110,000 miles of streams exist in Oregon, but the 27,700 miles include all of the main streams and most important tributaries of Oregon's 19 river basins.) Of the 27,700 miles in the database, 14 percent were rated as having severe NPS pollution problems based on water quality data, and 11 percent were rated severe based on observation. Approximately 30 percent were rated moderate, 10 percent using actual data and 20 percent by observation.

According to the 1988 assessment, the common NPS pollutants are soil eroded from farms, forestry operations, unpaved roads, and construction sites; oils, rubber, and metals washed from streets and highways; fertilizers and pesticides from cropland; and bacteria and nutrients from animal waste and domestic gardening. Other more isolated problems include elevated stream temperatures resulting from streamside vegetation removal and poor fish habitat resulting from stream channelization or other flood control programs.

In addition to NPS surface water problems, Oregon has NPS groundwater problems in a number of areas. These include the City of Portland's Columbia South Shore municipal drinking water well field, where some wells cannot be used for domestic water supplies because of contamination by industrial solvents. Other examples of groundwater contamination include the coastal sand dune aquifers along Oregon's coast and certain aquifers in Eastern Oregon affected by agricultural activities.

Given the land use planning and stormwater management authorities provided to them, local governments in Oregon are well situated to deal with many of these conditions through their land use, surface water management, and nuisance regulations.

LOCAL AUTHORITIES

THE ROLE OF CITIES AND COUNTIES

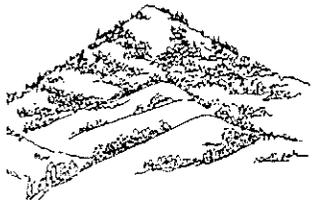
Cities and counties in Oregon have a variety of authorities and processes that allow them to address NPS pollution control. That authorization begins with a broad charge given to them by the Oregon Constitution and the Oregon Legislature to protect the public's health, safety, and general welfare.

More specific responsibilities and authorities are provided in the Oregon Revised Statutes. Chapters 92, 196, 197, 215, and 227 give local governments broad powers to regulate land uses within their jurisdictions. (See Section V of this guidebook.) Some limited authority also exists to address local health hazards. In addition, cities and some counties, through their municipal charters, can assign themselves further home-rule authority to go beyond the powers provided by the legislature.

The U.S. Congress has given state and local governments new responsibilities to address NPS pollution. This is particularly important in coastal areas. The Coastal Zone Act Reauthorization Amendments of 1990 give new emphasis to state and local agencies working together to develop a coordinated coastal nonpoint pollution control program (CNPCP). The Environmental Protection Agency (EPA) and National Oceanic and Aeronautics Administration have coordinated their approach to the new rules by providing guidelines to states involved with CNPCP. These guidelines give greater specificity to the standards that must be addressed in each of six categories:

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agriculture, forestry, urban areas, marinas and recreational boating, hydromodification (channels, dams, shorelines), and wetland/riparian areas.



The control of NPS pollution from agricultural and forestry areas is primarily at the state and federal levels, but local governments can have an important role. For agricultural areas, local governments can work with the local soil and water conservation districts in the development

of farm management plans. The Oregon Department of Agriculture has a new responsibility under Senate Bill 1010 to develop water quality plans for DEQ-designated water quality water bodies, and local governments can participate. For both agriculture and forestry, local governments can participate in DEQ's establishment of load allocations under the total maximum daily load (TMDL) process. For federal lands in the local jurisdiction's area, NPS pollution controls can be applied through provisions of the Federal Clean Water Act, Section 313.

Local governments play an active role in final siting decisions concerning urban uses (residential, commercial, and industrial), marinas, shipyards, site changes for new or modified waterways, and wetlands and riparian areas.

One of the most direct and effective ways to reduce NPS pollution effects on water quality is through regional NPS control systems. These systems include facilities (e.g. sedimentation ponds) and practices (e.g., maintenance activities designed specifically for water quality). They are primarily implemented through the capital improvements programs of local governments.

JOHNSON CREEK CORRIDOR COMMITTEE

One of the most successful and mature watershed planning efforts in the Portland metropolitan area is the Johnson Creek Corridor Committee (JCCC). The JCCC serves as a model for specific NPS projects. It illustrates how to involve citizens, shows coordination among local governments, and highlights public-private partnerships to carry out NPS programs. State agencies have also played a major role in providing resources and expertise to the process. Use of a watershed vision to guide activities is an example of the creative approaches being taken.

The program has already resulted in a number of "hands-on" projects undertaken by local residents and agencies. These projects include both construction and other techniques, such as education, to protect the watershed and stream corridor. The projects are reinforced with environmental protection zoning and park/trail land acquisition programs.

The JCCC is currently preparing a watershed resources management plan to provide long-term direction for the watershed area.

The proactive, action-oriented approach taken by the JCCC demonstrates that local governments can take an active role in watershed management and in forging productive working relationships.

Additional information can be obtained from Eric Macharro of Portland's Bureau of Environmental Services (823-7044).

Oregon cities and counties have authority to regulate activities for the purpose of NPS pollution control in several ways. Land use regulations provide the most obvious route. This is accomplished through the local comprehensive plan and related development regulations, as discussed later under "Comprehensive Planning." The first step in that process is to identify areas and activities where NPS pollution is or could be a problem. These could include geographic districts with highly erodible soils, or land uses that remove vegetative cover or introduce the potential for hazardous material spills. Other activities resulting from both private and public decisions may also provide opportunities to reduce NPS pollution; examples include the maintenance of public parks, the siting and management of golf courses, and planning for open space areas in other types of development.

Three applications of local NPS pollution control are:

- 1) **Regulation of land uses.** When a particular development is proposed, land uses or development designs incompatible with NPS pollution control can be identified and regulated. The development regulations can include standards to ensure that the appropriate management practices are used during construction of new activities (for example, providing temporary protective systems such as filter fabric and straw bale barriers). This will most often occur in terms of conditions of approval.

Land modifications routinely occur when land is divided. This is an opportune time to ensure that facilities needed to control stormwater runoff (such as infiltration basins or trenches, catch basins, or ponded wetlands) are provided.

- 2) **Use of regional NPS control facilities.** These can include constructed wetlands, stream or riparian restoration, sedimentation ponds, vegetated swales, or other facilities or practices installed or managed by public agencies. Such systems are usually needed to reduce NPS loads from existing development.

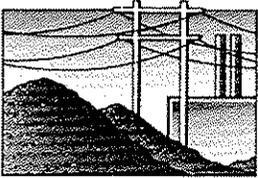


- 3) **Regulation of nuisances.** Nuisance controls can regulate a wide variety of activities that contribute to NPS pollution, such as unvegetated vacant land (soil erosion from wind and water) and inappropriate storage of discarded materials. The local jurisdiction will often have simplified enforcement mechanisms (such as civil citations) in place, making it easier to achieve compliance with these rules.

As mentioned previously, individual actions by local citizens are also an essential element of any NPS pollution control strategy. An important role of local governments is to help create a broad-based stewardship ethic, where community members understand, support, and actively participate in pollution prevention.

THE ROLE OF REGIONAL GOVERNMENTS

Regional governments, such as METRO (Portland area) and LCOG (Lane County), coordinate the regional water quality planning (Section 208, PL 92-500) for their regions. They play a major role in establishing programs and projects that help ensure NPS pollution controls are included in local wastewater and stormwater programs.



In addition, economic development and transportation planning functions are often focused at the regional level. Both of these activities can substantially affect NPS pollution control. One example is the siting of new industries. By recognizing the potential for NPS pollution, changes can often be made that substantially reduce pollution potential.

The siting of transportation facilities provides similar opportunities. The location of new roads, bus/train parking lots, bicycle trails, or other facilities can have substantial positive impacts on water quality.

THE ROLE OF SPECIAL DISTRICTS

Drainage Districts

Drainage districts are created under state law (ORS 547) to deal with the stormwater runoff and waterways associated with large marshy areas. Because many uses are adjacent to, within, or upstream of these districts, the districts can play an important role in anticipating and dealing with NPS pollution. They can coordinate their responsibilities with nearby local governments to ensure that the waters reaching their area are of the best feasible quality. Further, they can work directly with businesses and industries located along their waterways to ensure that the runoff from these sites is cleaned and controlled for the community's benefit before entering the drainage district's facilities. The participation of Multnomah County Drainage District No. 1 in forming a watershed council is an example of active and effective involvement.

Sanitary Districts

Sanitary districts are created under state law (ORS 450) to provide treatment for domestic and/or commercial wastes. These districts are often in an excellent position not only to treat or convey stormwater, but also to impose conditions on granting sewage permits for new development. This could include requiring management practices that deal effectively with runoff and other types of NPS pollution. This should be done in conjunction with the city or county that has land use jurisdiction. Such coordinated activity is required in urban growth areas under new land use legislation (SB 122) that passed the Oregon Legislature in 1993.

County Service Districts

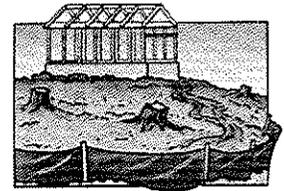
County service districts (ORS 451) are very similar to the previously described special districts, but are administered by the county. The county governing body usually serves as the board of directors, but meets as a separate entity. Their functions are basically the same as those of the other special districts, such as sanitary districts, and they have the same ability to impose reasonable conditions on new development within their jurisdiction.

Vector Control Districts

Vector control districts (ORS 452) are responsible for protecting the public from noxious insects or other disease-carrying hosts. To perform their task, they must often use chemicals on and near waterways. Proper care, reduced use, or no use of chemicals where possible are examples of how to help reduce NPS pollution in those areas.

Soil and Water Conservation Districts

Soil and water conservation districts (ORS 568) are charged with helping to preserve water quality and reduce soil erosion. Their ability to understand the intricacies of soil and water, and their existing relationship with the agricultural community and the U.S. Soil Conservation Service, place them in an excellent position to advocate, persuade, and educate farmers and ranchers about NPS pollution control. They can also train landowners how to better control and eliminate stream sedimentation, and how to reduce the introduction of pesticides, herbicides, petroleum products, and other chemicals in surface and groundwater.



They are also authorized to be involved in implementing Senate Bill 1010, which passed during the 1993 legislative session. This bill gives the Department of Agriculture the authority to develop water quality management plans under certain conditions and to require landowners to carry out those plans. It also includes provisions for fines and appeals. Local governments can also be involved in implementing SB 1010. (See Appendix A.)

STRATEGIC WATERSHED MANAGEMENT GROUP

With the passage of HB 2215, the Oregon Legislature created the opportunity for local watershed councils to be formed. The Strategic Water Management Group is directed to help develop pilot watershed action programs. The program's overall goal is to improve the quality of the watersheds by dealing with water flows, riparian issues, and other activities associated with water

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quality and quantity. This is achieved by developing consensus at the local level, but involves state and federal resources. Local governments, property owners, state and federal agencies, and other interested parties are all involved with finding and implementing appropriate solutions.

DEQ has identified ten program elements to guide water quality improvement efforts and to define the capabilities necessary for the overall watershed program. While other elements may emerge, those currently identified are:

- **STANDARDS:** Definitions of desirable and acceptable conditions to support beneficial uses.
- **ASSESSMENT:** Assessment of water conditions, focusing on the standards above.
- **COORDINATED WATERSHED PLANNING:** Cooperative evaluation and plan development by all stakeholders for the sound management of the watershed.
- **EDUCATION:** Information about watershed functions, values, conditions, responses, and management techniques.
- **DEMONSTRATION PROJECTS:** Relatively small-scale projects to demonstrate the viability of sound management techniques; dispersed throughout the state; and designed to galvanize local activism.
- **TECHNICAL ASSISTANCE:** Field-based experts and literature to help land managers select and implement the best management measures in their ecoregions.
- **COST-SHARE ASSISTANCE:** Financial assistance and incentives for implementing watershed management practices on private land, coupled with contractual agreements to maintain the enhancements.
- **STEWARDSHIP:** Promotion, technical assistance, and financial support for the concept of watershed enhancement and protection of local stewardship groups.
- **WATERSHED ENHANCEMENT PROJECTS:** Coordinated enhancement and protection projects covering whole watersheds and implemented over a number of years; targeted at higher priority areas, but distributed equitably throughout every ecoregion and geopolitical area in the state.
- **ENFORCEMENT:** Field-based capability to investigate and remedy the violation of applicable standards or regulations.

Additional information about the Strategic Watershed Management Group can be obtained from DEQ and the Oregon Department of Water Resources.

MCKENZIE RIVER WATERSHED COUNCIL

The McKenzie River Watershed Council was formed to help address watershed management issues in the McKenzie River Watershed and provide coordination and cooperation among key interests in developing and implementing a watershed action program.

The Watershed Council is an advisory body to established decision-making bodies and communities of interest. As such, the council makes recommendations concerning the protection, restoration, and enhancement of the quality of the McKenzie River Watershed.

Council partners keep their respective agencies, organizations, and interests informed about the work of the council and bring their groups' concerns to the council. The Lane Council of Governments is responsible for staff functions, and can be reached at (503) 687-4283.

PLANNING AND IMPLEMENTATION PROCESSES

The authority to implement environmental regulations is one matter; applying those rules to real people and places is quite another. Local government staff often face the challenge of applying complicated regulatory systems in a variety of circumstances. For that reason, it is important to have a number of techniques available in order to find the most appropriate mix of regulations and programs.

The processes listed below are a starting point for finding the correct tools to apply to a community's specific situation.

PLANNING PROCESSES

Two main planning processes currently exist for developing an NPS pollution control program: comprehensive planning and surface water management planning.

Comprehensive plans primarily provide the basis for local land use and development regulations. Surface water management plans provide the basis for local public works or capital improvement projects. The two types of planning overlap, but emphasize different aspects of government programs and are equally important. Because they require information from each other and share plan components, they must be coordinated.

Comprehensive Planning

Comprehensive planning is an important tool for addressing NPS pollution. Early in the planning process, the benefits of clean water to the public health and the community's economic vitality should be identified.

The importance of inventorying and analyzing potential NPS pollution activities and areas before development occurs cannot be overemphasized. This includes identifying wetlands, aquifer recharge areas, wellhead districts, steeply sloped areas, highly erodible soils, or other areas of special sensitivity. Protective actions can then be taken before construction applications and the associated politically charged permitting process occur. Inventories should identify:

- Floodplain areas
- Steeply sloped areas
- Soil types (Soil Conservation Service and engineering classifications to identify constraints and opportunities)
- Appropriate water quality standards
- Wetlands
- Vegetation types (to identify areas with potential high runoff areas)
- Impervious cover (areas of extensive coverage)
- Important riparian or aquatic areas
- Designated beneficial uses for streams in the study area and pollutants that will likely affect those uses
- The capacity of the streams to assimilate pollutants (if it is known or can be determined)
- NPS pollution control opportunities



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It is also important to inventory the uses and activities that could adversely affect water quality. Examples include:

- Industrial or commercial developments that store or use hazardous chemicals
- Landfills
- Agricultural or forestry uses
- Mining or gravel extraction areas
- CERCLA/RCRA sites or licenses
- Wastewater treatment plants
- Onsite wastewater treatment areas (e.g., septic tanks, cesspools)
- Construction areas (planned and existing)
- Areas with extensive impervious cover
- Disturbed/exposed soil areas
- Riparian areas with inadequate cover
- Disturbed stream beds, lake shorelines/beds or marine/esturine areas

The preparation of comprehensive plan policies to address NPS pollution includes considering policy alternatives and choosing programs that best fit the water quality goals and community perspective. Many existing comprehensive plans contain policies in compliance with Oregon Statewide Planning Goal Six: Air, Water, and Land Resources Quality. These local policies can be expanded upon to include more specific statements about NPS pollution control. An example could be:

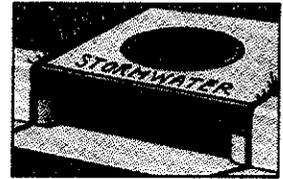
The city/county shall develop an active program to address the federal and state requirements for the prevention and/or reduction of nonpoint source pollution.

In addition, policies may be added that require the local government to create a local NPS education program, develop a coordinated NPS pollution program with DEQ and the Department of Land Conservation and Development (DLCDD), or add NPS control management measures to its land use regulations.

Surface Water Management/Master Plans

Surface water management plans have been prepared under a number of labels, including storm-water master/facility plans, storm sewer master plans, watershed management plans, and water resources management plans. Specific examples of management plans can be found in this guidebook's References section.

In the past, such plans have primarily addressed drainage and flood control (water quantity) and not water quality. Because of new regulatory requirements, particularly concerning NPDES permits and TMDL limits, water quality is now usually included. This inclusion is a logical extension of local planning and public works efforts, since managing runoff directly affects water quality. In the context of Oregon's comprehensive planning program, a surface water management plan is likely to become part of the local comprehensive plan.



The **basic steps** of local surface water management planning are:

- Development of the information base to be used (e.g., maps, resource reports, watershed inventories)
- Monitoring and analysis of water quantity and water quality data
- Public involvement and education
- Watershed analysis
 - Inventory of existing water quality and quantity conditions, facilities, and management systems
 - Inventory of soils, vegetation, and sensitive lands
 - Inventory of pollution sources
 - Inventory of improvement opportunities and constraints
- Hydrologic/hydraulic analysis
- Water quality and pollutant loading analysis
- Evaluation of alternatives (flood flow reduction,, water quality measures, financial, operation and maintenance, and environmental/social)
- Preparation of an implementation plan, including a capital improvement program
- Adoption

IMPLEMENTATION PROCESSES

Once the comprehensive plan and/or other public policy documents are prepared, an implementation program should be developed.

Implementation requires substantial commitment to a variety of tools. It is rare that one process or system will be sufficient to accomplish all of the desired results. Instead, several overlapping or parallel programs should be established. It is likely that most local regulatory agencies can apply existing systems to NPS pollution control, and the need for new systems will be small.

The following descriptions provide a useful compendium of practical mechanisms for implementing NPS pollution control within the existing processes already familiar to most local planners. The list should not be viewed as sufficient for all jurisdictions. Other permits, processes, or standards may work better in some local regulatory environments. These examples of management processes are a place to start. Jurisdictions can develop systems that fit locally, as long as they achieve the desired control of NPS pollution.

Land Use Zoning Districts

Land use zones allow local jurisdictions to regulate the type of activities that will occur in specified areas, as well as to impose a variety of land use standards on new development.

A land use district (zone) will usually contain a listing of permitted uses that are compatible with the land's ability to support the activities normally associated with these uses. If some concern exists about certain impacts on the land, special standards may be imposed to better assure compatibility.



Examples of standards related to NPS pollution control include:

- Restricting the amount of impervious surface that is allowed (thereby reducing runoff)
- Prohibiting construction in wetlands or steeply sloped areas
- Imposing special design requirements for chemical storage or transport

Section IV gives examples of the type of facilities/ practices that can be used.

Advantages: This is a widely understood and generally accepted method of regulating land uses. All cities and counties in Oregon have existing programs that can have NPS pollution control provisions incorporated. The additional cost is likely to be limited. This method provides clear notice at the beginning of the development process of the issues and costs that may be involved.

Disadvantages: Considerable planning and analysis work are required at the beginning of the process. In some circumstances, this may be expensive and challenging for local staffs. Certain sites may prove unusually challenging and expensive to address.

Overlay Zones

Overlay zones are zoning districts that are added to other zoning districts to provide necessary additional regulations where special conditions warrant extra care.

An example would be a special environmental protection zone that overlays other residential or commercial zoning districts. These districts can be used where the community wants to allow the uses in the underlying zone, but also recognizes that a wetland, steep slope, or particular soil type may require special protection.



Overlay zones are excellent tools to use for watershed protection. The underlying zoning pattern can be maintained, while the overlay district identifies the physical outline of the watershed and attaches special conditions to activities occurring in the watershed area.

A clear purpose statement should identify the reason for establishing the particular zone. This will allow those who implement the rules to understand when and how particular uses should be allowed or denied, and under what conditions applications may be approved.

In areas of particular concern, such as steep slopes, special conditions can be imposed at the time of permit approval. For instance, construction may be allowed only during the drier summer months. Another approach is to eliminate certain uses in specific areas. For example, service stations or arterial streets can be prohibited in areas where soils or topography make it infeasible to prevent petroleum products from entering the water.

Advantages: The major benefit of using an overlay zone is that it allows special regulations to be added in areas of particular concern without substantially affecting existing zoning patterns or inventories. The zones can also be more easily modified if new information suggests the standards need to be adjusted.

Disadvantages: Overlay zones add more rules to be administered. If a clear method does not exist for informing applicants and training staff, the regulations may surprise some people, resulting in political controversy. Because of their “add-on” character, they may be confusing to some people or may create conflicting interpretations unless they are well analyzed before adoption.

Special Purpose Districts

Special purpose districts specify the uses that are to be allowed and the criteria for approval. These districts are the primary zone for a particular area. They are considered special purpose because they refer to a particular concern or use rather than the more general use districts.

An example would be creation of a floodplain zone to protect the public from the dangers of high water. While protecting the public from flooding, the setbacks and use restrictions can also reduce NPS pollutants entering the streams.

Advantages: Special purpose zones have no extra layer of rules to be remembered by staff or found by the applicants. The purpose of the zone can be clearly specified and the permitted uses listed. These zones are most effectively initiated when there is a general updating of the zoning districts.

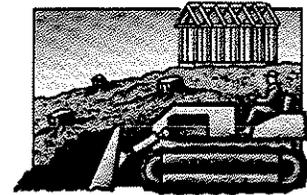
Disadvantages: These zones require extra time and analysis before they can be introduced into the community. Politically, they may stand out from the other regulations and become targets for skeptics or others seeking to discredit the zoning program.

Performance Standards/Planned Unit Developments

Performance standards are another way to ensure that new developments produce certain benefits for the community or avoid undesirable consequences. Many communities are experimenting with performance standards, and examples of limited performance standards can be found in several cities. *Performance Zoning*, edited by Lane Kendig and published by the American Planning Association, is an excellent source of information on this topic. (Contact the American Planning Association at (312) 955-9100.)

Rather than setting predetermined requirements (such as 20-foot setbacks), the standards may mandate a percentage of lot coverage or allow the developer to indicate how the structures will provide access for air, light, and public safety activities.

By creating a performance standard that requires water quality protection, that value will have to be taken into account before any development can be approved. In addition to the standard, criteria must be developed to indicate what is and is not acceptable; this will ensure that the regulations are administered equitably.



Advantages: This approach allows for far greater flexibility in siting buildings or determining what uses are appropriate. Further, many developers have found that it allows projects to be located in difficult sites with a greater degree of public approval.

Disadvantages: The increased flexibility reduces predictability. For that reason, both the development community and neighbors often resist this approach. Local governments that have used this approach have found that it involves substantially greater staff time because of the extensive negotiations that are required.

Conditional Use Permits

Conditional use permits have been a popular regulatory tool for many years. They allow conditions to be applied to permitted uses; applicants must satisfy these conditions before they can establish the proposed use or build the new activity. The conditions are not a standard set of requirements; rather, they are formulated at the time of permit approval to meet the purposes of the zone.



An example of a conditional use permit may be allowing higher-density housing in single-family residential districts. Many communities allow duplexes under certain conditions (e.g. larger lots on arterial streets). At the time of approval, certain conditions may be imposed, such as increased buffering or landscaping, limits to permitted parking, or particular standards for outside lighting.

The following examples show conditional use requirements that can be used for NPS pollution control:

- Preparation of a soil erosion plan by a qualified geotechnical engineer or soil scientist in areas of high soil erodibility, thereby reducing potential stream sedimentation
- Containment facilities for controlling potential chemical spills
- Special, more effective septic systems in areas with inadequate existing systems

Advantages: The conditional use permitting process allows uses that might otherwise be denied; because of special conditions, they can be made compatible with the neighborhood and the environment. Further, the conditions can be fashioned to fit the special character of the use and the neighborhood.

Disadvantages: The courts are justifiably skeptical of conditions that go beyond a reasonable concern for the community's needs. Careful crafting of the standards and criteria is important. In addition, conditional use permits may require time-consuming inspections on a regular schedule, which may be beyond the resources of the local agencies.

Design Review

Local governments use design review extensively to evaluate and control the character of development. In some communities, design review may look only at certain site concerns, such as street access or landscaping. In others, the scale, color, or character of the architecture may be controlled.

In most cities, some kind of site plan or design plan is usually required for any use other than a single-family residence. In counties, site plans are common for many commercial, industrial, and residential uses. Review and inspection of new construction is required everywhere in Oregon, except on federal properties. Under Section 313 of the Clean Water Act (see Appendix A), federal properties can also be included in the local review and inspection process for water quality purposes.



Design review is an excellent opportunity to apply conditions or standards to meet NPS pollution control needs. One example is to create a standard set of criteria for new construction that ensures development will consider and reduce NPS pollution through the use of a variety of NPS control facilities and practices such as those described in Section IV. Design approval can require effective buffers for riparian and wetland areas. The design review process can also be used to implement useful management practices, such as regular maintenance for drainage or water storage facilities.

Advantages: Design review is a widely used and understood tool for ensuring that new development meets community objectives. By using a set of standard criteria, the system will be predictable and more easily accepted.

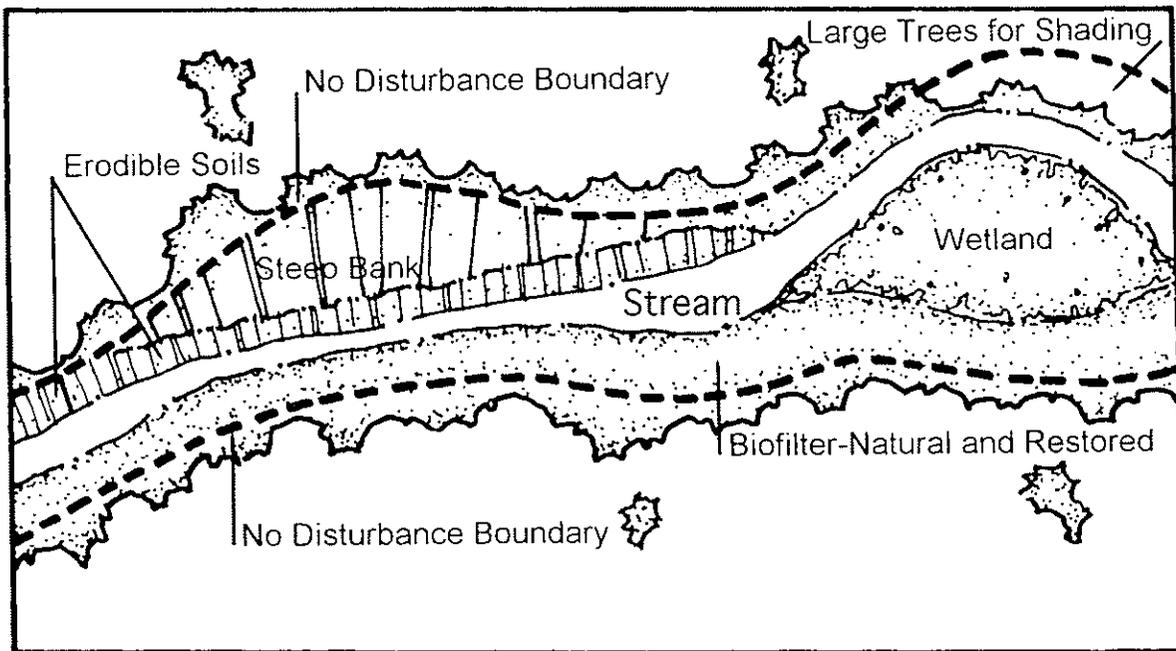
Disadvantages: NPS pollution control will be another addition to an already large set of purposes to be achieved by design review. Smaller jurisdictions will require some assistance to establish the initial criteria and measures list.

Buffers

Stream, lake or estuary buffers (e.g., undisturbed riparian areas) are effective protective tools that can be applied in a variety of ways. The buffer can be part of a land use or overlay district; attached as a condition to a conditional use or variance permit; or included in a design review approval. It is an extremely effective and flexible regulatory device, but it must be adapted to local conditions. Local governments should be prepared to defend their buffer distance based upon available facts about impacts or by referring to accepted standards.

Advantages: Buffers are effective mechanisms for intercepting sediments or other materials that might otherwise enter the waterway. They are an easily understood and easily enforced way to protect streams or lakes from damage by construction and other land use activities.

Disadvantages: Some property owners will be concerned about the loss of developable area. The rationale for the size and character of the buffer needs to be clearly explained if it is to be accepted and successful.

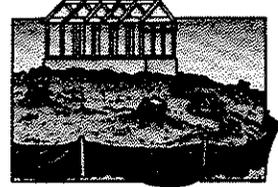


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Building or Development Permits

Building or development permits are issued prior to construction. They regulate the actual fabrication of the proposed building or the modification of the land for the new use. Since erosion from construction sites probably represents the single largest source of stream pollution from residential areas, this is a useful time to implement NPS pollution control.

Programs to control erosion during construction can be very effective. The building inspection staff can administer these regulations when they visit the sites for routine structural, electrical, or plumbing inspections. Standards need to be developed and adopted that are consistent with federal and state regulations.



Advantages: Existing staff can be used to administer these permits. The system is simple and can be adjusted by the individual inspector to meet the needs of a particular site, type of construction, or climatic condition.

Disadvantages: Individual builders or homeowners may resist these permits because of inconvenience, expense, or both. An effective educational program is important. In addition, inspectors and other regulatory staff will have to be trained.

Land Division

Certain actions frequently must be taken to protect water quality at the time of land division, whether it is a subdivision or a simple partition. The optimal time to create retention or detention systems and to provide underground drainage facilities is when new streets are created or lot lines are established. Lot configurations must avoid destruction of riparian areas, provide for onsite surface water storage and onsite septic systems where appropriate, and avoid difficult soils and slopes.

All local jurisdictions already have some kind of land division rules in place. These rules often make vague reference to stormwater protection, but lack the more specific language that provides clarity and predictability to the process. In recent years, the legislature has moved to make land division less complex by reducing the required approvals and creating clearer surveying and recording requirements.

Early site inspections should check for the following conditions:

- Disturbed soil areas
- Riparian areas with poor cover
- Depressions (e.g., behind a road fill, where a pond-marsh or infiltration facility could be developed)
- Wetlands
- Ditches, which could be converted to vegetated swales
- All ponds, ditches, and streams
- Culverts and pipes
- Slopes
- Vegetation types

The existence, absence, or nature of these variables will establish the NPS pollution control opportunities and objectives.

Advantages: The benefit of using land division requirements is that the developer will already be considering alteration of the slopes, drainages, and other characteristics. Modifications that reduce NPS pollution can increase site costs. However, they can actually save money if considered early in the process, particularly for large developments where slope failure during construction can cause expensive delays. If adequate precautions are taken at the time of development, the community will ultimately benefit from reduced costs for dealing with water pollution.

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Disadvantages: Some people may resist the added regulations and expense. Administration may be difficult if staff members are not educated about the reason for the rules. This is especially true for small staffs that rarely have time to completely check development conditions.

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Design/Construction Standards

Many Oregon jurisdictions update their design/construction standards every 3 to 6 years. Such standards apply to facilities (such as streets, sewers, water lines, sidewalks, or other similar public structures) constructed within the jurisdiction by the agency or by a private developer, and ensure consistent design and construction.

Very few design/construction standards currently in effect in Oregon address NPS pollution control facilities, such as sedimentation ponds. New standards to achieve water quality objectives should be developed as part of the implementation of surface water management plans.

The NPS pollution control facility design/construction standards should include:

- Hydrologic criteria (the design storm)
- Typical plan and section views for hydraulic structures
- Configuration guidelines for ponds, marshes, landscape measures, and infiltration facilities
- Erosion controls for construction
- A preferred vegetation list
- Geotechnical criteria
- Grading and landscaping criteria
- Requirements for a basic water budget
- Cleanup and no-disturbance-zone guidelines
- Specifications for monitoring systems
- Guidelines for preparation of a maintenance plan that fits the design

Advantages: Design/construction standards can make many projects, both public and private, more responsive to NPS pollution control, resulting in more protection at less cost.

Disadvantages: It is expensive and time consuming to reach consensus about construction standards. They can often be politically controversial because of their impact on the construction industry. They will not be successful unless accompanied by an effective inspection program to enforce the requirements.

Operation and Maintenance Programs

An operation and maintenance (O & M) program is one of the most important aspects of NPS pollution control. O&M is costly and often involves new procedures and equipment. However, it is critical to ensure that NPS pollution control facilities continue to function properly after they are in place and that the pollutants, such as sediment, are removed from the system.

The basic O&M functions are:

- Sediment and debris removal
- Trash rack cleaning
- Vegetation cutting and removal
- Facility repair and replacement
- Checking of hydraulic function and condition through regular inspections



Advantages: O & M is a routine part of existing local jurisdictions' activities throughout the state. Funding for some activities is often available through an existing fee system, and administrative and operation systems are often already in place.

Disadvantages: There is rarely enough funding to take on major new activities without fee increases, which may be politically unpalatable. O & M alone is insufficient; it must be part of an integrated NPS program.

PUBLIC INVOLVEMENT AND STEWARDSHIP OPPORTUNITIES

INTRODUCTION

An effective citizen involvement program is key to successfully completing any public activity, particularly those that deal with meeting long-range community goals. A complete program must include tools to obtain useful information about public needs and priorities. To provide this kind of information, citizens must be informed about the conditions that need to be addressed, the legal issues involved, and the particular local circumstances. Once they are informed and involved, citizens can be insightful observers and commenters. Their efforts can be far-reaching and contribute greatly to the success of the program.

It is important to clearly define the objectives of the citizen participation effort. It is insufficient just to want to involve people. Rather, the program should focus on what purposes are to be achieved by the involvement. Assuming the primary focus is more effective implementation of the NPS pollution controls, citizens should be involved at a variety of levels.



To educate the public about water quality issues, basic informational materials and a forum in which to provide the education should be developed. The November 1993 newsletter of the Environment and Development Division of the American Planning Association provides the type of information required, in a useful format. (See Appendix A-6.) EPA and DEQ can provide additional information.

Existing citizen involvement and advocacy groups can provide the easiest access to the public. These include planning commissions, environmental advisory committees, environmental or fish organizations, neighborhood associations, and citizen participation organizations. Once educated, members of these groups can be effective advocates for the program and useful monitors of local conditions.



The local comprehensive plan is an important policy document for the community's water quality program. Informed citizens can provide input to the development of reasonable controls and effectively participate in the adoption process. As a result, elected officials can become better informed and can benefit from the political support of these groups during the public hearings process.

Once the basic goals have been clarified and the legal conditions established, a more long-term commitment can be made to funding public involvement activities. The public involvement program should include a variety of techniques, including training staff so they can provide assistance to the public and effectively enforce the NPS pollution control program.

Stewardship

In addition to involving the public in the establishment of local government NPS regulations, it is important to inform citizens about how their activities affect NPS pollution. When the issues are brought to the individual level, people can better understand how NPS pollution affects their quality of life and how they can participate in the solutions.

Stewardship of our natural resources is a concept that receives considerable discussion. But it is not often made clear to people how the concept of stewardship ties into their daily life and activities. Citizens are rarely given the educational opportunities they require to fully understand the relationship of their everyday actions to the natural environment, upon which they depend for employment, health, safety, and ultimately survival. Everyone who lives, works or otherwise affects the water within each watershed must come to understand their role and accept their responsibility to maintain or enhance water quality.

Stewardship can occur in a variety of forms. It can be volunteer water monitors checking the waterways for pollution dumping; youth groups painting "no dumping" signs on surface/storm-water drains; participants in advisory groups; or homeowners taking extra care with paint, petroleum products, or other potential pollutants. Whatever the form, it must be an ongoing community commitment, where people see the benefit of their involvement.

Advantages: Stewardship can have a tremendous impact by preventing NPS pollution before it occurs. If successful, community response can help control a variety of pollutants and may often be the most cost-effective approach available.

Disadvantages: Unfortunately, stewardship often requires a commitment that few agencies have been able to maintain. It is often hard to demonstrate the effects of a stewardship program. This creates problems for managers who would like to continue the program, but are unable to measure its success. New types of public polling to measure effectiveness may help resolve this issue. Stewardship in itself will not be sufficient without other more direct activities, but it is an essential component of any program.

Advisory Committees

Citizen committees can advise how to develop and effectively implement the NPS pollution control program. They can be very useful for identifying techniques that are locally supportable and for convincing skeptical citizens of the usefulness of the activities. These groups may be defined as review or advisory groups, or may function as consensus or constituency-building forums.

“Blue ribbon” committees are advisory committees selected for their policy or political expertise. They usually comprise well-known and respected citizens whose involvement will assure responsiveness to local needs and perspectives. This type of committee will help build local support and commitment to the overall program.

“Watchdog” committees are usually formed to review the work of the technicians and bureaucrats. They help build public confidence in the final outcome, improve communication with local stakeholders, and assure more responsiveness to local perspectives.

“Ad hoc” committees are formed to provide citizen involvement and guidance to specific projects. They function as long as the project and are dissolved when the identified work is complete.

“Standing” committees represent an ongoing commitment to public participation in a program. These committees are formally appointed by a governing body and usually have a long-term involvement with a specific mission. Their tasks may involve advice to technicians, communication between citizens and the jurisdiction, or even decisions on certain matters (as delegated by the governing body).

Advantages: Committees are often an excellent way to obtain or maintain a high public involvement and recognition for a particular issue or concern. These bodies often include informed and committed citizens who can affect the political decisions and activities of the community.

Disadvantages: Committees can be expensive to maintain. Without adequate training, committees can be divisive and unable to work effectively.

**TILLAMOOK BAY SANITATION ADVISORY
COMMITTEE**

The Board of County Commissioners established the Tillamook Bay Sanitation Advisory Committee in fall 1987 to help identify, monitor, and address the causes and extent of pollution in the county's rivers and bays. The committee was primarily motivated by concern about potential effects on the shellfish industry and tourism.

As a result of this participation, 1,838 onsite sewage disposal sites were surveyed and 160 possible failures were found. Substantial progress has been made in resolving these problems. The county has created a number of programs, including a floating restroom on Tillamook Bay for use by anglers.

The State Health Division regularly samples the water in the bays to help identify potential problems. Other monitoring and cleanup efforts have also begun, such as working with the dairy industry.

In addition, the county has worked with state and federal agencies to identify wetlands. The county regulates areas in private ownership to ensure that activities there are compatible with preservation of wetland values.

**COLUMBIA SLOUGH WATERSHED
COUNCIL**

The Columbia Slough is located in the Portland metropolitan area and serves a variety of interests, including industrial, agricultural, recreational, residential, and conservation. The increasing pollution and land use conflicts resulted in the need to create a coordinated group to deal with the growing controversies. However, no collaborative forum was available to develop the needed organization.

Multnomah County Drainage District No. 1 joined with the City of Portland, the Soil and Water Conservation District, and a number of interest groups to form a steering committee that represents the various interests in the watershed. The steering committee has hired a consultant with funds donated by the various entities in the watershed, and has developed a program for collaborative decision-making, conflict resolution, and education.

Community Workshops/Forums/Open Houses

When beginning a new program, it is important to provide several opportunities for citizens to review the information being used to make decisions. This is particularly true when dealing with technically complex information. The chance to explore the issue with staff members or informed citizen committee members will do much to gain people's support.

Possible forums include open committee meetings or educational open houses. Sponsorship of the activity by a group or organization will often provide needed credibility and an immediate constituency.

Workshops offer the public a chance to "get involved" in some manner. This may require maps, interactive tools such as games and computers, surveys, or small group sessions.

**EUGENE COMPREHENSIVE
STORMWATER MANAGEMENT PLAN**

The Eugene City Council adopted the Comprehensive Stormwater Management Plan on November 17, 1993. The plan describes how the city will meet federal stormwater quality mandates and how it will finance the stormwater management program.

The plan is based upon policies contained in the Metropolitan Plan (the comprehensive plan for Eugene and Springfield). It calls for constructing a variety of capital improvements, after proper evaluation. A new fee is created, based upon impervious surfaces on each property. Wetlands are to receive particular attention, as are the city's development regulations. The City Council is to adopt new erosion control provisions and development standards in 1995.

A variety of public involvement techniques are being used. These include informational handouts, citizen committees (focusing primarily on people who are specifically affected), public hearings, and public presentations for interested groups.

It is sometimes best to take the forum to the people. This could include speaking at schools, chambers of commerce, or local service groups; providing telephone hotlines; or using cable television.

Advantages: Workshops and open houses can be a quick way to educate and involve a large number of people. They also give the news media an event to cover and report to the entire community.

Disadvantages: Creating effective workshops and forums requires a substantial commitment of time and resources. If the event is not well advertised, attendance may be low.

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Public Hearings

Public hearings are another way to inform the public and hear citizen concerns. Public hearings have an order of presentation and are governed by certain procedures. Time limits may be established and other formalities may be involved.

Public hearings are required by state law before amending local comprehensive plans and development regulations. They must be conducted according to specific procedures at those times.

In addition to hearings required by law, it may be advisable to hold a public hearing or less formal public meeting at other times as well. This will allow citizens to hear information provided by staff members and respond to it.

Advantages: Hearings are familiar to all governments, and the process will be understood by most governmental staff involved. If hearings are already scheduled for other purposes, the added cost will be small.

Disadvantages: Because hearings tend to be fairly formal, they lack the relaxed atmosphere that fosters public involvement and acceptance. Many citizens are not used to such legal environments and are intimidated or alienated by the process.

Charettes/Brainstorming/Delphi

One way to create a credible information base, as well as a constituency, is to bring together informed, knowledgeable, or otherwise involved persons to help clarify issues and create answers to community-wide issues.

Charettes provide a useful tool for focusing the energies of persons with particular skills or talents on design-oriented issues. They involve a session or series of sessions that focus on a particular design issue that needs to be resolved. Everyone needed to resolve the issue is brought into the room, and the sessions are facilitated to find an acceptable solution by the end of the activity. These sessions can be quite grueling, since they can go on for hours or days if necessary.

Brainstorming is a free-flowing exchange of ideas and/or collecting of issues. The process requires several persons with responsibilities to the group. A facilitator keeps the group on-track and ensures that all speakers are allowed to make their suggestions unimpeded. A recorder lists the ideas as they are generated. It is also best to have a designated spokesperson if smaller groups must report back to the large group at the end of the process.

Delphi is a technique often used by policy makers. Experts in particular issues are brought together to share their knowledge and to develop an understanding or position on a particular topic. This pool of knowledge is usually focused on a particular issue or concern. The group may meet only once or over an extended period, sometimes covering several topics and changing members as needed.

DAYLIGHTING TANNER CREEK STUDY

The City of Portland conducted a workshop in January 1993 to develop a program for dealing with the creek flows in the Tanner Creek basin. This water is currently routed into the Tanner basin sewer, which is a combined sewer for storm and sanitary flows. The city sought help with finding a better design that would deal with the deterioration of the brick sewer and the need to separate the two types of water. A design charette was held with about 50 planners, architects, and other interested persons. The participants focused on how to return the creek to the surface in a way that could best meet concerns about NPS pollution, sewer capacity, and urban aesthetics.

The Tanner Creek charette was only one of the city's efforts to deal with NPS pollution and the combined sewer overflow program. It is often used as a model for innovatively involving people in an important urban design issue.

Advantages: Charettes, brainstorming, and Delphi groups are excellent ways to obtain useful information. They often develop a technically acceptable answer in a relatively short time.

Disadvantages: All of these techniques require the participation of experts, who may not be available or affordable. The issues that need to be resolved often require more time and technical information than is available. These approaches solve technical concerns, not political issues (although they can provide a beginning there, also).

Public Information Materials

Newsletters, brochures, or other public information materials can be used to involve and educate the public. These tools are often most effective if they stir the public's curiosity to attend an event where more information is available or to otherwise become more involved.

Newsletters allow information to be distributed to a variety of people for relatively small cost. It is often possible to use existing newsletters that are published by other agencies or organizations within the community.

Brochures are a useful way to transfer information to persons interested in a particular issue or concern. Their production requires technically competent people and a substantial commitment of resources to ensure accuracy and adequate distribution. The exact purpose of the brochure must be identified so the material remains focused rather than scattered over too many topics.

Videos and slideshows can be excellent tools for communicating issues to the public. Many people are more used to obtaining their information from such visual sources and will respond more quickly. Certain topics lend themselves to visual presentation (for example, showing how pollutants entering local streamways) and benefit greatly from this type of treatment.

News releases and articles/stories are a useful way to reach a wider public. The news media has an effective system for distributing information and professionals to help with the communication process. Their help should be solicited and used as much as possible. A thoughtful series of informative stories or articles will quickly catch the public's attention.

Displays of informative materials placed in public areas or at local events is often a useful first step in contacting the public and seeking their involvement. The materials must be kept up-to-date and should be accompanied by materials that the viewer can take home.

Maps are excellent visual tools for informing the public. A map of major pollution sites can focus attention on particular issues or sites quickly. Other maps can show a variety of resource information.

**UNIFIED SEWERAGE
AGENCY'S RIVER RANGER
PROGRAM**

This program is aimed primarily at children and families. Through the use of informational materials and staff presentations, it promotes an understanding of water quality and shows how people can become involved in protecting the environment. Materials include a colorful brochure in a comic book format and stickers for labeling items at home. Staff members give presentations to schools and other interested groups on a rotating, voluntary basis. This program has won awards for its effectiveness and has been adopted by a number of other jurisdictions.

Advantages: All of these tools can effectively involve the public and help educate citizens about important issues and opportunities for action. The more visual approaches are particularly effective with younger people.

Disadvantages: The creation of useful visual products requires competent technicians and sufficient resources to ensure accurate and pertinent information. Fewer visuals will cost less, but may make the program less effective. Use of the news media is cost effective, but media information may not always reflect the program's priorities.

Pilot Projects

Local projects where people can actually visit a site and see the improvement can have a dramatic effect in convincing people of the benefits of NPS pollution control. It is important to develop an effective information program to inform as many people as possible about the improvements and tell them how they might participate.

Both private and public opportunities should be pursued. Capital improvement programs may include projects that can be used as public pilot projects. Coordination between local governments can result in a number of useful projects that, once documented, will be a valuable public information tool.

Private opportunities may come from local development projects or activities undertaken to mitigate regulatory violations. The developer will often see this a way to improve the acceptability of the project.

Advantages: Pilot projects can capture people's imaginations and educate the uninformed more effectively than many other techniques. When combined with projects that are already planned and funded, they can be very cost effective.

Disadvantages: When undertaken independently, these projects can be expensive. Unless it is properly documented, the effort will be wasted. Projects are often dependent on a certain set of circumstances and are not transferable elsewhere.

BALCH CREEK WATERSHED

In 1992 and 1993, the City of Portland's Bureau of Environmental Services conducted a stormwater management plan for the Balch Creek Watershed west of Portland. This watershed is approximately 2 square miles of primarily forested land, with pockets of urban development, particularly along the ridges. Water quality and flood management were the two primary purposes of the planning. Fish, wildlife, and education/recreation were important secondary objectives.

The watershed contains a major urban wildlife education center (the Audubon House), the southern extension of Portland's Forest Park, and some very active neighborhood associations. The Balch Creek Citizen's Task Force (BCCTF) was established to develop early citizen support in this highly visible watershed. The BCCTF developed a "concept plan," which established objectives and recommended policy for the various categories of the plan, including water quality. As a result of this process, most committee members supported the management plan that was developed. Some nearby residents had concerns about a pilot project that involves detention, water quality benefits, and fish/stream enhancement. The public involvement process allowed these concerns to be brought to the forefront early.

The primary value of the BCCTF was that it educated the project team about citizen concerns early in the process and provided for the continual involvement and education of the citizens in the watershed. The concept plan also provided a sound basis for the team's planning activities.

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Staff Training

Local staff should be trained in the purposes and processes associated with NPS pollution control. This will ensure that citizens receive useful advice and accurate information. Many important programs have foundered on insufficient training, where staff members do not know how to perform the work for which they are responsible.

Most contact that occurs between local government staff and the people they serve is by telephone or at the information counter. If those contact persons are not informed, the program will have substantially lower results.

Training does not always have to be complex or time consuming. The time needed can often be spread over a number of sessions and worked into the normal routine. This approach may also promote better staff participation.

Advantages: The public is better served by well-trained staff. Fewer errors and omissions occur that could cause negative publicity and reduce the program's effectiveness.

Disadvantages: Training can cost money and take time from other projects. A little training can be worse than none at all if it is improperly done or has insufficient support and time.

Gaming and Roleplaying

Innovative techniques such as gaming and roleplaying can provide interactive involvement between the public and staff. Many citizens will be more effectively engaged if they participate in a dialogue about a particular issue and understand the effects of their decisions.

Gaming is a tool that uses a set of rules combined with an interactive medium such as a computer, game board, or paper forms. These formats guide the player through a scenario where they vicariously experience the effects of their actions on an issue or concern. This tool can be particularly useful for involving children, or as one element in a series of educational activities.

Roleplaying is a commonly used technique for training staff. It is particularly helpful when the program involves complex issues and requires a substantial amount of public interaction.

Advantages: These techniques can be very effective in training or involving people. They allow a substantial amount of interaction and help promote acceptance.

Disadvantages: Because of their relative sophistication, these techniques can be expensive. If improperly constituted, they can create great confusion.

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Surveys/Polls

Surveys can help determine public interest and knowledge about topics of interest and can help guide the kind of overall program and approach that should be developed. By knowing what the public is willing to support, and what important issues or information is not well understood, the local agency can better focus its resources.

Surveys must be created by technically competent staff that know the proper techniques and processes. Once the information is assembled, it must be analyzed to ensure it is accurate and truly reflective of the community.

Surveys come in many forms. They may poll the entire population or only designated segments, depending on the needs and concerns being addressed.

Funding for surveys can be local, or it is sometimes possible to obtain grants for hiring professional consultants. Many universities have classes that perform this kind of work as part of their student training activities.

Advantages: Surveys can be a powerful tool for informing local agencies of what work needs to be done. Equally important, they can concentrate people's attention on the topics and engage citizens in debate. This can lead to increased local involvement and commitment.

Disadvantages: Improperly constituted surveys may not reflect local attitudes. Surveys that are properly designed and analyzed will require professional staff which will cost money.

Tours

Touring actual sites allows citizens to see the effects of pollution or meet people actively engaged in NPS pollution control. Tours that demonstrate particular issues or solutions will attract the interest of the community and its leadership. These tours are often media events that can generate useful news coverage.

A successful tour requires a planned agenda, as well as staff resources adequate to make the necessary presentations and develop the information materials.

One way to simplify the process is to prepare a video or self-guided paper tour. People can then progress as they have the time and revisit sites or people as needed. This approach is, however, less interactive than a guided tour.

Advantages: The combination of visual, written, oral, and interactive opportunities has the best possible chance of educating those involved.

Disadvantages: The resources required are expensive and time consuming. Tours are often dependent on the weather, and transportation logistics can be difficult. Details are very important, and careful attention to all aspects is required.

Education Programs

An effective educational program is one of the best ways to promote knowledge about water quality and NPS pollution issues. By involving people at a variety of levels throughout the community, it is possible to develop a group of informed people who can in turn help create useful and supported local programs. Educational programs can involve activities through formal educational systems, such as schools, as well as through less formal associations, such as youth, cultural, or special interest groups.

Local agencies or groups can organize "work days" for students, scouting groups, fraternal or service organizations. Participants work on an activity that actually makes an improvement or prevents a problem. Work days both educate the participants and produce real results.

Governmental and philanthropic agencies often have grants available for certain types of group or activity. These funds can be used to support projects such as work days.

A good example of an education program is "Educating for Action," developed by the Puget Sound Water Quality Authority, Olympia, Washington. (Call 206-407-7300 for information.)

Advantages: Partnerships with educational institutions can use resources effectively and allow more to be accomplished. Education can be successful with all age groups. Educational activities are often seen as less threatening than some other types of activity and are more readily accepted by all members of the community. Evidence of this kind of activity, such as pictures of children planting seedlings along a stream, can capture both the medias' and the public's attention.

Disadvantages: Education is a long-term investment. Organizations that begin such programs should be willing to make a multi-year commitment. That commitment will involve money and time, and should be based on an effective plan and measurable goals.

INTEGRATING THE ELEMENTS

The plans, regulations, and programs presented above are all conceptually and procedurally linked.

The comprehensive plan, particularly the planned pattern of community land use, is implemented through various local programs, including land use regulations.

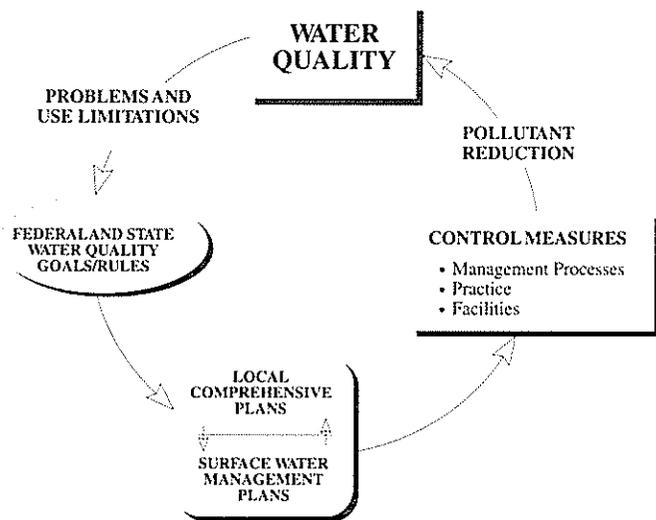
Surface water management plans provide the basis for specific water quality measures in the CIP, through such elements as erosion control requirements and constructed facilities. To implement CIPs, design and construction standards are necessary for consistent, sound design. Design and construction standards are also the logical mechanisms for implementing many NPS pollution control measures within private developments or land use activities.

Once a facility is constructed, it will not function properly without an effective operations and maintenance program. Operations and maintenance must be founded in a sound policy context in order to maintain their priority for funding.

The preceding techniques and processes are tools in the overall system. The most important aspect of the entire process is the development of an appropriate stewardship ethic and a cadre of committed individuals. The program must be more than just a public relations campaign. People must understand how their involvement is important, both locally and within the larger societal context. The control of NPS pollution is not just a local concern, but it requires the involvement of local people willing to become educated and take on leadership roles in their community. A successful program requires advocates.

There is no magic system, no predetermined blend of management techniques, practices, and processes. Each community must inventory its situation and choose actions that will achieve the desired results. All pertinent local interests must be brought into that process. Care must be taken to ensure that the impacts of regulations and procedures are equally felt throughout the community and are not concentrated unreasonably upon one group. The process should strive

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for unanimity, but recognize that something less may be acceptable. The results must be tangible and significant. The intent to ensure safe water for everyone must be met, and must be achieved in ways consistent with state and federal regulations. At the same time, if the program is to survive and prosper locally, good communication within the community is critical. The commitment to educational, regulatory, and informational processes must be long-term.

The final outcome will eventually be determined by the nurturing of an effective community leadership. These are people who are willing to contribute their time and resources, continue through the debates and various social/political interactions, and strongly advocate for the principles and actions required to address NPS pollution.

