

Changing Landscapes

Land use planning curriculum for natural resource professionals

- P** rinciples, people, and policies
- L** and planning and pressures
- A** pproaches
- N** atural resource planning tools

N3: Regulatory Approaches to Protecting Natural Resources



Communities can use municipal and county regulatory tools to protect natural resources before, during, and after development. (Photo: Marc Roberts, U.S. Forest Service)

Overview

This factsheet explains the difference between regulatory and nonregulatory approaches to natural resource conservation. It briefly discusses the Federal policies that authorize and drive State and local regulatory policy. Discussion centers on commonly used municipal and county regulatory tools and how they are used to protect natural resources before, during, and after development.

Natural Resource Protection

Natural resource protection has become increasingly important as development and land conversion negatively impact ecosystem processes and services to municipalities. There is a wide range of regulatory and nonregulatory approaches that are used to carry out comprehensive planning with the objective of protecting natural resources. Regulatory approaches are mandated by municipal zoning and other ordinances, whereas nonregulatory approaches are voluntary and often provide incentives to developers.

Regulatory approaches to protecting natural resources are often strongly correlated with the value a community puts on its natural resources. When the protection of sensitive and threatened landscapes is a high conservation priority at a local level and there is strong political will to see this happen, using both regulatory and nonregulatory approaches to protecting resources often brings the best results.

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Federal Regulatory Policies

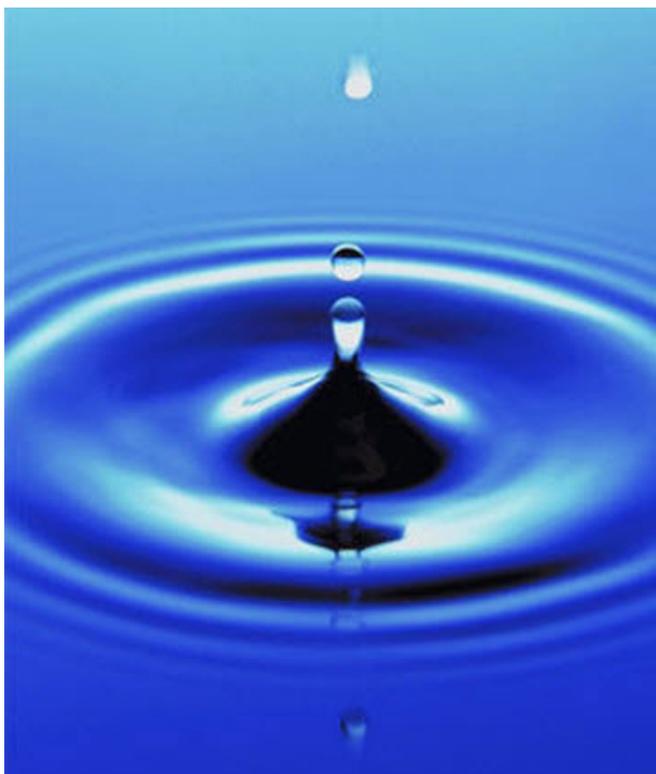
Because Federal laws mandate and authorize natural resource protection at the State and municipal level, Federal regulatory policies are briefly discussed here. A companion factsheet (P2) titled “Policies that Direct Natural Resource Planning” provides a much more indepth overview of State and Federal policies. Natural resource professionals should be familiar with the following Federal policies that impact all the work they do in some way. The following is a brief overview of some of the most common laws.

Clean Water Act (CWA)

This law defines EPA’s responsibilities for restoring and maintaining the chemical, physical, and biological integrity of U.S. waters. States carry out its mandate through a variety of programs aimed at preventing point and nonpoint pollution sources, assisting publicly owned water treatment works, and maintaining the integrity of wetlands.

Safe Drinking Water Act (SDWA)

This law defines EPA’s responsibility for setting national health-based standards for drinking water quality and overseeing State, local, and private water suppliers who are mandated to follow those standards.



*The Clean Water Act defines the EPA’s responsibilities for restoring and maintaining the integrity of U.S. waters.
(Photo: <http://www.epa.gov>)*

Federal Endangered Species Act of 1973

This law defines the responsibilities of the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration for providing a program for conserving threatened and endangered plants and animals and the habitats in which they are found. Critical habitat is designated for each species, and actions within critical habitat areas are regulated at the State level.

Federal Emergency Management Agency (FEMA)

This Agency’s floodplain delineations protect natural floodways from development and ensure that floodplain systems can function as nature intended. Because local and State development reviews require the adoption of FEMA floodplain boundaries, in reality this represents resource protection.

Army Corps of Engineers Water Resources Development Act of 1999

This law establishes a Flood Hazard Mitigation and Riverine Ecosystem Restoration Program that gives regulatory authority to the Army Corps of Engineers to buy out property owners in floodplain areas and return these areas to functioning floodplain systems.

National Wetlands Inventory

Administered by the Army Corps of Engineers, this provides provisions to limit and even prevent development impacts on Class 1 and 2 wetlands to ensure a level of protection for the ecosystem services they provide.

Food, Conservation, and Energy Act (Farm Bill)

This is an Executive Order that defines the USDA's responsibilities for governing the bulk of Federal agriculture and related programs. It addresses commodities, resource conservation, nutrition, credit, rural development, research, forestry, energy, horticulture and organic agriculture, livestock, crop insurance, commodity futures, trade, and taxes.



*The National Wetlands Inventory helps ensure a level of protection from development for wetlands.
(Photo: Steve Hillebrand, U.S. Fish and Wildlife Service)*

Environmental Impact Statements

The National Environmental Protection Act requires projects supported with Federal funding or on public lands to have an appropriate level of environmental protection as part the project design and implementation process.

Zoning and Other Regulatory Tools

While State and Federal laws and enabling legislation provide a foundation for natural resource protection, in almost all States, municipalities are ultimately responsible for zoning and other regulatory strategies that can be used to conserve natural resources at local and site scales. Municipalities carry out this local policy through zoning and subdivision and land development ordinances.

In nearly every State, municipalities are ultimately responsible for zoning and other regulatory strategies to conserve natural resources.

Zoning often identifies riparian area, wetland, and other conservation zones where development densities are restricted or development is altogether restricted. Subdivision and land development ordinances provide standards for subdivision design and infrastructure, and even require landscaping that uses only native plant species. Local ordinances can contain very specific provisions, such as requiring that a percentage of the total acreage of a parcel be retained as a conservation area or the distance development can occur from streams, steep slopes, or hydric soils.

Comprehensive planning is not regulatory! Comprehensive planning provides a legal and logical rationale for the use of zoning and other police power authorities. It should be a municipality's first step in protecting natural resources. A comprehensive plan can identify and map areas to be protected and outline regulatory and nonregulatory tools for protecting them. These planning objectives are then achieved through zoning, subdivision and land development

ordinances, and nonregulatory tools such as land purchase and other public and private investment. Communities can prepare more specific companion plans (open space, green space). Open space plans are commonly used as a supplement to comprehensive plans that specifically target the protection of natural features such as woodlands, fields, wetlands, streambanks, floodplains, and unique landforms.

The **Urban Growth Boundary (UGB)** is a boundary line that is designated in a comprehensive plan that marks the limit between desired growth areas and areas where growth and development are not encouraged. A UGB usually defines a limit where the full range of water, sewer, roads, and other infrastructure is available to new or existing development. Development is directed within the urban growth boundary area without the added cost of expanding existing infrastructure. Urban growth boundaries provide for orderly development, protect agriculture and forest industries, and limit the encroachment of development into fragile resource areas.

Urban growth boundaries are also known as Service Limitation Boundaries. In some States they have been formally established by zoning provisions that limit development density and allow for Transfer of Development Rights.

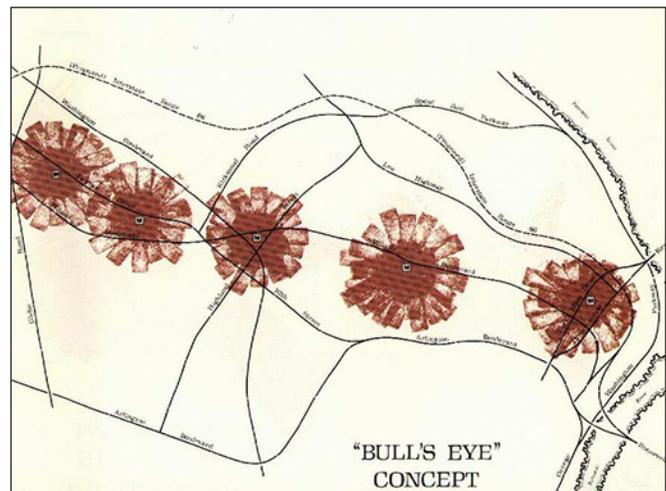
Transfer of Development Rights (TDR) is a development density distribution program established through zoning that provides landowners an incentive to sell their development rights. While the seller of development rights still owns the land and can continue using it for farming, forestry, or recreation, a conservation easement is placed on the property that prevents further development. The purchaser of the development rights can use these rights to increase the density of development at another location more suitable for development—the receiving area. TDR programs can be used to permanently protect blocks of forest, wildlife habitat, productive farmland, or other significant resources. TDRs are often used in conjunction with Urban Growth Boundaries to allow landowners to make reasonable use of property outside the growth boundary.

Transfer of Development Rights programs can permanently protect blocks of forest, wildlife habitat, productive farmland, or other significant resources.

Impervious Surface Thresholds are imposed by zoning and stormwater management regulations. They set maximum limits of impervious surfaces usually expressed as a percentage of lot size. They ensure the natural movement of water to maintain natural drainage patterns, encourage the use of green infrastructure and Low Impact Development to address stormwater management, and ensure that adequate vegetative cover is maintained on developed sites.

Concentrated/Clustered Density Zoning is used to provide higher density development in specific areas of a parcel or in growth centers. Concentrated density zoning is used to cluster residential density on smaller lots and/or require infill development, which focuses new development into developed areas. Concentrating mixed-use, high-density development promotes the most efficient use of roads and other infrastructure and can keep development from intruding on critical open space and natural areas.

Clustered density zoning is used for conservation subdivisions, which is an alternative approach to dividing parcels that locates lots away from existing natural and cultural features. This approach preserves a substantial amount of the site (at least 50 percent) as permanently protected open space by grouping homes on the developable portions of the land. Conservation subdivisions achieve the same or higher overall density levels as conventional subdivisions by reducing minimum lot sizes.



Arlington County, Virginia, developed a general land use plan that concentrates the highest density uses within walking distance of Metro stations using a “bull’s eye” approach. (Map: <http://projects.arlingtonva.us/planning/smart-growth/rosslyn-ballston-corridor/>)

Conditional/Special Use Permits are established in a standing zoning ordinance and require that identified projects meet additional review and conditions during the permitting process. Conditional/Special Use is a granted approval that allows a land use in a zoning district that is not a permitted use. The conditional use can be granted if, after a public hearing, the use is found not to be injurious to the public interest. Reasonable approval conditions can be required, including defining hours of operation; limiting parking, signage, and lighting; defining lot sizes; or requiring additional landscaping. An example of a common Conditional/Special Use is allowing buildings such as a church or community center to be located in an area zoned for residential use.

Ordinances

Subdivision and land development ordinances provide permit applicants with modifications and waivers. A modification is a modification of a standard; a waiver is the deletion or radical change to a standard. Zoning ordinances provide for variances and curative amendments.

A zoning variance is requested when an applicant seeks permission to do something that does not conform to the existing zoning ordinance. A variance overrides an existing zoning ordinance if it is found that not granting the variance will result in unnecessary hardship on the property owner. A review board hearing a variance application typically requires the applicant to make the following three findings:

1. There are unique conditions peculiar to the properties that disallow development.
2. The applicant did not create the hardship.
3. The variance will not alter the essential character of the neighborhood or zoning district, hamper development of adjoining properties, or be detrimental to the public welfare.

The granting of a variance can include reasonable conditions such as grading restrictions, limiting vegetative removal, and others.

The curative amendment process allows landowners to challenge, on substantive grounds, the validity of a zoning ordinance or map (or any provision thereof) that restricts or prohibits the development of land. This process is usually a last resort for a property owner because it is a challenge to the substance of the ordinance. When elected officials or other review boards are deciding a curative amendment, other factors are often considered besides the property owner's challenge; these include the suitability of the site for the intensity of use and the impact of the proposal on the site's slopes, woodlands, wetlands, stormwater, or fire safety.

Ordinance Cures

Municipalities with zoning and subdivision and land development ordinances almost always provide for permit applicant relief when ordinance provisions are shown to be unreasonable, cause undue hardship, or when an alternate standard can provide the same or better result. These "cures" are provided for in the standing ordinance to which they pertain.

Appeal processes are provided to both permit applicants and those impacted by permit decisions. Certain municipal boards, such as Zoning Hearing Boards, Zoning Boards of Appeals, and Planning Commissions, are authorized to hear appeals of administrative decisions. Further appeals processes are

applicable by law and may include elected officials and county court.

In addition to cures provided in municipal ordinances, States can become directly involved in municipal zoning ordinances when an ordinance is challenged by a property owner as being oppressive and/or arbitrary. An example is Pennsylvania's ACRE Law: Regulation of Normal Agricultural Operations. Under this law municipal zoning ordinances can be challenged for unduly impeding agricultural operations, including forestry. If a challenge is accepted, the State Attorney General's Office will negotiate, or even file suit, with a municipality for amendment of the ordinance in question.

Riparian Area and other Buffer Zones impose specific, minimum setback distances between development and areas of environmental concern such as wetlands, riparian areas, and wildlife habitat. For example, a strong riparian area ordinance requires protection in two zones of the riparian area. Resource Protection Zone 1 prevents disturbance of vegetation or soil 25 feet from the top of a bank; Resource Protection Zone 2 limits disturbances for an additional 75 feet with special conditions or engineering practices. Setbacks can be increased for steep slopes or high-quality stream orders. Buffer zones are used to protect natural areas from development and related encroachments such as grading, vegetative removal, roads, or driveways.



Buffer zones establish minimum setback distances between development and environmental areas such as wetlands.

(Photo: <http://www.epa.gov>)

Zoning can include **Tree Preservation and Removal Standards**. These standards can prohibit clearing trees on steep slopes; establish setback distances from water bodies; set maximum thresholds for clearing lots; and preserve woodlots and significant groups of trees, even historic trees.

Timber Harvest Ordinances regulate forestry operations in a few States. These municipal zoning ordinances require timber harvest plans that delineate how trees are to be harvested and regenerated, the construction of roads and landings, the construction of sediment and erosion control devices, and harvesting amounts and setbacks adjacent to riparian areas and wetlands. Timber Harvest Ordinances also regulate the use of public roads by truck traffic, hours of operation, and treatment of residual trees for fire prevention.

Steep Slope Ordinances protect slopes from grading, vegetative clearing, and development. Development is often restricted on slopes over 25 percent, while limited development is allowed with conditions on slopes between 20 and 25 percent. Steep slope ordinances can require the use of grading plans, step-down foundations, and other engineering and architectural tools. They are used to enhance groundwater recharge, reduce erosion, and protect the site from landslide, fire, or other disaster.

Section 1003. STEEP SLOPE CONSERVATION

- A. Steep slope areas shall be preserved in their natural state whenever possible. Where construction of roads, buildings, driveways, or infrastructure cannot be avoided, disturbance shall be kept to the minimum necessary and, in no case, shall it exceed the following permitted disturbance limits:
1. Moderately Steep Slopes - No more than thirty-five (35) percent of moderately steep slopes shall be regraded, cleared, built upon, or otherwise altered or disturbed.
 2. Very Steep Slopes - No more than twenty-five (25) percent of very steep slopes shall be regraded, cleared, built upon, or otherwise altered or disturbed.
 3. Steep Slope Margins - No more than twenty-five (25) percent of steep slope margins shall be regraded, cleared, built upon, or otherwise altered or disturbed.
 4. Prohibitively Steep Slopes - No more than ten (10) percent of prohibitively steep slopes shall be regraded, cleared, built upon, or otherwise altered or

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The Lower Milford Township (Lehigh County, Pennsylvania) zoning ordinance includes steep slope ordinances. (Reformatted for this document on 10/7/14; Credit: http://conservationtools.org/libraries/1/library_items/762)

Prohibited Slopes are defined as those slopes with greater than a 25 percent grade. No grading, vegetation removal, or development is permitted on Prohibited Slopes. Precautionary Slopes are defined as those slopes with grades ranging between 12–25 percent. Precautionary Slopes allow limited grading, vegetation removal, and development with special conditions or engineering practice requirements.

Development Density Bonuses are given to developers in exchange for permanently conserving open space or sensitive, unique environmental areas on a parcel. Zoning regulations can permit a density bonus, which increases development density on a property up to a percentage allowed by the zoning ordinance.

Municipalities can impose **Impact Fees** on developers to help cover the cost of education, public safety, and other capital improvements that are necessary to accommodate new subdivision and other development. Municipalities can reduce or waive impact fees if a project design conserves or reduces impacts on natural resources. These fees are illegal in some States.

Subdivision and Land Development Regulations provide standards and procedures for dividing individual parcels of land into two or more lots. Subdivision ordinances focus on the design of streets, lots, and structures, and the physical layout or design of a development. They set standards for sidewalk and road width, lot size, parking lots, and other landscaping, and direct where utility rights-of-way will be located. They require the bonding of streets, landscaping, and other improvements that will be turned over to the municipality.



Subdivision regulations set standards for dividing individual parcels of land into two or more lots.

(Photo: http://csis.msu.edu/news/subdivision_biodiversity)

Subdivision and land use regulations can work with zoning ordinances to require that specific environmental standards are met, such as siting development away from riparian areas and other sensitive areas, preserving high-quality habitat areas, or protecting steep slopes.

Subdivision regulations can also work with zoning ordinances to require that subdivision projects of 5 or more acres cluster lots close together to permanently protect open space. The portion of the parcel that is not developed is restricted by a conservation easement and used for common open space. Subdivision ordinances can also require natural resource assessments, stormwater management, or other information as part of the permitting process.

Zoning Ordinance versus a Subdivision and Land Development Ordinance

Zoning ordinances are most often used to provide provisions for the location of land uses (zoning districts), density of use, open space protection, setbacks, building heights, and sizes. Subdivision and land development ordinances,

on the other hand, direct the permit application process and design process. They can require the bonding of required improvements such as streets and utilities and, in most States, refer to zoning ordinances when they restrict the use of private property.

Case Study – Bennington, Vermont's Forest Reserve District

The Town of Bennington, Vermont, has delineated a Forest Reserve District as part of its zoning regulations to maintain and protect large areas of intact forest. Parcels in this district must be a minimum of 25 acres, and only commercial forestry uses are permitted. Telecommunication towers and seasonal, primitive camps of a minimal size may also be allowed after special approval from the development review board, provided that adverse impacts on the environment and scenic resources are avoided. Camps may not be converted to year-round dwellings. By limiting development and parcel size, forest fragmentation is avoided and the resource values of the district remain intact.

For more information, visit this Web site:
<http://vnrc.org/resources/community-planning-toolbox/case-studies/forest-reserve-district-bennington/>.



A sign welcomes visitors to historic Bennington, Vermont.
(Photo: <http://www.wikipedia.org>)

Case Study – Township of Warwick, Pennsylvania Transfer of Development Rights Program

The Township of Warwick, Pennsylvania, established its Transfer of Development Rights program in 1993. Since then, it has preserved over 900 acres, more than any other community in the State of Pennsylvania. This highly successful program is enacted through the township's zoning regulations and allows landowners of agricultural land to sell or donate their development rights. Each landowner is granted one development right for every two acres of land. Once development rights are conveyed, use of the property will be restricted in perpetuity for agricultural purposes only. In turn, developers may purchase or use these rights to increase permitted lot coverage in the Campus Industrial Zone or to increase maximum density for elderly housing developments within the R-3 Residential Zone.

For more information, visit this Web site: <http://www.ecode360.com/11671452>.



The Township of Warwick (PA) has preserved over 900 acres since it established a Transfer of Development Rights program in 1993.
(Web site: <http://www.warwick-bucks.org/departments/planning-and-zoning-department/>)

Case Study — Kansas City Development Standards for Open Space and Conservation

Kansas City’s development standards are an excellent example of how subdivision regulations can be used to encourage open space and natural resource design. In exchange for flexibility in lot layout and building standards, developers are required to set aside a prescribed amount of permanent open space, which can be used for recreation or natural resource protection. “Open space” developments must set aside a minimum of 30 percent of the site as open space, while “conservation” developments must delineate at least 60 percent of the site as open space.

For more information, visit this Web site:
<http://www.zoningplus.com/regs/kansascity/>.



Kansas City, MO, uses subdivision regulations to encourage open space and natural resource design.

Relevant Factsheets

P2 – Policies that Direct Natural Resource Planning – Provides an overview of State and Federal policies and regulations that impact the protection and use of natural resources.

P4 – Developing and Measuring Effective Local Policy – Discusses the concept of policy, how it is created in local government, and how it can be evaluated. Mentions policies related to managing urban trees and fire.

A1 – Using Smart Growth Principles to Plan Sustainable Communities – Discusses some regulatory smart growth tools that are available.

A3 – Managing Stormwater with Green Infrastructure – Examines a number of regulatory tools that communities are using to support the use of green infrastructure as a solution to stormwater management.

N4 – Nonregulatory Approaches to Natural Resource Conservation – Describes how regulatory and nonregulatory tools can be used together and discusses how nonregulatory tools can be just as effective as regulatory tools in planning for natural resources.

N5 – Planning for Healthy Forests and Timber Operations – Discusses approaches to forestry-related Best Management Practices that can be integrated into comprehensive plans, zoning, and other land use regulations.

N7 – Minimizing Parcelization, Fragmentation, and Sprawl – Discusses some of the public and private land use practices that have contributed to these three issues. It familiarizes readers with both regulatory and nonregulatory tools that are being used to address these issues.

Resources

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