

MUNICIPAL REGULATORY AND NON-REGULATORY TOOLS

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Health regulations, zoning ordinances, land acquisition and voluntary controls are some of the options available to local governments in their mission to manage the water resources that protect the public health, safety and welfare. Health regulations can address both proposed and existing development and their impacts on water quality. Zoning controls are limited in that they are prospective--they typically apply only to future development and not to existing activities which are exempt or "grandfathered." General police powers are available under a community's home rule powers to protect the public health, safety, and general welfare. Non-regulatory options may include educational efforts, monitoring, the adoption of certain best management practices, and land acquisition.

The type of control that a community may consider also will help determine who should be involved in the local community. For example, if boat sanitary waste dumping is considered a threat, the local harbormaster should be involved in drafting regulatory measures. It also would be valuable to gather support from local marinas that may be affected by new mooring and pumpout regulations.

Many of the tools listed in this chapter are designed for protection of surface and ground waters, focusing on preventative action for coastal waters because polluted ground water can be a significant source of contamination in surface waters. For both surface and ground waters, pollution prevention is much cheaper than clean-up after the fact.

REGULATORY TOOLS

Zoning Regulations

Zoning techniques offer powerful tools to protect water quality. These are often overlooked. The use of floor area ratios (FAR), and maximum building and lot coverages limit the conversion of land to impervious surfaces (lot coverage differs from building coverage because it includes all impervious surfaces, such as paved areas, in addition to buildings). This allows for greater infiltration of stormwater and minimizes the potential for pollutant-carrying runoff. These criteria could be enhanced by excluding land areas unsuitable for building, such as wetlands, steep slopes, etc.

Zoning regulations have been used throughout the country, in coastal and inland areas, to segregate different and possibly conflicting activities into different areas of a community. The following are important zoning techniques that can be used to protect coastal resources.

Overlay Water Resource Protection Districts

One technique designed to update regulations for protection of a surface or groundwater resource is the creation and adoption of overlay water resource protection districts by law. The law, which may vary by municipality in its approach toward resource protection (i.e., prohibition of various uses versus special permitting and/or performance criteria), defines the resource by mapping watershed boundaries and enacting specific legislation for land uses and development within these boundaries.

Watershed Zoning

A new zoning technique that has been instituted in a few communities (but not yet tested extensively) is watershed zoning. This is simply the idea of extending zoning districts onto water bodies. Under traditional zoning, specific areas of a community are set aside for various land uses. Under zoning, certain areas of the water body are set aside for such water-dependent uses as navigation channels, mooring areas, water-skiing, and so on.

Prohibitions of Various Land Uses

Virtually every community that has adopted zoning prohibits certain land uses from specific sections of the community, although the rationale behind such prohibition may or may not be related to water resource protection. While not the most creative or effective approach toward resource protection, prohibition of land uses such as gas stations, sewage treatment plants, landfills, or others involving the use, storage and disposal of toxic and/or hazardous materials is a first step toward the development of a comprehensive water resource protection strategy.

Special Permitting

If applied strictly, the special permitting process can be used effectively to regulate uses and structures that may potentially degrade water quality. For example, many communities use the special permitting process to regulate underground storage tanks or limit lawn fertilizer use within critical areas.

Large Lot Zoning

Large lot zoning, as the title implies, seeks to limit water resource degradation by reducing the number of buildings and, therefore, septic systems within a protection area. Large lot zoning is sometimes difficult to enact depending on circumstances, such as existing zoning and growth characteristics. Nevertheless, when used as part of an overall protection strategy, large lot zoning within resource-contributing areas can be an effective tool against water contamination. There is no definition of “large lot” zoning, although case law has upheld different variations on local government’s use of minimum lot size.

Transfer of Development Rights

The idea of “transfer of development rights” (TDR) is based on the concept that a parcel of land has a bundle of different “rights” associated with it. A TDR program allows a landowner to separate his or her right to develop the land, as permitted by zoning, from other rights associated with the land, and sell those development rights.

To implement a TDR program, a governmental entity such as the town would prepare a plan designating the parcels or districts from which development rights could be transferred (a “sending” or “donor” parcel), and the parcels or districts which would receive those development rights and be developed at a higher density than allowed by the underlying zoning district (a “receiving agent”).

Typically, a sending parcel or district might be within a contributing area to an estuary or other water resource. A receiving parcel is able, both from a physical standpoint and in terms of the community’s growth program, to accommodate additional development beyond that allowed as-of-right by zoning. In selling his or her development rights, a landowner would gain the cash value of whatever development rights the market associates with the land, and yet would keep the land in a less intensive use and help protect the resource in question. A perpetual easement or some other development restriction would be recorded with the deed of the sending or donor parcel. The purchaser of the development rights gains the ability to develop the receiving parcel at a higher density than allowed “as-of-right” and can recapture the cost of the purchased development rights through the more intensive use of the receiving parcel.

Cluster Development

Cluster zoning is an alternative to the standard grid-style subdivision. It allows buildings to be “clustered” more densely on a portion of the site most suitable for development, in exchange for preserving the rest of the site, including any sensitive coastal areas, as contiguous open space. In a cluster development, smaller building lots are allowed, with resulting land savings set aside in contiguous areas of open space.

Subdivision or zoning regulations should contain provisions that enable a developer to modify minimum lot size and other dimensional requirements as part of the subdivision approval process. This “clustering” technique allows for a grouping of dwelling units on one or more portions of the site with the remainder set aside as common open space. This process encourages diversity in housing design, preserves open space and allows development to account for variations in the natural environment. Clustering also is a way for developers to minimize expenses for development, with shorter sewer and utility lines and a smaller road system. Clustering provides tremendous flexibility for both the developer and municipality, and often allows for greater creativity in the division of large land parcels.

Growth Controls/Timing

Growth controls are techniques that are used to slow or guide a community's growth, ideally in concert with its ability to "support" growth. The term "support" has been broadly defined, and can include issues ranging from a city or town's physical and financial ability to provide public facilities (roads, water, sewer, schools and public safety) to its ability to retain its once rural, historic character. Growth controls vary in their application and have included outright moratoria to limitations on numbers of building permits issued in any twelve-month period. One of the most widely referenced examples of growth control is the 1969 Ramapo, New York ordinance that limited growth and development in the community to a rate commensurate with the town's ability to provide services to new (an existing) residents.

Falmouth, Massachusetts used growth controls to limit land subdivision within the rapidly developing watersheds to its coastal ponds. In 1985, the town adopted a subdivision phasing regulation designed to slow development within these sensitive resource areas. The idea was to "buy time" for the town to implement other management controls such as rezoning, land acquisition and monitoring to protect the coastal water resources.

Performance Standards

Performance standards are based on the assumption that any given resource has a threshold, beyond which the resource's ability to function deteriorates to unacceptable levels. Performance controls assume that most uses are allowable within a designated area provided that the uses do not and will not overload the resources. A good example of a performance standard is one designed to protect surface water quality by setting a critical threshold for contaminants. Those land uses which will cause the threshold to be exceeded in the water body are not allowed.

Approximately one year before Falmouth, Massachusetts adopted the growth controls noted above, the town instituted a unique and precedent-setting approach to manage development in watersheds to the town's coastal resources. All development within defined, mapped areas (mapped as an overlay zoning district) was required to adhere to strict performance standards. In effect, these standards were designed to ensure that all development within watersheds to coastal ponds, when analyzed cumulatively, would not exceed the assimilative capacity of the resources.

Health Regulations

The development of health regulations is an extremely effective method of rounding out a community's regulatory protection program. The following are examples of well-accepted techniques using health regulations to protect coastal and water resources.

Underground Storage Tanks

Leaking underground storage tanks may be the single largest source of groundwater contamination in the nation. The larger underground gasoline storage tanks associated with automotive service stations have caused numerous groundwater contamination incidents. As

noted earlier, if compounds from these tanks enter estuaries, they may be accumulated by shellfish, presenting a health risk to consumers.

Potential components of tank regulations are: leak testing and construction standards for new, large tanks such as those at automotive service stations; prohibition of new residential underground storage tanks if they cannot be adequately monitored; removal of existing residential underground storage tanks; and prohibition of all new underground tank installation (except for replacements) within watersheds.

Privately-Owned Small Sewage Treatment Plants

Privately-owned small sewage treatment plants (SSTPs) have been utilized as a technological solution to prevent overloading of the natural capabilities of land and associated water resources to assimilate wastewater discharges. The use of these small treatment plants has, in some cases, allowed development of land beyond the development that would be possible using conventional, individual septic systems.

The effectiveness of SSTPs is dependent upon the proper functioning of more components than that associated with a standard septic system. SSTPs also require supervised operation and maintenance. Consequently, they are more likely to malfunction and their use may be a risk in critical resource areas. To eliminate these risks in critical water resource areas, some communities have entirely banned the use of SSTPs.

Septic System Maintenance

The maintenance of on-site septic systems is frequently overlooked. The result is typically an overloading of solids moving to the leaching facility and subsequent clogging. When this occurs, the system needs to be rehabilitated. This is commonly done with the use of strong acids or organic solvents. However, these chemicals are contaminants and can degrade ground and surface water quality. To minimize this danger and to ensure proper maintenance of septic systems, many communities have developed a voluntary septic system maintenance program. The key component of such a program is pumping every two to three years for residential septic systems.

Boat Pump-out Facilities and Head Use Limitations

Since near-shore dumping of human wastes from boats can cause contamination of shellfish beds and swimming areas as well as nutrient enrichment, some communities have enacted limitations on dumping and taken action to provide pumpout facilities. For example, Kent County, Maryland requires all new or expanding marinas to install pumpout facilities and to provide signs notifying boaters of the facility. In Prince William County, Virginia, the county supplements state requirements to ensure that at least one pumpout facility is available on any tidal creek with a marina.

Subdivision Rules and Regulations

Subdivision regulations fine-tune zoning ordinances in that they focus less on land use and more

on engineering concerns, such as road construction, utilities and site plan layout of individual subdivisions. Protecting coastal water resources via subdivision control is, therefore, less effective than via zoning, but can still be used to ensure that drainage and landscaping designs fit with the goal of resource protection. Following are some important techniques to consider.

Stormwater Management

A key component of nonpoint source pollution is stormwater runoff (see Chapter ---- for additional information). As lands become more developed and more urbanized, less precipitation reaches the earth where it can be absorbed and naturally filtered. In addition to flooding and stream channel erosion, the increased runoff carries with it pollutants from developed areas, which accumulates and finally discharges into natural waterways. While many municipalities recognize the important of controlling water quality to prevent downstream flooding, few municipal regulations actually provide volume standards; fewer still provide standards to protect stormwater runoff water quality. The usual approach of extrapolating stormwater management authority from existing ordinances, such as subdivision, zoning or flood controls, was found inadequate for two reasons: 1) ordinances for other purposes are not easily adapted, and 2) enforcement is difficult because courts have been reluctant to rule in favor of ambiguous regulatory authority and against well-established private property rights. This strongly suggests the need for specific local stormwater management ordinances.

As understanding of pollutant contributions from runoff grows, guidelines are developed to effectively treat runoff for water quality. These include:

- NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities (Effective August 1, 1993-1998)
- NYSDEC Division of Water Technical and Operational Guidance Series 5.1.8: Stormwater Management Guidelines for New Development (1990)
- NYSDEC Reducing the Impacts of Stormwater Runoff from New Development (1992)
- Westchester County Best Management Practices Manual for Stormwater Runoff Control (1984)

Guidelines recommend the capture and treatment of the “first flush” (the first half inch of runoff) from impervious surfaces. It also identifies the order, or hierarchy, in which a control measure is selected; infiltration is most preferred, then retention, and, lastly, extended detention (refer to stormwater section for complete discussion).

Currently, only Mamaroneck Town has developed a special ordinance covering stormwater management. Most of the other municipalities in the WAC 4 study area contain references to stormwater management in other existing ordinances, such as subdivisions and building regulations, but they are very generalized, focus mainly on quantity, and do not provide the specificity needed to ensure consistent implementation of effective control measures. All municipalities have adopted Floodplain Damage Prevention ordinances, but these are based on Federal Emergency Management Agency (FEMA) requirements for flood insurance and refer generally to the prevention of downstream flooding so as to minimize life endangerment and property damage.

Drainage Requirements

Overland runoff from subdivisions often contributes nutrients, metals, and other contaminants to surface waters. To help control this problem, drainage requirements may be established by local planning commissions and boards as part of subdivision review processes. (Drainage best management practices are also applicable for other types of developments.) The table below shows costs and benefits from seven drainage management options:

Comparative Costs of Stormwater Management Techniques			
<i>Technique</i>	<i>Construction Costs</i>	<i>Maintenance Costs</i>	<i>Water Quality Benefits</i>
Grassed swale	Low	Moderate	Moderate
Infiltration basin	Moderate-high	High	Moderate-high
Infiltration trench	Low-moderate	Moderate-high	Moderate
Porous pavement	High	High	Moderate
Detention pond	Low-moderate	Moderate-high	Moderate-high
Retention pond	High	Moderate-high	High
Constructed wetland	High	Low	High

Effective drainage management should minimize the volume of runoff generated as well as enhance filtration. Steepness of constructed slopes should be minimized, and bare surfaces re-vegetated as quickly as possible.

Environmental Impact Assessments

Proposed subdivisions which exceed a certain number of proposed lots may be required to prepare environmental impact assessments or statements. These environmental analyses may require varied information depending on community needs and water resource protection goals. Possible requirements are: identification of sensitive water receptors downgradient on- and off-site; information on the existing condition of these resources; and potential impacts from the proposed development on coastal areas or other nearby sensitive areas.

Performance Standards

Subdivisions may be regulated on the degree of impact the full development could have on water resources. Performance standards, such as nitrogen and phosphorus loading limitations, may thus be specified to keep contamination from the subdivision below assimilation capacity of the downgradient water resource. The developer can be required to determine impacts, perhaps through the EIA process (above).

Site Design/Landscaping

Water quality protection may be enhanced via requirements for vegetated buffer zones, natural landscaping in key areas, and the reduction of impervious areas through stringent coverage standards and alternative roadway designs. The Center for Watershed Protection (www.stormwatercenter.net) has compiled summary sheets for 22 model development principles that redirects past precepts where “more” considered better to standards that reflect a balanced approach to development and water quality protection. In establishing landscaping requirements, communities should encourage xeriscaping techniques under appropriate conditions. Xeriscaping focuses on the use of native plant materials having lower water and nutrient requirements than standard landscape species. Use of highly demanding exotics should be discouraged.

Steep Slopes

Sloping topography typically has greater potential to erode. This has led some municipalities to create special ordinances regulating development on steep slopes. While the definition of steep slopes can vary, slopes of 15 percent (that is, 1.5 feet of vertical rise for every 10 feet of horizontal run) or greater have been identified as the threshold for special controls.

In the WAC 4 study area, there are a modest number of steep slopes. According to the County’s Environmental Planning Atlas, which is based on USGS topographic maps, most of the steep slopes are around the headwaters of the Mamaroneck River in north Harrison and White Plains. Other steep slopes exist along the Mamaroneck River, from Spring Lake in Harrison south to the Mamaroneck Reservoir in Mamaroneck Town. Additional steep slopes can be found along the West Branch of the Mamaroneck River in White Plains. A few pockets of steep slopes also exist along the Sheldrake River in north Scarsdale. Other steep slopes exist in the study area, but these have not been mapped, probably because of their relatively small area.

Wetland Regulations

It is a well-documented fact that wetlands are a critical component in the protection of both surface and groundwater quality. Wetlands absorb and contain floodwaters and have been shown to remove significant quantities of pollutants through a combination of physical, chemical and biological processes.

The necessity of local ordinances is clearly evident. There are both federal and state laws that regulate impacts to freshwater wetlands. However, under the New York State Freshwater Wetlands Act (Article 24 of the Environmental Conservation Law), regulated wetlands are generally limited to those which are 12.4 acres or larger in size. The U.S. Army Corps of Engineers (ACOE) regulated disturbance to virtually any wetland or water body under Section 404 of the Clean Water Act.

Tidal wetlands also are both federally and state regulated. The ACOE regulates tidal wetlands under Section 404 as well. The State regulates tidal wetlands under the Tidal Wetlands Act (Article 25 of the Environmental Conservation Law) and its implementing regulations 6 NYCRR Part 661. The State tidal wetlands regulations generally are more comprehensive, including a 300-foot-wide regulated adjacent area under many circumstances. However, there are

limitations. The adjacent area goes no further than the seaward side of an existing man-made structure, such as a bulkhead or seawall, and it calls for only a 75-foot-wide buffer instead of 100 feet. Co-regulation would be beneficial in allowing more stringent controls or providing a venue for arranging compensation for wetland losses as is being done in the City of Rye.

All of the six municipalities in the WAC 4 study area have a local freshwater wetland ordinance. The existing freshwater wetlands ordinances were reviewed in comparison with *A Model Ordinance for Wetland Protection* (1988), prepared by the Westchester County Soil and Water Conservation District (SWCD). Other guidance used include: *Stormwater Management Guidelines for New Development* (1990), prepared by the New York State Department of Environmental Conservation (NYSDEC) (these guidelines are also known as Division of Water Technical and Operational Guidance Series 5.1.8); the 1989 *Federal Manual for Identifying and Delineating Jurisdictional Wetlands*, prepared jointly by the ACOE, the U.S. Environmental Protection Agency (EPA), the U.S. Fish and Wildlife Service, and the U.S.D.A. Natural Resources Conservation Service; a Memorandum of Agreement (dated February 1990) between the ACOE and the U.S. EPA; and the NYSDEC's *Reducing the Impacts of Stormwater Runoff from New Development* (1992). No model ordinance currently exists for tidal wetlands. In Westchester County, only the City of Rye has adopted a local tidal wetlands ordinance, although one is being considered for adoption by the Town of Mamaroneck.

While most municipalities with a wetland ordinance also regulate activities within an adjacent area of up to 100 feet, these "adjacent areas" do not carry with it the same weight as a true "buffer." A buffer is a protected area adjacent to a resource where certain activities or encroachment is prohibited. In the current ordinances, activities to be conducted within an adjacent area are merely brought under regulation; there are no prohibitions or standards to preserve adjoining areas as buffers to the wetland resource.

Other features that are advocated in the model ordinance or guidance documents, but are missing or unclear in the existing ordinances, include: a scientifically-based methodology for delineating wetlands; specific standards for basing permit decisions; the requirement that wetlands only be used for final polishing if part of a stormwater management plan; mitigation sequencing requirements, which calls for wetland permit applicants to first demonstrate that wetland impacts cannot be entirely avoided, then to demonstrate that unavoidable impacts have been minimized, and finally to compensate for any remaining impacts; and a no-net-loss objective.

It is recommended that every municipality create or improve upon their existing freshwater wetlands ordinance by incorporating the SWCD model ordinance standards and the state and federal guidelines. Clearly, the first step in protecting water quality is to protect the wetlands themselves, both by enforcing applicable state regulations to their fullest extent and, where authorized by statute, by adopting local laws to protect wetlands and wetland functions. Following are some techniques for protecting wetlands.

Natural Vegetated Buffers

Natural vegetated buffers have tremendous value in protecting wetland and surface waters from a variety of impacts. Buffer strips aid in reducing direct stormwater runoff discharge to surface waters, stabilize shoreline areas and provide wildlife habitat corridors. Buffer strip widths may

vary depending on the resource in question. For example, Queen Anne's County, Maryland, requires a 300-foot buffer around tidal wetlands and waters, 50 percent of which must be forested. If not currently wooded, trees must be planted. The non-wooded portion is maintained as natural ground cover.

Surface Water Discharges

Land development frequently results in increased discharges of surface runoff to wetlands and watercourses which may cause downstream flooding, severe alterations to wetlands hydrology, and degradation of water quality. To prevent this, direct discharge of surface runoff from roads and other paved areas to wetlands and watercourses can be prohibited by local ordinances. Developers can be encouraged to minimize the extent of paving within buffer zones and to use permeable paving materials where possible. Surface runoff should be recharged on site, using a combination of vegetated swales, detention basins and similar techniques (see also stormwater management and drainage controls under Subdivision Regulations, above).

Erosion and Sediment Control

The discharge of sediments to wetlands and waterways often has severe consequences, ranging from direct sedimentation of wetland flora and fauna to reduction in water quality. Therefore, strict erosion and sedimentation controls for construction activities should be enacted. Different types of erosion controls will clearly be required for different slopes, soil conditions and construction activities. Subsequent revegetation requirements can also be specified, to insure long-term stability.

Many guidelines have been developed which offer technical guidance, including the Westchester County *Best Management Practices Manual for Erosion and Sediment Control* (1991) and NYSDEC Division of Water's "Erosion and Sediment Control Guidelines for New Development" (Technical and Operational Guidance Series 5.1.10). In addition, the Soil and Water Conservation District produced *A Model Ordinance for Erosion and Sediment Control* (1986), which provides guidance for developing an effective local ordinance for controlling erosion and sediment.

Harrison, Mamaroneck Village and Mamaroneck Town have distinct ordinances for erosion and sediment control. These regulations include some of the features recommended in the aforementioned model ordinance, but not all. It is recommended that all municipalities adopt separate erosion and sediment control ordinances to ensure that all types of land development are required to implement proper controls. Those with such ordinances need only amend their existing regulations to incorporate some additional standards that would further strengthen these ordinances.

Restrictions on Pesticides and Fertilizers

Fertilized lawns often contribute substantial levels of nutrients, pesticides and herbicides to surface waters directly, via surface water runoff, and indirectly, via leaching to groundwater. Therefore, limiting the extent and controlling the location of lawns in any buffer adjacent to wetlands, streams, ponds and the Sound is recommended.

NON-REGULATORY TOOLS

Many communities have recognized that over-reliance upon regulatory tools merely programs a municipality for development and allows little flexibility if the original program was inaccurate, or if better information has been made available since the program was devised. Consequently, an effective resource program should also utilize non-regulatory tools.

Although many non-regulatory water resource programs are available to cities and towns, they have traditionally focused on the categories noted below:

Land acquisitions, land donations, and conservation easements (the following three techniques) are all management techniques that may be more efficiently conducted by non-profit land conservation organizations than by municipalities. These organizations are frequently created as land trusts for particular towns, counties, or watersheds, and often have names such as “Smith County Land Trust,” “Friends of Pleasant Lake,” or “Jonesville Conservation Trust.” These organizations are tax-exempt, no-for-profit corporations. Therefore, donations and bargain sales to the conservation trust are usually considered charitable donations and may have positive federal and state tax consequences. These organizations can provide expertise in arranging land transfers, drafting conservation easements, and explaining advantages and disadvantages of real estate transfers to both land purchasers and sellers; coordinate with and solicit aid from various foundations; and, in some cases, have the capacity to provide funds for acquisition or to serve as landowners and stewards. Some of these organizations can only serve as temporary landowners while others may hold lands permanently.

Land Acquisition

One obvious way for a community to protect a resource is to buy the land outright. Acquisition priorities may include wetlands and stream banks within coastal watersheds, often for access opportunities as well as for resource protection. Outright purchase of land can take four variations:

- a) Purchase at fair market value: The buyer (community or conservation group) pays the seller the fair market value for the property.
- b) Bargain purchase: The purchase of property below fair market value by a conservation organization or municipality. The difference between fair market value and the reduced price may qualify as a charitable deduction from income taxes for the seller.
- c) Installment purchase: The property is purchased over a period of years. Installment purchases allow the town to spread the purchase costs over a number of years.
- d) Purchase with a reserved life estate: The property is transferred to the town upon the death of the individual landowner. This option allows landowners to sell now, but to continue to use their property during their lifetime and/or the lifetimes of other members of their immediate family. Because of the continued use, the purchase price may be lower than fair market value.

An innovative technique for land acquisition is the land bank. Land banks receive a percentage of fees generated by real estate transfers, and use this money to fund land acquisition. Land banks are usually created by the state legislature and may apply to specific regions or statewide.

A more traditional, frequently controversial, form of land acquisition is through eminent domain. If a community can demonstrate the value of a given parcel for the public good, it can take ownership of that parcel. However, due compensation must be given to the previous owner, in accordance with the Fifth Amendment to the U.S. Constitution which states, "...nor shall private property be taken for public use without just compensation." Public approval is usually required for eminent domain action, since public money is spent to compensate the previous owner. Eminent domain takings are frequently contested by the previous owner, who may believe the land to be worth more than is offered by the community.

Eminent domain takings should not be confused with a "takings" claim, where a landowner challenges a town that a zoning bylaw or other regulation prohibits him from all uses of his land, i.e., his land has effectively been taken without any compensation.

Land Donation

Landowners are often in the position of being able to donate a piece of land either to the community or a non-profit organization such as local land trusts. If so, they will find that giving the land for preservation costs them far less than they might think, particularly when a variety of tax savings are taken into account.

The initial benefit to the person donating the land comes in the elimination of estate of capital gains taxes. In addition, real estate taxes, insurance and maintenance costs are avoided. And, the entire value of the donation can be deducted, over time, from federal, and, in many cases, state income tax obligations.

Donations of ecologically significant land with coastal watersheds can be a particularly important technique for resource protection. Donations which provide access to water often help fulfill community goals of increased public access to waterways.

Conservation Easements

An easement is a limited right to use or restrict land owned by someone else. Easements are either positive (rights-of-way) or negative (conservation, scenic) and may take a variety of forms. Easements can effectively assist a community in protecting land from development by restricting all or a portion of the property to open space or limited development uses. The granting of a conservation easement does not involve the transfer of ownership of the land; instead, it means giving up certain development rights of the property. For example, a conservation easement may restrict the number of houses to be built upon a parcel; restrict the types of development allowed on the parcel; or specify that portions of the parcel remain undeveloped in perpetuity.

Water Quality Monitoring

Water quality monitoring is becoming a very important aspect of a non-regulatory approach to water protection. Local governments have developed programs to identify problem areas in their community where contamination has already affected water quality. In addition, monitoring can be used to measure the effectiveness of the water protection program or as an early warning of threats. Monitoring can be conducted by state and local governments and water utilities, or industry and commercial entities may wish to develop their own water quality monitoring programs. Frequently, volunteers, particularly retired citizens and high school or university classes, can serve as effective resource quality observers.

For example, in Rhode Island, the volunteer Salt Pond Watchers monitor water temperature, clarity, nutrient, chlorophyll, and bacterial levels in coastal lagoons. The state Department of Environmental Management has used the Watchers Program data to determine shellfish and beach closures. In Chesapeake Bay, approximately 130 stations are monitored by volunteers for pH, dissolved oxygen, turbidity, water depth and temperature, air temperature, weather conditions, and rainfall.

Hazardous Waste Collection

Another non-regulatory protection tool is the collection of household hazardous waste. Although these materials are generated in small amounts, they can represent large threats to surface and groundwater quality. Motor oil allowed to drain onto the land surface when automobile oil is changed, excess paint discarded in the gutter, fungicides and herbicides left in a shed that is flooded during a hurricane are possible routes from contaminant container to water. To avoid these scenarios, many communities, including Westchester County, have implemented hazardous waste collection days. In other areas, these wastes are collected continuously. For example, in Arlington County, Virginia, the Water Pollution Control Plant accepts household hazardous wastes from residents. The Plant chemist classifies and stores the wastes and periodically ships them to a licensed hazardous waste facility.