

***Planning for Rural Areas in
Tennessee Under PC 1101***

***White Paper prepared for the
Tennessee Advisory Commission on Intergovernmental Relations***

by

***Mary R. English
and
James R. Hoffman***

January 2001

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Executive Summary

Background: Genesis of this White Paper

Tennessee's 1998 Growth Policy Law, codified as Public Chapter 1101, specifies that growth plans shall be developed by counties in conjunction with their municipalities, using coordinating committees whose membership is spelled out in the law. In addition to urban growth boundaries, these plans may identify planned growth areas and rural areas. Urban growth boundaries are proposed by municipalities; counties are responsible for proposing planned growth areas and rural areas.

According to Section 7(c)(1) of P.C. 1101, a rural area shall

- A) identify territory that is not within urban growth boundaries;
- B) identify territory that is not within a planned growth area;
- C) identify territory that, over the next twenty (20) years, is to be preserved as agricultural lands, forests, recreational areas, wildlife management areas or for uses other than high density commercial, industrial or residential development; and
- D) reflect the county's duty to manage growth and natural resources in a manner which reasonably minimizes detrimental impact to agricultural lands, forests, recreational areas and wildlife management areas.

If only because of the political contentiousness of establishing mutually satisfactory urban growth boundaries, it appears that relatively little substantive attention is being paid to the rural areas component of growth plans.¹ Nevertheless, the above-quoted section of P.C. 1101 suggests that the legislative intent of the law includes a call for serious attention to the natural assets of rural areas.

This white paper was requested by the Tennessee Advisory Commission on Intergovernmental Relations, which is responsible for monitoring the implementation of P.C. 1101 until the end of December 2002. The purpose of the paper is to suggest guidelines for assessing the adequacy of the rural areas component of growth plans, as the plans developed by the coordinating committees are reviewed by local governments, citizens, dispute resolution panels, and the Local Government Planning Advisory Committee. A related purpose is to suggest sources of data and other assistance that counties can use in identifying rural areas, as well as techniques for protecting the natural assets of rural areas.

The Rural Areas Component of a Growth Plan: Key Elements

Section 8 of P.C. 1101 indicates that a growth plan should be "based on an analysis of present and future needs." This, together with Section 7(c)(1), suggests that the natural assets within the designated "rural area" should be analyzed.

¹Information for this white paper was gathered during the winter and spring of 2000, prior to the completion of many counties' growth planning processes.

This paper recommends that the following core information on the designated rural area(s) accompany the growth plan:

(1) Information on the rural area's *natural assets*. This should include the following basic information:

- streams, rivers, lakes, and major wetlands
- soil types and prime or unique agricultural land
- key wildlife habitats and other critical natural areas
- land now in farming [*]
- land now in managed forests [*]
- land now in parks or otherwise protected as open space [*]

(2) Information on *development pressures* affecting the rural area. This should include the following basic information on factors that may have direct or indirect impacts on the rural area's natural assets:

- residential, commercial, and industrial development [*]
- schools [*]
- roads, sewer lines, and water lines [*]
- traffic counts on major roads [*]

[*] Historical trend information, such as data for 10 years and 20 years ago, should be supplied in addition to current data.

Other information may also be helpful, but the above should be regarded as essential. To the extent possible, information should be mapped on county maps, using the same scale so that overlay transparencies can reveal patterns. While detail is needed, the primary aim of the analysis should be to “paint a portrait” of the rural area's natural assets, depicting their *quantity, quality, location, and vulnerability*.

A brief narrative should accompany the mapped information. This narrative should succinctly describe and analyze key trends in the rural area's agricultural lands, forests, wildlife habitats, other critical natural areas, and publicly available outdoor recreational resources. Where quantitative data are not available, where mapping is difficult, or where the data do not adequately reveal likely future trends, the narrative provides an opportunity to complete the picture.

Sources of Data and Assistance in Preparing the Rural Areas Component

Although many Tennessee counties do not have geographic information systems (GISs) that would facilitate the analysis of current and trend information on rural areas, most counties have access to the Internet. By using the Internet, by consulting state agencies and their regional offices (e.g., the Department of Agriculture, the Department of Economic and Community Development, the Department of Environment and Conservation, the Department of Transportation, and the Wildlife Resources Agency), and by seeking information and advice from other key organizations (e.g., the Agricultural Extension Service; the Conservation Districts), the basic essential information noted

above can be developed. It may not be perfectly complete or consistent, but it will paint a picture of the designated rural area's natural assets and possible detrimental impacts on those assets.

Beyond the Growth Plan: Developing a County-Based Rural Areas Strategy

For the rural areas component of a growth plan, the information noted above is all that should be required. It is, however, incomplete. A complete plan for a rural area would recognize the following relationship:

natural assets — development pressures — coordinated responses

In other words, to go beyond the mandate of P.C. 1101, a “coordinated response” plan is also needed. In essence, this is a strategic plan for protecting the key natural assets of the designated rural area(s) while recognizing that some development is both inevitable and desirable.

A number of techniques are available to guide development and protect key natural assets. They fall into four categories, in that they concern:

- regulations
- public infrastructure
- public costs and revenue
- public and private investments in open land

The white paper provides basic information on techniques within each category. For more detailed “how-to” information as well as up-to-date information on funding sources, counties can turn to organizations and references listed in the white paper.

There is no single formula for a successful strategy. Instead, counties, in partnership with municipal governments, citizens, and local organizations, should consider various techniques to devise strategies to meet their own needs given their natural assets, their financial resources, and their social and political climates. Not all of the techniques can or should be carried out directly by the county, but the county should provide leadership in framing the strategy and ensuring that it is executed.

Conclusion: Urban Growth Boundaries Are Not Enough

An urban growth boundary can help to direct development toward urban areas and away from rural areas. Where urban growth boundaries have been adopted in other states and then given “teeth,” they have been helpful in ensuring compact, efficient development and preserving farmland, forests, wildlife habitat, and other natural assets of rural areas. However, as illustrated by two case examples included in the white paper, simply designating an urban growth boundary is no guarantee that these aims will be achieved.

By themselves, urban growth boundaries are tools to help delineate where development should take place; they are not barricades to development. Nor should they be. Some development of rural areas will and should occur: the question is how much, where, and what kind. To ensure that these questions are answered in the best way possible, a good working understanding is needed of the

designated rural areas' natural assets and pressures on those assets. With this understanding, demonstrated in the rural areas component of a growth plan, counties can develop strategies to guide development in rural areas and protect their natural assets.

Tennessee is in the forefront, not only in its growth policy law, but also in its array of statutory tools available to help devise protective strategies for rural areas. Tennessee also has a growing number of organizations, both public and private, that can provide technical and other assistance to counties, in their work as stewards of their rural areas.

Tennessee is blessed with an abundance of natural assets, but in many places they are in jeopardy. Tennessee's rural areas are the treasure houses of most of the state's natural wealth, and as such, Tennessee's counties are the first line of defense. In their responsibilities for planning for growth within for rural areas, counties must take seriously their "duty to manage growth and natural resources in a manner which minimizes detrimental impact to agricultural lands, forests, recreational areas and wildlife management areas." They cannot be the sole stewards of their natural assets; that is far beyond their capacities. But they can and should be stewardship leaders and coordinators.

1. Background

1.1 Public Chapter 1101

The 1998 Growth Policy Law, codified as Public Chapter 1101, calls upon counties to develop growth plans which are to be submitted to and approved by the state's Local Government Planning Advisory Committee (LGPAC). According to Section 8 of the law, the purpose of a growth plan is to:

direct the coordinated, efficient, and orderly development of the local government and its environs that will, based on an analysis of present and future needs, best promote the public health, safety, morals and general welfare.

Section 8 goes on to note that “a growth plan may address land-use, transportation, public infrastructure, housing, and economic development.”

All counties are mandated to prepare and submit growth plans except counties with metropolitan forms of government. Approval is automatic if the county growth plan has been recommended by the county's coordinating committee and ratified by the county and all its cities; otherwise, the LGPAC approves a county's growth plan only if it conforms with the requirements contained in P.C. 1101. Failure to have an approved growth plan by July 1, 2001 affects the ability of the county and its municipalities to receive various state and federal grants, as well as affecting municipal annexation and incorporation powers.

The growth plans prospectively include the identification of urban growth boundaries, planned growth areas, and rural areas, although P.C. 1101 leaves open the possibility that some counties may elect not to have planned growth areas or rural areas. According to the appendix to a guide for implementing P.C. 1101 (The University of Tennessee Institute for Public Service and the Tennessee Advisory Commission on Intergovernmental Relations, *Growth Policy, Annexation, and Incorporation Under Public Chapter 1101 of 1998: A Guide for Community Leaders*, September 1998), proposing planned growth areas and rural areas to the coordinating committee is the responsibility of the county government, while proposing urban growth boundaries is the responsibility of municipal governments.

Section 7(c)(1) of P.C. 1101 specifies that a rural area shall:

- A) identify territory that is not within urban growth boundaries;
- B) identify territory that is not within a planned growth area;
- C) identify territory that, over the next twenty (20) years, is to be preserved as agricultural lands, forests, recreational areas, wildlife management areas or for uses other than high density commercial, industrial or residential development; and
- D) reflect the county's duty to manage growth and natural resources in a manner which reasonably minimizes detrimental impact to agricultural lands, forests, recreational areas and wildlife management areas.

Nevertheless, this aspect of the statute appears to be attracting relatively little attention. As illustrated in Section 2, county and municipal governments appear to be focusing on urban growth boundaries and (to a lesser extent) on planned growth areas, while treating “rural area” as a residual category.¹

Nevertheless, for P.C. 1101 to achieve its broad goals, the identification of rural areas must be undertaken with the same methodological rigor as urban growth boundaries and planned growth areas. Rural areas do not necessarily imply the absence of development, but development should be undertaken within the context of an overarching strategy for optimally integrating land uses in a non-urban environment.

1.2 Other States

As the negative effects of unbridled development become increasingly apparent, more and more states and localities are adopting policies and practices to direct growth. The first wave of state growth policy laws occurred in the 1960s and the 1970s in states such as Hawaii, Vermont, and Oregon. Oregon’s law required city governments to establish urban growth boundaries that defined the extent of urban services, while counties enacted agricultural zoning and other farmland protection policies.

More recently, a number of other states have adopted or are exploring growth policy laws. In Washington, for example, a growth management law enacted in the early 1990s requires counties to designate urban growth areas over the next 20 years, and rapidly growing cities and counties are required to prepare comprehensive plans that include protection of natural resources. Also in the early 1990s, Maryland adopted an Economic Growth, Resource Protection, and Planning Act that requires local governments to revamp their comprehensive plans and zoning and subdivision ordinances, paying particular attention to the protection of agricultural land and other natural resources. As a complement to this law, Maryland has adopted a policy of directing state funding for infrastructure improvements to areas that have been systematically targeted for development.

In addition, a number of states have adopted enabling legislation for one or more techniques to protect rural areas (see Section 5). Many of these are undertaken by landowners on a voluntary basis. For example, a number of states have adopted legislation enabling local “transfer of development rights” programs, and virtually every state (including Tennessee) has some type of differential assessment law for property tax purposes. In addition, many states including Tennessee have enacted legislation that facilitates the use of conservation easements, by statutorily dealing with problems that have plagued easements based in common law. As a result, land trusts, while not a new phenomenon, are burgeoning. Tennessee alone has at least 20 of them.

The loss of farmland is of particular concern in other states, as in Tennessee. For this reason, several complementary approaches have been developed over the past two decades or so. These range from “right-to-farm” laws, which have been enacted in many states including Tennessee; to farm trusts that can help to not only retain farmland but also make farming economically viable; to a new approach called “mitigation” ordinances that have been adopted in King County, Washington, and

¹Information for this white paper was gathered during the winter and spring of 2000, prior to the completion of many counties’ growth planning processes.

the City of Davis, California, in order to ensure that some good-quality farmland is left in an undeveloped state.

Underlying these approaches is a conjunction of incentives and disincentives, both regulatory and market-based. The aim is to direct the flow of development while being fair to all concerned. One primary purpose is to keep the main thrust of growth directed toward urban or planned growth areas, while recognizing that some development is inevitable and desirable in rural areas. A second, complementary purpose is to protect the large-scale natural resources of rural areas as well as the smaller-scale natural resources of urban areas. The fundamental motivation is complex and multifaceted: a recognition of the need for efficiency in public finances; for the protection of natural assets that are part of our common heritage and can be irreparably lost; for protection of private property rights as well as the interests of the community; and for diversity of opportunity, now and in the future.

1.3 Purpose and Structure of this Report

This report examines ways to help cultivate responsible planning for rural areas in Tennessee. Specifically, the report includes the following:

Section 2: Two case examples.

Using Jefferson and Williamson counties as examples, this section illustrates ways in which counties are now approaching rural areas planning, within and outside the context of P.C. 1101.

Section 3: Sources of information and assistance.

The advantages and limitations of quantitative and qualitative data are briefly discussed, as are techniques for estimating future changes. Sources of information and assistance are listed in Appendices A and B.

Section 4: Guidelines for reviewing the rural areas component of growth plans.

Local governments, citizens, dispute resolution panels, and the Local Government Planning Advisory Committee all may be involved in reviewing the growth plans developed by coordinating committees. This section recommends essential information that should be provided to demonstrate that the natural assets of rural areas have been given adequate consideration in a county growth plan.

Section 5: Strategies to ensure that rural areas are used in ways compatible with a growth plan.

This section covers four categories of techniques to guide development in rural areas: (1) regulations, (2) public infrastructure, (3) public costs and revenue, and (4) public and private investments in open land. Within each category, various techniques are briefly described and pros and cons are mentioned. Resources providing more detail on various techniques are noted in the list of key references that follows.

Key References

This annotated list directs the reader to more information on the topics covered in this report,

especially in Section 5.

Appendix A: Data Sources

This appendix lists sources of data and other information that can be helpful in identifying the natural assets of rural areas.

Appendix B: Sources of Assistance

This appendix lists selected state agencies, private non-profit organizations, and miscellaneous other organizations that can provide either hands-on or informational assistance. These groups overlap somewhat with data sources noted in Appendix A.

Here, however, the emphasis is on groups that can provide help in considering the meaningful designation of rural areas and developing strategies to protect those areas.

2. Two Case Examples

To illustrate how county governments in Tennessee are planning for rural areas, two case examples are given below. One concerns Jefferson County; the other, Williamson County. Jefferson County had a 1997 population of approximately 42,000; in contrast, Williamson County's 1997 population was approximately 111,000. Williamson County is affluent; Jefferson County's median income is much more typical of Tennessee. Both counties, however, are confronting high growth rates that are affecting their traditionally rural characters. These case examples are provided as illustrations of how two counties — in some ways similar in their characteristics, in some ways quite different — are addressing the need to plan for their rural areas, within and outside the context of P.C. 1101. Both case studies were conducted in the spring of 2000.

2.1. Methodology

To prepare these case examples, background information was gathered on the counties, particularly on their growth planning processes. Interviews were then sought with a few key people such as the county planner, the chair of the county's growth plan coordinating committee, the county's agricultural extension agent and its Natural Resources Conservation District officer, and the directors of any local land trusts. Questions concerned such issues as (1) the current status of the county's growth plan and its relationship to the county's comprehensive plan; (2) information that the county has gathered on agricultural land, forests, recreational areas, and wildlife management areas; (3) county government activities to protect these types of rural areas; and (4) protective activities by others, in partnership with the county or otherwise. Anonymity of responses was assured. Those people interviewed were extremely helpful and cooperative. Unfortunately, some people could not be contacted despite repeated attempts.

2.2. General Conclusions

Given the limited budget and time frame of this study, this case research was not exhaustive. However, the summaries below should convey a sense of the status of rural areas planning within these two counties. From these cases, the following general conclusions stand out:

- In the growth plans being developed to satisfy P.C. 1101, "rural areas" are simply what's left over after urban growth boundaries and planned growth areas have been identified.
- Information is not being gathered systematically to assess the location, quality, and vulnerability of the natural assets of rural areas.
- The sophistication of county zoning ordinances varies, but even the more sophisticated regulations cannot, on their own, adequately protect the natural assets of rural areas.
- Private initiatives to protect the natural assets of rural areas, while invaluable, respond to opportunities as they arise. These initiatives do not eliminate the need for the county to systematically assess and coordinate rural areas protection.

2.3. Jefferson County

Background

Jefferson County is in northeastern Tennessee, immediately adjoining Knox, Grainger, Hamblen, Cocke, and Sevier counties. Its total area is 274 square miles, of which 153 square miles were classified as agricultural by the U.S. Department of Agriculture in 1997, with 1,147 farms. A substantial portion of the southern part of the county is under water, occupied by Douglas Lake.

As of 1997, Jefferson County's population was 42,054 — up 27.4% from 1990. According to 1990 census information, the median household income was \$22,219, and two-thirds of the county's population was considered rural (as opposed to urban).

Dandridge is the county seat, and the county has four other incorporated municipalities: Jefferson City, White Pine, New Market, and Baneberry. Of the county's five municipalities, Jefferson City is the largest, with a 1990 population of 5,875; Baneberry is the smallest, with a 1990 population of 218. In addition to its incorporated municipalities, the county has a number of communities that are old, well-established, and larger than some of its municipalities. According to University of Tennessee projections, the county's population is expected to grow to 56,435 by 2020, with about two-thirds of its people living in unincorporated areas.

The county's terrain is rolling, open, traditionally agricultural, and in some areas (especially where rocky outcroppings proliferate) best-suited for grazing. Two rivers, the Holston and the French Broad, flow through parts of the county toward the southwest, where they join in Knox County to form the Tennessee River. In the extreme northeastern corner of Jefferson County, the Tennessee Valley Authority (TVA) has dammed the Holston to create Cherokee Lake; similarly, in the southern part of the county, Douglas Lake has been created by damming the French Broad.

Interstate 40 traverses the county, roughly from west to east, and joins with Interstate 81 in the eastern part of the county. Within the county, there are four interchanges on I-40 and one on I-81. All are budding areas for travel services and industrial development. Of the five interchanges, three are within proposed urban growth boundaries of municipalities. The remaining two form the core of the two planned growth areas proposed by the county. There are also several federal and state highways that criss-cross the county, in addition to local roads.

Throughout the county, there is a single, county-operated public school system. The system includes a high school and nine elementary and/or middle schools located in population centers around the county. In the unincorporated parts of the county, police protection is provided by the sheriff's department; fire protection, by local volunteer fire departments; waste management, by convenience centers. The only recreation facilities provided by the county are those associated with the schools. Water, natural gas, and electricity are supplied by various utilities. The only public sewer systems are in Dandridge, Jefferson City, and White Pine.

Planning, Zoning, and the Growth Plan

For a number of years, Jefferson County has had long-range comprehensive planning, with the responsibility for planning and its implementation resting with the Jefferson County Regional Planning Commission and the Jefferson County Commission. The county does not have a planning department; instead, it contracts as needed with staff of the Knoxville-based regional office of the Local Planning Assistance Program of the Tennessee Department of Economic and Community Development (ECD).

The county's most recent comprehensive plan was prepared in 1987, and there are no current plans to update it. The county did not have zoning until 1998, when — amid considerable controversy — a zoning ordinance was enacted for the unincorporated parts of the county by a margin of one vote (11 votes out of 21 commissioners voting). While many people opposed zoning as governmental intrusion on private property rights, a major catalyst for the zoning ordinance was concern about overly-dense mobile home parks. Secondly, there was concern as well about unsightly junkyards and the placement of industry.

As in many other Tennessee counties, the growth plan for Jefferson County has been a process of negotiating urban growth boundaries proposed by the municipalities and planned growth areas proposed by the county, with the rural areas as an afterthought. A "Growth Boundary Report for the Unincorporated Areas of Jefferson County, Tennessee" was prepared for the county by the ECD's Local Planning Assistance Program in November 1999, following a standard format used by the program for such reports. This report formed the core of the county's written input to the development of the growth plan proposed by the county's coordinating committee. As of April 2000, a plan had been proposed by the committee and ratified by the county and three of the municipalities; the other two were expected to do so in the near future.

Identifying and Protecting the Natural Assets of the County's Rural Areas

In the November 1999 "A Growth Boundary Report for the Unincorporated Areas of Jefferson County, Tennessee," it is noted that 8,341 (about 42%) of the unincorporated county's 19,648 parcels are vacant, and that much of this land is classified as agricultural, forest, or flood-prone. The report goes on to note that although the exact acreage is not known, a large portion of the vacant land has slopes exceeding 20 percent, making it unsuitable for all but low-density development. The report also notes that of the 8,341 unimproved parcels, 1,131 are classified as agricultural, with most of these (1,028 parcels) greater than 10 acres in size.

Much of this information is directed toward the potential for development of these "unimproved" and "vacant" parcels. It appears that very little information has been assembled by the county on the value of this land for its natural assets: for example, the quality of its agricultural soils or hardwood forests; the value of riparian zones for wildlife habitat and flood control; or the potential of outdoor recreational land in areas other than those made available by TVA as part of its river management system.

In terms of measures to protect rural areas, zoning is the county's main line of defense. At this point, fairly conventional zoning is in place, although cluster development is an option that

apparently is being considered. One person interviewed commented that more power was needed from the state to be able to effectively protect rural areas.

There apparently are no land trusts operating in Jefferson County to assume some of the responsibility for natural assets protection, although individual landowners may be sensitive to these concerns. There was, however, an encouraging note in a “20/20 Vision” process that was conducted in Jefferson County in late summer of 1999, facilitated by staff from the Quality Communities program of TVA and sponsored by the Jefferson County Chamber of Commerce. This visioning process, which was independent of the growth planning process, involved holding public meetings around the county to gather input concerning the county’s future 20 years hence.

The resultant “20/20 Vision” report (January 2000), which was prepared by a diverse group of nearly 40 people called the 20/20 Vision Quality Council, reflects a wide range of interests and values. A key common theme, however, is to achieve a prosperous future with a high quality of life. This overarching goal included, among other objectives, enhancing the agricultural sector, improving the county’s appearance, ensuring that the county’s growth is balanced and planned, promoting environmental quality, and expanding recreational opportunities. Similar themes were articulated during the spring of 2000 in East Tennessee’s “Nine Counties, One Vision” effort, of which Jefferson County is a part.

2.4 Williamson County

Background

Williamson County is in middle Tennessee, immediately south of Nashville. Surrounding counties include (in clockwise fashion) Davidson, Rutherford, Marshall, Maury, Hickman, Dickson, and Cheatham. Its total area is 583 square miles, of which 309 square miles were classified as agricultural by the U.S. Department of Agriculture in 1997, with 1,410 farms.

As of 1990, 50 percent of the county’s population was classified as rural. As of 1997, Williamson County’s population was 111,373 — up 36.16% from 1990. According to ECD projections, the county’s population is expected to increase to 190,359 by 2020. In 1995, the median household income in the county was \$60,858. Housing values are soaring in Williamson County: According to ECD information, the median family housing value was \$184,103 in 1997, whereas it was \$148,500 in 1994.

Franklin, with a population of approximately 26,000, is the county seat and the largest municipality in Williamson County. There are five other incorporated municipalities, ranging from Brentwood, with a population of about 20,000, to Thompson’s Station, with a population of about 1,000. Thompson’s Station incorporated in 1990 in order to halt annexations by Spring Hill, which straddles the Williamson/Maury county line and, in the late 1980s, became the home to General Motor’s Saturn plant.

Approximately 40 percent of Williamson County’s people live in its unincorporated areas, which include numerous communities, many of them dating to antebellum settlements. The terrain of Williamson County is gently rolling, laced with creeks, and has rich soils that historically have made

it attractive for farming. While much of the county is experiencing rapid change, the pace of growth and the feel of the county varies. Office parks, shopping malls, new residential neighborhoods, and estate homes set the tone in the areas closest to Nashville. In contrast, in the southwestern parts of the county such as the steeply-ridged community of Greenbriar, the residents are much more likely to feel removed from the hustle of urban life.

Interstate 65 bisects Williamson County, running north directly into Nashville. Interstate 840, a proposed “outer beltway” around the Nashville metropolitan region, has provoked considerable controversy, especially in Williamson County through which it would pass. The county is also served by several federal and state highways, as well as smaller local roads.

The county school system has 28 schools, including five high schools. The county also has numerous parks, most of which are devoted to intensive recreational activities such as baseball, tennis, soccer, etc. Septic systems predominate in unincorporated parts of the county.

Planning, Zoning, and the Growth Plan

For a number of years, Williamson County has exercised both planning and zoning powers. The county has its own Planning Department with a director and several staff members. The county has subdivision regulations, floodplain regulations, and a detailed zoning ordinance to fulfill the purposes of the county’s comprehensive plan. Among other provisions, the county’s zoning ordinance includes provisions for rural districts (intended especially for areas with rough terrain and few public services); estate districts with large lots that could accommodate keeping horses and other animals; suburban estate districts with extensive required open space; suburban districts for moderate-intensity residential, commercial, office, and industrial development, as well as open space requirements; neighborhood conservation districts; and crossroad center developments, where new commercial development is encouraged but must be blended with the character of the surrounding community. The zoning ordinance also includes provisions for mixed use developments and for “resource conservation developments,” which are designed to incorporate common open space. For an online version of the county zoning ordinance, see http://williamsontn.org/co_gov/pubdoc/zoneord/zonebook.htm.

Within the county’s zoning ordinance, open space is distinguished by type — woodlands, floodplains, sink-holes, drainage ways, slippage soils, steep slopes, hilltops, ridgetops, and required open space. For each of these types, prohibited, permitted, or conditionally allowed uses are specified: for example, agricultural uses (row cropping and other fields, pasture and livestock enclosures, clear cutting, nurseries, commercial greenhouses); recreational uses (active recreation, garden plots, natural areas, passive recreation, picnic areas, and golf courses), and other uses (drainage structures, filling, septic disposal systems, and public facilities). Article VII of the zoning ordinance details resource protection and landscaping standards.

Despite these careful and detailed planning and zoning arrangements, concern about growth is rife in Williamson County, as it in much of the region surrounding Nashville. Testimony to this widespread concern appeared in the *Peirce Report* published in *The Tennessean* in the fall of 1999, and at the subsequent Regional Planning Summit held on December 9, 1999, sponsored by Vanderbilt University and the Greater Nashville Regional Council.

In Williamson County, the county's growth planning process has done little to abate this concern. Instead, the process became highly politicized, and as of April 2000, it appeared that agreement on a plan might not be reached. The urban growth boundaries proposed by the six municipalities and the planned growth areas proposed by the county (some of which overlap with the proposed UGBs) were especially controversial. While the municipalities had ratified the plan recommended by the coordinating committee, the county had not. Tax revenue apparently was a key issue. The "rural areas" aspect of the growth plan was receiving little attention.

Identifying and Protecting the Natural Assets of the County's Rural Areas

As briefly described above, the county has a wide range of regulatory means to help protect the natural assets of the county's rural areas, particularly its agricultural land, forests, and wildlife management areas. If there is a deficiency, it appears to be, first, in identifying these areas, and second, in proactively using county means, including but not limited to regulation, to protect these areas. Regarding the latter (protective techniques), one approach that was mentioned as possibly desirable is a transfer of development rights (TDR) program, which, under current Tennessee law, is an option available only to counties with a metropolitan form of government. A purchase of development rights program was mentioned as another possible approach. (See Section 5 for a description of TDRs and PDRs.)

To the extent that proactive attempts to protect rural areas are being made in Williamson County, they appear to rely to a considerable extent on private wealth and private initiatives. The recently formed Land Trust for Tennessee, Inc., for example, has been negotiating an arrangement in Leiper's Fork, one of Williamson County's rural, unincorporated communities that is rich in history and natural beauty. Under this arrangement, conservation easements would be granted in order to protect large tracts of Leiper's Fork. Somewhat similarly, the Heritage Foundation of Franklin and Williamson County is advocating farmland and historic preservation, as well as the use of design techniques such as buffers and cluster development. But these efforts, while vitally important, do not systematically address the rural planning and protection needs of the county.

3. Information and Assistance on Rural Areas

3.1 The Need for Quantitative and Qualitative Information

In this section, quantitative information is emphasized. Nevertheless, quantitative information should not be relied upon exclusively: It should be accompanied with qualitative information, informal estimates, and informed judgments.

Qualitative information and informal estimates can fill in or correct the picture when quantitative information is incomplete or misleading. Informed judgments by people with a good working familiarity of the county can be helpful in making predictions about likely future impacts on rural areas and their natural assets. Many of the sources of technical assistance listed in Appendix B may also be good sources of qualitative information, informal estimates, and informed judgements.

3.2 Sources of Quantitative Information

In Appendix A, a number of data sources are listed. Many of these sources provide data aggregated on a county-wide basis, and many of them are numerical statistics rather than mapped information. Despite these limitations, they provide a starting point for gathering basic information useful to the designation of rural areas and evaluation of their natural assets. For mapped information available via the Internet, the web site listed in Appendix A under “Other Environmental Information” — <http://www.state.tn.us/environment/county> — with its link to the interactive “EnviroMapper” may be especially helpful.

3.3 Predicting Change

Change can predicted using a variety of methods ranging from the wholly intuitive to elaborate computerized models. As an example of the latter, a GIS-based model for simulating alternative land-use and transportation scenarios has been prepared for the U.S. Environmental Protection Agency. Called “Smart Growth INDEX,” preparations are being made for it to be beta-tested through 20 pilot projects around the nation. (For more information on the software package, see the web site of Criterion, Inc. — <http://www.crit.com/smartgrowth.htm>). In the Nashville region, a team with numerous players — the Greater Nashville Regional Council, the Tennessee Department of Environment and Conservation, the Tennessee Department of Transportation, the Tennessee Advisory Commission on Intergovernmental Relations, the Nashville Metropolitan Planning Organization, the Regional Transportation Authority, Vanderbilt University, and Hawkins Partners, Inc. — developed and submitted an application to become one of these pilots.

Computer-based forecasting tools, while more affordable and user-friendly than they used to be, still require sophisticated software and extensive data. Below, four relatively low-tech means of forecasting trends are briefly discussed. This discussion is drawn from English et al., *Smart Growth for Tennessee Towns and Counties: A Process Guide*, February 1999. See this guide for more information on these and other techniques for gathering, synthesizing, and forecasting information.

Extrapolating Trends

This technique uses past trends to project future change. A common form of extrapolation is the "straight line" trend, but other statistical methods can be used as well. Extrapolation usually is used with data that can be quantitatively displayed: for example, population size, number of acres in farming. It is best-suited to situations where no major new forces for change, internal or external, are expected. Otherwise, its results can be misleading. In addition, it can be biased by which data are chosen, and there may be considerable uncertainty about how far into the future it will be accurate. However, trend extrapolation usually can be easily and inexpensively done, and its results can be easily communicated.

Making Comparisons

By examining what has happened in other communities, predictions can be made about what could happen in your own community. Comparisons can be done informally or systematically. The basic principle is to locate one or more places that are like your own in many respects, except that they have already experienced forces for change (good or bad) that could occur in your community. You then analyze the changes that have resulted and why they occurred. These comparisons — in effect, "anticipation by analogy" — can be illuminating but risky. Neither the communities nor the forces for change will be exactly the same. Analogies should be used for insights, not for absolute predictions.

Intention Surveys

According to Scott Armstrong, an expert on forecasting, "Intention studies are surveys of individuals about what actions they plan to take in a given situation or, if lacking a plan, what they expect to do" (in Dale and English, eds., *Tools to Aid Environmental Decision Making*, 1999: 203). Their purpose is to try to anticipate how people will behave under certain conditions.

Surveys of this sort could be directed toward key local decision makers, public and private, in order to anticipate actions that could have major effects on a designated rural area. For example, farmers could be surveyed about their intentions to remain in farming. In addition, community members can be surveyed to get a sense of the many individual actions that could in the aggregate have major effects. For example, community members could be surveyed about whether they would consider moving to a cluster development.

How the questions are chosen and expressed is critical with these surveys. The questions should be expressed without bias and should address issues that are plausible but not immediately pressing. Guaranteeing anonymity may be important to get frank responses. Even so, the results should not be taken as an absolute predictor but rather as an indication of what people *now* think they *might* do.

Scenarios

Peter Schwartz, a futurist, has identified eight steps for developing forecasting scenarios (*The Art of the Long View*, 1991):

- (1) Identify a focal issue or decision.
- (2) List the key positive or negative local factors influencing the issue.
- (3) List the driving trends in the external world that influence the local factors listed in (2).
- (4) Rank the key factors and driving forces based upon their importance and uncertainty.
- (5) Boil down the possibilities into a few key, fundamentally different scenarios whose differences would dictate different actions.
- (6) Flesh out the scenarios by returning to the key factors and trends identified in (2) and (3) and considering how they might "play out" in each scenario.
- (7) Consider the implications of each scenario for the focal issue.
- (8) Identify a few indicators to monitor, to enable evaluating the scenarios for their accuracy as the future unfolds.

Schwartz cautions against using three scenarios, with one of the three the "most likely" scenario. Instead, he suggests developing a pair of equally high-probability scenarios, as well as a pair of low-probability but high-impact scenarios. He also cautions against having too many scenarios, since this can blur distinctions. He recommends naming scenarios vividly and having decision makers involved in their development.

3.4 Sources of Assistance

Appendix B lists sources of assistance from selected state agencies, non-profit statewide organizations, and other organizations. This list is not exhaustive, but it will give counties some idea of where to turn for help. Much of this help is technical. In addition, some of the organizations listed can provide up-to-date information about funding sources for agricultural and open lands protection, as well as for other environmental protection projects. Funding is available from various federal and state programs as well as from private foundations; these sources change frequently.

4. The Rural Areas Component of Growth Plans: Guidelines for Reviews

4.1 Taking P.C. 1101 Seriously: The Need for County Attention to Rural Areas

Tennessee is rich in natural resources. The total land area of the state is 26.4 million acres. Of this total, preliminary 1999 data indicate that the state has at least 14.2 million acres of forest. Its current forested area is 9 percent greater than it was in 1989 and 51 percent greater than it was in the 1920s. However, while the volume of wood in Tennessee's forests is increasing, its quality is declining (<http://www.state.tn.agriculture/forestry>).

In contrast with forested areas, the farmed areas in Tennessee are shrinking. In 1982, 12.5 million acres were in farms; by 1997, there were 11.1 million acres — a 10 percent decrease. During this period, the number of individual farms shrunk even more drastically, from about 90,600 to about 76,800 — a 15 percent decrease (<http://farmlandinfo.org/fic/states/tennessee.html>). Tennessee, according to the American Farmland Trust's report, *Farming on the Edge*, ranked eighth in the nation in prime or unique farmland converted to urban uses between 1982 and 1992 (<http://farmlandinfo.org/cac/foe2/report>).

Tennessee is blessed with many other natural resources as well: varied and unusual natural areas; extraordinary diversity in plant and wildlife species; streams, rivers, and lakes; numerous recreational opportunities; and (until recently) an abundant water supply. Nevertheless, like Tennessee's farmland and forests, many of these other natural resources are in jeopardy.

Tennessee's natural resources are not to be found exclusively in rural areas. They are also to be found in urban areas and planned growth areas, and they need to be taken into account there as well. But Tennessee's rural areas are the treasure houses of most of the state's natural wealth, and as such, they are the first line of defense.

In preparing growth plans for rural areas, counties must take seriously their "duty to manage growth and natural resources in a manner which minimizes detrimental impact to agricultural lands, forests, recreational areas and wildlife management areas" (P.C. 1101, sec. 7(c)(1)(D)). Otherwise, protection of these resources will rely on the earnest but fragmented efforts of various individuals, agencies, and organizations. In their growth plans, counties should demonstrate a comprehensive awareness of both the status of natural assets within their rural areas and the trends that could affect these resources. Only then can counties exercise their authority and responsibility to help ensure that the resources within their care are being wisely used.

The counties cannot be the sole stewards of their natural resources; that is far beyond their capacities. But they can and should be stewardship leaders and coordinators. The following guidelines are suggested with this role in mind.

4.2 Growth Plans and Comprehensive Plans

County and municipal comprehensive planning is made possible in Tennessee by state enabling legislation dating to the 1930s. (See T.C.A. 13-3-101, which describes the rather complicated arrangements under which planning regions are created and their boundaries defined.) A number of Tennessee's counties already have comprehensive plans. In fact, several of them were updating their plans when P.C. 1101 was enacted. Thus, the P.C. 1101 growth plans are in most cases not the sole means by which county-level data-gathering, goal-setting, and planning analysis is being conducted.

Done well, a comprehensive plan brings logic, foresight, and defensibility to growth plans, zoning, and other community decisions. Sometimes called a master plan or a general plan, a comprehensive plan is "a tangible representation of what a community wants to be in the future" (Kelly and Becker 2000: 43). A full-blown comprehensive plan typically includes inventories of existing conditions, statements of needs and goals, and implementation strategies. Subjects covered may include, for example, population, housing, land use, economic development, public facilities and infrastructure, natural resources, and cultural resources. These may be described in some detail, accompanied with maps and information on historic trends and projections. The comprehensive plan may also be accompanied with more specific plans for special areas (e.g., a city's downtown) or special topics (e.g., open space and recreation).

Comprehensive plans can be important sources of information for the P.C. 1101-mandated growth plans. Realistically, however, many comprehensive plans are not up-to-date, and even those that are may be deficient in some respects, especially regarding natural resources. Thus, for the legislative purposes of P.C. 1101 to be fulfilled, additional data and analysis may be needed, especially for the purpose of considering rural areas.

4.3 Rural Areas and "Bioregional Planning"

One possible way to conceptualize the rural areas component of a growth plan is to think of it as a simplified, small-scale, bioregional plan. Although a county growth plan's boundaries are defined jurisdictionally, not by a biological region, and although bioregional planning is not mentioned in P.C. 1101, many of the same considerations still might apply. A bioregion is

a lifeface ... a geographic area of interconnected natural systems and their characteristic watersheds, land forms, species and human cultures ... a place that 'hangs together' in ecological and human terms (Chadbourne & Chadbourne 2000: 18 [quoting *EcoCity Cleveland Journal*]).

If this concept of a rural area is adopted, questions that might be considered include:

- What land is likely to be developed in the next decade?
- Can farming and forestry have a viable future here?
- Where should new development be concentrated to promote liveable communities and protect key natural resources?
- Where should transportation improvements be focused?
- How can critical natural areas and open spaces be protected?

- Can a “greenbelt” be created to help reinforce urban growth boundaries, as well as providing recreation opportunities?

[list adapted from Chadbourne & Chadbourne 2000]

4.4 Key Elements of the Rural Areas Component

Section 8 of P.C. 1101 indicates that a growth plan should be “based on an analysis of present and future needs.” Given the intent of the legislation regarding rural areas, as expressed in Section 7(c)(1), the following is needed to accomplish this analysis for the rural areas component of a growth plan.

Basic Informational Elements

- (1) Information on *natural assets*. For a designated rural area, this should include the following basic information:

- streams, rivers, lakes, and major wetlands
- soil types and prime or unique agricultural land
- key wildlife habitats and other critical natural areas
- land now in farming [*]
- land now in managed forests [*]
- land now in parks or otherwise protected as open space [*]

- (2) Information on *development pressures*. For a designated rural area, this should include the following basic information on factors that may have direct or indirect impacts on the county’s natural assets:

- residential, commercial, and industrial development [*]
- schools [*]
- roads, sewer lines, and water lines [*]
- traffic counts on major roads [*]

[*] Historical trend information, such as data for 10 years and 20 years ago, should be supplied in addition to current data.

Presentation and Analysis of Information

To the extent possible, information should be mapped on county maps, using the same scale so that overlay transparencies can reveal patterns. A geographic information system (GIS) can simplify pattern analysis, but many counties do not yet have GISs. Data inconsistency may also present problems. For example, data collection years may differ among different categories of data.

While detail is needed, the primary aim of the analysis should be to “paint a portrait” of the county’s natural assets, by depicting their:

- quantity
- quality
- location
- vulnerability

A brief narrative should accompany the mapped information. This narrative should succinctly describe and analyze key trends in the county’s agricultural lands, forests, wildlife habitats, other critical natural areas, and publicly available outdoor recreational resources. Where quantitative data are not available, where mapping is difficult, or where the data do not adequately reveal likely future trends, the narrative provides an opportunity to complete the picture.

The list of essential information given above is by no means all the information that may be relevant. Instead, it is intended as a rudimentary information base for the rural areas component. In order to round out the picture, it may be helpful to introduce other information as well (e.g., for farmland, the average age of farmers in the county, the number of part-time farmers, trends in farm productivity and income).

4.5 Beyond the Growth Plan: Developing a County-Based Rural Areas Strategy

For the rural areas component of a growth plan, the information described above is all that should be required. It is, however, incomplete. A complete plan for rural areas would recognize the following relationship:

natural assets — development pressures — coordinated responses

To go beyond the mandate of P.C. 1101, demonstrating an understanding of natural assets and development pressures when identifying the boundaries of rural areas is not enough. In addition, a “coordinated response” plan is needed. In essence, this is a strategic plan for protecting the key natural assets of rural areas while recognizing that some development is both inevitable and desirable.

As described in Section 5, a number of techniques are available to protect key natural assets. Not all of them must be carried out directly by the county, but the county should provide leadership in framing the strategy and ensuring that it is executed.

5. Strategies for Guiding the Uses of Rural Areas

An urban growth boundary can help to direct development toward urban areas and away from rural areas. As discussed in Section 1, some state and local governments are taking urban growth boundaries very seriously, using them as a way to ensure compact, efficient development and to preserve the farmland, forests, wildlife habitat, and other natural features of rural areas. While this is one of the expressed intents of P.C. 1101, the “on-the-ground” effects of urban growth boundaries in Tennessee remain to be seen.

Urban growth boundaries can be used as a tool to help direct where development should occur, but they should not be relied upon to protect rural areas. Some development of rural areas still will occur: the question is how much, where, and what kind. To ensure that these questions are answered in the best way possible, other strategies are needed. In this section, four types of techniques are described. They concern:

- regulations
- public infrastructure
- public costs and revenue
- public and private investments in open land

These different techniques have pros and cons. Regulatory and tax or fee arrangements can be put in place quickly and cost the local government little, but they may be controversial. They also don’t guarantee long-term protection, as they are susceptible to change. In contrast, public infrastructure investments and public or private investments in open land are more permanent, but they also are more expensive and often must be done in a piecemeal fashion.

There is no single formula for a successful strategy. Instead, county governments, in partnership with citizens and local organizations, should consider techniques such as these to devise strategies to meet their own needs given their natural assets, their financial resources, and their social and political climates.

5.1 Regulation

Regulatory techniques encompass a broad spectrum of possibilities, from general- to special-purpose regulations. Some key regulatory techniques are discussed below. Some of them, such as design criteria or cluster development, can also be undertaken on a voluntary or “self-regulatory” basis.

Zoning

Zoning is made possible by state enabling legislation. In Tennessee, enabling legislation was enacted in the mid-1930s; nevertheless, a number of counties and municipalities have not exercised their delegated power by enacting local zoning ordinances.

Through zoning, local governments control land uses within their jurisdictions for the purpose of promoting the public health, safety, and welfare. Typically, permitted land uses are specified, as are

basic stipulations such as minimum lot size. Flexibility is added to zoning through special exceptions and variances. In addition, alternatives such as planned unit developments and cluster developments (see below) may be available through the zoning ordinance.

Under a zoning ordinance, land may be zoned for various purposes. Tennessee's grant of zoning power to counties notes that:

The county legislative body of any county is empowered ... to regulate, in the portions of such county which lie outside of municipal corporations, the location, height and size of buildings and other structures, the percentage of lot which may be occupied, the sizes of yards, courts, and other open spaces, the density and distribution of population, the uses of buildings and structures for trade, industry, residence, recreation or other purposes, and the uses of land for trade, industry, residence, recreation, agriculture, forestry, soil conservation, water supply conservation or other purposes. (T.C.A. 13-7-101)

The law adds that special districts or zones may be established for flood-prone areas, with regulations to minimize danger to life and property and to secure eligibility for federal flood insurance.

For many rural areas, agricultural zones may be of particular interest. It should be understood that development is not absolutely prohibited within an agricultural zone. Instead, development is restricted somewhat in order to help prevent conversion and fragmentation of farmland as well as conflicts between farming and non-farming land uses. The stringency with which development is restricted in agricultural zones varies from county to county across the nation. In some cases, standards are lenient and farmland can be subdivided for residential use into large lots of, e.g., five or 10 acres. In other cases, to prevent the fragmentation that comes with these "farmettes" or "ranchettes," a technique known as "Area Based Allocation Zoning" is used: The number of houselots allowed is proportional to the farmer's total acreage (e.g., one lot for every 10 acres), but maximum house lot sizes (e.g., 1 acre) are specified, with the remaining land to be kept undeveloped. Another stipulation may be that the houselots are to be located on the parts of the property least suited to farming. A variation on this approach is a sliding scale that permits proportionately fewer houselots as the size of the farm tract increases. For example, whereas a single 1-acre houselot might be permitted on a 5-acre farm tract, only three 1-acre houselots might be permitted on a 25-acre tract (Arendt 1994).

Agricultural Districts

Agricultural districts are complementary to agricultural zoning (see above) and differential use assessment (see below). In Tennessee, as in a number of other states, farmers may apply on a voluntary basis for an agricultural district designation. According to Tennessee's 1995 Agricultural District and Farmland Preservation Act (T.C.A. 43-34-101 to -108), an agricultural district must include at least 250 contiguous acres in agricultural production, with no single ownership containing fewer than 15 acres. To obtain a designation, the landowner(s) petition the local soil conservation district, which evaluates the petition based on such factors as the capability of the soil and topography to support continued agricultural production. The purpose of the designation is to

provide a means to recognize lands dedicated to agriculture, in order to assure that public policy decisions such as condemnation proceedings take into account their impacts on these lands.

Cluster Development

Cluster development is both an ancient and a new way of placing houses on land. With cluster development, houses are clustered in one or more sections of a large parcel. Within the parcel, open land is retained for various purposes enjoyed in common by the development's homeowners: for example, walking trails, golf courses, ponds, streams, and meadows. In so doing, special recreational opportunities are provided and environmentally sensitive areas are preserved.

In essence, cluster development is a type of "planned unit development" (PUD). But whereas a PUD typically allows mixed uses — e.g., commercial, agricultural, and multi-family as well as single-family dwellings — cluster development generally refers only to single-family houses. Although this discussion focuses on cluster developments, well-planned mixed uses should also be considered an option for rural areas.

In localities without zoning, cluster development may be undertaken at the developer's initiative, as long as the development meets local standards for sewage disposal, etc. As an example, see <http://www.developgreen.com> for a description of a cluster development on a 145-acre farm on Little Mountain in Blount County, in the foothills of the Smoky Mountains. As planned, the development will include a 100-acre woods, a pond, a guesthouse, and a community garden and orchard, as well as about three dozen secluded housing sites.

In localities with zoning, cluster development may be made available as an alternative to conventional zoning. For example, if a 40-acre parcel is to be developed and zoning specifies a 1-acre minimum lot size, 40 houses could be built. Under cluster development, lot sizes for the 40 houses might be reduced to ½-acre and the remaining 20 acres preserved as open space. To "sweeten the pot" and make clustering more financially attractive for the developer as well as better designed, more houses on smaller lots may be permitted if the plan is well laid-out (see Figure 1).

Obviously, the viability of cluster development relies, not only on local understanding and acceptance of the concept, but also on buyer demand. With the trend toward smaller families, an aging population, and less time for yardwork, compact development accompanied with open space amenities is likely to be increasingly appealing to many people. Cluster developments must be well-planned to assure privacy, and provisions for open space upkeep, taxes, and insurance must be in place (typically through a homeowner's association with maintenance fees paid by each homeowner). With these provisos, clustered development can be an attractive alternative to "cookie cutter development" — an alternative that creates a more diversified housing stock with built-in recreational opportunities while protecting natural assets and preserving the feel of a rural landscape.

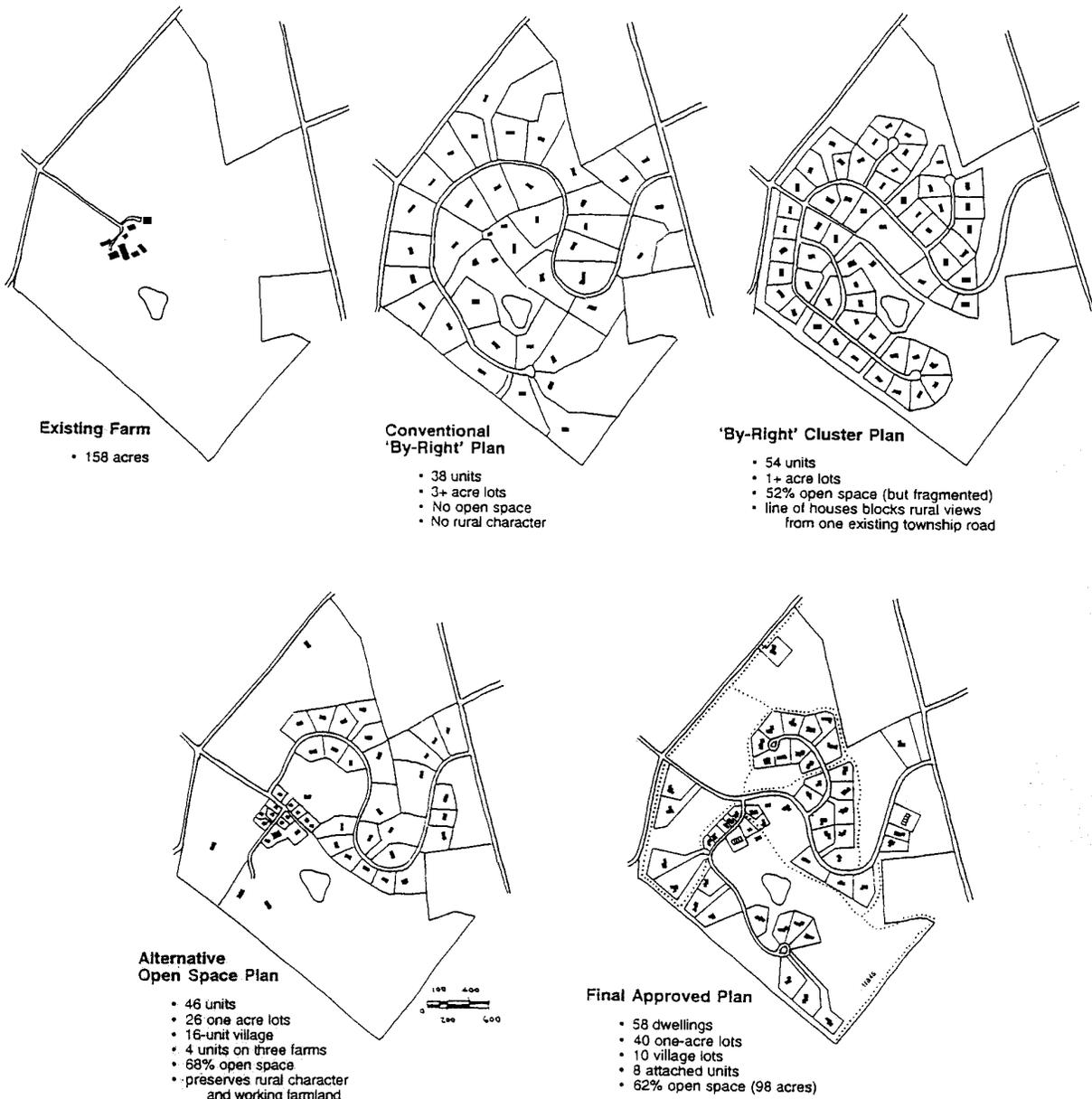


Figure 1. Source: Arendt 1994, from Brandywine Conservancy, 1992.

Transfer of Development Rights (TDRs)

Cluster development protects open land parcel by parcel; in contrast, TDRs can protect large tracts of land. In essence, a TDR program redirects development: It designates some areas — such as agricultural, environmental, or historical areas — for protection while designating other areas for more dense development than would otherwise be permitted. The owners of the "sending area" (the area to be protected) are paid for their development rights by the developers of the "receiving area" (the area where dense development is to be allowed if development rights have been acquired). For example:

A TDR program might be set up so that five protected acres in the "sending area" equals one development right. A developer acquiring one development right can build one residential unit over the otherwise permitted density in the "receiving area." A real estate broker might conduct the transaction between the seller and buyer of the development right.

Typically, TDR programs only cost the local government administrative costs, since the sale and purchase of development rights are market-based transactions between landowners and developers. However, some local governments use a "revolving fund" approach to ensure protection of key tracts of land: They purchase development rights with public funds and then sell the rights to developers.

A TDR program is established by a local government within the context of its comprehensive planning and zoning. More than 20 states have enacted or amended statutes to enable the TDR concept (<http://ohioline.ag.ohio-state.edu/cd-fact>). In Tennessee, only counties with metropolitan forms of government have been so enabled (T.C.A. 13-7-101). Tennessee law makes clear that TDR programs are permissive but not mandatory; that is, they rely on having willing sellers and buyers of development rights.

The TDR concept has been around nearly 30 years. The most publicized example is Montgomery County, Maryland, on the edge of Washington, D.C. In 1983, Montgomery County put in place a program to maintain the viability of farming and to contain public costs for roads and other services through more efficient development. Over the following decade, 15,000 acres of farmland in the county were protected (Arendt 1994).

TDR programs can be complex and difficult to administer. In addition, the concept must be understood and accepted by all concerned ... not only the sellers and buyers of development rights, but also others living in the receiving and sending areas. Under the right circumstances, however, a TDR program can be a "win-win" market-based solution: It can protect open land and reduce public service costs, redirecting but not discouraging development while compensating those whose land remains open.

Design Criteria

When development occurs, design criteria can help to preserve the character and esthetic appeal of a rural area. These criteria can be mandatory, through subdivision regulations, zoning, or building codes. For rural subdivisions, they might concern, for example, cul-de-sacs and their alternatives, traffic-calming road curves, narrow roads where appropriate, street tree planting, and lighting fixtures (Arendt 1994).

In addition, voluntary design standards can be suggested by local governments or other groups. These should be tailored to features of the local landscape, be it flat farmland, hilly pastures, meandering rivers, or majestic mountains. In North Carolina, for example, the Black Mountain-Swannanoa Chamber of Commerce has a handsome brochure, "Blending Your Home Into Our Mountain Community," which encourages new home builders to preserve ridgelines, fit the home to the site's natural contours, build with materials that blend into the surroundings, avoid excessive artificial light, plan for run-off controls, minimize removal of existing trees and shrubbery, and use native species for new landscaping.

While design criteria can come across as offensively dictatorial — the “good taste police” — they don’t have to. Instead, they can appeal to a sense of community. The Black Mountain-Swannanoa brochure has this heading:

Let’s join together to protect our mountain vistas. When you look out at the view, do you want to see houses or do you want to see mountains? We all must choose!

Mitigation Ordinances

A mitigation ordinance is a new farmland protection technique; one based on a “no net loss” concept similar to that of wetlands protection. Through a local ordinance, developers are required to permanently preserve one acre of agricultural land for each acre of agricultural land that they develop. Generally, this is accomplished by having the developer purchase an agricultural conservation easement from a farmer owning agricultural land elsewhere in the local area. Sometimes, the mitigation requirement may be satisfied by paying a fee to the local government. This fee can then be put in a fund for local acquisition of agricultural conservation easements.

A mitigation ordinance can be an effective, low-cost means for a local government to protect agricultural land, since the cost is transferred to developers. Underlying the concept is the idea that agricultural land is a natural resource that is often undervalued in the market place, and that, once gone, it’s gone forever. However, for the mitigation ordinance to be effective, the “replacement land” must be of the same or better agricultural quality as the land being developed.

Right-to-Farm Laws

Right-to-farm laws are enacted by states to protect farmers’ ability to continue to farm as surrounding land is developed. Because of noise, dust, odor, and other externalities from agricultural operations, farmers may be subject to lawsuits based on nuisance law seeking injunctions, monetary compensation, or both. A right-to-farm law helps to discourage such suits, by documenting the importance of farming and putting residential and commercial neighbors on notice of activities that they can expect when they move into an agricultural area. Around the nation, some local governments are passing their own ordinances to supplement state law.

Right-to-farm laws hold the potential for abuse, especially with poorly managed farms and concentrated animal feedlot operations. One issue is whether the farm was in operation prior to the development of nearby land (and if so, whether the farm operation has changed significantly). Another issue is whether the farmer is using good management practices.

Tennessee has two related right-to-farm laws. One applies generally to farms of various sorts. It establishes a rebuttable presumption that a farm or farming operation is not a public or private nuisance if it conforms to generally accepted agricultural and management practices, or if it existed before a change in land use or occupancy within one mile of the farm and if, prior to the change, it would not have been a nuisance (T.C.A. 43-26-101 to -104). The other, which is similar in spirit, applies to feedlots, dairy farms, and egg production houses. It provides that if the operation conforms to regulations of the Tennessee Department of Environment and Conservation, it has an absolute defense against nuisance proceedings brought by people who either acquired property or

began residential or commercial use of their property after the operation began (T.C.A. 44-18-101 to -104).

5.2 Public Infrastructure

Public investment in infrastructure — for example, in new or improved roads, in sewer and water lines, and in new or expanded schools — can have major impacts on the pattern and pace of private development. In rural areas, the development affected is likely to be residential, but it may also be commercial or industrial. Tourism-related business can be especially sensitive to infrastructure improvements.

Infrastructure can be provided on a reactive basis, by responding to consumer demand, but the result may be scattershot development and high costs to the local government (see the discussion of Cost of Community Services studies below). Alternatively, infrastructure can be provided on a proactive basis, by following a coherent plan that is integrated with a comprehensive land use plan and that takes into account fiscal, social, and environmental costs.

5.3 Public Costs and Revenue

Typically, property taxes are the largest source of revenue for a local government. (State and local sales taxes may constitute a major proportion of local revenue, especially in a sales tax-reliant state such as Tennessee, but property taxes are still “the elephant in the stew.”) Through revenue policies, especially as they apply to property taxes or development fees, local government can affect how rural areas are used. Some techniques, such as differential assessments, require state legislation; others, such as impact fees, do not. A “cost of community services” study can provide an underpinning for local revenue policies.

Cost of Community Services (COCS) Studies

Across the nation, COCS studies have become increasingly popular. They provide a “snapshot in time” of the public costs (capital and operating costs for schools, parks, roads and road improvements, police and fire protection, water and sewer lines, etc.) and public revenues attributable to different land uses. Typically, land uses are grouped into three categories — residential, commercial/industrial, and agriculture/forestry/open space — with the costs and revenues for each category expressed as a ratio. Ratios over 1 mean that the public costs for that category exceed its property tax revenues.

Since the 1980s, numerous studies of communities have been conducted. They consistently indicate that residential land uses are a net drain on public revenues, whereas the other two categories are a net plus. School systems are a main reason for this: They typically account for 60 to 70 percent of local spending. The average COCS ratio for residential land is between 1.15 and 1.50; for commercial/industrial land, between 0.35 and 0.65; for agriculture/forestry/open space land, between 0.30 and 0.50 (<http://ohioline.ag.ohio-state.edu/cd-fact>).

Some variation among communities does occur. For example, if a community has a high proportion of expensive homes owned by childless households, it may have a lower COCS ratio for its residential land use category than it would otherwise. If these homes are on large lots spread across the landscape, however, savings on school costs may be counterbalanced by high costs for other public services and infrastructure such as new roads or road improvements. It also has been found that in communities where population growth rates are low (around 1 to 2 percent per year), public costs escalate much less rapidly than in communities with high growth rates (above 3 percent per year) (<http://ohioline.ag.ohio-state.edu/cd-fact>).

While new residents generate public revenue indirectly by spending money within a community, they may also generate undesirable effects such as traffic congestion. Both types of indirect effects (positive and negative) are not included in COCS studies. COCS studies provide an incomplete picture. They do not provide the means to judge the overall good of various types of land uses, but they can serve as one tool to help make more informed judgments.

Impact Fees and Exactions

Impact fees are established through local ordinances, as a means to maintain the established level of community services while accommodating growth. Impact fee ordinances require a developer to pay a one-time charge that is calculated based on the type of development and its projected impact on public services. They typically apply to new residential developments. Exactions are similar in purpose but usually are negotiated on a case-by-case basis between the local government and the prospective developer, and may be satisfied with contributions of land (e.g., for a park or school) or improvements as well as money. The underlying concept of impact fees and exactions is to make the development “pay its own way.” Whether these additional costs are passed on by developers to purchasers depends largely on market forces.

Impact fees and exactions are driven by the cost of community services, which are especially high with residential uses and can escalate with rapid growth (see discussion above). In the past, federal and state funds have contributed substantially to community infrastructure improvements, but these funding sources are now scarce. In order to maintain an acceptable level of community services, local officials have been forced to either (1) raise property taxes, or (2) have developers assume the burden of new public costs resulting from their projects (or both). What constitutes an “acceptable level of community services” is subject to change: Standards may be affected by new expectations of community members as well as by new state and federal mandates.

Impact fees and exactions generally have been found legal, including in Tennessee. If set too high or used unfairly, however, they may be challenged. The municipality’s calculation of impacts and their costs may be controversial, as may be decisions (by ordinance, or on a case-by-case basis) about when impact fees and exactions should and should not be imposed. At the heart of impact fees and exactions are hard issues about fairness, both intertemporally and across different types of development. Objections may be raised that these fees should not be imposed on new developments when older developments did not have similar fees. Objections also may be raised that impact fees and exactions will either drive development away or promote a bias against certain kinds of development (e.g., housing for young families).

Properly applied, however, impact fees and exactions can help to ensure that an adequate level of community services is maintained without undue burden on current taxpayers. They also may help to contribute to compact community development (as developers seek to curb their impact costs) and to moderate rather than precipitous community growth rates.

Differential Assessment Laws

Differential assessment laws, also known as current use valuation laws, are state laws that allow taxes on certain types of property to be assessed based on current use rather than market value. In 1976, Tennessee enacted the Agricultural, Forest and Open Space Land Act (also called the Greenbelt Law) to allow specified types of land to be taxed at their present use value (T.C.A. 67-5-1001 to -1011). Land with an open space easement may qualify automatically. Otherwise, to qualify, agricultural or forest land must include at least 15 acres; open space land must include at least 3 acres. Other provisions such as minimum gross income (agricultural land), type of timber (forest land), and public benefits (open space land) also apply.

Laws such as these help ensure the economic viability of farming, forestry, and keeping land in open space. There is less incentive to sell, all other things being equal, if the land is taxed at its use rather than its market value. Differential assessment laws also restore equity, since these types of land typically demand fewer local public services than other uses, especially housing. Differential assessment laws can be abused, however, if land speculators use them for tax relief while holding land prior to development. Perhaps for this reason, the Tennessee statute has a “roll-back” tax provision.

“Circuit Breaker” Tax Relief Programs for Farmers

A few states (Michigan, Wisconsin, New York, and Iowa) have “circuit breaker” tax credit programs for farmers, in addition to or in lieu of differential assessment laws. These programs vary from state to state. Generally, their purpose is to establish a ceiling on the farmer’s property taxes, with the ceiling determined by the farm’s income in relation to its property tax bill. If the bill is higher than the ceiling, the state makes up the difference.

As with differential assessment laws, program abuse is a potential concern. In Michigan, farmers receiving circuit breaker tax credits must sign 10-year restrictive agreements to prevent farmland conversion. In Wisconsin, farmers benefiting from the program must be within locally-designated agricultural protection zones.

5.4 Public and Private Investments in Open Land

Most of the techniques described above are undertaken at the initiative of local governments, although other people such as developers and landowners also play an important role. In contrast, the techniques described below can be initiated, not only by local governments, but also by individual landowners who wish to keep their land open, often working in concert with a private non-profit land trust.

The types of techniques range from those where the landowner protects but continues to own the property, to those where the land is donated or sold, to those where land is transferred with conditions attached. Within each type, various arrangements are possible (see Figure 2).

Below, a few common techniques are briefly described. While these techniques can be used on a parcel-by-parcel basis, they are most effective when they are part of a larger, coherent plan.

Conservation Easements (and Purchase of Development Rights)

A conservation easement prohibits certain types of uses from taking place on the land. Other rights that accompany private property ownership (e.g., the right to privacy; the right to lease, sell, or bequeath the land) are not affected, however. Conservation easements are voluntarily donated or sold by the landowner to a public or private non-profit organization, who becomes the easement holder. Typically, conservation easements are meant to “run with the land” in perpetuity, even if the land changes hands.

Conservation easements may result in lower property taxes for the landowners (see the discussion of Differential Assessment Laws above), and, if the landowner donates the easement or sells it for less than full market value, it may have income tax benefits. In addition, by lowering the appraised value of the land, a conservation easement can lower estate and inheritance taxes. This can make the difference in whether the heirs can afford to keep the land. In Tennessee, conservation easements are enabled through the 1981 Conservation Easement Act (T.C.A. 66-9-301 to -309).

A special type of conservation easement is a Purchase of Development Rights (PDR). As the name implies, these easements are purchased, and they prohibit the landowner from developing the property or selling it for development. PDRs often are used to protect agricultural land or other important natural resources, such as aquifer recharge areas. After acquiring the development rights, the purchaser retires them: The deed is restricted to agreed-upon activities such as farming.

Conservation easements and PDRs are almost always voluntarily granted by the landowner. (In Tennessee, a conservation easement may be acquired by a public body using the power of eminent domain, but only if the easement is necessary for a public project that has been authorized by statute (T.C.A. 66-9-305).) They require forethought, because they limit the landowner’s flexibility and are difficult to reverse. They also require responsible, stable organizations as easement holders, because the land must be periodically monitored to ensure that the terms of the easement are being upheld. In general, however, easements and PDRs provide a means for local landowners to work hand-in-hand with local governments and organizations to ensure that land is permanently protected, even as the landowners continue to enjoy their property.

Finding the Right Option

1. Answer the four questions on the left side of this page.
2. Read first about the land protection methods that seem to fit the majority of your wishes.
3. Read about other options to see if they may also fit your wishes, perhaps in combination with other methods.
4. Discuss your options with trusted professionals, particularly your tax advisor and a conservation professional. Your tax advisor can counsel you on any recent changes in property, income and estate tax laws that may substantially impact your decision.

	PROTECT AND OWN	DONATE	SELL	TRANSFER WITH CONDITIONS
Do you wish to continue to own or use the land?	•	•	•	•
Do you want to restrict future uses?	•	•	•	•
Do you want compensation?	•	•	•	•
Are potential tax advantages important to you?	•	•	•	•

Figure 2. Source: Tennessee Parks and Greenways Foundation

Out of growing concern for the loss of farmland and other open space, various strategies are being tried by local and state governments around the nation to fund the acquisition of easements. In Kentucky, for example, a Purchase of Agricultural Conservation Easements (PACE) board was formed in the mid-1990s, to buy development rights for key agricultural tracts using state and federal funds. PACE programs or other open space preservation initiatives may also be taken by local governments. Possible ways to fund them include real estate transfer taxes, sales taxes, property taxes, and voluntary donations by real estate owners.

Fee Simple Acquisition

Owning land “in fee simple” means full ownership of the land. There are many ways for a local government or land trust to acquire land in fee simple (see Figure 2). Here, only purchase is discussed.

Land to be protected can be purchased by either private organizations or public agencies. If the latter, the power of eminent domain may be used if necessary (i.e., if the landowner does not volunteer to sell) and if the taking is for a public use, but the landowner is still paid fair market value. Outright purchase of land typically is used where lands are to be put to a public purpose such as recreation, or where they have a particularly high environmental value.

Although outright purchase is expensive, it has been found in some communities (e.g., Palo Alto, California) to be less costly than paying the public infrastructure and service costs that would result if the land were developed (Chadbourne & Chadbourne 2000). Even undeveloped, however, the land will require some upkeep. If acquired by the local government, it also will be removed from the public tax rolls.

Farm Trusts and Support of Agricultural Economic Development

Farm trusts, which typically are a form of fee simple acquisition, began to be popular in some regions of the nation several decades ago. The core idea is to foster, not just the preservation of farmland, but the preservation of farmers, their skills, and productive use of the land. While different arrangements are possible, one approach is for the trust to acquire the land outright and then set up a long-term lease arrangement with a prospective farmer. Often, these farms are small-scale “family farms” and are used to demonstrate innovative ways to attain profitability in agriculture while maintaining high environmental standards. Part of the trust activity (as well as that of agricultural extension agents) may be to assist the farmer in strategic planning: for example, business planning and capital investment, the use of loan programs, and marketing opportunities.

Key References

Arendt, Randall. 1999. *Growing Greener: Putting Conservation into Local Plans and Ordinances*. Washington, D.C.: Island Press, 236 pp.

Covers such topics as the community development/land use audit process, community resource inventories, and conservation zoning and subdivision techniques.

Arendt, Randall. 1994. *Rural by Design: Maintaining Small Town Character*. Chicago, IL: American Planning Association, 441 pp.

A detailed text on design and planning techniques to preserve rural landscapes while incorporating development.

Beatley, Timothy, and Kristy Manning. 1997. *The Ecology of Place: Planning for Environment, Economy and Community*. Washington, D.C.: Island Press, 265 pp.

Covers urban as well as rural sustainability concerns; focuses on the need for a civic community and a restorative economy to enable sustainable places.

Benfield, F. Kaid, Matthew D. Raimi, and Donald D.T. Chen. 1999. *Once There Were Greenfields: How Urban Sprawl is Undermining America's Environment, Economy, and Social Fabric*. Washington, D.C.: Natural Resources Defense Council and the Surface Transportation Policy Project, 1999, 215 pp.

An impassioned but well-documented argument for the need to pay attention to sprawl and the sprawl effects of vehicular traffic.

Chadbourne, Joseph H., and Mary M. Chadbourne. 2000. *Common Ground: A Practical Guide to Protecting Rural and Urban Land*, 3rd edition. A Joint Project of Western Reserve Conservation and Development Council, Ohio Office of Farmland Preservation, Seventh Generation, and Chadbourne & Chadbourne, Inc. Chagrin Falls, OH: Chadbourne & Chadbourne, 394 pp.

A useful handbook that succinctly describes and evaluates numerous techniques for managing land uses. Although prepared with Ohio in mind, it is helpful for other states as well. Copies sold by Chadbourne & Chadbourne; see their web site at <http://www.chadbourneinc.com>

Daniels, Tom. 1999. *When City and County Collide: Managing Growth in the Metropolitan Fringe*. Washington, DC: Island Press, 361 pp.

As the title suggests, focuses on the periphery around metropolitan areas, where urban melts into suburban and rural. Discusses the role of federal, state, and local governments in abetting or curbing sprawl, and suggests how to blend regulations and incentives to manage fringe growth.

Daniels, Tom, and Deborah Bowers. 1997. *Holding Our Ground: Protecting America's Farms and Farmland*. Washington, DC: Island Press, 334 pp.

Makes the case for protecting farmland; includes appendices with sample forms and agreements to implement various protective techniques.

English, Mary R., Jean H. Peretz, and Melissa J. Manderschied. February 1999. *Smart Growth for Tennessee Towns and Counties: A Process Guide*. Knoxville, TN: Waste Management Research and Education Institute, University of Tennessee, 185 pp.

Focuses on techniques to carry out the phases of a planning process. Participatory techniques are emphasized, but high-tech analytic techniques are discussed as well. Includes lists of sources of data and technical assistance. Available free to Tennessee residents from the authoring institution; also for sale by the American Planning Association's Planners Book Service. On-line at <http://eerc.ra.utk.edu/smart.htm>.

Howe, Jim, Ed McMahon, and Luther Propst. 1997. *Balancing Nature and Commerce in Gateway Communities*. Washington, D.C.: Island Press, 165 pp.

Concentrates on communities that are near to scenic, recreational, or historic attractions, and the effects (good and bad) that the communities can have on the attractions and vice versa.

Kelly, Eric Damian, and Barbara Becker. 2000. *Community Planning: An Introduction to the Comprehensive Plan*. Washington, D.C.: Island Press, 478 pp.

A thorough analysis of how comprehensive plans should be prepared.

Tennessee Parks and Greenways Foundation n.d. *Landowner's Options ... A guide to the voluntary protection of land in Tennessee*. 78 pp.

Extensive guide on ways to voluntarily protect land in Tennessee. The guide also lists land trusts operating statewide and in various regions of the state, as well as sources of funding assistance. Free from the Tennessee Parks and Greenways Foundation; see their web site at <http://www.tennngreen.org>.

Tennessee Advisory Commission on Intergovernmental Relations. April 2000. *Tennessee's Growth Policy Act: A Vision for the Future*. 54 pp.

Provides a background and overview of P.C. 1101, and reviews implementation developments such as the status of county growth plans, the creation of Joint Economic and Community Development Boards, the move to metropolitan governments within a few counties, and other related legal developments. Available free from TACIR.

Tennessee Advisory Commission on Intergovernmental Relations. March 1999. *Implementation of Tennessee's Growth Policy Act: The History of Public Chapter 1101 and the Early Stages of Its Implementation*. 84 pp.

Reviews the history that led to P.C. 1101, as well as the initial efforts of state agencies and local governments in carrying out the Act's mandate. Available free from TACIR.

The University of Tennessee Institute for Public Service and The Tennessee Advisory Commission on Intergovernmental Relations. September 1998. *Growth Policy, Annexation, and Incorporation Under Public Chapter 1101 of 1998: A Guide for Community Leaders*. 59 pp.

A helpful guide that digests this complex law as well as reproducing it in its entirety. Available free from the authoring institutions; also on-line at <http://www.ips.utk.edu/growthpolicy>.

Weitz, Jerry. 1999. *Sprawl Busting: State Programs to Guide Growth*. Chicago, IL: American Planning Association, 383 pp.

Systematically reviews the development of state-sponsored land use planning, from its early days in the 1960s to the present.

While many web sites provide helpful information, two are especially worth mentioning:

<http://farmlandinfo.org>

This is the on-line Farmland Information Library of the American Farmland Trust. It provides state-by-state descriptions of agricultural protection techniques available, including access to texts of relevant statutes.

<http://ohioline.ag.ohio-state.edu>

This site, maintained by the Ohio State University Extension Service, has an excellent series of concise (2 to 5-page) fact sheets on various techniques to manage land uses. Ohio is featured, but the fact sheets are not tailored exclusively to that state; they are useful elsewhere as well.

Appendix A: Data Sources

Demographic Information

U.S. Census Bureau — <http://www.census.gov/datamap/www>

- County Population
- Number of Households
- Proportion of Population Urban
- Proportion of Households Urban

U.S. Census Bureau —

<http://www.census.gov/population/www/estimates/countypop.html>

- Percent Change in Population by County
- Rate of Net Domestic Migration by County

Agricultural Information

Census of Agriculture — <http://www.nass.usda.gov/census/census97/profiles/tn/tn.htm>

- Acres of Farmland
- Average Size of Farms

Census of Agriculture — <http://www.nass.usda.gov/census/census97/volume1/vol1pubs.htm>

- Farm Values
- Acres of Irrigated Land

Local Conservation District office (listed under U.S. Dept. of Agriculture)

- Soil Types

Forestry Acreage

U.S. Forest Service — <http://www.srsfia.usfs.msstate.edu/scripts/ew.htm>

Environmental Quality Information

U.S. Environmental Protection Agency — <http://tree2.epa.gov/ceis/ceis.nsf>

- Air Quality
- Drinking Water
- Surface Water
- Toxic Chemical Releases

Watershed Quality Information

U.S. Environmental Protection Agency — <http://www.fedstats.gov>

Other Environmental Information

State of Tennessee — <http://www.state.tn.us/environment/county>

- Rare Species
- Watershed Information

- County “EnviroMapper” (Internet link to interactive mapping provided by the U.S. Environmental Protection Agency)

Traffic Count Information

Tennessee Department of Transportation
Division of Traffic and Safety Planning Section
Suite 1000, James K. Polk Building
505 Deaderick Street
Nashville, Tennessee 37243-0344
(615) 741-6741

Recreation Information

Tennessee Department of Environment and Conservation
Recreation Resources Division, TDEC
401 Church Street, 10th Floor, L&C Tower
Nashville, TN 37243
(615) 532-0755

Appendix B: Sources of Assistance

Selected Public Agencies in Tennessee

Tennessee Department of Agriculture

<http://www.state.tn.us/agriculture>

Ellington Agricultural Center

P.O. Box 40627

Nashville, TN 37204

(615) 837-5103

TDA includes programs for both agriculture and forestry. Its web site has links to the U.S. Department of Agriculture's National Agricultural Statistics Service, which provides county-by-county agricultural information. See *<http://www.nass.usda.gov/tn/tncyest>* for this site. The Forestry Division of TDA has landowner assistance programs to help landowners who want to plant trees, develop forest management plans, and locate stewardship resources.

Tennessee Department of Economic and Community Development

<http://www.state.tn.us/ecd>

Rachel Jackson Building, 320 6th Avenue North

Nashville, TN 37243-0405

(800) 342-8470

(615) 741-3282

ECD works with communities to help them attract new businesses and improve their quality of life. Some programs are focused on creating jobs; others concentrate on planning for growth and helping communities take control of their economic futures. ECD also administers various state and federal government grant and loan funds.

The ECD, through its Local Planning Assistance Program, provides community planner staff on contract to address individual community needs. Working with municipal and county government officials and local planning commissions, staff planners focus on ensuring that locally determined objectives are met. The Local Planning Assistance Program has seven regional offices. Call the toll-free number listed above or see *<http://www.state.tn.us/ecd/locplan.htm>*.

Tennessee Department of Environment and Conservation

<http://www.state.tn.us/environment/assist.htm>

21st Floor, L&C Tower

401 Church Street

Nashville, TN 37243

1-888-891-TDEC

TDEC provides technical assistance through the following programs:

Clean Air Assistance Program - regulatory compliance assistance to small businesses through workshops and onsite visits; *Water and Wastewater Operator Training and Certification Program* - training, testing, and certification of water and wastewater operators at the Fleming Training Center in Murfreesboro; *Water and Wastewater Needs Assessment and Facility Plans Review Program* - review and submission to EPA of 20-year water and wastewater needs in Tennessee, and the environmental review and approval of facility plans for State Revolving Fund (SRF) loans; *Recycling Program* - coordination of recycling events, and database maintenance and referral for materials exchange, used oil, antifreeze, and battery collection sites and transporters; *Solid Waste Plan Approval Program* - promotion of sound integrated solid waste management practices (collection, disposal, reduction, recycling, and education); *Pollution Prevention Programs* - multi-media pollution prevention assistance to industry, commercial establishments, schools, institutions, homes, government, etc., through the preparation and review of pollution prevention plans, onsite visits, market development, general outreach and training.

Financial assistance is provided through the following funds: *State Lands Acquisition Fund* - provides for acquisition of land for state parks, state forests, state natural areas, boundary areas along state scenic rivers, and the acquisition of easements to protect any of the foregoing state areas; *Water and Wastewater State Revolving Fund (SRF) Loan Programs* - loans to local governments (cities, counties, and utility districts) for water and wastewater facilities; *Solid Waste Grant Program* - grants for recycling efforts, material recovery facilities, clean-up of waste tires, updating solid waste plans, household hazardous waste programs, solid waste education programs, and the promotion of end-use markets; *Recreation Resources Division* - grants and technical assistance to local governments for local parks and recreation facilities, trails, and greenways.

TDEC recently established nine regional Environmental Assistance Centers (EACs). The nearest EAC should be a starting point for environmental questions. The toll free number above will automatically forward the caller to the appropriate EAC. E-mail can be sent to environment@mail.state.tn.us. The EACs' web address is <http://www.state.tn.us/environment/contact.htm>.

Tennessee Department of Transportation

<http://www.tdot.state.tn.us>

Mapping & Statistics Office

Suite 1000, James K. Polk Building

505 Deaderick St.

Nashville, Tennessee 37243-0344

(615) 741-2208

TDOT's Office of Mapping and Statistics includes three sections: Inventory and Statistics, Mapping, and Traffic and Safety Planning. The various responsibilities of the office include collecting and updating data on state and local road systems, maintained and disseminated as the Tennessee Roadway Information Management System (TRIMS); preparing city, county, and state road and traffic maps, GIS information, and digital terrain mapping for route location, functional design, and final design; preparing traffic forecasting and computer travel modeling for rural, small urban, and urbanized areas; and identifying and analyzing crash data.

Tennessee Wildlife Resources Agency

<http://www.state.tn.us/twra>

Ellington Agricultural Center

P.O. Box 40747

Nashville, TN 37204

(800) 890-8366

The Tennessee Wildlife Resources Agency and its four regional offices provide information concerning endangered or threatened species, assistance on protection strategies, and other wildlife management information. TWRA also can help counties to obtain GIS-based information on wildlife habitats.

University of Tennessee Institute for Public Service

<http://www.ips.utk.edu>

The University of Tennessee's Institute for Public Service includes several different agencies that provide services to Tennessee's counties and municipalities. Among them are the County Technical Assistance Service (CTAS), the Municipal Technical Advisory Service (MTAS), and the Center for Government Training (CGT). Under Tennessee's new growth policy law, these units, in addition to their usual services, work with counties and municipalities to help implement the bill's mandate. For a description of the Institute for Public Service and its agencies, see *<http://www.ips.utk.edu>*. CTAS phone number: (615) 532-3555; MTAS phone number: (865) 974-0411; CGT phone number: (865) 974-9609.

University of Tennessee Institute of Agriculture, Agricultural Extension Service

<http://www.utextension.utk.edu>

P.O. Box 1071

Knoxville, TN 37924-1071

(865) 974-7112

The UT Agricultural Extension Service and its county-based extension agents provide a number of educational programs and resource demonstrations. One example is the Forest Landowner Priority Program, which is being undertaken in conjunction with the Tennessee Department of Agriculture, the Tennessee Wildlife Resources Agency, and the Tennessee Forestry Division. The program focuses on the 400,000 non-industrial private forest landowners who own more than four-fifths of the state's forested acres. The program objectives are to improve forest management, profitability, and ecology.

Selected Private Non-Profit Organizations in Tennessee

The Land Trust for Tennessee, Inc.

<http://www.landtrusttn.com>

P.O. Box 23473

Nashville, TN 37203

(615) 244-5263

The Land Trust for Tennessee, Inc., a nonprofit organization, works with willing landowners to find ways to preserve the scenic and natural values of their land. Its main tools are donated or purchased conservation easements (see Section 5.4).

The Tennessee Chapter of the Nature Conservancy

<http://www.tnc.org>

50 Vantage Way, Suite 250

Nashville, TN 37228

(615) 255-0303

The Tennessee Chapter of the Nature Conservancy identifies the state's most critical areas for protection. Then, using market-based economic solutions to protect habitat, the Conservancy acquires property or forms partnerships for the restoration and management of property.

Tennessee Conservation League

<http://www.conservetn.com>

300 Orlando Ave.

Nashville, TN 37209-3257

(615) 353-1133

TCL is a non-profit organization based in Nashville whose mission is to provide conservation education programs to encourage stewardship of Tennessee's natural resources. Recently, as one of its programs, the Tennessee Conservation League embarked on an effort to help selected counties across Tennessee with natural resource planning, using a geographic information system and data sets to provide mapped information to the counties.

Tennessee Forestry Association

<http://www.tenfor.org>

2603 Elm Hill Pike, Suite J

Nashville, TN 37214

(615) 883-3832

Initially called "Keep Tennessee Green," the Tennessee Forestry Association was established more than three decades ago. Its purposes include promoting sustainable forest management and forest practices that conserve soil, water, and esthetic and wildlife resources, as well as helping private landowners to responsibly manage their land.

Tennessee Land Trust

<http://www.tnlt.org>

1510 Bailey Morrison Dr.

Memphis, TN 38068

(901) 465-7990

The Tennessee Land Trust will accept agricultural, natural, and scenic land statewide for protection. Local protection needs are addressed by establishing volunteer chapters, helping to start local land trusts, and working with individual landowners.

Tennessee Smart Growth Coalition

<http://www.tsgc.org>

P.O. Box 159129

Nashville, TN 37215-9129

The Tennessee Smart Growth Coalition was created in 1997, in response to increasing concern in various sectors about the state's sprawling growth patterns and its long-term ecological and social well-being. Created to be a catalyst for the cooperative building of a sustainable future for Tennessee and its communities, the Coalition has a board that integrates a number of different interest groups and a web site with links to useful resources.

East Tennessee Community Design Center

<http://www.etcdc.org>

1522 Highland Avenue

Knoxville, TN 37916

(865) 525-9945

While not statewide as are the above organizations, the East Tennessee Community Design Center should be noted. A 30-year-old organization made up of a core staff and volunteer professionals, the Community Design Center serves both rural and urban communities in its 16-county region. Its purposes are to provide architectural, planning, and related technical services to groups unable to obtain them otherwise; to develop community involvement in comprehensive community planning; to investigate new concepts in low-income housing; to help citizens evaluate plans related to renovating neighborhoods; and to encourage community economic development.

Selected National Organizations

American Farmland Trust

<http://www.farmland.org>

1920 N Street NW, Suite 400

Washington, DC 20036

(202) 659-5170

The American Farmland Trust works to stop the loss of productive farmland and to promote sustainable farming practices. It offers programs concerning public education, technical assistance in policy development, and direct farmland protection projects. It also has extensive web-based information on farmland statistics and farmland protection techniques.

American Planning Association

<http://www.planning.org>

122 S. Michigan Ave., Suite 1600

Chicago, IL 60603

(312) 431-9100

The APA has several divisions, including a Rural and Small Town division, and it also has several publications, such as the *Planning Advisory Service*, *Planning* (a monthly publication), and the *Journal of the American Planning Association* (a quarterly journal). In 1994, the APA launched its multi-phase “Growing Smart” project. Phase III of the project provides communities with model implementation tools to manage change.

The Heartland Center for Leadership Development

<http://www.4w.com/heartland>

941 O Street, Suite 920

Lincoln, NE 69508

(800) 927-1115

The Heartland Center is an independent, nonprofit organization that develops local leadership and public policies for rural communities. It has a number of community development programs such as “skill-building for stronger communities,” “strengthening the rural-urban connection,” and “helping small towns succeed,” as well as links to catalogues of publications such as the Kellogg Collection for Rural Community Development Resources.

Smart Growth Network

<http://www.smartgrowth.org>

777 North Capitol Street NE, Suite 500

Washington, DC 20002-4201

(202) 962-3591

The Smart Growth Network provides a national forum for promoting smart growth practices. Its web site includes a bibliography of fiscal, economic, environmental, and social impact methodologies and models, as well as other tools and publications.

Southern Appalachian Man and Biosphere (SAMAB) Program

<http://sunsite.utk.edu/samab>

314 Conference Center Building

Knoxville, TN 37996-4138

(865) 974-4583

SAMAB is a multi-state public/private partnership that focuses its attention on the Southern Appalachian region. The program encourages the utilization of ecosystem and adaptive management principles. In 1996, SAMAB released the Southern Appalachian Assessment, which provides county-by-county information on eastern Tennessee as well as parts of other states. SAMAB also has begun to develop a web-based regional spatial information server.

Tennessee Valley Authority

<http://www.tva.gov>

400 West Summit Hill Drive

Knoxville, Tennessee 37902

(865) 632-2101

TVA's Quality Communities program helps communities in its power service area improve their long-term economic competitiveness by taking these steps: evaluate economic development resources and programs, establish effective partnerships, enhance leadership skills and teamwork, identify a shared vision and goals, analyze the community's economic base, assess community needs and opportunities, develop a strategic plan, implement projects, and apply total quality improvement tools to community problems.

The Trust for Public Land

<http://www.tpl.org>

116 New Montgomery Street, 4th Floor
San Francisco, CA 94105
(415) 495-4014

Established in 1972, TPL has helped protect more than a million acres of land for open space, recreation, conservation, and historic purposes in 45 states. TPL has a Southeast Regional Office that was established in 1974: 306 North Monroe Street, Tallahassee, FL 32301, phone (850) 222-7911.

U.S. Department of Agriculture — Natural Resources Conservation Service

<http://www/nrcs.usda.gov>

14th and Independence Ave.
Washington, D.C. 20250

The Natural Resources Conservation Service is a federal agency that works in partnership with state and local governments. Initially focused on soil erosion, the NRCS mission has expanded to include various aspects of natural resource conservation, especially soil and water conservation and flood prevention. Through its Conservation Districts, it helps implement conservation projects on individual properties as well as providing information (e.g., concerning soil types) useful for county-level planning. The Tennessee Association of Conservation Districts can be contacted for a directory of districts within the state: 144 Southeast Parkway, Suite 210, Franklin, TN 37064, phone (615) 595-9979, or see *<http://tnacd.org>*.



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