



7 ■ Local Government Smart Growth Management for Environmental Land Use

Local governments are in a strategic position to plan and manage land use, development, and conservation. Although we shall see in the next chapter that a few states and regional areas have retained some authority for land use management, local governments have the bulk of the responsibility for guiding and regulating land use development. They are the closest governmental unit to community life, the primary planning agent for the community's future, and the first "line of defense" for solving community problems.

This chapter discusses the role of local government in environmental land planning and management in the United States. This takes the form of an array of land use planning and growth management approaches and tools. The chapter begins by defining Smart Growth management and describes a number of planning, regulatory, and nonregulatory tools to control development and protect and restore environmentally sensitive areas. The chapter uses a number of innovative local government environmental land use planning and management programs to illustrate the tools, including those in Boulder (CO), Davis (CA), King County (WA), Austin (TX), Blacksburg (VA), and Montgomery County (MD).

Growth management is defined as those government policies, plans, investments, incentives, and regulations to guide the type, amount, location, timing, and cost of development to achieve a responsible balance between the protection of the natural environment and the development to support growth, a responsible fit between development and necessary infrastructure, and enhanced quality of community life.

Smart Growth emphasizes compact and mixed development in areas of existing infrastructure and de-emphasizes development in areas less suitable for development. Smart Growth is the result of effective growth management; growth management is the set governmental tools needed to achieve Smart Growth.

Using an array of management tools, including innovative zoning regulations, urban growth boundaries, infrastructure investments, community planning procedures, tax policies, land acquisitions, and others, many rapidly growing localities have tried to control the pace and location of development (Benfield, Terris, and Vorsanger, 2001; Nelson and Duncan, 1995).

But growth management is not without its critics or controversy. In some places, there is a general opposition to land use regulation or any government "tampering" with how landowners wish to use their property. In some slow-growth or economically disadvantaged communities, the desire for more development overshadows that need to control it. Some argue that growth controls can constrain development, cause escalating housing costs, and reduce affordability.

For example, after years of successful growth management, Boulder, Colorado, realized that one of its primary community concerns was housing availability and affordability. In 2000 its ratio of jobs to population rose to nearly 0.92:1 and was projected to hit 1.21:1 by 2020 if trends continue. A balanced ratio is 0.65:1. This is one of three key issues of the latest revision to Boulder Valley's Comprehensive Plan (Boulder Valley Comprehensive Plan, 1996; City of Boulder, 2001).

Recognizing this issue, the Fannie Mae Foundation has promoted the concept of **Fair Growth**, which is Smart Growth that accommodates affordable housing. Whereas Smart Growth aims to reconcile economic and environmental goals, Fair Growth adds social equity, completing the tri-objectives of sustainable development (Arigoni, 2001; Fannie Mae Foundation, 2000).

Despite these critiques, citizens in communities with high levels of growth and development have witnessed land abuse or rapid disruptive change. They have called out for greater local control of growth and development. Some of the tools they have used in managing land use and the environment are described next.

Tools for Smart Growth Management and Land Use Control

Box 7.1 lists several tools that are available for growth management. This chapter addresses local growth management, but the same tools are used in state and regional growth management programs discussed in chapter 8. The tools are divided among three categories: planning, regulatory tools, and nonregulatory tools. **Planning** provides the technical, political, and policy framework for growth management implementation programs that are regulatory or nonregulatory in nature. **Regulatory tools** include controls on the type, location, and timing of development. Because of the limitations of conventional land use regulations like zoning and subdivision ordinances, a number of more innovative regulatory mechanisms have been developed to manage development and its impacts on the environment. **Nonregulatory tools** include land acquisition, tax policies, and using infrastructure development to guide the timing and location of development. Most effective growth management programs use a combination of tools.

BOX 7.1—Growth Management Tools**Planning**

- Technical (including **environmental**) and political basis for land use **management**
- The comprehensive or **general plan**
- Functional plans; for **example**, capital improvement plan, stormwater management plan, open space/greenway **plan**, greenprint plan

Regulatory Tools

- Conventional Land Use **Regulations**
 - Zoning ordinance: **Use** and density restrictions
 - Subdivision regulations: Rules for land division
- Innovative Land Use **Regulations**
 - Variations on use **and** density restrictions; for example, agricultural zoning, cluster/conservation zoning
 - Overlay districts: **Environmental** zoning

- Performance/flexible zoning: Performance criteria
- Transfer of development rights (TDR)
- Phased development: Timing of development

- Development/Design/Construction Standards and Plan Review: EIA, Smart Growth scorecard, Green building scorecard
- Environmental Ordinances (e.g., Green Building Codes, Stormwater, Tree Preservation)

Nonregulatory Tools

- Land acquisition, conservation easements, purchase of development rights
- Infrastructure development: Roads and sewers determine location of development
- Differential development impact fees
- Tax policies: Use-value taxation, level-of-service areas

Comprehensive/General Planning

Prior to 1900, most urban planning was conducted by designers commissioned by city government. The concept of community-based land use planning was born in the early 1900s. Hartford established the first city planning commission in 1907, and Milwaukee and Chicago followed in 1908 and 1909. In 1913, Massachusetts required all cities of more than 10,000 people to have planning boards. The principal planning tool was land use zoning, which divides the city into districts where certain land uses are allowed. New York City adopted the first zoning ordinances in 1916, and by the time the U.S. Supreme Court upheld the constitutionality of zoning in 1926, over 500 cities had zoning regulations (Morris, 1982). But regulation is not planning, and the incremental actions of zoning boards tended to fragment cities into haphazard sections defined by the whims of board members and the influence of individual landowners.

The U.S. Department of Commerce issued a Standard State Zoning Enabling Act in 1926 to assist states desiring to grant localities the authority to zone. Although the model Act provided that zoning regulations must be made “in accordance with a comprehensive plan,” it provided no guidance on what a comprehensive plan was. Generally, courts viewed the zoning map itself as the comprehensive plan (NRDC, 1977).

The need for a more comprehensive view of city planning was not recognized until the late 1930s and later. In 1954, federal financial assistance for local comprehensive planning became available through section 701 of the Housing Act. This “701” program grew through the 1960s and 1970s, established the

BOX 7.2—Six Elements of Community Planning**1. Intelligence: Background Data and Planning Analysis**

Land use intelligence involves environmental inventorying and mapping, suitability and carrying capacity analysis, and assessment of land use perceptions (livability, attractiveness, symbolism, and quality of life). Planning intelligence is used in the process of general, functional, and district planning.

2. Long-Range Comprehensive or General Planning

Most general plans contain functional, district, and implementation plans.

3. District Planning

District or sector plans cover a small area like a neighborhood, a central business district, a redevelopment area, or an environmental preservation area. The district plans characterize existing land use, identify critical issues, and provide a future vision represented in map and design form. The land use plan for a community comes to life in these district or neighborhood plans.

4. Functional Planning

Functional plans address single topics that cover the entire planning area, including transportation, infrastructure, natural environment, greenspace/greenways, parks and recreation, housing, and economic development, among others.

5. Implementation Plans

Implementation plans and programs address the actions necessary to realize the vision, objectives, and strategies of the general, district, and functional plans. Actions include zoning and development regulations, capital improvement plans and budgets, tax policies, and other programs.

6. Building Community Consensus

Although listed separately here, building community consensus through stakeholder involvement and collaborative planning is part of each of the five planning functions.

framework for comprehensive planning, and provided considerable experience in the field. The Department of Housing and Urban Development (HUD) 701 program was terminated by the Housing and Community Development Amendments of 1981. However, the program requirements for planning established the model for a comprehensive plan.

The **comprehensive plan**, first and foremost, is a vision of the future community developed and accepted by the community and adopted by its elected officials. The plan is a set of policies, goals, objectives, and strategies dealing with various aspects of the community—land use, housing, transportation, natural environment, economic development—that can guide the community's physical development. The policies are to be based on an evaluation of the area's needs and to serve as the basis for the formulation of specific plans and programs to meet those needs.

The Housing and Community Development Act of 1974 further required that comprehensive plans funded by HUD contain a housing element and a land use element. The land use element was to serve as a community guide for all matters relating to the use of the land, including air and water quality, protection of coastal areas, open space, agricultural land, environmental conservation, energy consumption, and land development. HUD guidance also required localities to prepare an environmental assessment of their plans and policies. Although the land use element and land use plan are not the only parts of the comprehensive plan, they have come to be viewed as the plan's key components.

BOX 7.3—The Local Comprehensive or General Plan

The comprehensive plan provides a vision adopted by the community and the technical and political basis for growth management and local government programs. Prepared every 4–10 years, the plan has a 10- to 50-year time horizon.

- Vision of the Community
- Statement of Community Policies
- Strategic Plan: Goals, Objectives, Strategies
- Functional Plans or Communitywide Topical Chapters: Natural Environment, Land Use, Parks and Recreation, Utilities, Transportation, Housing, Public Safety
- District or Sector Plans: Neighborhood Plans

As discussed in chapter 3, comprehensive planning is part of a community planning process made up of the six elements given in box 7.2. All comprehensive plans contain the “long-range general plan,” and most also include “district” and “functional” plans. In other cases these latter plans are separate and updated more frequently. Planning “intelligence” includes the background inventories, analyses, and public participation that serve as the foundation of the planning effort.

Box 7.3 gives a simple definition of the comprehensive plan and some of its basic components: a vision statement, policy statements, communitywide topics or elements, and district or neighborhood plans. Maps and graphical materials are important visual components to illustrate the plan and the future it portends.

The following list gives the table of contents of the 2001 Comprehensive Plan for Blacksburg, Virginia, a college town of 40,000 (Town of Blacksburg, 2001). The plan is revised every five years and has a 50-year time horizon. The plan presents the community vision as “portraits” of the town in 50 years. Part II provides chapters on plan elements of communitywide topical areas; they are presented in strategic plan format: goals, objectives, and strategies. Part III presents district or neighborhood plans. After the 1996 plan, the zoning ordinance was totally rewritten to reflect the plan.

Components of the Town of Blacksburg (VA) 2001 Comprehensive Plan

Introduction

- Part I The Town as a Whole
 - Community Values and Mission
 - Background Data and Planning
 - Elements Expected to Shape Future Land Use Trends
 - Portraits of Blacksburg
 - Today, 1996*
 - Tomorrow, 2046*
 - Plan goals
- Part II Townwide Topics (Elements)
 - Community Design

- Natural Environment and Open Space
- Parks and Recreation
- Greenways
- Historic Preservation
- Economic Development
- Information Technology
- Utility Services
- Transportation
- Community Facilities/Human Services
- Public Safety
- Part III Sectors (Neighborhood Planning)
- Overall Land Use Policies
- Sectors (Neighborhoods)

The strategic plan format of goals, objectives, and strategies is a key part of the plan because it articulates the community's direction and vision and serves as the basis for implementing regulations and programs. Figure 7.1 shows townwide land use in 2046 according to the plan. Using the interactive WebGIS, residents can zero in on their neighborhood and see what land use changes are called for in the plan.

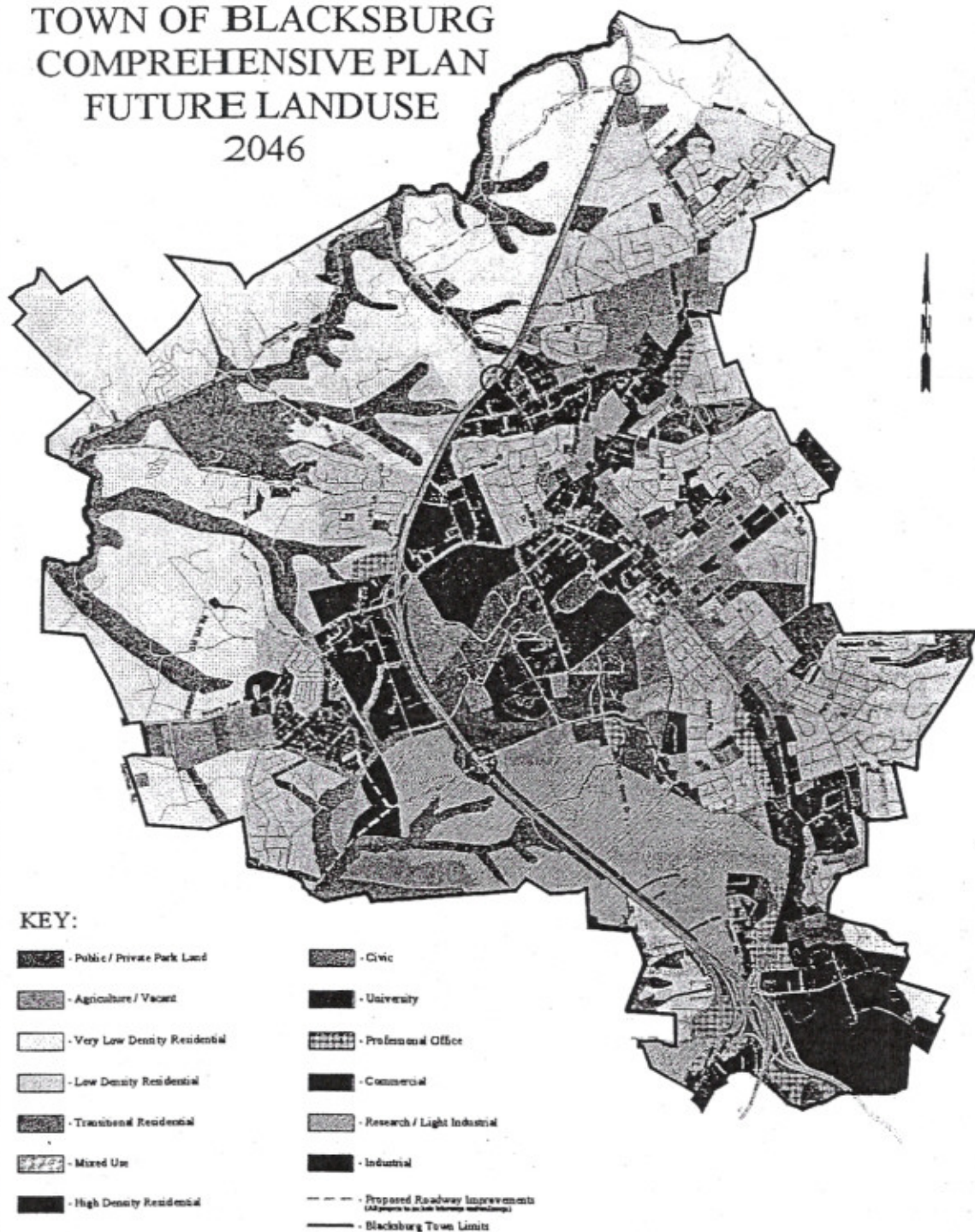
King County, Washington, is the size of Delaware (2,130 square miles), and, among the nation's counties, it contains some of the most beautiful scenery, diverse ecosystems, productive farmland, and vibrant economies. Its 1.7 million people are concentrated in 39 cities, including Seattle. The 2000 comprehensive plan focuses on the county's unincorporated (noncity) land, which is 82 percent of its area and holds 21 percent of its population (360,000). The plan is heavily influenced by the 1994 Washington State Growth Management Act, which required 13 planning goals of all local comprehensive plans, including the establishment of urban growth boundaries. Among its nine chapters are Regional Planning, Rural Legacy and Natural Resource Lands, Environment, and Preserving and Enriching Our Communities. Figure 7.2 shows land use for most of the county and delineates urban growth areas and rural areas (separated by an urban growth boundary), as well as protected open space and agricultural and forest production districts (King County, 2000).

Regulatory Tools for Growth Management

States have the constitutional authority to regulate private activities including development, and most states have delegated the responsibility for land use control to local governments. The degree to which state governments have delegated land use control to localities varies considerably from state to state. States can be divided into "Dillon's Rule" and "Home Rule" states. In Dillon's Rule states, communities only have those powers vested to them by specific state legislation.¹ In Home Rule states, communities are free to exercise powers, *unless* specifically prohibited by the state. In some of these Home Rule states, the state government

1. This is named for Judge John Foster Dillon, who in 1868 (*City of Clinton v. Cedar Rapids and Missouri Railroad Co.*, 24 Iowa 455) formulated the doctrine that municipalities only have those powers "expressly granted" to them by the state.

TOWN OF BLACKSBURG COMPREHENSIVE PLAN FUTURE LANDUSE 2046



File Name: C:\DC\ComPlan\Planning\Sections\Future LandUse

Scale Not Shown
November 27, 2001

Figure 7.1 Town of Blacksburg (VA) Comprehensive Plan: Future Land Use 2046. Source: Town of Blacksburg (2001).

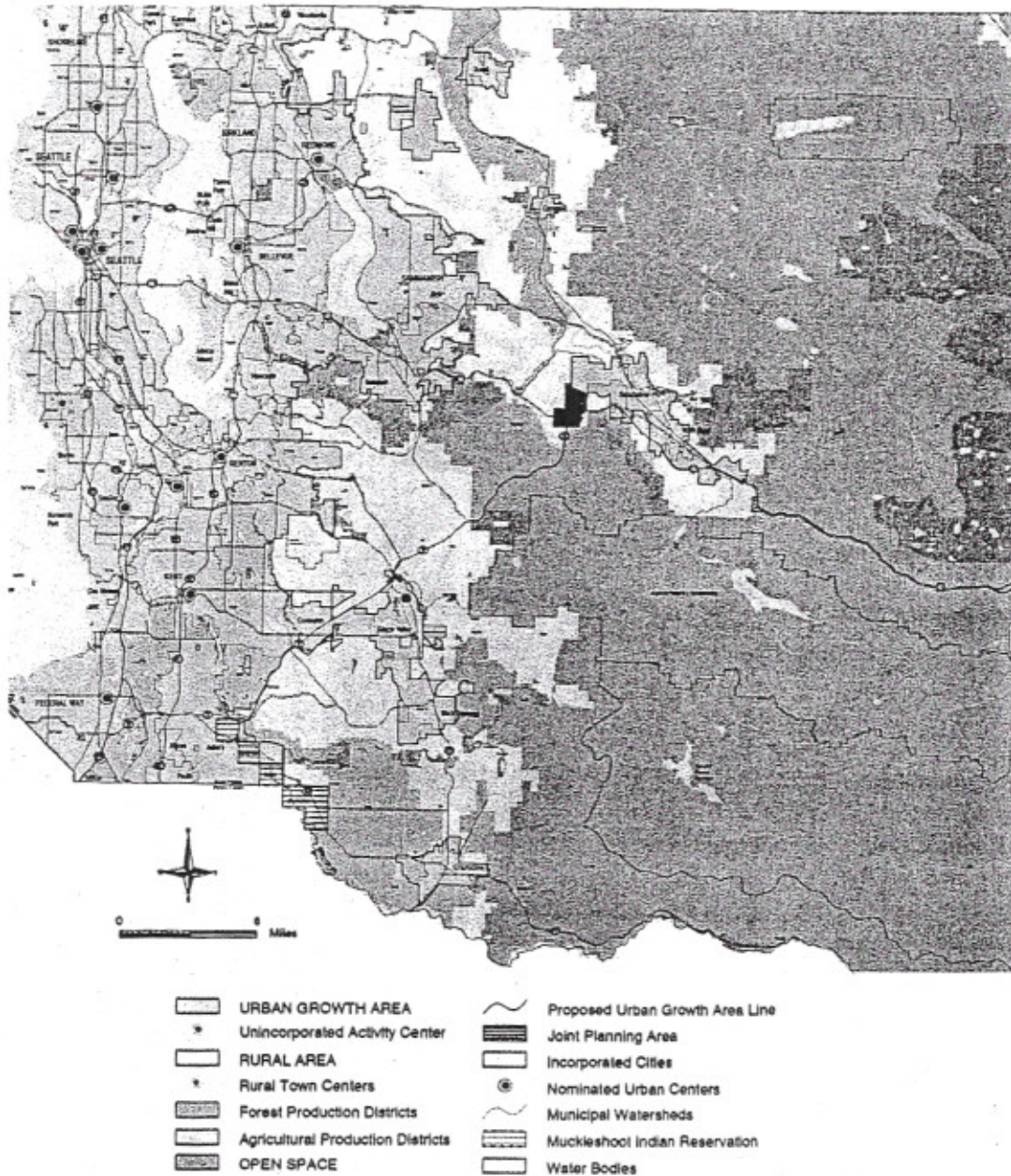


Figure 7.2 King County (WA) Comprehensive Plan Map. Source: King County (2001).

is actually precluded from imposing laws on local jurisdictions. Dillon's Rule is still effective to varying degrees in 37 states (Richardson, 2002).

This constitutional variation among the states affects the constraints and opportunities available to both state and local governments in their efforts to control land use. What works for one state may not be available to another; what has

been successful in one community may not be legal for a locality with similar problems in another state. In all communities, the "police" or regulatory powers that local governments can employ to control land use are constrained by the rights of personal property provided by the U.S. Constitution.

Property Rights and Legal Constraints on Environmental Land Use Regulation

As shown in box 7.1, land use regulation is the principal mechanism that local government uses to manage growth. Although communities are granted the police power by the state to control land development to protect public health, safety, and welfare, that authority is not boundless. Community regulatory authority is constrained by the protection of property rights contained in the Fifth and Fourteenth Amendments to the Constitution, which bar government from "taking" private property for public use without just compensation. "Takings" occur when government regulations go "too far" in restricting private property use, and courts can enjoin the regulations and/or order compensation. However, the definition of "too far" is not always clear, and local governments must consider potential takings litigation when designing regulatory programs to manage growth and protect the environment.

In the 1970s, courts tended to view the public welfare quite broadly and ruled in favor of a broad range of community regulatory devices, especially when they addressed health and safety issues and were based on technical analysis and a publicly adopted comprehensive plan. In the 1980s and 1990s, legal advocates for property rights argued successfully for their interests in several cases, and even though takings law continues to evolve, some legal clarity has emerged. The Supreme Court decided three major takings-issue cases² in 1987, two more in the early 1990s,³ and one in 2002,⁴ which all helped establish a judicial "taking equation" consisting of a three-level inquiry. Some of the key issues are discussed in box 7.4.

The first inquiry involves whether the purpose of the regulatory action is a "legitimate state interest" and if the means used to achieve the objective "substantially advance" that purpose. The legitimacy of the state interest is clear for the protection of public safety, such as for floodplain zoning, but is less clear for protecting environmental resources, such as agricultural lands or nonendangered wildlife habitat.

The second inquiry concerns whether a "reasonable use" of the property by the landowner remains after the regulation. If the government acquires title to the

2. *Keystone Bituminous Coal Association v. DeBenedictis*, 107 S. Ct. 1232 (1987); *First English Evangelical Lutheran Church v. County of Los Angeles*, 107 S. Ct., 2378 (1987); *Nollan v. California Coastal Commission*, 107 S. Ct. 3141 (1987).

3. *Lucas v. South Carolina Coastal Council* (1992), *Dolan v. City of Tigard* (1994). The Lucas case is discussed and illustrated in the coastal zone management section of chapter 9.

4. *Tahoe Sierra Preservation Council, Inc. v. Tahoe Regional Planning Agency* (2002). Called the "most definitive win for good planning in over a decade," the decision validated development moratoria, emphasizing the value of a community's taking time to "develop a citizen-based plan for conserving its treasured resources" (Lucero and Soule, 2002). Planning for Lake Tahoe is discussed in chapters 8 and 18.

BOX 7.4—Property Law and the “Takings” Issue

- Tenth Amendment to Constitution grants government police power to protect public health and welfare. The Fourteenth Amendment extends this power to state and local government.
- Fifth Amendment protects private property; the “takings clause” requires “just compensation when government affects a taking of property.” This does not prohibit condemning private property for the public good through eminent domain.

Key issues in determining if regulations are an appropriate use of the police power

- The regulation must substantially advance legitimate state interests. The “legitimate state interests” must be based on the prevention of public harm rather than the provision of public benefit.
- The regulation involves a connection (nexus) between the potential private action and achieving the state interest. Regulation cannot impose a requirement that is not closely related to the state interest or the public impact.
- The regulation does not deny an owner “reasonable use” of his or her property. Reasonable use often involves a balancing test of state interests versus economic impact on the owner.

property or physically invades the land, the regulation will generally be a taking. If the landowner retains the land but is left with no reasonable use, the burden is on the government to demonstrate that any use of the land would significantly impact the interest of the state.

If some use of the property remains after the regulation, the third inquiry involves a balancing test of economic impact. The court would decide whether the public interest is outweighed by the economic or other burden on the landowner. The inquiry will look at the “reasonableness” of remaining use and the diminution in value caused by the regulation.

Land Use Regulations

The following list outlines and describes a number of land use regulations that are used to control growth and protect the environment.

Land Use Regulations for Growth Management and Environmental Protection

Conventional Zoning: Use and density restrictions, often some design standards, for example, setbacks. For environmental objectives, large-lot zoning is sometimes used.

Subdivision Ordinance: Requirements for layout of streets, drainage, water, sewer, and so on, to achieve “orderly development” at the land subdivision stage.

Agricultural Zoning:

- a. Exclusive: Prohibits construction of nonfarm buildings. Possible “takings” conflicts, but often supported in courts when part of comprehensive planning and when development areas are specified.

- b. Nonexclusive: allows limited amount of nonfarm development
 1. *Large-lot zoning*: May actually convert farmland to development at a faster rate.
 2. *Sliding-scale zoning*: Number of units per acre decreases as parcel size increases; also, maximum acreage per development unit (e.g., 2 acres).

Overlay Zoning: Aims to protect environmental resources or safeguard in natural hazard areas. "Overlay district" is determined by boundaries of environmental resource or hazard and are placed on top of existing zoning. In overlay district special additional land use restrictions apply, such as restricted development, extra standards, or extra documentation. Used for floodplain zones, seismic hazards, wellhead protection areas, watersheds, habitat zones, riparian zones.

Conservation, Open Space or Cluster Zoning: Provides density transfers on-site to enable clustering/concentrating development on buildable areas while leaving permanently undisturbed open space on sensitive areas.

Conditional Zoning: Although zoned for a specific use (e.g., high-density residential, large-scale commercial, industrial), this zone requires "special-use permit" before approval. Special-use permit may require exactions or impact fees and gives local officials negotiating leverage. Proffers or voluntary design features or development fees are often used with conditional zoning.

Performance Zoning: Requires meeting certain performance criteria rather than prescriptive standards.

Flexible Zoning: Provides for "planned" developments or negotiated development based on performance criteria or negotiation. Allows for creativity in development design.

Urban Growth Boundaries: Contains development within a set boundary separating urban and rural uses.

Transfer of Development Rights: Enables transfer of development rights from a "preservation zone" to a "development zone." Landowners in preservation zone are compensated from payments made by landowners in the development zone.

Phased Development: Controls not the location but the rate of development or the number of units per year to keep pace with the provision of public services.

Concurrency: Development plans can be approved only if they are "concurrent" with plans for infrastructure and/or other public services.

Zoning has long been the principal land use regulation used by localities. Conventional zoning specifies the location of different types of land use (e.g., residential, commercial, industrial, agricultural, conservation) by dividing the community into specific land use zones. Different residential, agricultural, and conservation zones are distinguished by development density or the maximum number of dwelling units

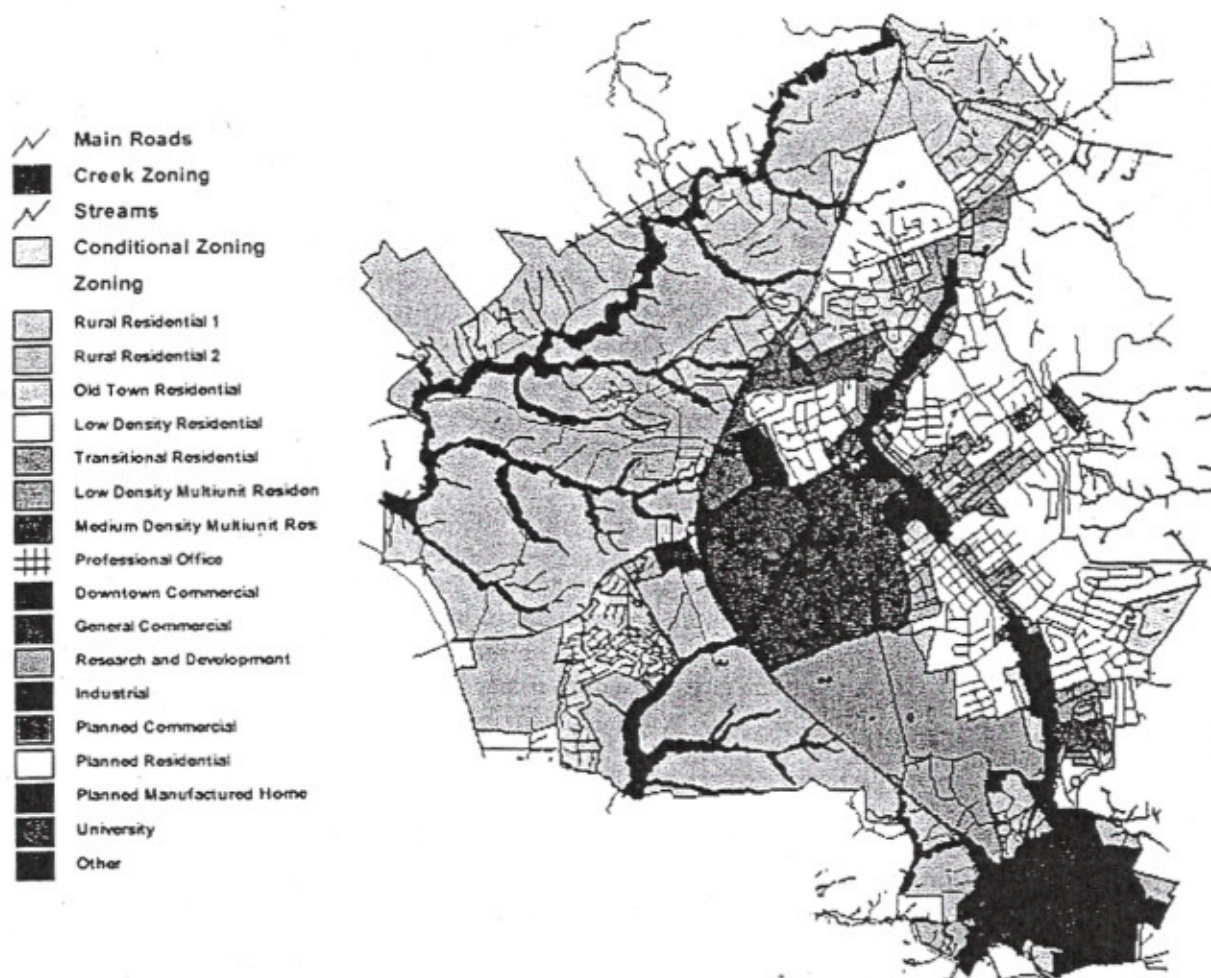


Figure 7.3 Blacksburg (VA) Zoning Map. Source: Town of Blacksburg (1997)

allowed per acre. In addition, zoning regulations define other development parameters including maximum building height, lot size, maximum percent of lot covered, minimum setbacks from property lines, and so on. Figure 7.3 gives the zoning map for the Town of Blacksburg.

Subdivision ordinances, which set requirements for layout of streets, drainage, water and wastewater, and so on, are another traditional measure to achieve "orderly development" at the land subdivision stage. Although conventional zoning and subdivision ordinances have done much to separate incompatible land uses and standardize subdivision practices, they have not met all the land use control needs of many communities.

One critique of conventional zoning is that it assumes use and density restrictions can protect environmental and community values. These restrictions are not sufficient because they assume all land is the same (i.e., there are not environmentally sensitive lands). Large-lot zoning (e.g., 1 unit per 5 acres or 1 unit per 20 acres) can reduce some of the impacts associated with dense development but

TABLE 7.1 Sliding Scale Zoning Development Right Allocation for Different Parcel Size Classes, Clarke County, Virginia

Size Class (Acres)	Average Parcel	Number Development Rights	Nonfarm Acres/Average parcel*	Farm Acres/Average parcel*	Percentage of site in Agriculture
0-14.9	4.2 acres	1	2	0	0
15-39.9	23.6 acres	2	4	20	83
40-79.9	51.6 acres	3	6	46	88
80-129.9	102.7 acres	4	8	95	92
400-499.9	418.7 acres	10	20	399	95
860-1029.9	930.0 acres	14	38	902	97

* 2-acre lot maximum

Source: Coughlin, 1991

may cause others. For example, this practice consumes more land per dwelling unit, can be socially exclusionary (i.e., only the rich can afford such large lots), and can lead to greater sprawl. In many cases, when local governments have "down-zoned" property (e.g., from 1 unit per acre to 1 unit per 5 acres) to protect open space or environmental resources, property owners have sued, arguing a "taking" of property without due compensation.

The "Land Use Regulations for Growth Management and Environmental Protection" list at the beginning of this section shows several innovations in land use regulations that have responded to the critique of conventional zoning and aimed to protect environmental resources more effectively. **Agricultural zoning** aims to preserve agricultural land use, production, and rural character. Exclusive agricultural zoning prohibits construction of non-farm-related buildings. Some communities have been successful with exclusive agricultural zoning (see Oregon state program discussed in chapter 8), but because of potential takings conflicts, most communities have opted for nonexclusive agricultural zoning, which allows a limited amount of nonfarm development. This has been done primarily with large-lot zoning, but as already discussed, it has often accelerated the conversion of productive agricultural lands to nonagricultural uses.

One innovation is **sliding scale zoning**. It is similar to large-lot zoning, but it provides for different densities depending on the property size. It can also limit the acreage of lots that are developed. One of the best-known examples of sliding scale zoning is in Clarke County, Virginia. Table 7.1 lists the development right allocation system for 6 of the 14 parcel-size classes. The rights per acre decrease with increased parcel size. For example, a 10-acre parcel has 1 development right (1 per 10 acres), while a 120-acre site has 4 rights (1 per 30 acres), and a 480-acre property has 10 rights (1 per 48 acres). Subdivision of land is limited by the allocated development rights, and development parcels are limited to 2 acres each. Table 7.1 shows how this system preserves farmland. Column 4 gives the acreage in development for an average size parcel under each size class. Columns 5 and 6 show what acreage and percentage of land would be left in agriculture for an average parcel. If the county were "built out" under the sliding scale zoning program,

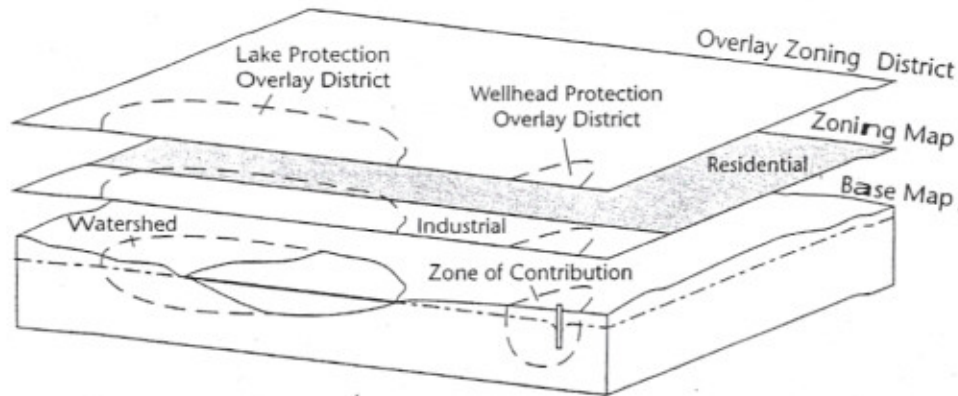


Figure 7.4 Overlay Zoning for Wellhead and Lake Watershed Protection. Source: Jon Witten and Scott Horsley. 1995. *A Guide to Wellhead Protection*. Planning Advisory Service Report 457/458. Used with permission of the American Planning Association.

76,000 of the county's 83,000 acres of agricultural land would be left in agriculture (Coughlin, 1991).

Perhaps the most used and useful innovation in zoning for environmental protection is **overlay zoning**, which acts to protect environmental resources or safeguard land use in natural hazard areas. The "overlay" district is applied on top of existing zoning requirements, so its conditions apply to different conventional zones, for example, low-density residential, commercial, and so on. The "overlay" district boundaries are determined by an environmental inventory or land analysis that shows the location of a resource or hazard. Within the overlay district special additional land use restrictions apply. These may include restricted development, extra standards, or extra documentation. Overlay zoning is used for floodplains, watersheds, wellhead protection areas, habitats, slope instability, seismic hazards, fire hazards, etc. (see figure 7.4).

Figure 7.5 shows a portion of the City of Austin's (TX) Desired Development Zone map, which contains overlay zones for drinking water aquifer protection, creek buffer, and Balcones Canyon habitat protection (BCCP), as well as development zones (see chapter 17 and table 17.2 for more on BCCP) (City of Austin, undated [a], [b]).

Environmental zoning can use overlays or simply establish special requirements for designated areas. A good example is the Environmental Quality Corridor (EQC) System adopted by Fairfax County, Virginia, in 1990. As shown in figure 7.6, the EQC includes 100-year floodplains; areas of 15 percent or greater slope adjacent to floodplains or 50 feet from streams; all wetlands connected to stream valleys; all land measured from the streambank 50 feet plus 4 feet per percent slope. To provide habitat, wildlife corridors, pollution reduction, and aesthetic benefits, development of EQC land is prohibited. The policy provides for on-site density transfers, allowing for sites containing EQC to be developed to their overall gross density, but with development concentrated on non-EQC land (Fairfax County, 1991).

Based on the Fairfax EQC model, Blacksburg (VA) adopted its Creek Overlay District in 1997. The District (Creek Zoning) is shown in the zoning map in figure

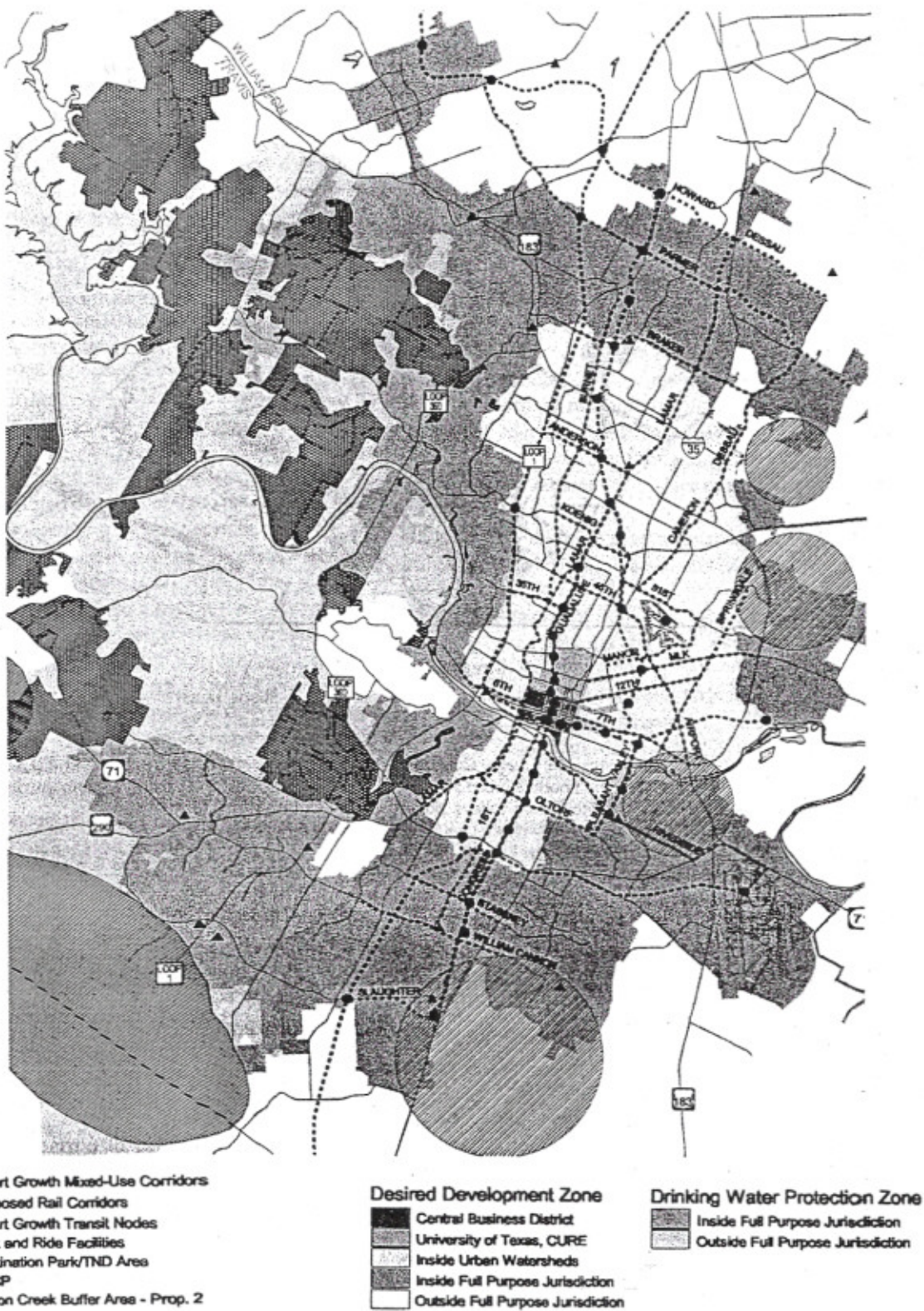


Figure 7.5 Austin's (TX) Smart Growth Zones. Source: City of Austin (undated [a])

BOX 7.5—Blacksburg's Rural Residential Zoning Ordinance

The purpose of the Rural Residential (RR-1) district is to provide for residential development at a scale intended to conserve the rural character of the Tom's Creek Basin. Development within the Rural Residential district is intended to promote the following goals and objectives. Development proposals shall be evaluated for their adherence to these goals:

- (a) Conservation of agricultural and forestal lands, including farm fields and pastures.
- (b) Conservation of natural resources including wetlands, flood plains, natural drainage ways, aquifer recharge areas, existing tree cover, steep slopes, ridge lines, hilltops, wildlife habitats, deer wintering areas, stream valleys, locations comprising scenic views or scenic view corridors, and other outstanding natural topography.
- (c) Conservation of a unified open space area, which is preserved with a permanent conservation easement.
- (d) Creation of residential developments on a rural scale, with small villages surrounded by agricultural, forestal, or open space.
- (e) Flexibility/creativity in design of residential subdivisions, less suburban-style sprawl, less consumption of open land.

These measures will prevent soil erosion by permitting development according to the nature of the terrain, provide larger open areas with greater utility for rest and recreation, and encourage the development of more attractive and economic site design. They will create a convenient, attractive, and harmonious community, and facilitate the provision of parks, forests, playgrounds, and other recreational facilities. These goals are intended to preserve existing agricultural, forestal, and other lands of significance for the protection of the natural environment.

Development Standards

Each residential lot shall be of a size and shape to provide a building site which shall be in har-

mony with the natural terrain and other features of the land. Residential lots shall be designed in such a way as to promote the purposes of this chapter. The following minimum standards shall apply.

- (a) Density: Maximum density shall be one dwelling unit per acre, excluding acreage within the 100 year floodplain.
- (b) Minimum Lot Requirements: No minimum lot size; 20 feet minimum frontage on a publicly owned and maintained street.
- (c) Minimum Setback Requirements:
Front yard: 8–13 feet on minor streets;
35–60 feet of collector road; Rear: 20 ft;
Side: 10 ft
- (d) Minimum Building Separation: front-front: 80–90 feet; side-side 20–30 feet; back-back 40–60 feet;
- (e) Maximum Floor Area Ratio: Maximum floor area ratio shall be 0.30, except townhouse 0.50.
- (f) Maximum Height of Structures, except church spires, chimneys, flues, flagpoles, television antennae: 35 feet
- (g) Maximum Dwelling Unit Occupancy: a family plus two persons unrelated; or no more than three unrelated persons.
- (h) All utility lines, electric, telephone, cable television lines, etc, shall be placed underground.

Minimum Open Space

A minimum of 50 percent of the total area shall be designated as permanent open space, not to be further subdivided, and protected through a conservation or open space easement held by the Town, the Virginia Outdoors Foundation, or by a recognized land trust or conservancy. All undivided open space shall be restricted from further subdivision through a permanent conservation or open space easement, in a form acceptable to the Town, and recorded in the Montgomery County Circuit Court Clerk's office.

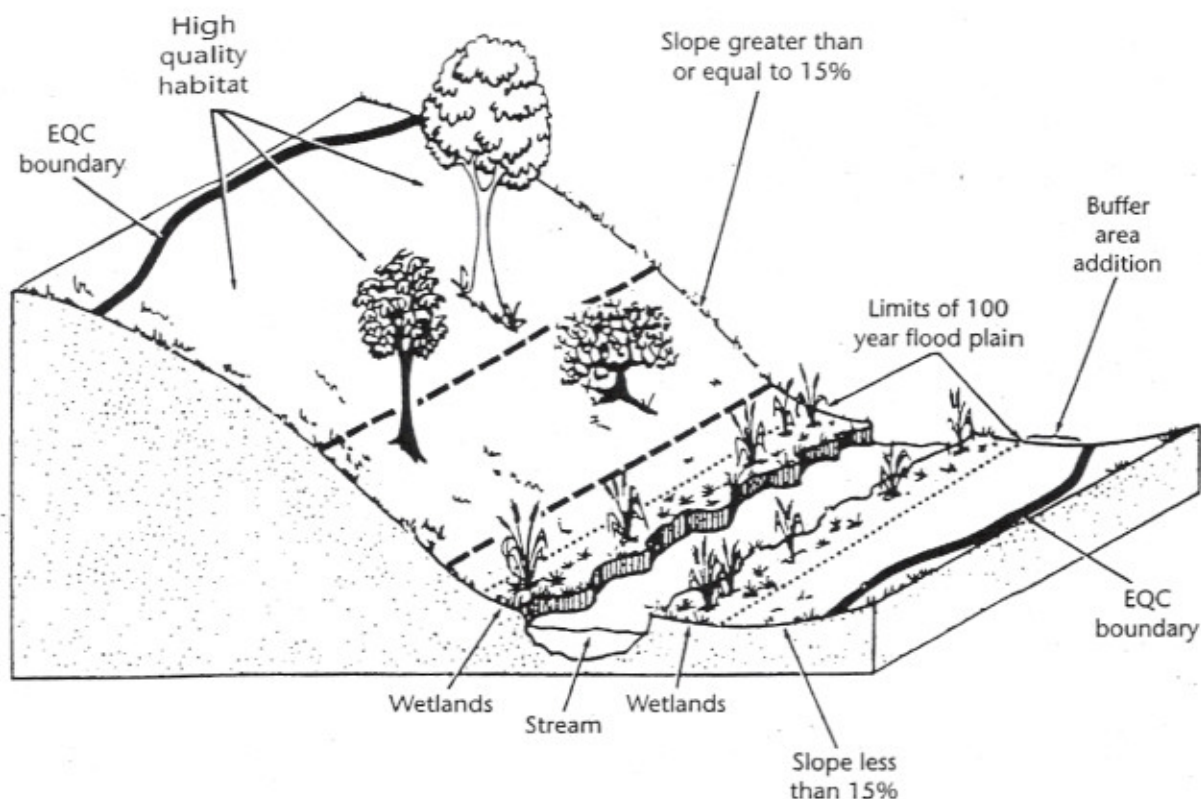


Figure 7.6 Fairfax County's (VA) Environmental Quality Corridor in Which Development Is Prohibited. The EQC includes 100-year floodplains; areas adjacent to the floodplain of 15% or greater slope; land 50 feet from streambank plus 4 feet per each % slope; all wetlands connected to stream valleys. Source: Fairfax County (1991).

7.3, and it provides the core of the parks and open space component of the comprehensive plan (see figure 7.2). Like the Fairfax EQC, the District provides an **on-site density transfer**, to allow development to achieve development rights and still protect the Creek District by clustered development on the site. The "Transfer of Residential Development Potential" states: "Development density (units per acre) otherwise allowed on land located within the Creek Valley District and outside the 100 year floodplains may be transferred to those portions of the same lot, or to other lots within the same planned development, which are located outside the Creek Valley District" (Town of Blacksburg, 1997).

Blacksburg's zoning ordinance also illustrates the use of **conservation or cluster zoning**, which basically applies Randall Arendt's (1999) conservation subdivision concept. The Rural Residential (RR-1) zone is applied to most of the Tom's Creek Basin on the northwest section. Intended to preserve the rural character of the Basin, the RR-1 zone calls for gross density of 1 unit per acre, but developments are required to cluster development on-site to provide a minimum 50 percent permanent open space. The text of the RR-1 is given in box 7.5.

The ordinance also includes an Open Space Design Overlay District (OSDOD) to encourage open space within most residential zoning districts of the Town. The

underlying district prescribes the gross density, but if a minimum of 30 percent of the site is designated as permanent open space protected by conservation easement, that density can be clustered on the remaining 70 percent of the site.

Blacksburg's RR-2 zone is an example of **incentive zoning**, which provides a **density bonus** from 1 to 2 units per acre if the landowner "proffers" or voluntarily incorporates one or more of 14 specified features that are in the town's interest. These include: additional open space, recreational facilities, land dedication to town park or greenway, visual buffers, affordable housing, among others. The Ashland, Oregon, 1980 zoning ordinance, for example, provides the following density bonuses (to a maximum 60%) for planned unit developments (PUDs) (Randolph, 1981):

Energy-efficient housing	up to 40% bonus
Solar hot water	up to 5%
Common open space	up to 15%
Recreational facilities	up to 10%
Low-cost housing	up to 10%
Good design features	up to 10%

Figure 7.7 illustrates the incentive zoning concept. In Isle of Wight County, Virginia, developers have options for open space design in a zone with a permitted density of 1 unit per 10 acres and a requirement for 50 percent permanent open space. The first option (7.7A) is an on-site density transfer that provides the 50 percent open space and 10 five-acre lots. The second option provides 70 percent open space and gives a density bonus of 100 percent, allowing 20 lots of 1.5 acres each (7.7B).

Conditional zoning aims to manage impacts of specific developments, such as industrial plants or large subdivisions. While an area is zoned for a particular use, say residential or industrial, the conditional zone requires a **special-use permit** that may require meeting certain conditions, such as **exactions** or **impact fees** to offset impacts of the development or to cover public services required by the project. The special-use permit gives local officials negotiating leverage about the design of the development. **Proffers** are voluntary modifications, design features, or development fees added to the development proposal to enhance the prospects of obtaining a special-use permit. Conditional zoning is often applied to natural hazard overlay zones. For example, a conditional zone might be established for a steep slope; development will be allowed only if the development plan is approved by a licensed engineer for slope safety.

Performance zoning varies from conventional zoning by providing performance criteria or standards rather than prescriptive requirements for developments. For example, instead of specifying a specific size detention basin to mitigate storm discharges, a performance approach might simply specify a zero net increase and let the developer decide and demonstrate how the requirement will be met. Generally, performance criteria allow for more creativity in development design but require more documentation in the development proposal to show how the criteria will be met. Some performance-based zoning specifies land coverage or open space percentages or ratios that must be met for certain environmentally sensitive areas. On-site density transfers are usually provided. Burks County, Pennsylvania, was one of the first localities to use this approach. Its criteria and that of Maryland's Queen Anne County are given in table 7.2. Based on a site land

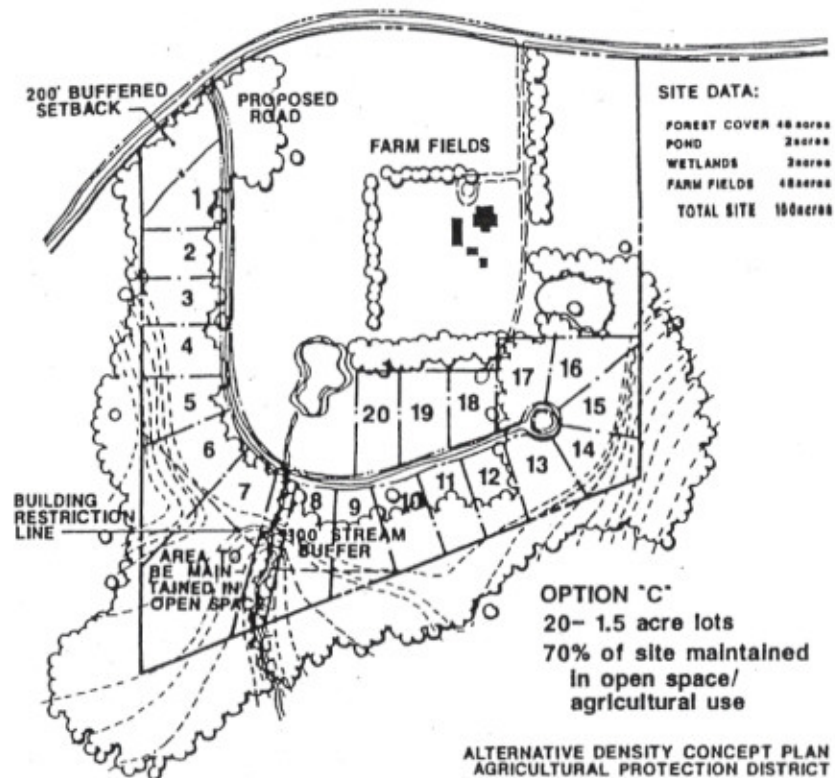
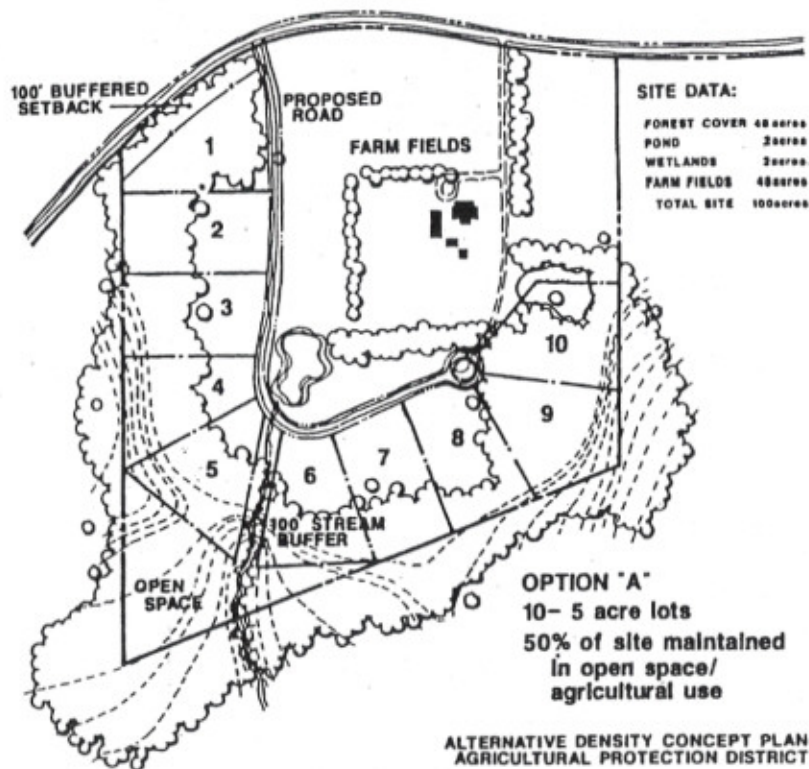


Figure 7.7 Density Bonus Options in Isle of Wight County, Virginia. Base zoning (A) provides 1 unit per 10 acres and requires 50% open space. Increasing open space to 70% (B) gives a 100% density bonus. Source: Reprinted with permission from Randall Arendt, *Rural by Design*, copyright 1994 by the American Planning Association, Suite 1600, 122 South Michigan Ave. Chicago, IL 60603-6107.

Performance Criteria Used in Burks County (PA) and Queen Anne's County (MD)

Protection
 ice Zoning

Queen Anne's Resource Protection Standards

Resource	% Open	Resource	Open Space Ratios		
			Coast	Upland	Agriculture
plains	100%	Wetlands			
	100	Tidal	1.0	—	—
	100	Nontidal	1.0	1.0	0.8
ion areas	90	Drainageways	0.5	0.3	0.8
d shores	70–80	Woodlands			
	60–80	Mature hardwood	0.8	0.7	0.5
ver 25%	85	Mature Evergreen	0.8	0.6	0.5
5–25%	70	Young	0.8	0.3	0.2
–15%	60	Old Field Succession	0.3	0.0	0.85
tural soils	95	Farm Fields	0.0	0.0	0.85
ltural soils	85	Erosion Hazard Area	1.0	—	—
ltural soils	80	Beach	1.0	—	—
ltural soils	60	Bluffs	1.0	—	—
		Shore Buffer	1.0	—	—

cover inventory, the performance criteria require leaving open a certain percentage or ratio of the land in resource areas.

Flexible zoning includes planned unit developments, cluster zoning, and floating zones, which are all designed to reduce the rigid standards imposed by conventional zoning. **Planned unit developments (PUD)** do not rely on specific regulations but rather on a process of administrative review of proposed development plans and negotiation between the developer and planning agency. Such developments can incorporate creative designs not allowed by conventional zoning. **Floating zones** simply identify a zone and its requirements, but not its location; they are often used for PUDs. Flexible zoning allows for creativity and innovation in development design but requires a fairly sophisticated planning staff and is enhanced by public involvement.

Communities have also enacted a long list of other codes and ordinances with specific requirements for developers. Los Angeles's grading ordinance has helped to limit land and landslide damages. Building codes are applied in nearly all communities. Erosion and sedimentation control ordinances and tree removal and planting ordinances are also examples of environmental controls.

Urban growth boundaries (UGBs) are a method of containing development within a set boundary separating urban and rural land uses (see figure 6.17). UGBs were first used in Oregon's Land Conservation and Development program established in 1973. Oregon's UGBs are shown in figure 8.9, and Portland's (OR) UGB is shown in figure 6.18. They have become an important tool to achieve Smart Growth's objective to emphasize development in areas with existing infrastructure and de-emphasize development in greenfields. UGBs are usually

intended to accommodate growth for a specified period of time; 15 to 20 years is common.

Other states and localities have adopted UGBs. Washington's 1994 Growth Management Act requires a UGB for the state's cities and urban counties. Figure 7.2 shows King County's (WA) UGB. The Twin Cities Metro Council established a UGB called the Metro Utility Service Area (MUSA) (see chapter 8). Maryland has attempted to establish UGBs without regulation. The state will provide financial support for development infrastructure in Priority Funding Areas, essentially UGBs identified by localities (see figure 8.12).

Boulder Valley's (CO) growth management program depends significantly on a UGB that is divided into planning areas. Boulder has adjusted the UGB over time to accommodate development needs. Figure 7.8 shows the boundaries for the various growth areas:

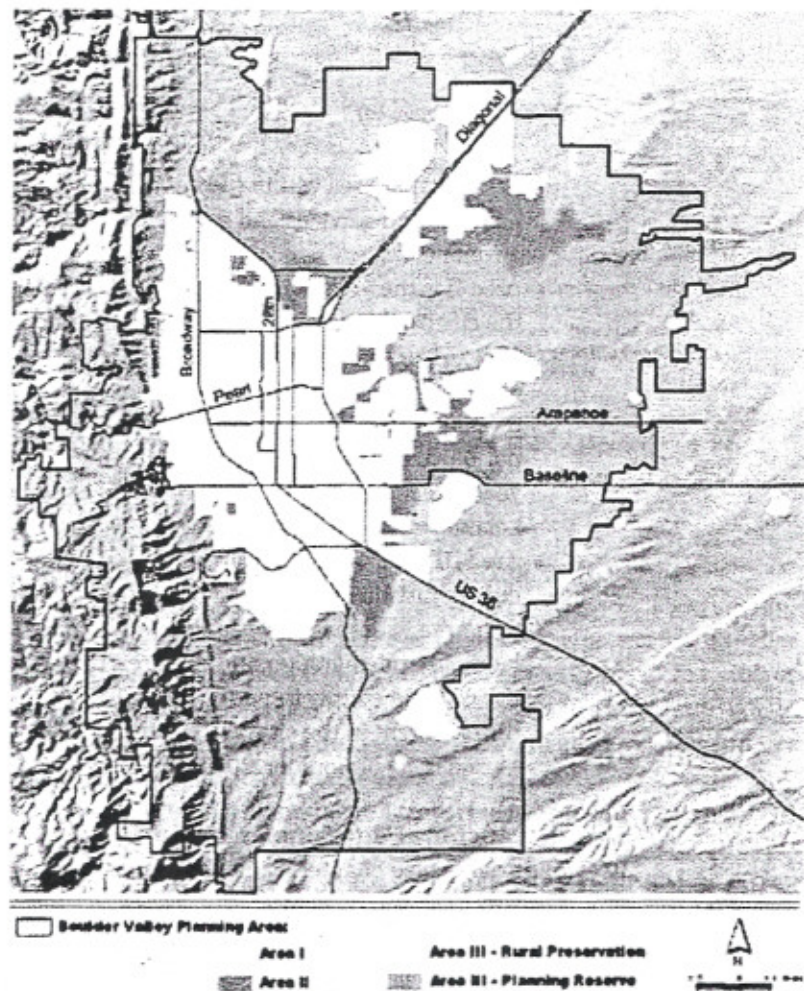


Figure 7.8 Boulder Valley Planning Areas. Area I and II are available for development within the planning period (15 years). Area III includes preservation lands as well as a planning reserve for development beyond the planning period. Source: City of Boulder (2001).

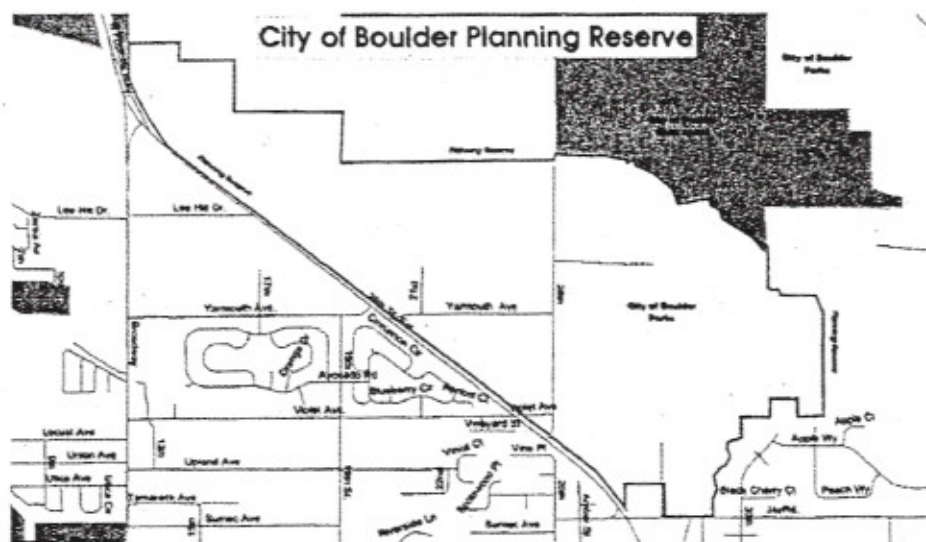


Figure 7.8 (Continued)

- Area I is that area within the city of Boulder that has adequate urban facilities and services and is expected to continue to accommodate urban development.
- Area II is the area now under county jurisdiction, where annexation to the city can be considered consistent with comprehensive plan policies. New urban development may only occur coincident with the availability of adequate facilities and services and not otherwise. Departmental master plans project the provision of services to this area within the planning period. Area IIA is the area of immediate focus within the first three years, and Area IIB is available to accommodate development within the balance of the 15-year planning period.
- Area III is the remaining area in the Boulder Valley, generally under county jurisdiction. Area III is divided into the Area III-Rural Preservation Area, where the city and county intend to preserve existing rural land use and character and the Area III-Planning Reserve Area, where the city and county intend to maintain the option of expanded urban development in the city beyond the time frame of the 15-year planning period (City of Boulder, 2001).

Transfer of development rights (TDR) is similar to purchase of development rights (see chapter 5). Instead of buying development rights, TDR transfers rights from areas the community wishes to protect to areas that are more appropriate for development. Such a program requires the designation of a "preservation" or sending area from which rights are transferred and a "development" or receiving area where those development rights are applied. The advantage of TDR to the community is that the costs of development right purchase are borne by private landowners in the receiving area, not the local government. However, the pro-

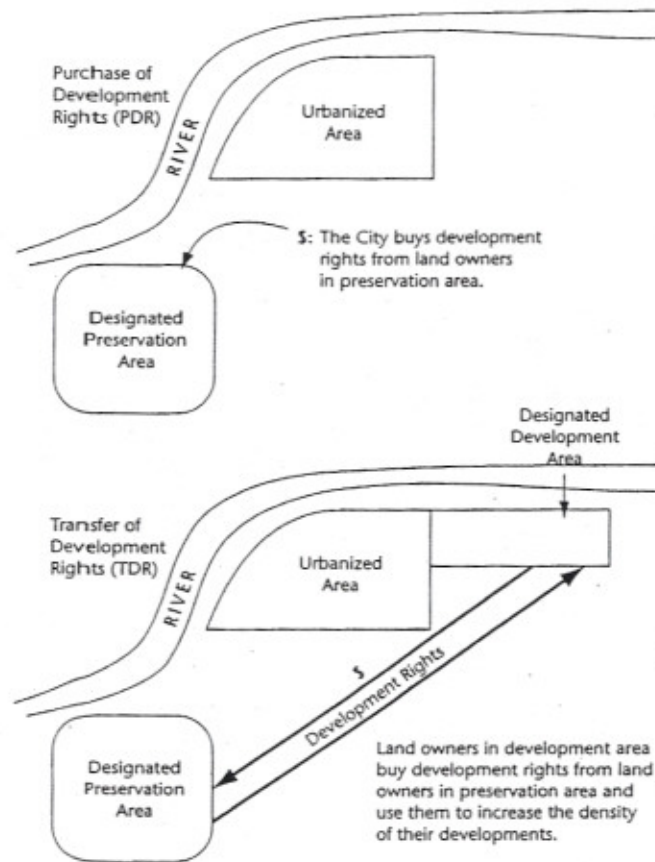


Figure 7.9 Comparing Purchase and Transfer of Development Rights. In PDR, preservation area landowners receive compensation for development rights from the city, and in TDR, they receive it from landowners in the development area who can increase their development density.

gram is more complex than PDR—it requires a buyer of rights, not just a seller, and a mechanism to get these parties together to transfer the rights or to bank or broker the rights. Figure 7.9 illustrates the difference between TDR and PDR. Figure 7.10 shows how TDR can lead to Smart Growth by focusing development in existing communities and protecting rural areas and greenfields.

Hollis and Fulton (2002) found that 24 states permit localities to use TDR programs. Pruetz (2003) identified 124 local and regional TDR programs designed to protect working landscapes, open space, resource lands, and historic districts. Regional growth management programs for the Lake Tahoe and the Pinelands, New Jersey, areas discussed in the next chapter include a TDR component.

Montgomery County, Maryland, has one of the most successful TDR programs, which has operated since 1980. As of 2002, the TDR program has protected more than 41,000 acres of farmland. Other local easement and trust programs protect another 12,000 acres. The programs have helped maintain an agricultural industry

Development/Design Standards and Plan Review

In addition to land use zoning, localities use plan design standards and plan review criteria to achieve community objectives and enhance the quality of development. A few states and several localities require environmental impact assessments for development proposals. State-led programs, like Washington's SEPA (State Environmental Policy Act) requirements are discussed in the next chapter, and EIA (environmental impact assessment) procedures are presented in chapter 18. More recently, localities have developed design criteria and review standards to address Smart Growth and green building objectives.

Green building criteria were discussed in chapter 6. Most of these are voluntary and marketing programs. Some localities, like Boulder, require a minimum number of "green points" for new development or renovation projects. These green points go beyond minimum building codes. For example, new construction must document a minimum number of points (e.g., 65 for a new 2,000-square-foot house) drawn from a list of design enhancements, such as use of recycled materials, xeriscape landscaping, water conservation, lumber from sustainable forestry, energy efficiency, solar energy, and indoor air quality measures.

Fleissig and Jacobsen (2002) advocate the use of a Smart Growth index or "scorecard" to assess development projects in the project review stage. Such an assessment tool could be used for regulatory purposes (like Boulder's green points), marketing (like other green building programs), or education. They suggest a set of scoring criteria including availability of infrastructure, mixed land uses, compactness, walkability, site design, environmental quality, redevelopment, housing and social diversity, and collaborative process. When using such an assessment tool, communities should develop their own criteria and weights. Austin, Texas, uses a variation, its Smart Growth Matrix, not in regulatory review but as a basis to waive development fees.

Nonregulatory Tools

Regulations alone are necessary but not sufficient for effective Smart Growth management. **Nonregulatory** tools can complement regulations and help to move growth management beyond the legal and political limits posed by regulations. There are four basic nonregulatory tools often used in growth management: acquisition of land or development rights, selective provision of urban services and infrastructure, financial incentives and disincentives including development fees and exemptions, and tax policies.

Land Acquisition, Conservation Easements, Purchase of Development Rights

Permanent protection of environmentally sensitive lands is difficult to achieve through regulation. Parcels are often rezoned in response to economic and political pressure. As discussed in chapter 5, perhaps the best way to protect sensitive

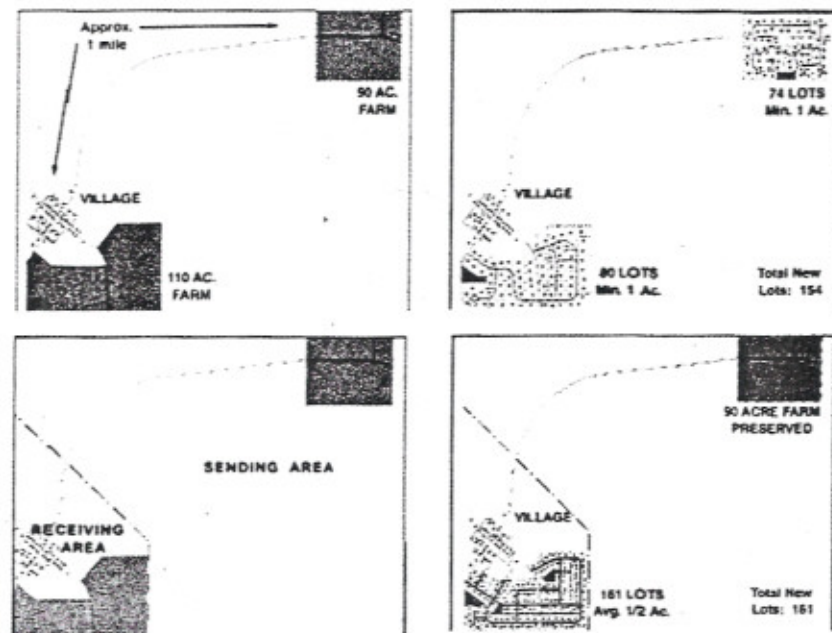


Figure 7.10 Transfer of Development Rights and Smart Growth. Top: existing land use and build out. Bottom: TDR plan and build out. *Source:* 1000 Friends of Minnesota (2002). Used with permission.

in the county, amounting to over 875 farms and enterprises, 10,000 jobs, and \$350 million contribution to the local economy (Montgomery County, 2002; 2003).

King County, Washington, adopted two TDR program in the late 1990s. One provides up to 150 percent of baseline zoning in receiving areas in existing residential and commercial zones in the unincorporated parts of the county. The other provides transfers from rural parts of the county to incorporated cities (Pruetz, 2003; Northwest Environment Watch, 2002; Taus, 2002).

Although regulations may specify the location and type of land use, many communities need to control the rate at which development takes place. Rapidly growing communities have been confronted by their "infrastructure carrying capacity"; they have had difficulty providing public services such as water, sewage treatment capacity, school facilities, police and fire protection to meet the needs of an expanding population. In the 1970s, Petaluma, California, and Ramapo, New York, established programs to **phase development** by capping the number of development permits per year. After Petaluma's program was upheld by the Supreme Court in 1972, other communities established similar programs, including Boulder and Fort Collins, Colorado, and the Lake Tahoe Region (see chapter 8).

Concurrency policies attempt to achieve the same objectives of phased development by requiring that development plans are "concurrent" with plans for infrastructure, such as water and sewer service, roads, and other public services. This approach became part of Florida's statewide growth management (see chapter 8) and has been adopted by other localities across the country.

environmental lands is to buy them, and many state and local governments and local land trusts have established funds to do so.

Boulder, Colorado, has an extensive land acquisition program for parks, open space, and greenbelts. In 1967, city voters passed a measure to levy a 0.4 percent sales tax to fund land acquisition; this was increased to 0.73 percent in 1989. The program has acquired about 41,000 acres of protected lands. Boulder's greenbelt system is described in chapter 5 (see figure 5.4).

However, limits on local finances constrain the land area that can be acquired for parks, open space, and natural area protection. **Purchase of development rights (PDR)** and **conservation easements** have become common methods for protecting agricultural lands and natural areas without fee-simple purchase of the property. As discussed in chapter 5, associated with a parcel of land is a bundle of distinct rights, one of which is the right to develop the land. Without purchasing the land itself, the development rights can be acquired at a far lower cost than the land itself. This easement is reflected in the title to the land and remains there when the land is sold.

As discussed in chapter 5, several local communities have passed bond measures for purchase of land and easements for parks, open space, and farmland protection. Since the mid-1990s, voters have approved about 80 percent of these local bond measures, which are usually passed by a large margin.

Several localities have developed their own PDR programs. King County's (WA) PDR program ran from 1979 to 1987 after the voters overwhelmingly approved a \$50 million bond to purchase the development rights of 10,000–15,000 acres of farmland. Although the program permanently protected 13,000 acres, it may have done more to protect open space than in maintaining a viable farming economy. Following a recommendation in its 1989 General Plan, Sonoma County, California, started a similar program in 1990 when voters approved a 1/4 cent sales tax increase for land acquisition. This produced a revenue stream of about \$12 million per year. The Open Space District protected about 27,000 acres at a cost of \$50 million between 1990 and 2000. Only 11 percent of the 80 land transactions were fee-simple acquisition and 80 percent were conservation easements for farmland or open space (Hollis and Fulton, 2002).

Provision of Urban Services and Infrastructure

Where infrastructure goes, so goes development. "Build it, they will come." Conversely, "Don't build it, and they can't come." Public services and infrastructure necessary for development—roads, sewers, water lines—affect the location and amount of development that will occur. Thus, one way to guide development according to the community land use plan is to link that plan to the capital improvement plan for its infrastructure. Development densities in environmentally sensitive areas can be kept low simply by not planning or providing the services that large-scale or dense development requires.

Many have used their authority to decide where services will go and linked this to the development process through "concurrency" requirements. As discussed in the next chapter, the Twin Cities Metropolitan Council has used effectively the provision of sewer extensions to guide metropolitan development. Maryland's Smart Growth program identifies growth areas as "priority funding areas" (PFAs)

oped, but state funds will not be provided. Florida's growth management program aims to restrict development that does not have "concurrent" plans and financing for necessary infrastructure and services.

In the mid-1950s, Boulder, Colorado, witnessed considerable development pressure on higher elevations overlooking the city. The city did not favor sprawling development up the mountainside and also realized that the cost of extending city services, especially water supply, to higher elevations would be cost prohibitive. In 1958, the city established a "blue line" at 400-foot elevation above the city center, above which no city services would be made available. Since well water was nearly unattainable in the area, this policy essentially halted this development trend.

Development Impact Fees

Development impact fees are fees charged to developers for the impacts of their projects. Some communities use these fees as an incentive or disincentive to help steer development toward desirable and away from undesirable locations. Albuquerque's (NM) recent comprehensive plan and development policies use impact fees to establish a graduated urban development boundary. The fee schedule is based on the local government costs of services necessary to support development. Impact fees are zero for developments within the area of existing infrastructure, but they are considerable for development outside the boundary and increase quickly for development farther away. Thus, developers have a strong incentive to locate developments within a growth boundary, and a disincentive to locate outside.

Austin uses its Smart Growth Matrix scoring system as a basis for waiving development and other fees. The Matrix provides a quantitative measure of how well a development project accomplishes the city's Smart Growth goals. It incorporates scores on 10 factors that reflect the city's three Smart Growth goals: determining the appropriate location of development, enhancing quality of life, and increasing the tax base. The maximum score is 705. Incentives begin at 251 points and increase at different point thresholds. These include waiving of application and especially development fees, savings on infrastructure costs, and property tax incentives (City of Austin, 2001).

The incentives have proven very attractive to the development community. Developers have contacted the city to score their projects on the matrix early in the process to increase their chances of achieving a certain threshold and fee reductions and other benefits. If they are close to the next threshold, they often make changes needed to increase their score (Fleissig and Jacobsen, 2002).

Tax Policies and Voluntary Practices

As discussed in chapter 5, 49 states provide for differential taxing of farmland and/or forestland by local governments (see table 5.7). Landowners who participate in the program have their property assessed based on their use value as farmland, forestland, or open space, not on their development value. In exchange, landowners agree to keep their land in that use for a period of time.

Agricultural and forestal districting, used in 16 states, offers use-value taxation as well as right-to-farm protection to those landowners who voluntarily enroll in the program. Participating landowners can pay a penalty and back out of

the program, so these measures do not provide permanent land protection. However, they can assist farmers in retaining their land in productive agricultural use.

Integrating Tools for Smart Growth Management and Environmental Protection

The most successful local growth management and land conservation programs are those that integrate several regulatory and nonregulatory tools into a comprehensive program. For example, Austin uses a strong comprehensive plan, environmental overlays to protect water supplies and threatened habitat, Smart Growth zones, rail infrastructure, a green building program, and incentives tied to a Smart Growth scorecard. All of these measures work together for a common objective—better development. Together they also send a message to citizens, developers, and landowners that Smart Growth is the city's policy.

Programs need to be integrated across jurisdictional boundaries. One locality may have very effective growth management, only to transfer haphazard development to a neighboring community. Boulder and Austin are good examples of cities that have partnered with their surrounding counties and neighboring jurisdictions. Portland, Oregon, and the Twin Cities in Minnesota also have developed excellent interjurisdictional programs with the assistance of state or regional guidance. Their programs are discussed in chapter 8.

Summary

This chapter illustrated local growth management to conserve environmental lands and arrest sprawl using several examples of successful communities. A wide range of regulatory and nonregulatory tools are available and the effective programs are those that are tailored to the needs, resources, and political climate of the community. The foundation of any local program is a comprehensive plan based on sound technical information, including an environmental inventory and other studies, as well as extensive public involvement.

Innovative regulatory tools such as overlay environmental zones, flexible and performance zoning, conservation cluster zoning, and urban growth boundaries can steer development toward appropriate areas and away from environmentally sensitive ones. Design standards and incentives have helped advance mixed-use, compact, and transit-oriented development. In some cases, compensation is required to achieve environmental objectives, and land acquisition, conservation easements, or purchase or transfer of development rights are appropriate. The location of development infrastructure is a useful tool to steer development to growth centers and to reduce sprawl.

In many cases, local government action is not enough to manage growth and development effectively. In some cases, the state has stepped in with regional or statewide programs to complement or guide local action. Several examples of these regional and state growth and environmental management programs are discussed in the next chapter.