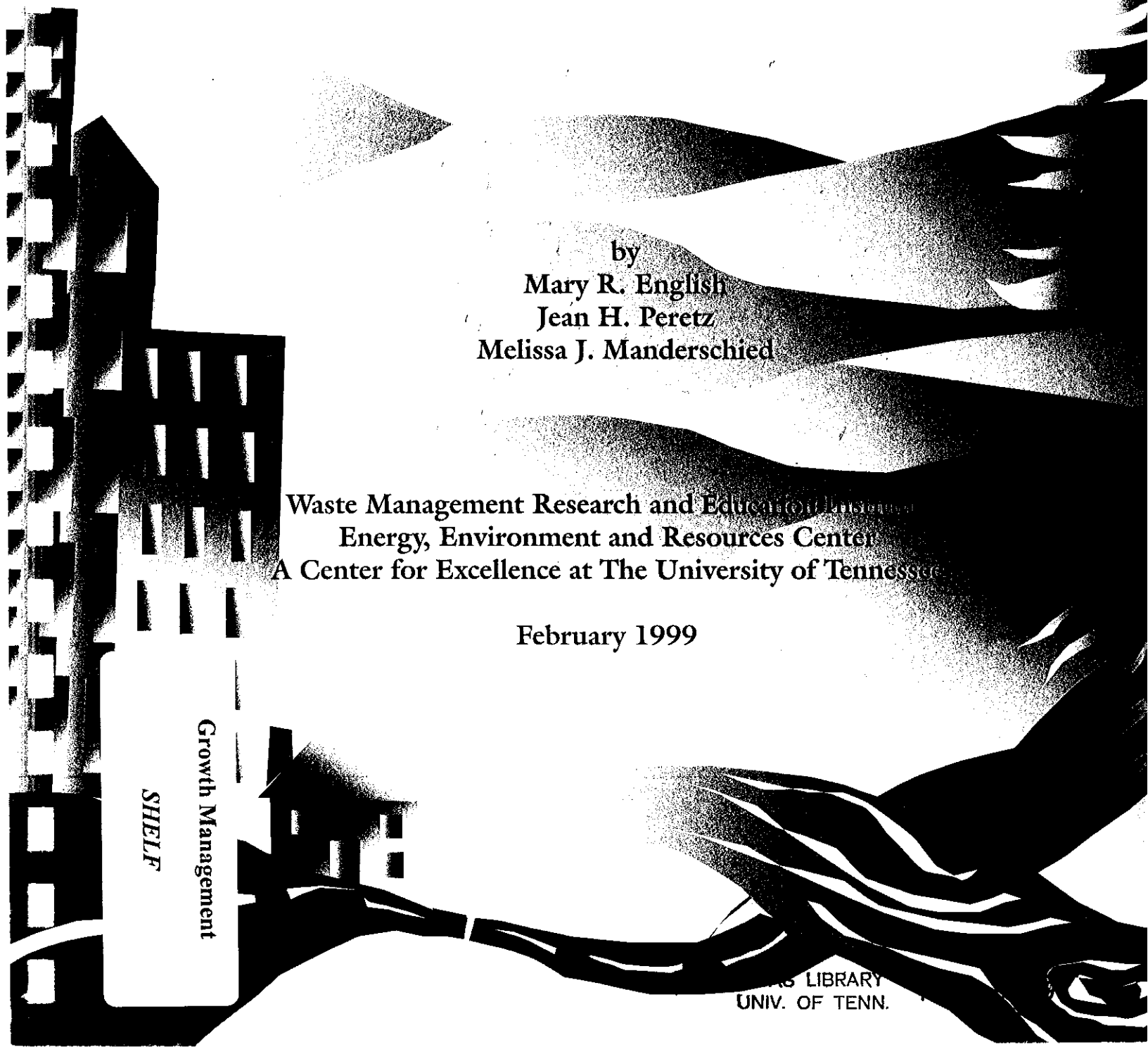
Smart Growth
For Tennessee Towns and Counties:
A Process Guide



by
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Waste Management Research and Education Institute
Energy, Environment and Resources Center
A Center for Excellence at The University of Tennessee

February 1999

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Planning for the future, with a community or a family, is not loss of freedom. It is growth toward maturity. In fact, it is the ultimate freedom: to shape our own future, discover a viable livelihood, appreciate our assets.

—Wilma Dykeman

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Preface

This guide is for people who are planning for their communities' futures, or who would like to be. It is intended especially for local officials, planners, and citizens who together are trying to ensure that their community's quality of life will be better, not worse, 10 or 20 years from now. This guide will not give them a roadmap to the future, but it will give them ideas about the process of planning for smart, sustainable growth.

About this Guide

We developed this guide with Tennessee's *non-urban* municipalities and counties in mind. We chose to focus on rural and quasi-rural areas because many are experiencing rapid change, or may in the near future, yet many have limited budgets and small staffs to deal with the complex issues facing them.

Given our own limited project budget and staff, we had to further narrow our focus: The two case studies provided in Chapter 6 are of one town and one county that are "metropolitan edge" communities and, since 1990, have had double-digit growth rates. Other examples could have been explored had our scope allowed. These might have included, not only communities at the urban fringe, but also communities that are declining because of their failing economies or burgeoning because of their scenic and recreational assets. All of these places need to plan for smart growth.

The focus of the guide is on *visioning and planning processes* for smart growth. Equally important, but not dealt with at length, are the politics within which any process is embedded and the implementation strategies that should result from the process. Implementation strategies abound: Some are well-known; others are experimental. (For resources on implementation strategies, see, for example, the American Planning Association and the Urban Land Institute, both of which are listed in Chapter 7.) We chose to concentrate on visioning and planning processes, not because they are the answer, but because they are an important part of the answer. This guide is the result. A "guide to the guide" follows:

- *Chapter 1* introduces the concept of smart growth and compares it to other concepts such as planning and sustainable development.

- *Chapter 2* briefly discusses the various strategies, or political models, within which a visioning and planning process may take place. The purpose of this chapter is not to definitively analyze these models, but rather to raise awareness of different contexts for visioning and planning. Different strategies share a common need, however: They are much more likely to succeed if they have an

ardent "champion" or core group of committed individuals to push the process forward.

- *Chapter 3* draws from what we have gleaned from printed and Internet resources concerning community visioning and planning. This chapter describes different techniques that can be used at each of five basic stages: (1) identifying values and setting goals; (2) gathering, integrating, and forecasting information; (3) developing and assessing options; (4) making decisions; and (5) monitoring change.

- *Chapter 4* reviews computer-based tools that *may* be useful during these stages, especially during the second and third stage. "May" is stressed, because this review notes several current drawbacks as well as advantages of some of the more sophisticated computer-based tools.

- *Chapter 5* describes a popular, low-tech means of providing a visioning and planning process with structure and focus: using indicators of environmental, economic, and social sustainability. The chapter concludes with a list of some typical indicators and possible sources of data.

- *Chapter 6* tries to put together the pieces into a coherent whole—a few key messages and a 12-step sequence—with the warning that there is no single, ideal visioning and planning process. Instead, it must be tailored from the fabric of the community, as illustrated by the two case studies that accompany this chapter.

- *Chapter 7* lists various resources: books, articles, and guides available in print form or on the Internet; and organizations and Internet sites, within as well as outside of Tennessee, that may be of help.

- The *appendices* list data sources and sources of civic assistance that may be useful to towns and counties as they conduct visioning and planning processes.

Counties, Cities, Towns, Communities

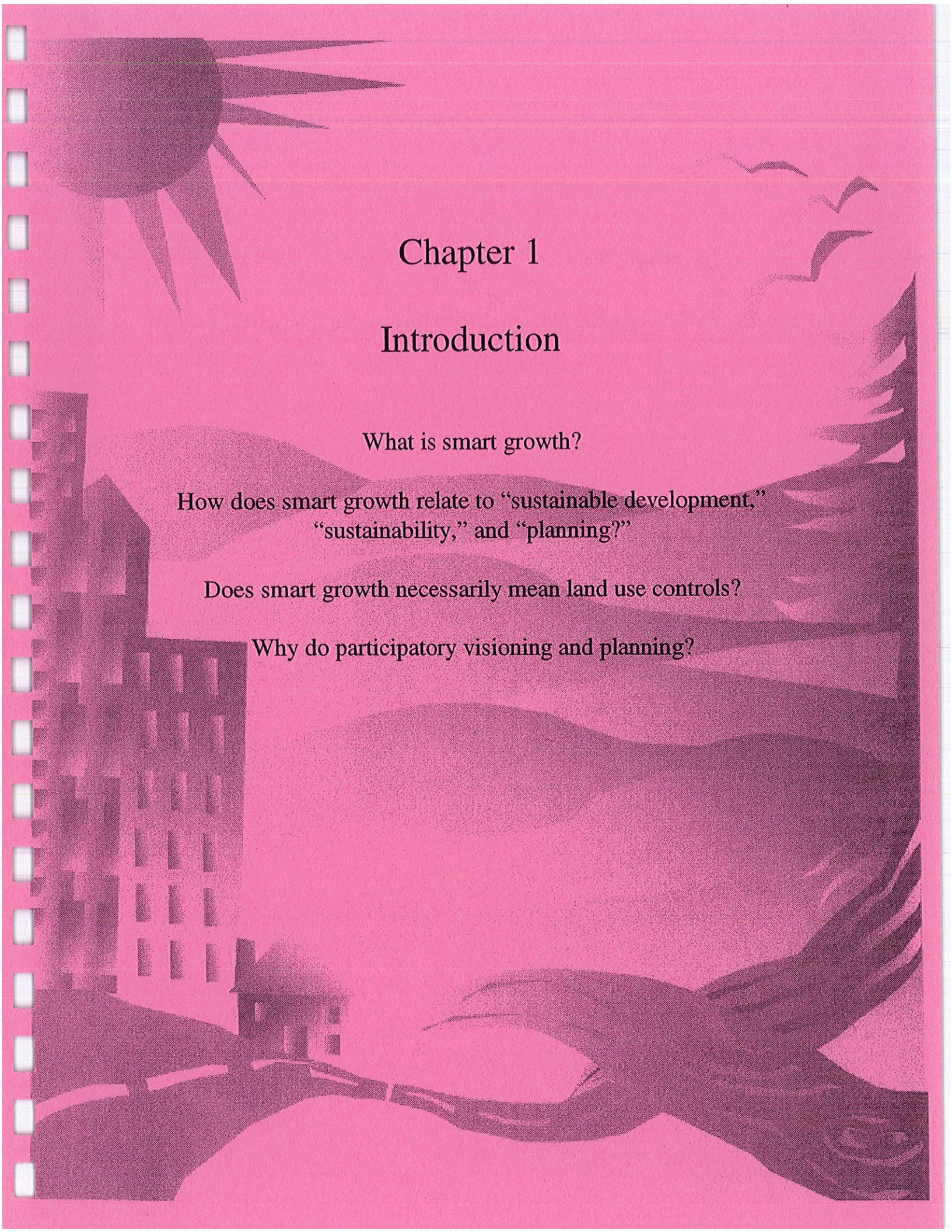
In Tennessee, municipalities are incorporated only as cities; unlike some other states, Tennessee does not officially use such terms as village, town, township, or borough. In the guide's title, however, we refer colloquially to "towns and counties," to convey a sense of the relatively rural places we had in mind in developing the guide.

In the guide, we also frequently speak of "communities." This term refers, not just to the place in which people live, but to the people themselves. For a group to be truly a community, they must interact with each other, share a sense of a common future (if not a

common past), and work together to help meet each other's needs and promote the common welfare. Communities do not just exist; they must be fostered. An effective visioning and planning process can help build a social community, even as it helps ensure that the physical community is a good place to live.

A Regional Perspective

In this guide, we focus on *local* visioning and planning. We do not dwell upon the need to look across local boundaries and plan together with nearby towns and counties. But that need exists, now more than ever. Boundaries are porous, not impermeable. Interjurisdictional issues—e.g., water use, air pollution, the indirect spill-over effects of new development—won't go away. A regional perspective and regional dialogues should be part of the county or town's process of planning for its own smart growth.



Chapter 1

Introduction

What is smart growth?

How does smart growth relate to "sustainable development," "sustainability," and "planning?"

Does smart growth necessarily mean land use controls?

Why do participatory visioning and planning?

What is "Smart Growth"?

In the late 1990s, some people are driving 50 miles or more to their jobs and sitting in traffic for hours each day. Like generals before battle, they plan their activities strategically before leaving home. When they do pull out of their driveways, many people see a transformed landscape, one that does not look like the place where they settled just a few years ago. Farms are becoming housing sub-divisions or shopping centers, small towns are becoming suburbs, suburbs are becoming satellite cities, two-lane roads are becoming four-lane highways. The phenomenon has become known by a single word: sprawl.

SPRAWL: Some Reasons to be Concerned

- Sprawl sucks the life out of older downtowns and neighborhoods . . .
- Sprawl destroys community character and the countryside . . .
- Sprawl reduces opportunities for face-to-face interaction among people, thereby making it more difficult to create, or retain, a sense of community . . .
- Sprawl forecloses alternatives to the automobile as a means of transport . . .
- Sprawl leaves older cities and towns with excessively high concentrations of poor people with social problems . . .

Source: Constance E. Beaumont. 1996. *Smart States, Better Communities*. Washington, DC: National Trust for Historic Preservation, p. 264.

TENNESSEE: Some Facts to Consider

- Tennessee is among the top 10 states in conversion of farmland to development. Between 1982 and 1992, 436,000 acres were developed—approximately 4% of the state's total farmland. Of the land converted during this period, more than one-third was prime or unique farmland. (Source: American Farmland Trust; 1992 Census of Agriculture, Economic Research Service, U.S. Department of Agriculture)

- In 1992, the average farm operator in Tennessee was 55 years old. Forty percent of all Tennessee farm operators were full-time farmers. (Source: 1992 Census of Agriculture, Economic Research Service, U.S. Department of Agriculture)

- Between 1990 and 1997, Tennessee's population grew from 4.9 million to 5.4 million—an increase of more than 10%. In contrast, the total U.S. population grew less than 8% over the same period. (Source: U.S. Bureau of the Census)

- The U.S. population increased 30% between 1970 and 1996, to 265.3 million. The number of vehicle miles driven annually increased 123%, to 2.5 billion. (Source: *USA Today*, 1/16/98)

- In some cases around the U.S., it costs government approximately $20,000 more to provide infrastructure and municipal services for low-density "sprawl" development than for compact "infill" development. (Source: James C. Nicholas, Arthur C. Nelson, and Julian C. Juergensmeyer. 1991. *A Practitioner's Guide to Development Impact Fees*. Chicago, IL: American Planning Association, p. 1)

Smart growth is about finding ways to manage sprawl and improve our total quality of life. But smart growth is not *just* about sprawl. It is *also* about:

- Finding new sources of economic vitality for rural towns and counties that are spiralling downward with a loss of jobs, tax revenue, social services, and people.

- Finding ways to preserve the scenic beauty and other environmental assets of places that have begun to attract tourism, second home, and retirement development.

- Rejuvenating decaying cities and inner suburbs.

Smart growth, then, is *not* about curtailing all growth. Instead, it is about each community's planning wisely for its future.

There are now many local, state, and national smart growth initiatives. For example, a national Smart Growth Network has been established recently, and Tennessee has its own Smart Growth Coalition. (See Chapter 7 for information on these two organizations.)

Vice President Al Gore, in a September 21, 1998 speech, announced new federal smart growth initiatives to increase farmland preservation, provide support for location-efficient mortgages (LEMs) through "Fannie Mae," and make available small grants for community geographic information systems. (For the full text of Vice President Gore's speech, visit the Smart Growth Network's Internet site at *http://www.smartgrowth.org*) These initiatives have been expanded in President Bill Clinton's recently announced "Livability Agenda," which is part of the fiscal year 2000 budget to be sent to Congress in early 1999. In Tennessee, the state has taken the bold step of enacting legislation that will lead to the designation of urban growth boundaries, planned growth areas, and rural areas in the state's counties. (See the accompanying box for a summary of this bill.)

How Does Smart Growth Relate to "Sustainable Development," "Sustainability," and "Planning"?

In June 1993, the President's Council on Sustainable Development was created. As its charge, it was directed to "bring people together to meet the needs of the present without jeopardizing the future" (*Sustainable America: A New Consensus*, February 1996, p. 2). The council has gone on to identify the three legs of the stool that support sustainability:

- *environmental health*
- *economic prosperity*
- *social equity and well-being*

Embedded in these three "legs" is the idea that in the long run we cannot have economic prosperity without protecting our natural resources, and that distributional fairness requires that the well-being of all people be taken into account.

Considering both present and future needs is at the core of both "sustainable development" and "sustainability." The main difference between the two concepts is their philosophical tilt: Whereas *sustainable development* suggests that development is inevitable and the question is how (not whether) it will occur, *sustainability* suggests that economic development is a means to an end, not an end in itself, and may not always be the most prudent course. Philosophically, smart growth aligns more closely with sustainable development, but in fact, all three may play out in much the same way.

All three suggest both a renewed emphasis on *comprehensive planning* and a departure from the way it historically was carried out. Formerly, planning tended to emphasize an output—a plan—that depicted proposed land uses and related infrastructure. While that is still a main purpose of a plan, today comprehensive planning is driven by its focus on input from affected people and on real outcomes (not just paper outputs). To the extent that those outcomes are cast in terms of the needs of both present and future people along the three aforementioned dimensions—economic, environmental, and social well-

being—comprehensive planning becomes congruent with planning for sustainability, sustainable development, or smart growth.

Does Smart Growth *Necessarily* Mean Land Use Controls?

In a word, no. There are many means to guide growth and promote sustainability. Some of them involve *various controls over private construction and land use*: for example, through building codes, design criteria, sign regulations, pollution regulations, and so forth as well as zoning. Other techniques involve decisions about *public infrastructure*: for example, where roads will be developed or improved, where utilities will be located, where curb cuts will be allowed, etc. Still others involve decisions about *investments in public parks and buildings* such as schools, libraries, and courthouses. These decisions, together with decisions about *management of public land and facilities*, are important both for the services they provide and for their effect on the uses of surrounding, privately held land. Finally, decisions about sources of *tax revenue*, including the possibility of development impact fees, can contribute to guiding how growth occurs.

Why Do *Participatory* Visioning and Planning?

Participatory visioning and planning for smart growth is not just a nice, community-building exercise; it is becoming essential. Legislation such as that enacted in Tennessee brings home the importance of planning for smart growth; so does legislation at the national scale, such as "TEA-21." But the past few decades have taught us that planning without community involvement is likely to lead to plans that sit on the shelf. Open processes such as those described in this guide are no "magic bullet," but they improve the chances that the resulting plans will be consulted in making future decisions.

TEA-21

The Transportation Equity Act for the 21st Century, called TEA-21, was enacted in June 1998. It is the successor to the 1991 Intermodal Surface Transportation Efficiency Act (ISTEA). TEA-21 guarantees that over $200 billion will be spent on transportation over the next five years. Of this, a small but significant amount will go toward studying the interconnections between transportation and land use: TEA-21 authorizes $120 million to be spent over the next five years on a Transportation and Community and System Preservation Pilot program. This program is intended to support state and local studies of connections between transportation and sustainable land use.

Sources: TEA-21—More Than a Free Refill. June 1998. *Progress* 7,4. Surface Transportation Policy Project, *http://www.transact.org; http://www.tea21.org*. Lisa Wormser. August 1998. Two for TEA. *Planning* 64,8. American Planning Association. See also the Federal Highway Administration's Internet site at *http://www.ohs.fhwa.dot.gov*.

A visioning and planning process can help a community work together to proactively respond to legislative initiatives and other forces for change, by charting its course to the future. As when a boat is under sail, taking your bearings is the first step; knowing where you want to get to is the second; adjusting your sails and your rudder is the third. The winds won't always blow with the same force or from the same direction, and you may have to tack or alter your destination. The visioning and planning process shouldn't put you on auto-pilot. It should, however, help you to proceed forward, better-equipped to move sustainably into a future over which you, the community, has some control.

Summary of Growth Policy Mandate of TN Public Chapter 1101 (passed 5/1/98 by the House and Senate as Senate Bill 3278 and approved 5/19/98 by Governor Sundquist):

Under a growth policy law enacted in May 1998, Tennessee counties and municipalities are required to develop joint plans for urban growth. This requirement applies to all counties except those with a metropolitan form of government.

The plans must specify three types of areas:

- *Urban growth areas for each municipality within the county.*

  The urban growth areas of a municipality must be contiguous to existing municipal boundaries and must encompass the likely sites of high-density residential or non-residential growth over the next 20 years; be reasonably compact yet sufficiently large to accommodate that growth; and reflect the municipality's duty to facilitate development of its resources while controlling urban expansion and taking into account impacts to agricultural lands, forests, recreational areas, and wildlife management areas.

- *Planned growth areas within each county.*

  Planned growth areas of a county must not fall within the existing or urban growth boundaries of a municipality and must include the likely sites of high or moderate residential or non-residential growth within the county over the next 20 years; be reasonable compact yet sufficiently large to accommodate that growth; and take into account impacts to agricultural lands, forests, recreational areas, and wildlife management areas.

- *Rural areas within each county.*

  Rural areas shall include territory that is not within urban growth or planned growth areas and 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.

Each county's plan is to be developed by a county/municipality coordinating committee, which is to be appointed by September 1, 1998. Except for special instances specified in the law, the committee is to be composed of:

- the county executive or his/her designee, to be confirmed by the county legislative body;
- the mayor of each municipality or his/her designee, to be confirmed by the municipal governing body;
- one member appointed by the board of the largest municipally-owned utility system in the county;
- one member appointed by the board of the largest non-municipally-owned utility system in the county;
- one member appointed by the board of the county soil conservation district;
- one member appointed by the board of the largest local education agency;

- one member appointed by the largest chamber of commerce; and
- two members appointed by the county executive and two members appointed by the mayor of the largest municipality, to assure broad representation of environmental, construction, and homeowner interests.

The coordinating committee is to develop a recommended growth plan by January 1, 2000, with at least two prior public hearings. The growth plan must include, at a minimum, documents describing municipal corporate limits as well as urban growth boundaries; planned growth areas, if any; and rural areas, if any.

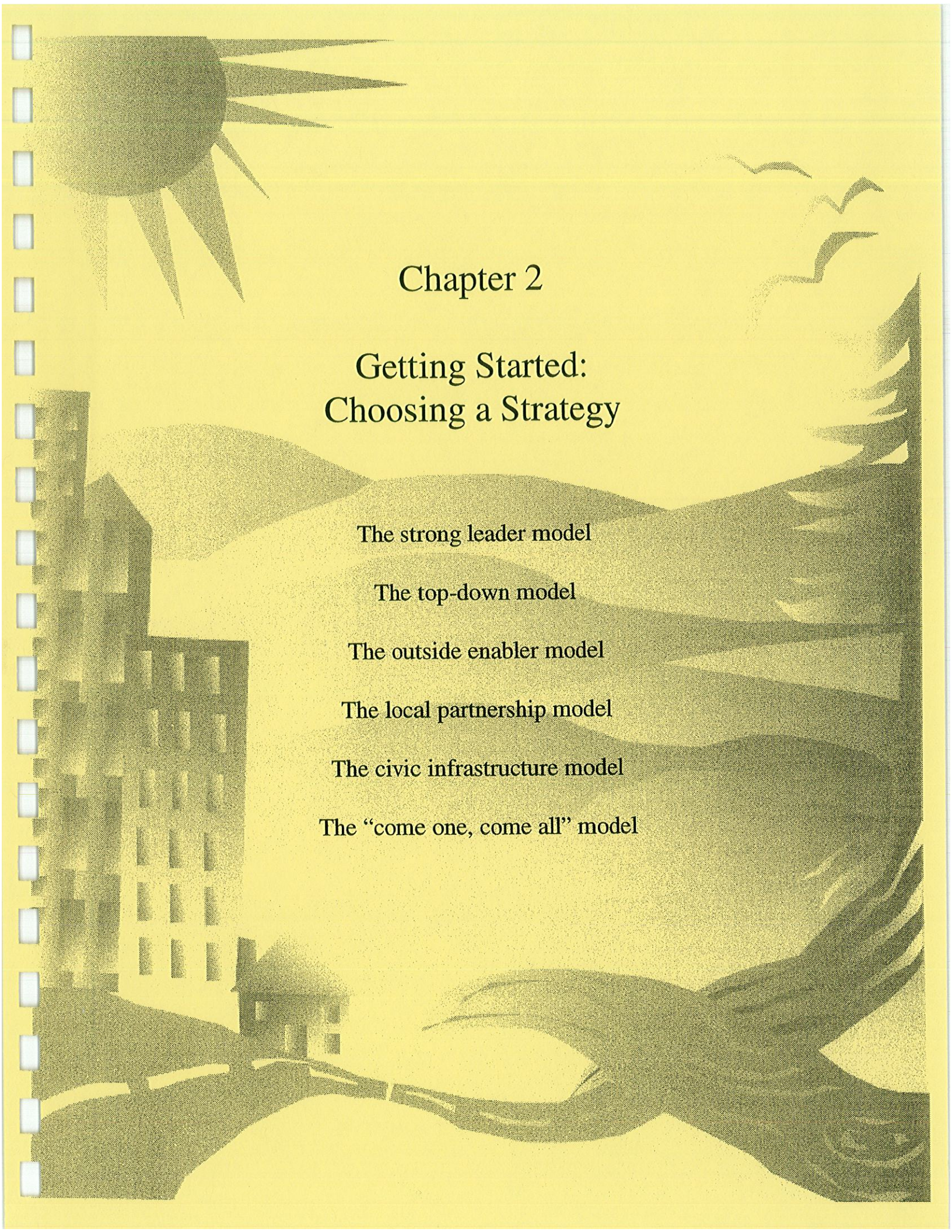
The purpose of the growth plan is to direct coordinated, efficient, and orderly development in order to best promote the public health, safety, morals, and general welfare, based on an analysis of present and future needs. A growth plan may address land-use, transportation, public infrastructure, housing, and economic development. The goals and objectives of a growth plan include the need to provide a unified design for development and to encourage a pattern of compact, contiguous high-density development; to establish an acceptable and consistent level of public services and facilities; to promote the adequate provision of employment opportunities and varied, affordable housing choices; to conserve features of significant architectural, cultural, historical, or archeological interest; to protect life and property from the effects of natural hazards; and to take into consideration other matters related to coordinated, efficient, and orderly local development.

When the coordinating committee has recommended a growth plan, it must be ratified or rejected by the county and municipal governing bodies within 120 days. Failure to act on the plan within 120 days shall be deemed to constitute ratification. If the county or any municipality rejects the recommended growth plan, the coordinating committee may submit a revised plan for approval. If the county or any municipality declares that an impasse is reached, it may request that the Secretary of State appoint a dispute resolution panel consisting of three administrative law judges trained in dispute resolution and mediation. The panel shall attempt to mediate unresolved disputes, and, if mediation fails, shall propose a non-binding resolution. If the local governments still cannot agree on a plan, the panel shall adopt a growth plan to resolve the impasse.

Plans must be submitted to and approved by the state's local government planning advisory committee no later than July 1, 2001. If the local government planning advisory committee determines that the urban growth boundaries, planned growth areas, and/or rural areas do not conform with the provisions of the act, then the committee shall adopt and grant its approval of an alternative plan revised solely to achieve conformance. Failure to comply with this planning mandate affects the ability of county and municipal governments to receive various state and federal grants, as well as annexation and municipal incorporation powers.

-- Summary prepared by Mary English, Energy, Environment, and Resources Center, University of Tennessee, Knoxville.

For more detail on the law and its implementation, see *Growth Policy, Annexation, and Incorporation Under Public Chapter 1101 of 1998: A Guide for Community Leaders*, a joint publication of the University of Tennessee Institute for Public Service and the Tennessee Advisory Commission on Intergovernmental Relations, September 1998.
(*http://www.ips.utk.edu/growthpolicy*)



Chapter 2

Getting Started: Choosing a Strategy

The strong leader model

The top-down model

The outside enabler model

The local partnership model

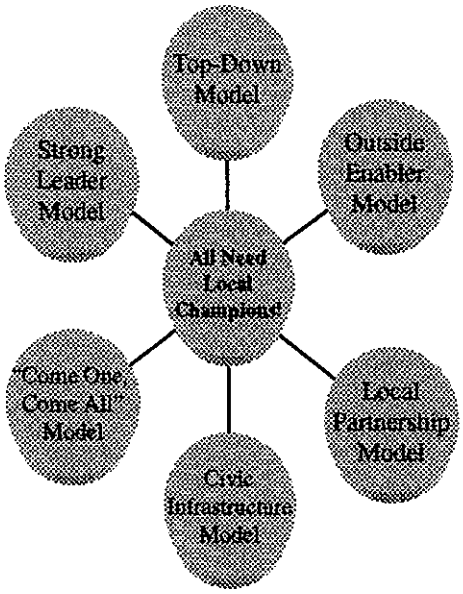
The civic infrastructure model

The "come one, come all" model

The elements of smart growth visioning and planning take place within an overall strategy. While that strategy may be largely predetermined by local politics, it can be shaped to some extent. Being conscious of the overall strategy can also guide later choices about specific elements of the visioning and planning process.

If the town or county has a professional planner, the planner is likely to play an important role in shaping the overall strategy as well as the details of the process to follow. In addition, however, others may or should play an important role. The following is directed, not just to planners, but to the people with whom they will work.

Below, we describe six model strategies within which smart growth visioning and planning often take place:



We have distilled these models from various sources and examples. They vary in terms of the *time* they take, their use of *technical expertise* and *outside assistance*, and their degree of *citizen involvement.* These models rarely exist as pure types; instead, an actual visioning and planning process is likely to tilt toward one model but incorporate aspects of several others.

In describing these models, we have included our own brief assessments of their likely advantages and disadvantages. These assessments are meant to be indicative rather than

conclusive. The actual strengths and weaknesses of a particular approach will depend greatly on how it is carried out.

There is no one model that is right for all communities. Instead, your strategy should be tailored to the assets, needs, and political make-up of your community. In designing and carrying out a strategy, however, all communities need *champions*. And all communities can benefit by consciously using *criteria* to evaluate different strategic options.

Local Champions for Visioning and Planning

To jump-start a visioning and planning process and then keep it going, a community needs commitment. Regardless of the strategy used, the process should have the support of a sizable majority of its local officials, elected and administrative, as well as its citizens. Commitment and support are matters of degree, however. They can wax and wane. To get and keep the momentum going, a community *also* should try to cultivate one or a few local "champions"—heroes who generously dedicate time and work with passion, vision, inclusiveness, and concern for others. Leadership development programs are one way to accomplish this. Moreover, the contributions of both new and long-standing leaders should be recognized. Too often unsung, these champions should be celebrated for their civic contributions.

Evaluating Strategies: Possible Criteria	
Suitable scale	Will the strategy be appropriate to the geographic scale of the planning and visioning process? Will it work if several jurisdictions are involved?
Accurate	Will the strategy lead to using reasonably complete and accurate information? Information doesn't need to cover all details or be precise to the last decimal point, but will it paint a good picture of current and possible future conditions?
Fair	Will the strategy encourage airing and incorporating diverse views? Will it seek out perspectives that may often remain silent?
Realistic	Will the strategy place unrealistic demands on staff and/or participant time and expertise?
Cost-effective	Given the goals of the strategy, will it use assets (human, financial, and technical) effectively and efficiently?
Flexible	Can mid-course changes be made, to adjust for unforeseen circumstances? Will the result be decisions that are rigid or adaptable over time?
Transparent	Will the process and its results be easy to communicate?
Capacity-building	When the process is done, will the community be stronger as a result? Will the strategy help build capacity to tackle other issues in the future?

The Strong Leader Model

Plans are made informally by a strong leader who makes decisions with little formal external input. Often, the leader is an elected official such as the mayor or county executive; this model thus relies heavily on arguments for representative (not participatory) democracy. Typically, the immediate costs of making plans and reaching decisions are low; only limited staff time and expertise may be needed; and decisions are made quickly. However, the information used may be scant, skewed, or inaccurate; community members' views may not be well understood; and, especially if there is a lack of community "buy in," decisions may not be durable.

The Top-Down Model

State legislators and agencies select public improvement projects and decide where they will be located; local governments work out the details or, alternatively, initiate and carry out public improvement projects themselves. This approach uses limited, project-specific planning processes which typically involve well-established, influential groups and individuals such as the chamber of commerce, real estate developers, and prominent citizens, perhaps convened as task forces. Public meetings may be held to debate issues concerning the projects.

Typically, the process costs of this approach are fairly low and decisions may be made fairly quickly. However, those who participate in the decisions must (or should) have extensive knowledge; their time commitment is often high; the information used may be biased; diverse perspectives within the community may be insufficiently factored into the decisions made; and decisions may lack a unified vision.

The Outside Enabler Model

An outside agency—e.g., the U.S. Environmental Protection Agency—provides seed grants, assists in setting up the process, and acts as a link to additional resources. Partnerships may then be developed between the public and private sectors and between local, state, and federal agencies. Similarly, one or more state agencies may work cooperatively to assist a group of diverse community leaders. The model can be used at several different scales, from a single small community to a multi-state region.

This is an increasingly popular model. Its costs vary, as do the extent to which diverse perspectives are represented. It broadens participants' understanding by exposing them to a wide array of resources and constraints, but it often entails extensive staff time as well as high time commitments by the participants. The process and its results may be geared to the mission of the outside enabling agency, unless participants decide of their own accord to define the goals of the process.

The Local Partnership Model

Community and business leaders (typically, leaders of prominent public and private interest groups) form an alliance for a special purpose. They do so to reduce duplication of effort and increase their efficiency and influence. Common goals are identified and refined, taking into account available resources and their different perspectives.

This model can be used within a single town, county, or region as well as at larger scales. It can lead to several different specific actions—for example: (1) Business and

community leaders and other interested citizens may come together in a large public meeting where subgroups are established based on areas of interests; the subgroups identify spokespeople who then meet as an executive council. (2) Elected officials may represent the partnership, recruit funding, etc. (3) Public meetings may be held on a regular basis to inform the larger public of progress and also to identify volunteers for projects or search out new leaders. (4) Polling may be used to test public interests and try out ideas. (5) The cost of the process may be covered by fees charged to member groups.

This approach gets it strength from numbers as well as from the knowledge and resources of individual participants. To be effective, it must have strong and aggressive leaders, and it must reach out to diverse perspectives. It requires significant time commitments from its participants, especially its core leaders, and it can entail a lengthy process. It holds the potential of being representative of the community and building durable, broad-based decisions, but also the potential for decisions that appear to be representative but in fact serve the interests of a few dominant factions.

The Civic Infrastructure Model

This model emphasizes opportunities and training to accomplish particular tasks and to build community capacity to tackle new issues in the future. The model has several variants.

One cluster of variants stresses *leadership* training. For example: (1) Identify a project; then train the best-suited person to head up the project. (2) Use leadership training to prepare selected individuals for assuming leadership roles on both current and future issues. (3) Train everyone who's interested to be a leader. Alternatively, the "civic infrastructure" model may emphasize the skills that are needed to be *active citizens* (e.g., skills to obtain and analyze information, network, and influence decision makers). In this variant, citizenship rather than leadership is stressed. It is assumed that leaders will naturally step forward, but a broad base of engaged citizens must be cultivated.

While the costs of the civic infrastructure model will depend on how the model is carried out, they are often high, especially if outsider trainers are paid to conduct workshops and other training courses. The time and expertise demands on local staff are also likely to be high, as are the time commitments of those who participate. This model is most likely to be cost-effective if it is seen as an investment in the future, not as achieving quick results or rapid decisions. It holds the promise of leading to more representative, inclusive decision processes, but only if the base as well as the top of the pyramid is strengthened.

The "Come One, Come All" Model

In this model, anyone who shows up becomes part of the process, which typically strives to be inclusive and non-hierarchical. Often, facilitators are used to help manage the process, and volunteers may be used to assist with arrangements.

In San Francisco's Community Planning Process, for example, a series of three-hour meetings were held in which goals, objectives, and actions were discussed. Professional facilitators were used in every meeting, with volunteers from local businesses and U.S. EPA staff to help with meeting arrangements. Meeting results were recorded on flip charts. A draft plan was prepared based on a synthesis of the meeting results. Public hearings were held on the draft plan, and public comments were incorporated *(http://www.ci.sf.ca.us/environment/sustain/process.htm).*

This model requires high time commitments of those who are facilitating and making arrangements for the process but relatively low time commitments for meeting participants. Costs will vary, depending especially on the cost of the facilitators and others who assemble information, synthesize views, and prepare draft plans. The extent to which the results represent different views within the community will depend on the ability of those making meeting arrangements to get people to attend. A possible limitation of this approach is the difficulty of bringing and keeping all participants "up to speed," especially if several sequential meetings are held.

Checklist: capacity for cooperation and consensus-building

For meaningful consensus-building, several things need to occur. This checklist is a tool to help ensure that they do happen.

(1) Are there neutral forums and processes where all opinions are heard?
(2) Are there informal dispute resolution processes?
(3) Do community leaders have regular opportunities to share ideas?
(4) Are all major interests represented in collaborative processes?
(5) Do all three sectors [government, business, and non-profit] work together to set common goals?
(6) Do leaders reach collective decisions and implement them?

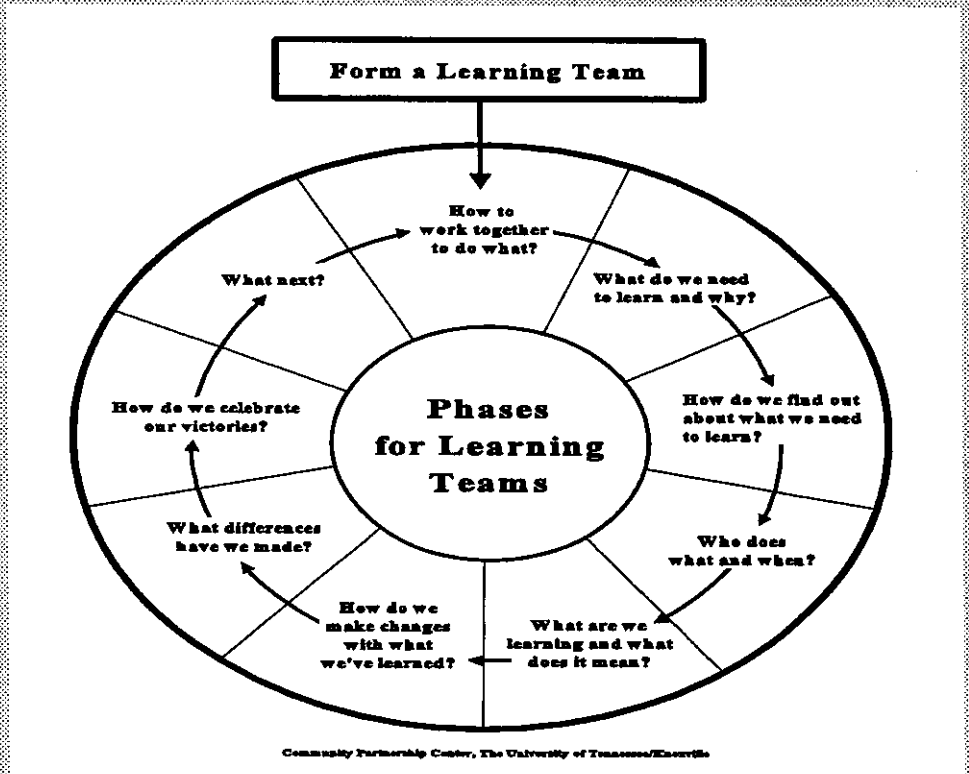
Source: *The Civic Index*. 1997. National Civic League, p. 11.

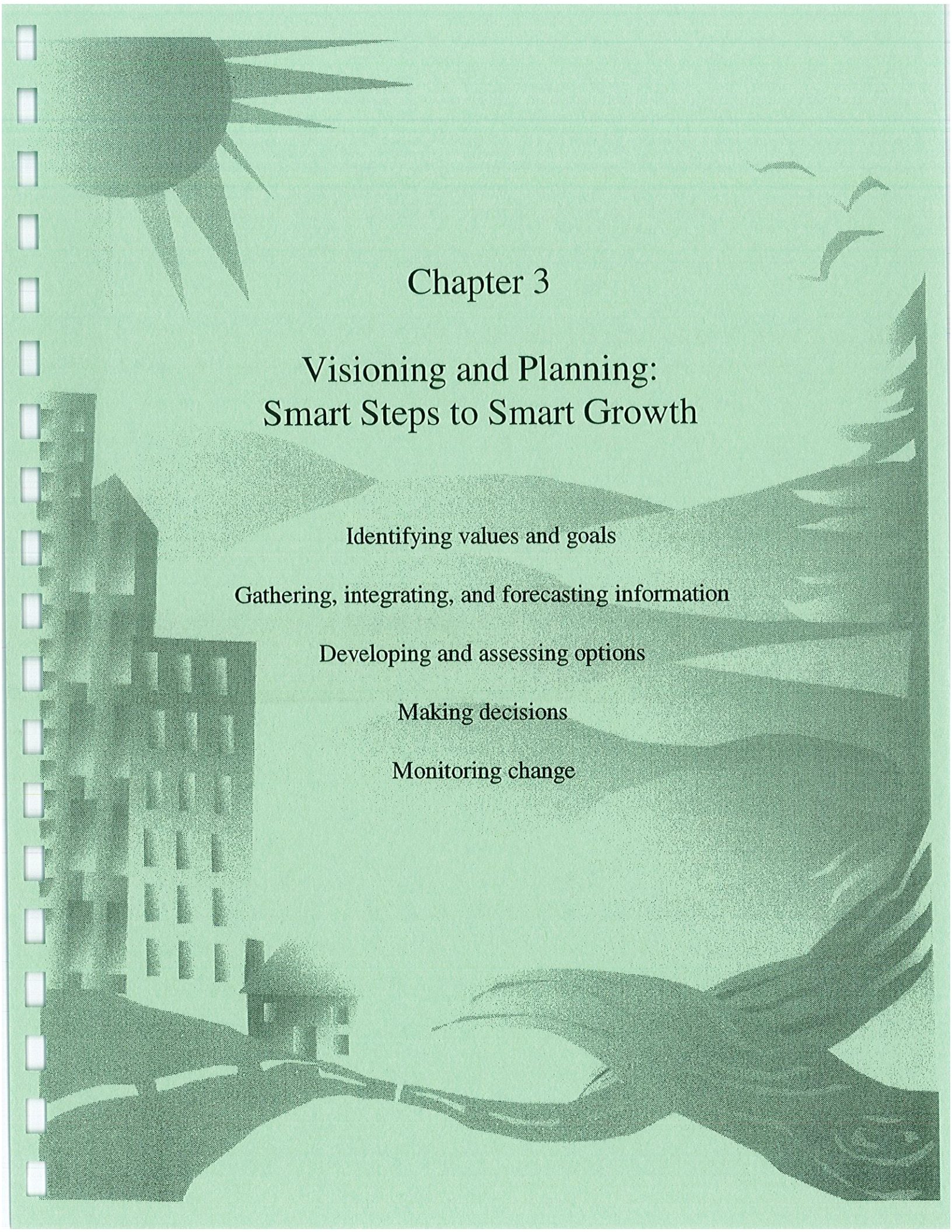
The Learning Cycle

The Learning Cycle was created by the Learning Initiative, a part of the Community Partnership Center at the University of Tennessee, Knoxville. This method entails assembling a 5-10 member "learning team" of stakeholders. Ideally, the team includes members of grassroots organizations, as well as program implementors. The team has specific tasks and is led by a team coordinator. Technical assistance and training are provided by a regional researcher. The wheel illustrates the ten-step process that can be used as a guide for "learning teams."

The CPC Learning Initiative found that the ten-step process encourages and supports people that would have normally been left out of the community's development. The method gives ordinary citizens the authority to actively participate in their community's decision-making process. Through the data collection process, community education is both shared and taught. Members' confidence and skills have grown as a result of this process. Involvement in the community decision-making process can be beneficial for the project, the community, and the participant's personal well-being.

For more information, contact the Community Partnership Center Learning Initiative at the University of Tennessee, 410 Aconda Court, Knoxville, Tennessee, 37996-0645. (423) 974-9030 or *http://www.ra.utk.edu/cpc/li*.





Chapter 3

Visioning and Planning: Smart Steps to Smart Growth

Identifying values and goals

Gathering, integrating, and forecasting information

Developing and assessing options

Making decisions

Monitoring change

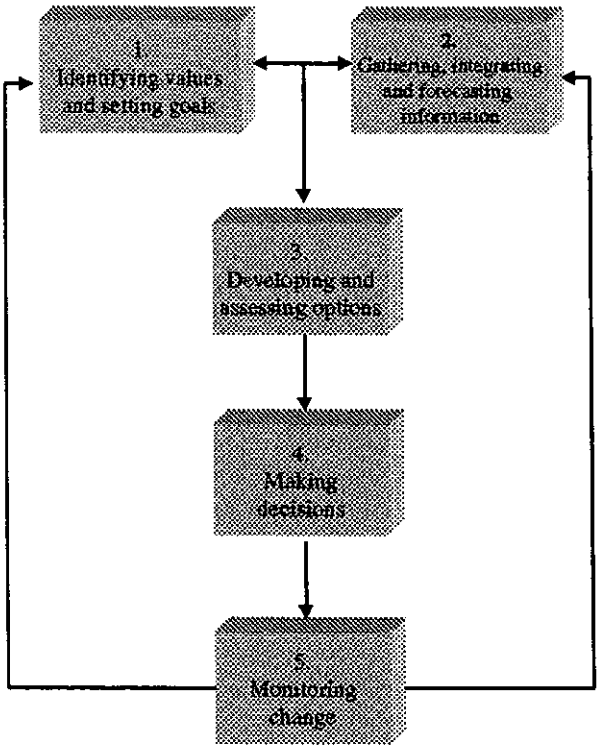
"Visioning" has become a buzzword. It is used in two related but different senses. It can be used narrowly, to refer to establishing goals for the future—in other words, where you want to go.

> *I skate to where the puck is going to be, not where it has been.*
>
> —Wayne Gretzky, quoted by Fred D. Baldwin, The Power of Vision: Making the Strategic Plan Come Alive. *Appalachia.* September-December 1997.

Alternatively, "visioning" can be used broadly, to refer to an entire process.

> *Visioning is more than painting an idealistic picture of the future—it is a process of evaluating present conditions, identifying problem areas, and bringing about a community-wide consensus on how to overcome problems and manage change.*
>
> —American Planning Association, *http://www.planning.org*

In this guide, we use "visioning" in its narrower sense, as one step in planning for the future. Regardless of how the terms "visioning" and "planning" are used, however, they together refer to a process with five stages:



Each of these stages is related. Even if the process proceeds in a roughly linear fashion, it may be necessary to anticipate some stages. For example, people may not feel comfortable voicing goals until some information about the community has been distilled and communicated; an awareness of realistic options may lead to a revision of goals; and plans may be laid for monitoring change in the future, even as current information is being gathered.

In what follows here, we take apart these five stages and suggest some techniques that can be used, singly or in combination, to help carry them out. Sometimes we refer to a product, such as a "vision statement"; sometimes to a tool, such as a "geographic information system"; sometimes to a method, such as a "nominal group technique." Each, however, is a means to an end. They are not ends in themselves; instead, the end should be the community's well-being, now and in the future.

After briefly describing each technique, we note key issues to consider before adopting that technique. These are issues that have occurred to us or have been raised by others. For any given community, however, they may not be a major concern, or there may be other concerns. These key issues are meant to be "thought ticklers," not to definitively evaluate a technique. Much depends on how it is carried out and integrated into the larger process. In Chapter 6, we recommend ways in which the pieces of the process should be integrated.

IDENTIFYING VALUES AND SETTING GOALS

Vision Statements

Scenarios

Surveys

Visual Preference Surveys

Forums

Town Meetings

Committees and Task Forces

Focus Groups

Video-Based Techniques

Computer-Based Polling in Meetings

Voting Dots

Nominal Group Technique

IDENTIFYING VALUES AND SETTING GOALS

Values are a person's internal conceptions of what is desirable for themselves and others. Values are not static; while some values are deeply held, others can change as a person learns more about a situation. Values help to shape what people want for (and from) their community; thus, values are important in goal-setting. Community goal-setting should transcend individual values, however. Goals for the community should be a product of personal reflection and collective dialogue.

Identifying values and setting goals—things to consider:

- Is the process *representative*? In other words, are diverse values taken into account?
- Do people have enough *information* to know what their values concerning the community are?
- How *precise* must goals be, to help shape the later stages of the planning process?
- Will goals be *revisited* later in the process?

Developing a Community Vision ... Questions that can help the process along:

- What makes our community what it is today?
- What are our community's values with respect to the environment, economic growth, and lifestyle?
- What changes would we like to see?

Source: U.S. EPA, *Environmental Planning for Small Communities: A Guide for Local Decision-Makers*. September 1994. EPA/625/R-94/009, pp. 13-14.

Identifying values and setting goals can lead to different "products," such as vision statements, scenarios, and surveys.

Vision Statements

Vision statements have become popular, not only as a part of the strategic planning of individual companies and organizations, but as part of community planning. They have been promoted by groups such as the National Civic League, which regards vision statements as one of several essential components within collaborative planning processes. According to the National Civic League:

> A community vision is an expression of possibility, an ideal state that the community hopes to attain....The vision provides the basis from which the community determines priorities and establishes targets for performance. It sets the stage for what is desired in the broadest sense, where the community wants to go as a whole. It serves as a foundation underlying goals, plans, and policies... Only after a clear vision is established is it feasible to effectively begin the difficult work of outlining and developing a clear plan of action.
>
> Derek Okubo. *The Community Visioning and Planning Handbook.* Denver, CO: National Civic League, p. 31

The National Civic League recommends that vision statements be reached by consensus, include strong visual descriptions, and be directed toward a period stretching at least 10 years—preferably 15 to 25 years—into the future. They recommend a brainstorming exercise to warm up a group; then breaking the group into smaller working groups of 7 to 10 people to develop vision themes, which then get reported back to the larger group and integrated into a statement. They suggest a weekend visioning retreat as an effective format, but note that typically the vision statement will be developed over two non-consecutive evenings.

Key issues:

- Vision statements should be broad, but they should set a direction. Finding the right level of generality can be difficult.
- Getting the right mix of people to develop a vision statement is challenging but crucial. It will affect the credibility and usefulness of the statement for later planning.
- People's views and visions won't always agree. Looking for areas of agreement can be time-consuming, and important differences may be papered over.
- Vision statements, and visioning more generally, may seem cheap but have hidden costs in terms of staff and participant time. To justify time investments, vision statements should clearly set the stage for action.

Scenarios

Scenarios tell stories about the future—either about what people *think* will happen, or about what they *hope* will happen. The latter kind of scenario—the "preferred future" kind—can be used for articulating values and goals. Either way, they need to be constructed methodically. For recommendations on constructing forecasting scenarios, see "Gathering, Integrating, and Forecasting Information."

There are different tactics to generate the "preferred future" kind of scenario. One is to ask people to put themselves into some point in the future and then describe where they are and how they got there...in effect, a hypothetical reflection on the past. A similar tactic is to ask participants to project themselves into the scenario and describe their reactions. In both, concrete examples and representative events should be used, and links among different factors should be described.

As described in *Shaping A Region's Future* (William R. Dodge and Kim Montgomery, 1995) scenarios can also be used to test alternative visions. Participants can discuss a "best case" version of a vision, where everything goes the best way possible, and then a "worst case" version of the vision, where everything goes wrong. They can then discuss other versions, such as a trended version, where things go as they have to date. By using scenarios in this way, visions can be tried out and refined.

Key issues:

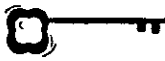
- Participants need to have a good working understanding of their community's economy, social life, and natural environment to generate either forecasting or "preferred future" scenarios. This may necessitate learning about the community before participating in a scenario-building session. (See "Gathering, Integrating, and Forecasting Information" below.)

- If scenarios developed by individuals or small groups are to be used for community goal-setting, the scenarios will have to be integrated by looking for broad themes or areas of agreement.

Surveys

Surveys can be conducted to elicit opinions on a variety of subjects. The survey can be directed toward a targeted population, a random sample, or a stratified random sample (i.e., population components are identified and then randomly sampled). Key decisions include the purpose of the survey; the sampling technique and the number of people to be surveyed; the method of administering the survey (typically, by mail, by phone, or face-to-face); the design of the survey instrument; and how results will be recorded, analyzed,

and communicated. Surveys may be repeated to assess changes in views over time. In general, formal survey procedures, large sample sizes, and high response rates all help to make the survey results more representative. However, informal surveys—e.g., a survey in a local newspaper—can give some indication of local views.



Key issues:

- In general, surveys that produce valid, generalizable results are time-consuming and involve high costs (in either dollars or staff and volunteer time). In contrast, informal surveys can be done fairly quickly but produce results that aren't necessarily representative of the community as a whole.

- Unbiased, informative survey instruments are surprisingly difficult to design. Also, people are more likely to respond to short than to long surveys, so survey items must be chosen with care.

- Most surveys ask "closed-ended" questions—i.e., the respondent is posed a question and then chooses from a limited set of responses, such as "yes," "somewhat," "no." This facilitates summarizing and analyzing results across a large number of responses, but it may not provide much insight into people's views. The survey may need space for open-ended comments, or it may need to be accompanied with other, less-directed means of seeking people's views.

Visual Preference Surveys

A Visual Preference Survey™ (VPS) uses images (typically, photographic slides) with evaluation forms. One purpose of a VPS™ is to learn what community members think about the community's present appearance; a second purpose is to build consensus about what its future character should be.

The concept of surveying visual preferences has been refined and popularized by A. C. Nelessen (*Visions for a New American Dream*, 1994). Images of scenes in the community or elsewhere are selected to represent a range of settings (e.g., farmland, residential neighborhoods, and businesses) and a range of attributes (e.g., wide or narrow streets, compact or low-density housing). The images represent features of the community as it is today and features that it could have in the future; the images are presented randomly, sometimes with paired or redundant images to check for bias. The images may be assembled by planning staff or their consultants. Alternatively or in addition, a group of diverse community members could assemble the images.

As each image is shown, community members are asked to numerically rate it on a positive to negative scale (e.g., from +10 to -10). Mean scores for each image are then

calculated, and the images are ranked accordingly from most desirable to least desirable. A zero indicates a neutral impression of the image.

Key issues:

- VPS™ lets community members respond to images rather than to words. It makes abstract ideas tangible, and it may reach people who have limited reading, writing, or public speaking abilities.

- The results can be translated by planners and architects into building codes, subdivision controls, and other design criteria.

- VPS™ works best in large group settings—for example, public meetings and school groups—where a number of people can be shown the images. (An alternative might be to put the images and survey on a Web site, where people could respond at their convenience from home or public library computers.)

- While the concept is simple, selecting the images is difficult. Images must represent a range of existing and possible features in the community but must not be so numerous that people are reluctant to participate.

- The image may be distorted by perspective or subject matter—for example, by focus on an especially beautiful tree or an especially ugly billboard. This may lead to distorted responses.

- To avoid the bias of familiarity, scenes that are typical of the community but are taken elsewhere may be used. These may be more difficult to obtain, and they require more judgments about what images should be shown.

- Respondents may become more lenient or strict in their evaluations as they go through the images; this may distort the scores. (For this reason, a few slides at the beginning and end of the series may not be included in the analysis.)

- It is important to couple numerical testing with the evaluations from the photographic images.

Methods for bringing people together can be at least as important as the resulting products. These methods can involve large gatherings, such as forums and town meetings, or small groups, such as committees, task forces, and focus groups.

Forums

Forums provide situations where people with different backgrounds and experiences can get together to discuss different topics. As one example, in 1993 and 1994, the Cambridge Civic Forum in Cambridge, MA, organized forums around seven areas: ecology, the built environment, health and well-being, education and training, business and employment, social justice and governance, and arts and transcendent values. At the forums, individuals and groups met together with representatives of civic organizations, government departments, and businesses. The purpose of the forums was to share visions and concerns, engage in dialogue, and generate an action plan for Cambridge's future (*http://www.civic.net/cambridge_civic_network/ccf*).

Key issues:

- Forums encourage crossing socio-cultural barriers by providing situations in which diverse groups and individuals can meet as equals. However, they may be dominated by a vocal few unless they are carefully facilitated.

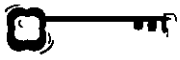
- The large-group setting of a forum provides a sense of community but may not provide a setting in which all views can be expressed; furthermore, people who attend and speak out may not represent the spectrum of views in the community.

- Forums may lead to a sense of "all talk and no action" unless they are well-structured, with action items as outcomes.

Town Meetings

In the classic New England-style town meeting, local government decisions are reached by popular vote at the meeting and are binding on the local administration. As the term "town meeting" has come to be used, however, it often does not refer to a form of government. Instead, it refers to a meeting where people come together to exchange ideas on a particular topic—very much like a forum, but sometimes a bit more structured and focused. Anyone can attend, and the issues to be discussed typically are policy issues (not highly technical issues or detailed planning or program review). As with a forum, an experienced moderator is needed; in addition, for discussions to be useful later, they must

be accurately summarized. Typically, consensus is not sought at non-governmental "town meetings"; instead, they provide an opportunity to air one's own views and hear other's views. If the size of the population or geographic area is large, several town meetings may be held in different locations on the same topic. Town meetings may also be repeated on different topics or at different stages in a visioning and planning process.



Key issues:

- Town meetings (in their popular, non-governmental sense) have many of the same key issues as forums. They improve acquaintance and communication among diverse community members, but a representative spectrum of people may not turn out; some people feel uncomfortable speaking out in large-group settings while others may attempt to dominate; and the meetings may seem to be "all talk and no action" unless they have clear outcomes.

- Town meetings and their counterparts demand only limited time commitments from their participants, but they can place heavy demands on the staff and volunteers who arrange and publicize meetings, conduct them, and summarize their results.

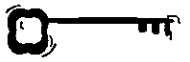
- Because decisions usually are not made at town meetings, one question that will likely arise is, "How are you going to use all this input?" The answer to this question will depend upon the larger process, but it's important to have an answer.

Committees and Task Forces

Everybody knows what a committee is. There are, however, several different ways to set one up. A committee can be a collection of volunteers, or it can be appointed. If appointed, members can be selected for their expertise, or because they represent important organizations, population groups, or viewpoints. Most committees are small (a dozen or so people), but some are much larger. While some committees are "standing committees" of indefinite duration with revolving memberships, most committees established for a visioning and planning process meet for a limited period of time. During the process, the same committee might meet, or it might be augmented or otherwise changed at different stages of the process. Committees typically must work out their own procedures: whether they will have a chair, how they will keep records of their meetings, and how they will make decisions (e.g., by consensus or by majority vote).

Task forces are like committees, but they usually are directed toward one or a few issues—either policy or technical issues—and usually continue for a specified period, until they have completed their task. Committees may be supplemented with task forces

or subcommittees to address specific issues. Subcommittees typically include a few members from the main committee but may have other members as well; task forces may or may not have a completely independent structure. When a committee is augmented with subcommittees or task forces, a way of integrating findings and recommendations will need to be developed and clearly understood, as will an allocation of responsibilities.



Key issues:

- Self-selected committees or task forces are more likely to have enthusiastic, committed participants, but they may not be well-balanced. However, selecting a committee's members requires that someone (or a steering committee) do the selecting.

- Committees established for the purpose of helping to advise on and guide a community's visioning and planning process are mostly likely to be effective and received as credible if they represent a number of different sectors within town. Inclusiveness must be balanced with workability, however; a committee is most effective if everyone has the opportunity to speak and exchange views (typically, no more than 12 to 15 members). An alternative is to break into subcommittees, but then the question of how to integrate advice must be addressed.

- A basic decision will be needed: Should local elected and administrative officials be involved, or should this be a "citizens committee"? One alternative is to have local officials serve as ex-officio members, but this may not sufficiently engage their attention.

- The committee's purpose and scope of authority need to be well-understood at the outset, but still may evolve during the process.

- Committees of volunteers often require considerable staff support and expertise; they have hidden costs in both the volunteer and the staff time required.

- Rather than setting up a new committee, an existing committee (or board, or panel) may be able to fill the bill. But if an existing committee is used, its main agenda should not be allowed to dominate or overshadow the agenda of the visioning and planning process, and the committee may need to be supplemented with other members to round out its composition.

Focus Groups

Focus groups are being used for everything from testing deodorants to testing ideas. The basic concept behind them is roughly the same. A focus group typically consists of about 6 to 10 participants. While they may be selected randomly from a broad population, often they are selected from a certain population group, with the goal of bringing together strangers who share similar backgrounds but not necessarily similar viewpoints. They will feel comfortable talking with each other, but they won't necessarily agree. Different population groups are covered by having different focus groups.

During the focus group session, individuals participate in a "group interview"; through the group discussion and interactions, values and preferences are clarified and expressed. The purpose is not to get a consensus position from the group, but rather to get a sense of the nature and range of views. Typically, focus groups are not used for grappling with technical issues.

Key issues:

- Focus groups don't lead to well-integrated recommendations. They can, however, help to reveal which issues are on people's minds; they thus can help to structure surveys, community meetings, or committee deliberations.
- To be useful, focus groups need to be conducted early in a process; they should not be an add-on.
- To be useful and not give a biased impression, focus groups for a number of different population groups are likely to be needed.
- Focus groups are time-consuming to conduct, and they require skill in both leading the "group interview" and recording and interpreting its results.

Many different techniques can be used to facilitate identifying values and setting goals. A few are noted below.

Video-Based Techniques

Particularly with the advent of community channels, television can be used to discuss issues and elicit opinions. For example, during the program, viewers may be asked to fill out and mail in a questionnaire that was previously distributed with notice of the televised

program. (The questionnaire might have been sent by mail, publicized in the local paper, or distributed in public gathering places.) In effect, the program provides a means to present information (see "Gathering, Integrating, and Forecasting Information") that may help to inform people's expressed values and goals for the community; it is accompanied with an informal survey.

Another way to use video technologies is through "video conferencing." People at multiple satellite locations view a program which is transmitted from the central location. They then phone in questions or opinions which are answered or relayed at the central location. Alternatively, with sophisticated video conferencing, the set-up is fully interactive and people can exchange information and questions directly.

 **Key issues:**

- Using a community channel to convey information and elicit opinions may reach people who watch television often but are unable or disinclined to attend community meetings.

- With video-based techniques, information presentations must be formatted to transmit well on television.

- Video-based techniques may be expensive and difficult to set up, especially if satellite locations and interactive conferencing techniques are used.

Computer-Based Polling in Meetings

Participants in a medium- or large-group meeting are given keypads connected to a central computer. They can then "vote" on issues raised, and the votes are instantly tallied. Immediate feedback is provided on a display screen connected to the computer. A facilitator is needed to pose questions that can be answered using the keypads, and an assistant usually is needed for the computer. The votes typically are advisory only; they provide a sense of the opinions of the people in the room to both the participants there and those who are gathering opinions.

 **Key issues:**

- A number of issues can be addressed quickly with anonymous, rapid feedback; however, the formal, computer-based procedure may give people the impression that they are actually voting rather than simply registering an opinion.

- Computer-based polling requires either having the equipment and expertise to run the meeting or hiring a consultant to do so.

- The number of participants is limited to the number of keypads.

- Some participants may feel intimidated by the technology and pressured by the situation (particularly the need to respond quickly by pressing a button); some may also have difficulty comprehending the computer-generated graphs displaying responses.

- A skilled facilitator is needed to both frame the questions and know how to encourage rather than shut off discussion using the computer polling technique.

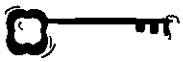
"Voting Dots"

The "voting dots" technique uses small, colorful adhesive dots available at school and office supply stores. Several variations are possible. A typical one is described below.

Upon entering the meeting, all participants are given the same number of dots and told that they will be used later in the meeting. The meeting facilitator poses a question to the participants, who are encouraged to respond but keep their answers brief and to-the-point. Other participants or the facilitator may seek clarification of a response but should not challenge or debate it. The facilitator or an assistant writes each response separately in large print on a large sheet of paper, which is then posted at the front of the room. The facilitator poses a second question and again seeks responses, which are written on another large sheet of paper. The process is repeated for each question. (Usually, the questions are few and general in nature.) Very similar responses may then be combined with the agreement of the participants.

During a break, the participants use their dots to vote for the responses they think are the most important. If they choose, they may "spend" all their dots on one response, or they may spread them around. The responses are rated and ranked according to the number of dots received. Discussion of the results may follow.

For very large groups, it may be necessary to break into smaller groups and run the process concurrently in several different rooms. The process occurs in the same manner, and the ratings are tallied across groups, using each group's response and voting results. Some validity is lost, however, because like items from the different groups are combined by the facilitators without the participants' input.



Key issues:

- Participants need to understand how the meeting and its results fit into the larger process.
- Participants need reasonably good reading skills for the voting procedure.
- Because the voting procedure is not anonymous, participants may feel pressure to vote for some responses over others.
- Some people may feel uncomfortable speaking in front of a large group. (To deal with this problem, participants may be invited to write down responses as well. These responses are then listed for all the participants to see.)
- Some important issues may not fare well in the voting process: With a limited number of dots, people must make forced choices and a few dominant issues may receive most of the dots. (To lessen this problem, people may be given several dots in different colors and instructed to use the different colors for different thematic categories, such as "economic," "environmental," and "social.")

Nominal Group Technique

This is one of several techniques that can be used to elicit and clarify opinions and develop group recommendations. The nominal group technique can be used for a small group or for a larger group that is broken out into small groups.

Each small group is given the same question for participants to address, and each has a facilitator who may also participate. Participants begin by individually writing down responses to the question at hand. They then go around the group, each person stating one item from his or her list, and repeat going around until all items have been covered. The facilitator writes each item verbatim on a flip chart; the group holds off on discussion. Items are then discussed, clarified, and numbered but not combined. Each participant writes down the numbers of their top ten items, using index cards—one card for each item—and then prioritizes those items, ranking them from 10 (top) to 1. The facilitator collects the cards and records the number of "votes" each item received. The group discusses the results and then each participant ranks the 10 highest-scoring items, using the same procedure as before. If more than one group is involved, each facilitator gives his or her group's results to the meeting coordinator.

Key issues:

- The nominal group technique draws out opinions that might otherwise go unvoiced, by giving participants equal time.

- Through this technique, people with different backgrounds can communicate their views and together clarify issues; however, this and other techniques that rely on writing and reading skills may marginalize people who lack these skills.

- Forced ranking may lead to dropping out important issues that don't make the final cut. (One possible solution might be to rank within but not across categories. Another solution might be for participants to rate all items by whether they are low, medium, or high priority using scores of 1, 2, and 3, respectively. The scores are then summed for each item.)

- It may be important to distinguish near-, medium-, and long-term items.

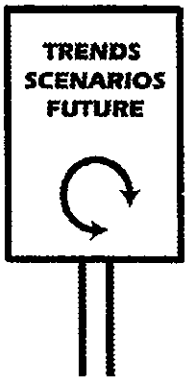
- "Rolling up" the results from several small groups may present a problem. One possible solution might be to have the small groups re-assembled as a large group to vote on the combined results within categories.

GATHERING, INTEGRATING, AND FORECASTING INFORMATION

Community Profiles

Indicators

Geographic Information Systems



Extrapolating Trends

Making Comparisons

Intention Surveys

Scenarios

Modeling the Future

Data Center

Community Drafting

Community Mapping and Information-Gathering

Research Committee

GATHERING, INTEGRATING, AND FORECASTING INFORMATION

Information grounds the process in reality. While people's values may differ, sometimes their differences can be lessened if they can reach agreement on facts.

New information may sometimes be needed, but existing information often can be used. This existing information can come from various data sources such as those listed in Appendices A-D (e.g., the U.S. Census), from local or outside experts, and from citizens who are familiar with the community. The challenge is to collect this information, synthesize it, and forecast what lies ahead—in effect, to convert it into useful, shared knowledge. The aim should not be endless detail, but meaningful patterns that can be easily communicated to and by community members.

In anticipating change within the community (i.e., in forecasting), *external* forces for change may be at least as important as *internal* forces. Forecasting allows you to make better plans and decisions, with the aim of changing the forecast from what will happen otherwise to a preferred future.

Gathering, integrating, and forecasting information—things to consider:

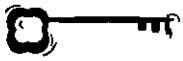
- What information is *relevant*?
- What information is *available*, and what *new* information is needed?
- What information *scale* (level of detail) and *format* (form of analysis and presentation) is needed?
- What information can be gathered on *external* as well as *internal* drivers of change?

As with goal-setting, the information stage should lead to tangible, easily understood products such as a community profile or a set of indicators. Some information may be mapped using a computer-based geographic information system.

Community Profiles

As described by the National Civic League (*Community Visioning and Strategic Planning Handbook*, 1997) a community profile consists of local indicators of how well the community is doing on various scores, combined with a survey of community members' perceptions. Indicators are measured using available data to the extent possible. The survey is conducted (e.g., by a community research committee) asking community members about their perceptions of the communities' assets and challenges. These survey questions may be combined with "visioning" questions about their values and goals concerning the community. The community profile combines the results into one

information tool which depicts areas in which the community is doing well and areas in which it is struggling.



Key issues:

- Ideally, the profile will integrate "hard data" with local perceptions and information. It may, however, reveal discrepancies between data and perceptions. While this will help inform the community members (through learning that either their perceptions aren't right or the data don't tell the whole story), it may lengthen the information-gathering time.

- Choosing good indicators will be crucial to creating a useful community profile. For more on indicators, see below and Chapter 5.

Discussions about the future —
After a community profile has been developed, group discussions can be held on the following questions:

- What is the "likely future" of the community?
- Which elements of that direction are good or bad?
- Which aspects of it do we wish to maintain, and which should be altered?
- What are our most important opportunities and dangerous threats?

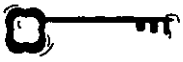
Source: Derek Okubo. 1997. *The Community Visioning and Strategic Planning Handbook.* Denver, CO: National Civic League, p. 24.

Indicators

Indicators are discussed in detail in Chapter 5. They are measurable features of the community that represent other important features as well. For example, a current or projected change in the local age composition may also indicate a looming need for more schools or senior services.

Indicators can show both vector and force—that is, both the direction and extent of change. They are, in effect, barometers of various aspects of community change and well-being. Good indicators are measured using reliable, readily-obtained information. This information can be collected by local staff, other experts, or community members. Similarly, the indicators may be selected by staff, experts, and/or community members. Not only should they be good representations of reality; they should also be good communication tools that can attract attention and inspire action.

During a visioning and planning process, indicators can be used to paint a picture of the community as it was and is today (information gathering and integration), and to help predict where it is headed (forecasting). Indicators can also be used to assess options and, after decisions are made, to monitor change in the coming years.



Key issues:

- Choosing indicators is not easy; they need to be selected not only for data availability but also for representativeness.

- Indicators need to balanced—for example, some cover financial health, while others cover environmental quality and social well-being—but too many indicators confuse the picture.

- To get community "buy-in" to the indicators, they should be chosen by community members working with staff, but they need to be chosen very early in the process so that information can be developed.

- Indicators can be misleading unless they are seen as signs, not as goals in themselves. The whole is greater than the sum of its measurable parts. As Albert Einstein said, "Not everything that can be counted counts, and not everything that counts can be counted."

Using indicators to track a region's social, natural, and financial assets ...

- How are we doing?
- Why is it important?

[The indicators answer the first question; the people answer the second.]

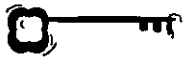
Source: *Sierra Nevada Wealth Index: Understanding and Tracking Our Region's Wealth*, 1995. The Sierra Business Council.

Geographic Information Systems (GIS)

Different types of information (data sets) are shown on a map. Data can be of many different types—for example, population densities, school locations, transportation corridors, rivers and streams—and can come from many different sources. Mapping these different types of data allows you to visualize their spatial relationships.

The term "geographic information systems" usually refers to computer-based systems of mapping data. These are discussed in more detail in Chapter 4. Computers enable you to quickly select and display different data sets at different levels of detail. Alternatively,

you can use the traditional method: a map drawn on paper overlaid by paper or plastic transparencies, with each transparency displaying a different set of information. Or you can combine the two methods, using a computer-based GIS for the basic information from which you develop more "user-friendly" maps.



Key issues:

- GIS helps to establish a common source of information and a common understanding about that information.

- Some community members may not be familiar with maps; in effect, they may not have learned how to read them. For them, GIS (either the computer-based method or more traditional methods) will not be an effective tool to communicate information about their community.

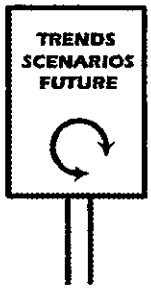
- Computer-based GISs are "the wave of the future" and have many advantages over traditional methods—in particular, they allow you to manipulate data sets rapidly and flexibly. However, these advantages may be offset by the cost and training required to run a computer-based GIS. In particular:

- The hardware (equipment) and software (programs) needed to run a computer-based GIS have become much more affordable but are still fairly expensive.

- A computer-based GIS requires entering in the basic data sets. This requires access to the data sets as well as technical expertise; it may also be time-consuming.

- To use a computer-based GIS interactively during a public information session, a means of displaying information on a large screen will be needed. This equipment is available and has become more affordable, but it still adds to cost. Also, the person operating the computer in the public session will need to feel comfortable in rapidly using the GIS. Alternatively, results from a computer-based GIS can be printed out ahead of time and distributed, but this means that the GIS cannot be actively used during the public session, with different information called up and then displayed.

- Because computer-based GIS is still a tool not commonly available to community members, it may limit their ability to participate as researchers in information gathering and synthesis activities.



There are several different techniques for anticipating the future—for example, by extrapolating trends, making comparisons, conducting "intention" surveys, constructing scenarios, or using models.

Extrapolating Trends

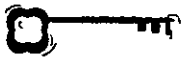
This technique uses past trends to project what will happen in the future. It is usually used with data that can be quantitatively displayed: for example, population size, household income, number of acres in farming. This method is best-suited to situations where no major new forces for change, internal or external, are expected. A common form of extrapolation is the "straight line" trend, but other statistical methods can be used as well.

Key issues:

- This technique is considered objective, but it is subject to bias in which data are chosen and which statistical methods are used for extrapolation. There also may be disagreement about how far into the future it will be accurate.
- Unless complicated statistical methods are used, it can be readily and inexpensively done, and its results can be easily communicated.
- Its results can be misleading if new forces for change are not taken into account.

Making Comparisons

By examining what has happened in other, similar communities, predictions can be made about what could happen in your own community. This can be done informally, by networking and by reading newspaper articles and case studies. Or it can be done systematically, by locating a few places that are like yours in many respects, except that these other places 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 done by community members as well as by staff and other experts.

 **Key issues:**

- By researching and reporting on analogous communities, community members can connect with other communities within and outside the region.

- Making comparisons between one community and another 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.

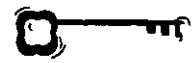
- More formal, careful comparisons are likely to be more accurate but also much harder and more time-consuming to prepare.

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, p. 203). Their purpose is to try to anticipate how people will behave under certain conditions. (See the discussion of "pressure - state - response" in Chapter 5.)

Surveys of this sort can be directed toward key local decision makers, public and private, in order to help anticipate actions that could have major effects on the community. For example, key decision makers could be asked about their possible actions if traffic on a major route through town increased 50%.

In addition, community members can be surveyed concerning what they might do in certain situations, to get a sense of the many individual actions that could in the aggregate have major effects on the community. For example, community members could be asked about their possible actions if the local high school were closed and students were directed to a regional high school.

 **Key issues:**

- How the questions are chosen and expressed is critical with these surveys. They should address issues that, while not immediately pressing, are not implausible, and they should be expressed without bias.

- The time frame of the questions is also important—long enough to get a sense of how people may act in the future, but not so far off that the questions seem irrelevant.

- Guaranteeing anonymity of responses may be especially important with this type of survey.

- The results should not be taken as an absolute predictor of behavior under certain conditions, 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. That is, begin with a specific decision or issue; then build out.
(2) List the key positive or negative local factors influencing your situation.
(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. The point here is to identify the factors or trends that are both the most important and the most uncertain.
(5) Select the scenario logics—in other words, boil down the possible scenarios to a few key, fundamental differences. The goal is to end up with just a few scenarios whose difference would dictate different actions.
(6) Flesh out the scenarios. Tell a story, 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. Return to the focal issue or decision, and consider how it looks in each scenario.
(8) Select leading indicators and signposts. By identifying a few indicators to monitor, the scenarios can be evaluated for their accuracy as the future unfolds.

Schwartz cautions against the temptation to use 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 high-impact but low-probability scenarios. However, he also cautions against having too many scenarios, since this can blur distinctions. He recommends naming scenarios vividly to make them used, and of having decision makers involved in their creation.

 **Key issues:**

- Scenario "stories" may communicate the community's possible futures more effectively than statistics.

- Visual pictures (e.g., drawings or photos) will help to reinforce the word pictures.

- Developing scenarios isn't easy; it requires time, imagination, hard thinking, and basic knowledge about key factors and trends.

- Scenarios should be developed through a group process, but that process may be dominated by a few people who get captivated by "their" scenarios.

- It may be difficult to involve key decision makers in the scenario-building process, yet they need to be involved to make the scenarios useful and used.

Modeling the Future

Computer-based models can be used for predicting how a "system" (for example, the local economy or local ecological systems) will respond to change. They can be used to identify key factors (variables) and key relationships among variables. Typically, they are built on complex "if X then Y" theories, and they use quantified or quantifiable data. Models for integrating and forecasting community information are discussed in greater detail in Chapter 4.

 **Key issues:**

- Models are better than many other methods at integrating many different factors and predicting how they will interact under different circumstances. They are best at predicting large, not small, effects.

- Models are becoming easier to run with simplified computer programs, but typically, they still are expensive and require expertise and training.

- Models are only as good as their data inputs. If the data needed are not available at the right scale (for example, if they are not available at the municipal level), the model may not work.

- If the system is open, not closed—that is, if it is subject to significant external influences—the model of the system may produce misleading results, unless these external influences can be taken into account.

- Because of their complexity, models may be a "black box"... in other words, the process by which conclusions are reached may be difficult to understand.

Information gathering, integrating, and forecasting may be done by professionals or community members (or a combination or the two). If community involvement is sought at this stage, the committees and task forces discussed above (see "Identifying Values and Setting Goals") may be used, or special techniques may be employed, such as a community drafting process, community mapping and information-gathering, or a local research committee.

Data Center

A Data Center can develop and maintain a policy-neutral source of information and analysis. The Data Center can use available data and statistics, perform trend analyses, and conduct surveys. In Colorado, for example, the Southwestern Colorado Data Center (a non-profit organization) conducted a survey for Ouray County as part of an assessment of growth and the county's master plan. The county obtained a grant to fund the survey (*http://www.landuse.com/scdc/ourayc/survey*).

Key issues:

- A Data Center (non-profit or government-run) is more likely to be cost-effective in metropolitan areas than in a rural town or county. In non-metropolitan areas, regional organizations or universities could provide a similar service. To some extent they already are: see Chapter 7.

- While a Data Center should be "policy neutral," it will have its own working principles (i.e., epistemological values) about good sources of data, how data should be analyzed, how trends should be predicted, and so forth. People may disagree about these epistemological values; thus, a Data Center shouldn't be expected to solve all disputes about credible information. It may help to lessen those disputes, however.

- A Data Center will provide an information base to a community, but it will not call upon community members to help *develop* that information base. It won't promote community engagement in the process.

- The Data Center won't promote long-term capacity building within the community unless the Data Center becomes one of the community's integral resources.

Community Drafting

The community drafting process was used as part of San Francisco's Sustainability Planning Process. It involved choosing topic areas—air quality, parks, transportation, economic development, etc.—and then recruiting volunteer coordinators in those areas. Most of the volunteer coordinators were community activists or city staff knowledgeable about a topic. Each coordinator was responsible for recruiting a broad cross-section of participants, holding meetings on the topics, and writing up the results (*http://www.ci.sf.ca.us/environment/sustain/process*).

While the purpose of San Francisco's community drafting process was not only to develop information but also to specify goals, objectives, and a proposed action strategy within each topic area, a similar approach could have the more modest purpose of assembling data and other information.

Key issues:

- Community drafting may help to engage the attention of a variety of community members, as they contribute to the process by helping to gather information.
- Community drafting may build connections among different community members who otherwise would not interact.
- Community drafting requires dedication and a lot of time from the topic area coordinators, as well as fairly extensive time commitments from other participants.
- The community drafting process may result in information that, while good for each topic area, cannot be easily integrated.
- The process may result in biased information, unless the drafting team make-ups are well-balanced.

Community Mapping and Information-Gathering

If community members participate in mapping or other information gathering, they should know why they are asked to do so. The reason may be to collect specified information, or it may be to collect the community members' perceptions of their physical surroundings. The latter purpose can be called "cognitive mapping," a concept that was pioneered 40 years ago by Kevin Lynch, an urban planner.

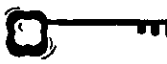
Lynch interviewed people in three U.S. cities and asked each of them to sketch a map of their city. Lynch saw the maps as representing their mental images of the places they inhabited, and he noted that the maps had five basic elements: *paths* (thoroughfares along which people move), *districts* (medium to large areas), *edges* (boundaries between areas), *landmarks* (distinctive places such a town hall or a steep hill), and *nodes* (points of convergence, often of paths) (Lynch, *The Image of the City*, Massachusetts Institute of Technology Press, 1960).

In like fashion, mapping and other information-gathering can be carried out by community members in two quite different ways:

> First—loosely following the example of Kevin Lynch—community members can be asked to collect information about their community without being given detailed instructions. (Alternatively, they can be given a map on which they are to fill in those aspects most important to them.) The result may be a source of new data about the physical community; more importantly, though, *this approach reveals what is important to the community members participating in the exercise.*
>
> Second, community members can be asked to collect data or complete maps on specific topics such as public buildings, greenways, streams, and commercial centers or specific sections of the community. *With this approach, community members are used as troops to systematically inventory their community.*

A *blend* of the two approaches is to ask community members to identify or map places within their community that mean different things to them, such as sacred places, favorite gathering places, favorite recreational places, and least-liked places.

Regardless of the approach, community members may work as individuals or in teams, and they should be given written instructions for consistent use of symbols or color codes to note different features. After the information has been collected or the maps have been completed, they can serve as the basis for group discussions about the physical community.



Key issues:

- Using "hands on" techniques, community members become better acquainted with their physical community; they also may become better acquainted with both the planning process and other community members.

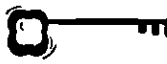
- The effort involves a considerable time commitment from participants (e.g., a weekend or two), and considerably more from the person or team coordinating the effort and synthesizing its results.

- The results may be inaccurate (if accurate information, not perceptions, are sought), and in any case may be difficult to interpret and synthesize, especially since the level of detail is likely to vary among participants.

Research Committee

A community research committee can complement other parts of the process, by assembling information about and for the community. As recommended by the National Civic League (*The Community Visioning and Strategic Planning Handbook*, 1997), the community research committee would work with local staff to develop at least two documents: (1) preliminary materials on external trends (i.e., global, national, and regional trends) that affect or might affect the community's quality of life; and (2) a profile of where the community is today, using selected indicators (e.g., population, crime rates, employment rates).

The National Civic League recommends that the research committee be made up of 3 to 5 people plus local staff; it could, however, be considerably larger, especially if it were organized into subcommittees. Another variant would be to involve local schools in finding and distilling the information needed, perhaps working with staff and volunteers as mentors. Local retirees might also be engaged in this activity.



Key issues:

- As noted in Appendices A-D, much information is now easily accessible via the Internet. (It usually exists in hard copy as well but may be much less easy to get.) Unless community members have Internet access, they may need staff help to get this information.

- Research committees require substantial time commitments of both community volunteers and staff. In fact, the latter may feel that it's more trouble than doing it themselves. For this reason, it would need to be seen as part of local community involvement and capacity-building.

- "Home-grown" knowledge and information can be a good complement to more formal data but needs to be well-verified.

- The kinds of information collected may reflect the biases and interests of those on the research committee unless they have clear directions about what is needed, for what time periods, and at what level of detail.

- Preliminary information may be needed very early in the process, before value identification and goal-setting activities. If so, community members would have to become engaged in this research early and move quickly.

Community Information Sharing

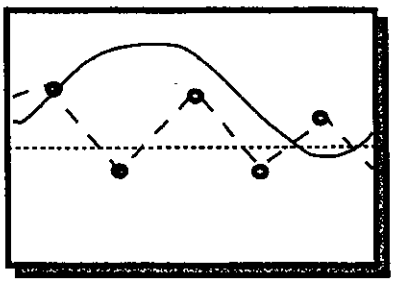
"Whether it is the media, a civic organization, a university, or a school system, communities must have mechanisms for gathering and sharing information ... Without comprehensive and accessible information sharing, a community's ability to work toward cooperation and consensus, make balanced judgments, and head off contentious disputes, is impaired."

Source: *The Civic Index: A New Approach to Improving Community Life*. 1998. Denver, CO: National Civic League, p. 10.

DEVELOPING AND ASSESSING OPTIONS

Charettes

Key Performance Area Task Forces

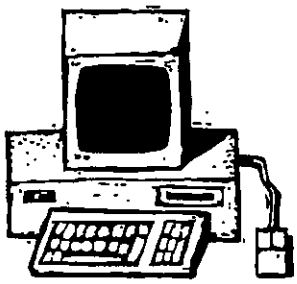


Decision Matrix

Charting the Options' Pros and Cons

Delphi Technique

Indicators as Assessment Tools



GIS-Based Tools

Expert Systems and Optimization Techniques

DEVELOPING AND ASSESSING OPTIONS

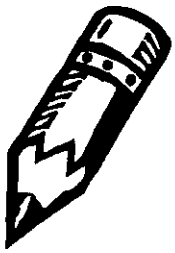
Developing options requires creativity and imagination; assessing options requires hard analytic thinking. In popular terms, they are "right brain" and "left brain" activities. In a community's visioning and planning process, these activities need to be done collectively as well as individually.

Options should be developed to help meet the goals that have been set early in the visioning and planning process. The information that has been gathered, integrated, and forecast will help in evaluating options, but the choices still may be difficult. Not only do people often have competing goals; they sometimes have vested interests in certain options. And choosing among options is even more difficult because it involves uncertainty—uncertainty both about the community's future and about how an option will alter that future, for better or for worse.

Yet choices must be made, if only because "not to decide is to decide." In a community, change is inevitable. The community can seek to guide change, or it can let it happen to them. To get community input on options for smart growth, many of the techniques described above for stage 1 (identifying values and setting goals) may be used, but they may be supplemented with one or more of the techniques described below.

Developing and assessing options—things to consider:

- Are the goals set early in the process *realistic*, given what is now known?
- What *criteria* can be derived from the goals in order to evaluate options, and what *weights* should be applied to those criteria?
- What techniques can be used to *"think outside the box"* in order to develop options?
- Should an option *achieve* a goal, or is it enough to *move toward* that goal?
- How do *special interests* affect the assessment of an option, and how much should they affect it?



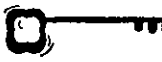
As with the information-gathering stage, options can be developed using professionals, community members, or teams of both. Techniques used at this stage should build on the prior goal-setting, information-gathering, and forecasting. One common technique is a charette; another new approach is to use key performance area task forces.

Charettes

Today, the word *charette* is used to describe any "intense, on-the-spot design effort" *(http://www.asterplanning.com/charette.html).* Charettes are most often associated with

architectural brainstorming and problem-solving, but they also can be used in developing options for specific community projects or for community planning. For example, the Regional Urban Design Assistance Team (R/UDAT) often conducts intense three-day efforts for this purpose (*http://www.mcgranahan.com/rudat98*).

Charettes usually are conducted in three parts: listen, envision, and draw. During the first part, specialists and others work together to come to an understanding of the goals, resources, and limitations at hand. In the second part, the group considers various proposals and then focuses upon one or a few preferred options. The final part involves sketching the ideas—*fast!* The rationale here is that "a picture is worth a thousand words." A sketch provides an immediate, tangible means of communicating the ideas.



Key issues:

- If many points of view are included in a charette, the atmosphere can be creatively charged, and the results can be realistic and well-rounded.
- The number of people should be large enough to spur an exchange of ideas but not so large that people can't talk and work with each other.
- Charettes typically are quick and inexpensive, although if professional consultant help is needed (and it may be), costs will increase.

Key Performance Area Task Forces

Key performance areas (KPAs) are high-priority areas for which specific actions are developed to redirect the community's future toward a preferred future. The rationale behind KPAs is that not everything can be done at once, so it is better to concentrate on a few key areas. The KPAs can be defined by sector (e.g., government), by issue (e.g., sprawl), or by type of project (e.g., developing a greenway system).

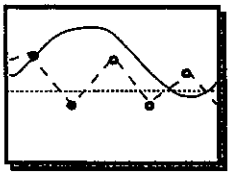
According to the National Civic League (*The Community Visioning and Strategic Planning Handbook*, 1997, pp. 33-35), the KPA process involves six steps:

(1) forming a task force for each KPA;
(2) recruiting outside expertise to fill in knowledge gaps;
(3) evaluating the community's current performance within the KPA (either by using previously gathered information or by collecting new information);
(4) developing specific goals to reach the desired future for each KPA;
(5) specifying "who will do what, by when, and how"; and

(6) reporting to the larger community group and receiving feedback. As the larger group reaches agreement on the work of each task force, high-priority projects are identified and included in an action plan.

Key issues:

- Participation on a KPA task force requires intensive, sustained commitment; while this can present a challenge, it can help to build community capacity.
- KPAs can help to focus attention and energy and make the problem of redirecting the community's future seem manageable; however, important concerns and possible initiatives may get ignored if they don't make the KPA list.
- Task forces must be well-balanced to perform effectively.
- Task forces should be closely connected to the larger group throughout the KPA process, to improve the likely acceptability of their results.
- The action plan should lead directly into action, so that momentum generated during the KPA process is not lost.



Evaluating options can be done—again, by professionals or community members—using such techniques as a decision matrix, a chart of the options' pros and cons, the "Delphi" technique, or indicators as assessment tools.

Decision Matrix

A decision matrix has four basic elements:

(1) the set of options under consideration,
(2) the set of criteria to evaluate the options,
(3) numerical weights on each of the criteria, and
(4) numerical assessments of how well each option satisfies each criterion.

Each numerical assessment is multiplied by the criterion's numerical weight to produce a score; the scores for all the criteria are then summed to produce a total score for the option. Options may then be compared based upon their total scores.

Assigning the numbers to weight the criteria and to assess the options requires judgment and, if a group process is used, a means of reaching agreement among the group. (For this purpose, the Delphi Technique might be used.) To help ensure that the criteria are weighted impartially, their numerical weights should be assigned before the options are assessed.

 **Key issues:**

- This technique is fairly easy to understand; however, it may lead to a lot of contention about numbers assigned to assess options and weight criteria.

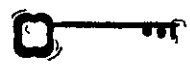
- An option may receive a high total score if it does very well on some criteria, even though it "fails" (receives a very low number) on other criteria. Minimum "passing" numbers for each criterion may be needed to ensure that the option is a good choice.

- The decision matrix shouldn't mechanically crank out decisions; instead, it should be a tool for helping to structure how decisions are made. But, because single scores are produced for each option, these scores may be treated as the "bottom line," not as guides.

Charting the Options' Pros and Cons

A chart can be used to summarize the pros and cons of each option or strategy. ("Pros and cons" can also be thought of as "benefits and costs," but benefits and costs should be interpreted broadly, not just as dollar profit or loss.) In estimating pros and cons of options, the difficulty of carrying out an option should be taken into account.

Charting pros and cons can be done as a small-group or an individual activity. The nature and the probable magnitude of pros and cons should be recorded. Estimates of the magnitude of pros and cons can be based on judgment, using descriptors such as "a great deal" or "very little" that can be converted to numerical scales (e.g., from 1 to 5). Or the magnitude of pros and cons can be estimated using formal analytic techniques and models, such as regional economic impact models. In the latter case, the estimates probably will need to be done by someone recognized for his/her expertise and neutrality.

 **Key issues:**

- To be useful, the magnitude of the pros and cons will need to be estimated, but the estimates may be highly uncertain and controversial.

- It may feel like comparing "apples and oranges" to weigh the pros and cons of different options. Sometimes it is. Options should be sorted, not only by the goals they are meant to achieve, but also by whether they are "low investment" or "high investment." (Low-investment options with high payoffs are usually winners; high-investment options with low payoffs are usually losers. The others will require more thought.)

Delphi Technique

The Delphi Technique is a formal, iterative process of distilling opinions and reaching areas of agreement and disagreement. It can be used simply to clarify where differences lie, or it can be used to arrive at a consensual or majority view on the options at hand. It is better suited for assessing options than for developing them.

In the Delphi Technique, questionnaires are filled out independently by panel members. Each question should have been carefully prepared and pre-tested. The members may be mailed the questionnaire or may be gathered together in the same room; in either case, they participate without direct interaction with other panel members. A facilitator then prepares a feedback summary and provides this and a follow-up questionnaire to the panel members. The summary allows the members to reflect on the group's responses taken as a whole; the follow-up questionnaire allows each panel member to modify his or her initial responses. The process may be repeated for several rounds. The final feedback summary represents the final points of agreement and disagreement.

Historically, the Delphi Technique has been used mainly on issues where panel members are chosen for their expertise. In recent years, however, the technique also has been used with laypeople on policy and planning issues. The technique is best suited to relatively small groups. It can be used with larger groups, but the task of tallying or otherwise digesting responses and preparing a feedback summary becomes much more difficult, especially if the questionnaire allows for open-ended comments.

Key issues:

- The Delphi Technique can be used where participants are geographically dispersed; they can complete the questionnaires at their own convenience.

- This technique allows each participant to reflect on the options at hand without being pressured, influenced, or distracted by other participants.

- Because the technique allows each participant to express views anonymously, the result may be greater frankness but less accountability.

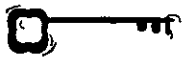
- The technique requires good reading skills and, if the questionnaire is open-ended, good writing skills.

- The technique requires an impartial, skilled facilitator to prepare the initial questionnaire, pretest it, and prepare subsequent questionnaires and feedback summaries.

Indicators as Assessment Tools

The indicators discussed above (see Gathering, Integrating, and Forecasting Information) and in Chapter 5 can serve as yardsticks to assess options. Each option is evaluated for its expected effects on the indicators that have been chosen. Both the direction (positive or negative) and the strength of the effect should be estimated. Disputes may be lessened by not trying to put these future effects into precise quantitative terms.

This process is best carried out by a small group. The group may decide to treat all indicators as equal, or they may decide to "weight" the indicators—that is, treat some as more important than others. In weighting the indicators, they can either rate them (e.g., high, medium, low importance) or rank them (e.g., from 1 to 10). Rating them will be easier since it requires fewer forced choices among indicators, but it has a greater likelihood of "ties."



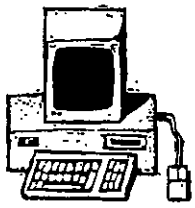
Key issues:

- Because this technique requires estimating the future effects of options, it may lead to competing guesses.

- If the same set of indicators is used at several points in the visioning and planning process, the process will be more efficient and have greater continuity, and its results can be more easily communicated. However, this makes the choice of indicators all the more critical.

- If indicators are chosen early in the process (e.g. when gathering information), the choice may be neither well-informed nor optimal for assessing options. A second set of indicators for assessing options can be chosen, but these later choices will have to be explained and defended.

- Weighting is time-consuming and potentially contentious but will sharpen people's thinking about what is most important in an option.



Computer-based tools may be desirable in the options stage, especially for complex, multi-faceted issues.

GIS-Based Tools

GIS-based tools are discussed in Chapter 4. They can be used to help visually represent and evaluate options such as a proposed new road or park. The option is sketched in and then can be seen in relation to factors such as population density and projected growth. A GIS-based tool also may allow you to adjust various features of an option (e.g., park size, location, access points) to create the best alternative.

Key issues:

- This technique requires sophisticated GIS-based computer software.
- The results can be shown to and discussed by citizens, but running the program and introducing the variables requires training.
- GIS-based tools are best suited for assessing tangible, "on-the-ground" options such as opening a new shopping center or closing an old school; these tools are less suited to assessing policy and program options such as a new development impact fee requirement or a farmland preservation program.

Expert Systems and Optimization Techniques

Expert systems can be used when expert knowledge is available to establish "if-then" rules. These then help to guide the decision. Optimization techniques can be used when there are many variables (resulting in many possible solutions) as well as a clear objective and formally defined constraints. Search techniques that employ either linear or dynamic programming are then used to systematically identify an optimal solution. In both cases, the system or technique is likely to rely on a sophisticated computer program.

Key issues:

- These techniques may require extensive data inputs.
- They typically require training to operate the program, although simplified, user-friendly programs are being developed.

- While some programs are being developed for smart growth planning (see Chapter 4), most tend to be limited to information synthesis and are not decision support systems as such.

- It may be difficult to understand or communicate how the decision tool has operated to reach its conclusions.

- These techniques should be treated as decision aids, not as automatically making the final decision. Factors that cannot be incorporated into the program often need to be taken into consideration.

Evaluating options—some things to consider:

- To carry out the option, how much time, money, effort, and other community resources will be required? From whom?
- Does the option have "downside" risks? How large are they?
- How well does the option fit into an overall strategy for action?
- How quickly will the option begin to pay off?

MAKING DECISIONS

MAKING DECISIONS

For the vision and plan to be translated into action, implementing decisions will be required from local businesses, organizations, and individuals, as well as from the local government. For this reason, *it is important to bring these key potential decision makers into the visioning and planning process in its early stages, not simply when decisions are to be made and carried out.*

At the formal, "making decisions" stage, however, the recommended vision and plan usually is turned over to the appropriate local governmental body—typically, the planning commission, the city council, or the county commissioners. The plan may be informally or formally adopted by them, but it usually is considered through set procedures. Because these procedures are well-established and vary to some extent depending upon the form of local government management, they are not dealt with here.

Nevertheless, the procedures for considering and reaching a decision on the plan are not always "written in stone." The council or commission may, for example, choose to consult directly with the voters through techniques such as a referendum. In a *referendum*, a legislative body puts a proposal to a citizen vote. (In a *ballot initiative*, citizens petition for a proposal to be considered. In a direct initiative, the citizen-drafted proposal goes directly on the ballot if it has enough signatures; in an indirect initiative, it is first submitted to the legislative body.) Referenda and ballot initiatives may be *binding* or *non-binding*. Local laws vary in their specific requirements concerning these "direct democracy" techniques; basically, however, the goal is determine whether a proposal is widely supported.

On the plus side, referenda and ballot initiatives allow all local registered voters an equal opportunity to express their opinion. However, people (such as youth) who are interested in the outcome but can't vote are left out, unless special techniques such as in-school polling are used. Furthermore, if the voting turnout is low or the vote is close, it may not convincingly appear to be the "will of the people." If a referendum or ballot initiative is undertaken, the ballot questions must be carefully phrased to avoid bias. Moreover, it's important to remember that responses are limited to a vote of "yes" or "no," and that without supporting information about the proposed plan, voters may make uninformed choices.

Some ways to get information out to community members:

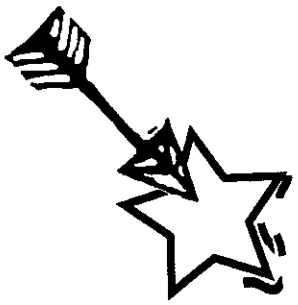
- public meetings and forums
- newspapers
- Internet
- local radio talk shows
- public access cable television
- leaflets and pamphlets (mailed separately or as enclosure with other mail; distributed at central locations)
- libraries
- schools
- churches
- neighborhood and civic organizations

Especially if the outcome of a referendum or ballot initiative is to be non-binding, other techniques (e.g., some of those discussed under "Identifying Values and Setting Goals," such as forums, town meetings, surveys, and video-based techniques) might be used instead of or in addition to a formal, ballot-box technique.

Making decisions—things to consider:

- Have key people been kept informed about the visioning and planning process as it has developed, before decisions are to be made? Have their opinions and involvement been sought?
- Do the decisions reflect the views of the community at large? Do they take different perspectives into account?
- Are the decisions driven by a long-term view of the community's well-being rather than by short-term considerations?

MONITORING CHANGE



Indicators

Benchmarks

Surveys

Data Center

Trustees

Key Performance Area Task Forces

Informal Monitoring by Stakeholders

MONITORING CHANGE

No vision and plan lasts forever—Chattanooga, for example, had a revisioning process in 1992 as a follow-up to its 1984 process. Until they are replaced, however, a vision and plan should serve as a guide for the community. They should help the community to chart and stay on a course, rather than being buffeted aimlessly by the winds of change. But conducting a visioning and planning process is not enough. Not only should the process lead to concrete actions; after the process has ended, change must be monitored and, when appropriate, responded to.

The notion of monitoring change is simple: Are we staying on the course that we charted for ourselves? If not, are the changes good? For example, are we achieving our goals earlier than expected? Or do some of the changes damage the vision we have set for our community?

Actually monitoring change is difficult. It requires *foresight*, to know which symptoms of change should be tracked, and when and how they should be tracked. While monitoring change is the last stage in the visioning and planning process, it should be anticipated early in the process, when information is first being gathered. It also requires *dedication*, to bring continued attention to symptoms of change long after the excitement of the visioning and planning process has passed. And it requires *judgment*, to distinguish large, long-lasting changes from small or fleeting changes.

In monitoring change, it's important to track both *positive* and *negative* change; both *big events* (e.g., a prospective regional shopping center) and *aggregate, incremental change* (e.g., a gradual decline in wildlife habitat); and both *internal* and *external* forces for change. Tracking external forces for change can be especially important. Given today's global economy and increased mobility, towns and counties—including those in non-metropolitan areas—are not isolated; they are subject to outside influences. Those influences cannot be stopped, but they can be anticipated and guided.

Monitoring change can be the responsibility of a number of people and organizations: for example, school groups, neighborhood coalitions, business and civic organizations, as well as local government agencies. But to get a composite, collective sense of how change is affecting the community, this information will need to be periodically synthesized, evaluated, and communicated.

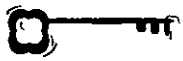
Monitoring change—things to consider:

- What key events and incremental changes should be tracked?
- Who should help to monitor change? Who should be responsible for synthesizing the results?
- How can the quality of the monitoring be assured?
- What actions will be taken if the community is going off its charted course?

Devices such as indicators, benchmarks, and surveys can be used to monitor change.

Indicators

The indicators discussed in Chapter 5 and above (see "Gathering, Integrating, and Forecasting Information" and "Developing and Assessing Options") can be used to monitor change. By using the same indicators at various stages, including monitoring change, a systematic track record can be developed of the direction and extent of change. Indicators can serve as measures of progress toward goals; they can also serve as "canaries in the coal mine" to alert the community to undesirable trends.



Key issues:

- Indicators will capture incremental change but not sudden big events.
- Indicators are only as good as the measures chosen and the information collected.
- Because monitoring change requires dedication over a number of years, not an intensive effort over a few weeks or months, the group that used indicators in the early stages of the visioning and planning process may not be appropriate to do continued monitoring. For that reason, the early stages should have the input and guidance of those who are expected to track changes over time.
- When monitoring change, indicators of exogenous change (change from outside) as well as endogenous change (change from inside) will be needed. These indicators may need to be somewhat different from those used earlier in the visioning and planning process.

Benchmarks

Benchmarks can be used as specific targets against which progress can be measured. For example, a regional non-profit organization in northeastern Mississippi—the Commission on the Future of Northeastern Mississippi—has established three categories of goals: human resource development, infrastructure development, and community and economic development. Under each category, they have established benchmarks—e.g., attaining a 90 percent immunization rate in the region (Baldwin, Fred D. 1997. Vision and Involvement: Empowered Communities. *Appalachia* January-April; and *http://www.arc.gov/infopubs/appalach/janapr97/vis&inv.htm*).

Key issues:

- By making goals tangible, benchmarks can spur action as well as monitor change.
- Benchmarks only measure change that is directly goal-related. They do not measure change that has indirect but strong effects on goal attainment, and they may not help in understanding *why* goals are or aren't being met.
- Benchmarks are not useful in tracking key events that can have abrupt, large impacts on the community.

Surveys

Surveys are discussed above, under "Identifying Values and Setting Goals." Surveys also can be used to monitor change. They can be mailed out periodically to seek information from community members on changes they have observed, on facts about their current circumstances, on their feelings about the community, etc.

Key issues:

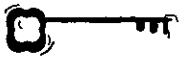
- Surveys used to monitor change have all the strengths and limitations of surveys in general, as noted above, under "Identifying Values and Setting Goals."
- Surveys used to monitor change are best suited to either assessing changes in people's attitudes or gathering factual information about their household or neighborhood circumstances (e.g., annual household income, number of miles driven, recreational activities, neighborhood meeting places).

As in the information-gathering and options assessment stages, monitoring change can be done by a combination of professionals and community members, working alone or in teams.

Data Center

The Data Center technique discussed above (see "Gathering, Integrating, and Forecasting Information") can be used to monitor community trends. In Ouray County, CO, citizens

are encouraged to review the data sets provided by the Southwestern Colorado Data Center and to make comments on them (*http://www.landuse.com/scdc/ourayc/gov/trend/exsumf.htm*).

 **Key issues:**

- A Data Center used for monitoring change is likely to have the strengths and limitations noted above, under "Gathering, Integrating, and Forecasting Information."

- While a Data Center may effectively monitor incremental change, it is not likely to anticipate key events that could have a sudden, major impact on the community.

- A Data Center will need political connections to translate changes observed into calls for action.

Trustees

"Trustees" can be used to monitor change and maintain the momentum of the visioning and planning process. Sustainable Seattle, a volunteer network and civic forum whose mission is to advocate for sustainability in Seattle and King County, Washington, elects 15 to 25 trustees to three-year terms, with no term limits. The trustees are respected members of greater Seattle who represent community diversity and subscribe to sustainability principles. The trustees' responsibilities include monitoring program activities, considering major policy issues before the Seattle community, and linking Sustainable Seattle to other community efforts and organizations.

The trustees, who are led by two co-chairs, meet four times per year. They are one part of an organization that is built on volunteers and includes a three-member advisory board, a 10 to 20 member team that coordinates task teams and projects, a management team of up to 5 people elected by the coordinating team, and a paid support staff at the YMCA as a secretariat to provide day-to-day administrative support (*http://www.scn.org/sustainable/about.htm*).

 **Key issues:**

- The "trustee" approach helps to ensure that changes will be tracked by a core group.

- Systematically monitoring changes will require a lot of effort on the part of the trustees, other volunteers, or staff.

- Linkages to local government, businesses, and other organizations will depend on how well-connected and attentive the trustees are.

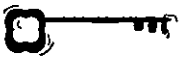
- To be effective within the community, the trustees must be seen as a well-balanced group that promotes the community's interests over special interests.

- The trustees should have formal or informal means for input from community members.

- Some funds or staff will be required to communicate the trustees' findings.

Key Performance Area Task Forces

If the key performance area (KPA) approach is used (see "Developing and Assessing Options"), the KPA task forces might serve as ongoing crews to monitor change within their designated performance area.



Key issues:

- Because KPA task force members are familiar with the KPA, they are likely to have both the interest and the knowledge to monitor change within the KPA.

- Unless change within the KPA occurs rapidly, the KPA task force may disband because it has little apparent reason for continued vigilance.

- People willing to make an intensive, short-term commitment to a KPA task force may be deterred if it involves a long-term commitment.

- The KPA task forces will need to provide their input to a central organization that can assess the combined effects of change across the KPAs.

Informal Monitoring by Stakeholders

This technique assumes that active "stakeholders"—individuals and organizations with strong interests in a particular place or topic—can be relied upon to monitor change in their areas of concern. This technique, which contrasts with more formal monitoring techniques, has long been employed in many communities.

Key issues:

- Stakeholders have the greatest passion about their areas of concern; they are likely to remain vigilant as long as they regard themselves as stakeholders.
- Arguably, stakeholders have the greatest day-to-day familiarity with their areas of concern and are best-equipped to detect changes early and make them known.
- Some areas of concern have no active, aggressive stakeholders yet still should be monitored.
- The results of stakeholder monitoring may be not be accepted by other community members; it may be seen as (and may in fact be) biased or incomplete.
- For stakeholder monitoring to provide a record of change over time, stakeholders must remain in a community and continue to take an active interest in their areas of concern, or they must "pass the torch" (and the records) on to others.
- To get a composite picture of where the community is headed, the results of stakeholder monitoring will need to be integrated periodically across areas of concern.

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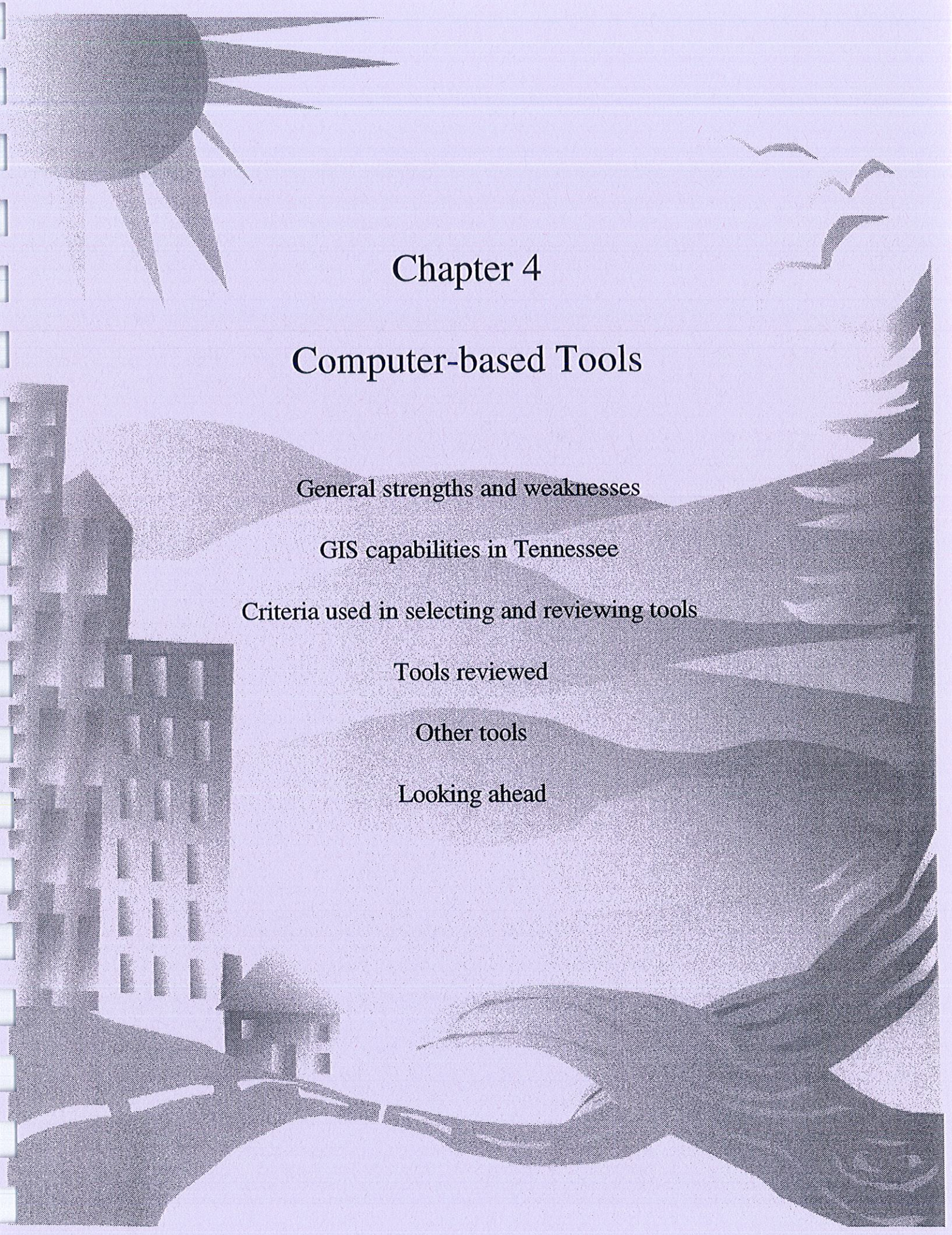


Chapter 4

Computer-based Tools

General strengths and weaknesses

GIS capabilities in Tennessee

Criteria used in selecting and reviewing tools

Tools reviewed

Other tools

Looking ahead

While there are many different types of tools, in this chapter we focus on computer-based tools that can be used as an aid to the visioning and planning process described in Chapter 3. These tools can be especially helpful at two stages in the process: gathering, integrating, and forecasting information; and developing and assessing options.

Computer-based tools are not a magic bullet, however—in fact, at present they have several limitations. In this chapter we discuss their general strengths and weaknesses and then turn to a review of some tools that have been developed recently. Our review is not exhaustive; it covers a sampling of tools. While some have been developed by the government, others have been developed commercially. Our review should not be taken as an endorsement of any particular product; instead, it is meant to acquaint users of this guide with an array of possible aids.

General Strengths and Weaknesses

Computer-based tools increasingly are being used for community planning. They have several strengths. One strength is *speed*: Many programs, even those with enormous data inputs, can be executed on a personal computer in a matter of minutes. Another strength is *graphics*: For example, a computer-based model can be used for scenario analysis, with graphically displayed results, and the scenarios can be modified easily and then visually displayed. (E.g., air emissions from a 100-unit housing development can be compared with those from a 50-unit development.) A third strength is their *ability to handle complex, multi-faceted issues*: Some software packages have the capability of integrating a number of different factors. A fourth potential strength is their *ability to systematically track results*: Tools have been developed to support a variety of management uses, from budgeting to measuring progress.

There are, however, potential drawbacks as well. One is *cost*. Software modeling programs range from a few hundred dollars to upwards of $20,000, and the cost does not stop with the software and the equipment to run it on. In addition, technical expertise may be needed to run the program. A second potential drawback are the *data sets* that may be needed as input to the program. While data may have been collected through various means (see the section on "Gathering, Integrating, and Forecasting Information" in Chapter 3 and the discussion of indicators in Chapter 5; see also the data sources listed in Appendices A-D), the data may not be suitable for input to the computer-based program. A third potential drawback is the *difficulty of adapting a software package* to a community's particular needs. If a program goes beyond the basic building blocks of spread sheets and geographic information systems (GIS) and deals with specific factors and their relationships, the program (and possibly the computer) will likely require modification, which may take time as well as money to hire the necessary expertise. (In fact, even GIS programs may have special requirements on how the photography can be loaded.) And while technical support may be included as part of the purchase price, there

may be additional charges. Finally, some computer-based tools may quickly become outdated, necessitating *periodic updates* not only of the tool but of the computer.

GIS Capabilities in Tennessee

Most of the computer-based tools available for smart growth planning are GIS-based. To assess the GIS capabilities across the state, we consulted four sources: the Municipal Technical Advisory Service, the East Tennessee Development District, the local planning assistance offices within several of the Tennessee Department of Economic and Community Development's regional offices, and the Office of Information Resources in the Department of Finance and Administration. From this assessment, it appears that the GIS capabilities across the state are varied.

The larger communities across the state have functional GISs, as well as some of the medium-sized cities. Many counties are adding GISs with state support, which has a long-term commitment to make GISs available in all of Tennessee's municipalities and counties. However, it appears that many smaller municipalities are not likely to have GISs in the immediate future, due to fiscal and human resource limitations.

Criteria Used in Selecting and Reviewing Tools

In selecting the computer-based tools to be reviewed, we required that they be:

- *PC-based.* The software package had to run on a personal computer that required no more than a 486DX-processor, 8 MB of RAM, 20MB of hard drive space, and a CD-ROM drive. It should be noted that most computers have the processor and RAM capabilities. A CD-ROM drive on computers is becoming an increasingly common feature. We did not review software packages that run on a mainframe or mini-mainframe computer.

- *Multi-dimensional.* The software package had to address more than one dimension of sustainability (see the discussion in Chapters 1 and 5); in other words, it had to incorporate at least two of the three "legs" of sustainability: economic, environmental, and social factors.

- *Adaptable to local level.* Some computer-based tools are designed for state or multi-state use and are inappropriate for the sub-state level. For the most part, we considered only tools that are intended for the municipal or county level.

After the tools were selected, we looked especially at the following factors in evaluating them:

- *Data requirements.* Software packages that require extensive, hard-to-obtain data sets are, in general, less desirable.

- *Cost.* Whether a software package is affordable will depend upon the community's budget. However, higher costs were, in general, considered to be less desirable since they might preclude the software package's use in many communities.

- *Training required.* Staff training that was likely to be required was taken into consideration in our review, as was the level of technical support offered by the organization marketing the package. (Staff training is an especially important factor: If only one person knows how to run the program and s/he leaves, someone else will have to be trained.)

- *Scenario capabilities.* Tools that could construct scenarios based on "what if" questions were seen as being potentially more useful as a tool for visioning and planning. (For example: If an area of town is developed for residential rather than commercial purposes, what are the likely environmental, economic, and social consequences?)

Geographic Information Systems

"A geographic information system (GIS) is a management-support system that permits the decision maker to view and analyze spatial information [quickly]. A GIS combines date-capture technologies (such as scanners, digitizers, and global-positioning systems) and spreadsheet and database-management software with mapping, graphics, and statistical routines. Together, they permit the presentation and analysis of spatial data in a highly sophisticated manner. GIS permits the analyst to look at all the spatial and nonspatial information that has been collected about a particular location by merely pointing to the location on a computerized map or typing in an address. In a similar manner, information can also be obtained about locations within a designated radius or distance from a given location. In addition, facilities of a similar nature at different locations can be identified. Finally, information from maps (even those originally produced at different scales) can be overlaid and related.

GIS uses computerized data of two types: the base map and the attribute data. A base map is just that—a graphic representation of the geographic layout. It may show streets, census-tract boundaries, streams and bodies of water, topographic contours, or all of these simultaneously. The federal government has . . . [collected] information for base maps and . . . [made] that information available at a very low cost. An example of such a base map is seen in the TIGER (Topologically Integrated Geographic Encoding and Referencing) files, which give all street maps and census-tract boundaries for the United States (Environmental Systems Research Institute, 1990. *Understanding GIS: The ARC/INFO Method*). Private companies have refined these government-produced base maps by adding information, enhancing accuracy, and including additional geographic features.

These maps can be used in conjunction with attribute data that describe features like locations of hazardous-waste facilities, the types and amounts of materials stored, the frequency of inspection, and the demographics of the surrounding area. The sources of information for these attribute data might include the U.S. Census, the U.S. Environmental Protection Agency, telephone books, local-government records, residents, or businesses. These data may be tagged with some locational information, such as a street address, a ZIP code, or a census tract. Similarly, data produced by a socioeconomic model and containing a location can be used as attribute data in a GIS. In short, any geographic data, be it quantitative or qualitative, can be used in a GIS.

. . . The greatest strengths of GIS are:

- the presentation of spatial information in a visual manner,
- the accumulation of information from various sources and the representation of all that information in the same geographic scale,
- allowing one to point to a location on a map and obtain information about that location, and
- the ability to perform spatial analysis on a site to determine its impact on other locations. This last function cannot be performed in any other manner. GIS . . . is flexible in its ability to add and analyze new information.

However, GIS does have some limitations. It can be a relatively expensive tool because of technical requirements (e.g., skilled technicians, high-level computers, and the collection and maintenance of large amounts of data). The expense increases drastically when the available data are not computer readable. An organization cannot just purchase the necessary hardware and software, collect data, and then let an untrained person run the GIS and expect to get meaningful analysis. As with any technology, GIS can only be used effectively if it is properly integrated into the entire decision-making process; it cannot merely be tacked on as an afterthought. Therefore, an organization should expect to train GIS analysts in all phases of GIS technology including cartography, database management and spatial statistics. In addition, managers and decision makers should also be trained in the technology so that both the requirements of the technology and the

appropriate applications for which the technology may be used are well understood. Using GIS successfully requires not only investments in hardware, software, and data, but also the hiring of properly trained GIS personnel and the retraining of current personnel to use this technology properly and effectively."

Source: Jeffrey Osleeb and Sami Kahn, in Dale and English, eds., *Tools to Aid Environmental Decision Making*, Springer-Verlag, 1999, pp. 164-165.

There are two widely used GIS software packages: ARC/INFO and ArcView. Both are available through the Environmental Systems Research Institute, Inc. (ESRI).

- ARC/INFO allows users to create and maintain geographic information; manage large, multi-user spatial databases; integrate multiple data types; and perform sophisticated spatial analysis. Through its analysis functions, a user can select criteria for a development (e.g., acreage required, access to water, sewer, railroads, etc.) and use ARC/INFO to access data meeting the selected criteria. With ARC/INFO, a user can access, visualize, and ask questions about graphic and descriptive data. The software integrates visual or graphic data with multimedia data from an organization's internal database or from commercially available data and can assist in managing data. ARC/INFO has pulldown menus and buttons that can be modified to customize ARC/INFO. The software package includes tools for the entry, editing, manipulating, managing, analyzing, displaying, and outputting of geographic information. Analysis tools include, for example, topological map overlay, buffer generation, proximity analysis, spatial and logical query, hydrologic modeling, surface analysis, network modeling, and tabular analysis. Also available are optional software extensions to ARC/INFO for specialized tasks.

  For more information, see *http://www.esri.com/software/arcinfo/index.html* or *http://www.esri.com/software/arcinfo/fact.html*.

- ArcView is a desktop mapping and GIS tool that allows users to select and display different combinations of data to visualize information and communicate geographically. ArcView works directly with ARC/INFO data models and is available in MS Windows, Macintosh, and UNIX platforms. Key features of ArcView include an integration of charts, maps, tables, and graphics; data updating system; and matching and geocoding. ArcView can also access records from existing databases. ArcView can be customized, allows for editing of data and geographic features, and updates automatically when editing. Data can be aggregated or transferred into features in a new map. ArcView does *not* provide the spatial analysis characteristics available in ARC/INFO, as described above. Instead, ArcView is used primarily to view or graphically present data.

  For more information, see *http://www.esri.com/software/arcview/fact.html*.

Tools Reviewed

None of the tools reviewed excels on all of the criteria noted above. However, the following will give a flavor of the types of tools currently available for communities engaging in smart growth visioning and planning. We identified these software packages through a literature review, Internet searches, and contacts with selected communities across the nation engaging in sustainability activities.

CITYgreen

American Forests, a non-profit conservation organization focusing on trees and forests, provided a demonstration copy of its CITYgreen software package. CITYgreen is a Windows-based software package for ArcView, a desktop GIS. CITYgreen's purpose is to map urban ecology and measure the economic benefit of trees, soils, and other natural resources. Therefore, its ability to incorporate more than one dimension of sustainability is extremely limited. Its intended users are those groups primarily concerned with the role of trees in soil erosion, storm water management, and air quality. Developers, local government engineers, and urban foresters are targeted users of CITYgreen.

The software package works well at the local level: It was demonstrated on a half-acre lot in a subdivision. The software has scenario capabilities; it can quantify the effects of cutting down trees versus planting different types of trees. Data requirements are moderate to significant, in that the software requires digital ortho photography. This photography at this point is limited to a few counties in the state (approximately 10 of Tennessee's 95 counties).

The cost of the program is $825. Contact number: 1-800-368-5748; *http://www.amfor.org*.

Community 2020

The U.S. Department of Housing and Urban Development (HUD) and Caliper Corporation offer Community 2020, a PC, GIS-based software package. Community 2020 includes geographic, demographic, and HUD program data with full-capacity mapping functions. The maps display housing conditions, economic indicators, income statistics, and population characteristics, as well as HUD-funded project locations. Users can zoom into a single block or view county-wide. Community 2020 can read text files, dBASE files, and other common data sources; the software package can also be modified to incorporate environmental or other social characteristics (e.g., crime rates). Scenario capabilities are unlikely without modification of the program, although Community 2020 could provide a basis of information to build upon. The data requirements are modest, in that Community 2020 already incorporates several social data sets (e.g., housing and

census data). It is compatible with LandView III, EPA's geographic reference tool (see description below).

The cost is $249 for the Southeast region. Contact number: 1-800-998-9999; *http://www.hud.gov*.

INDEX

INDEX is a computer-based decision support tool developed by Criterion, Inc., an urban planning and engineering firm specializing in sustainable community development. The firm is based in Portland, Oregon, and was established in 1979. We were only able to review a demonstration copy of INDEX downloadable from Criterion's Internet site.

INDEX was designed for local application, and it incorporates a broad spectrum of social, environmental, and economic dimensions. It has modules for characterizing and analyzing physical and social aspects of an area. For example, the housing module includes a housing summary, housing affordability, operating energy and energy costs, natural gas energy pollutants, water use, and solid waste and recycling. With an alternate case scenario, a community can evaluate alternative community plans. After a base case has been loaded into the model, "what if" questions can be asked and INDEX automatically recalculates the measures of interest.

The cost of INDEX depends upon Criterion's service fee from the community. For information on INDEX and Criterion, see *http://www.crit.com/~crit* or *http://www.teleport.com/~crit*. For further information, contact Eliot Allen, Criterion Planners/Engineers, 5331 SW Macadam Avenue, Suite 205, Portland, Oregon 97201; (503) 224-8606.

LandView III

LandView III is EPA's electronic geographic reference tool. Developed in conjunction with the U.S. Bureau of the Census, this is its third-generation version. Landview III displays roads, rivers, and railroads; jurisdictional and statistical boundaries; EPA-regulated sites; and key geographic features provided by the U.S. Geological Survey and other federal agencies. It is distributed on a CD-ROM. It can be used to access 1990 census data; create a geographic map showing census data, hazardous waste sites, religious institutions, and schools; and estimate demographic characteristics within a radius from a given point. It also has search mechanisms. For maximum performance, LandView III requires a PC with a 586 or Pentium-class processor, and 16 MB RAM SVGA color display.

LandView III's disks are $99 each for various regions of the U.S. or $549 for the complete set. For more information, see *http://cdserver.er.usgs.gov/lviii.htm* or *http://www.epa.gov/swerosps/bf/lvinfo.htm.*

PLACE^{3}S

PLACE^{3}S is a land use and urban design software package that uses energy as a measure for communities to understand how growth and development decisions contribute to improved sustainability. It integrates public participation, planning, design, and quantitative measurement in a five-step process appropriate for regional and neighborhood-scale assessments. PLACE^{3}S quantifies energy, economic, and environmental effects of alternative plans. Thus, it appears to meet the criteria of being appropriate for the local level, capable of building scenarios, and considering the interaction among multiple dimensions. However, our assessment of PLACE^{3}S was limited, because running this software package requires another package entitled INDEX (see description above), which was not available to us for testing.

Background information on PLACE^{3}S can be found at *http://www.sustainable.doe.gov/articles/place3s.htm#process.* Additional contact sources are: Electric Power Research Institute, 3412 Hillview Avenue, Palo Alto, California 94304-1395; (650) 855-8912; or California Energy Commission, MS-48, 1516 Ninth Street, Sacramento, California 95814; (916) 654-3948.

PoleStar

Although PoleStar is a software system designed for national or state use, we mention it here primarily because the Commonwealth of Kentucky used PoleStar in its 1996 project, "Forecasting Kentucky's Environmental Futures." More recent use is a 1998 project with 11 European cities.

PoleStar was developed by the Tellus Institute, a non-profit research and consulting organization that develops and applies analytical software packages in the environmental field. The PoleStar software system is a scenario-building tool, and its most recent application at the local level in Europe may make it appealing. However, in Kentucky, an intensive data collection effort was necessary for PoleStar, and this may have hindered its effective use in that state. Staff on the "Forecasting Kentucky's Environmental Futures" project were unable to compile all the Kentucky-specific information for the data elements needed for PoleStar to be a useful analytical system. Data collection efforts at the local level would likely be even more difficult.

In addition, because PoleStar requires an econometric forecasting model, this may hinder its use at the local level. The University of Tennessee's Center for Business and Economic Research has an econometric model that it uses to prepare the Economic

Report to the Governor, but this model cannot be adapted to the local level. Instead, an input-output model, such as REMI or IMPLAN, developed at the University of Minnesota, may be necessary for PoleStar's use.

PoleStar costs $750 (license), which includes some technical support. Additional information on PoleStar can be found at *http://www.channel1.com/users/tellus/tel3.html.* Contact number: (617) 266-5400. A demonstration copy can be downloaded from the Internet site. Kentucky's study was conducted by The University of Louisville's Kentucky Institute for the Environment and Sustainable Development. Contact number: (502) 852-8032.

Smart Places

Smart Places is a GIS-based software package developed by the Electric Power Research Institute (EPRI), a research consortium with a focus on the generation, delivery, and use of electricity. EPRI is based in Palo Alto, California, and was established in 1973.

Smart Places is designed to support communities considering the implications of alternative land use plans. One of its first applications was to the redevelopment of the Stapleton Airport site in Denver, Colorado, after the new airport opened in 1995. Seven resource features are included in Smart Places: land use, energy, transportation, communications, water, wastewater, and solid waste. Smart Places can be modified to include other features as well. Smart Places allows for scenario (what-if) analysis by computing different development scenarios. Smart Places allows the community to evaluate key community performance measures and how performance might be affected depending upon the type of development pursued. For example, one could use Smart Places to calculate energy requirements for a development of 50 versus 100 single-family homes. Through its interactive design, it prompts the user with specific questions about the average floor space, heating systems, etc.

Despite meeting the alternative scenario criterion and considering numerous environmental and land use consequences, the Smart Places version that we reviewed does not sufficiently cover social, economic, and/or environmental considerations. Smart Places was designed, however, to allow for expansion of its built-in features. Smart Places requires a personal computer and the community must have GIS software.

Smart Places is expected to be released commercially sometime in 1999. For additional information, contact Electric Power Research Institute, P.O. Box 10412, Palo Alto, California 94304-1395; (650) 855-2720; or the University of Denver's Smart Growth Project website: *http://www.du.edu/~akeeley/dsp.html.*

Other Tools

Other software packages that we learned of but did not review include LEAP (the long-range energy alternatives planning system) and WEAP (water evaluation and planning), offered by Tellus Institute. LEAP is an accounting framework for energy planning, with environmentally sound energy strategies as a component to the software. WEAP is a PC-based water planning tool. Information on these two programs can be found at: *http://www.channel1.com/users/tellus*. Tellus Institute, 11 Arlington Street, Boston, Massachusetts 02116-3411; (617) 266-5400.

EPA is developing two computer software decision support tools for planners and communities. DIET (Designing Industrial Ecosystems Tool) is designed to aid decision makers and planners in identifying industrial facilities that exhibit economic and environmental potential for eco-industrial development (e.g., eco-industrial parks). Input factors into the model include area available at the site, number of facilities needed at the park, available energy and water sources, pollution constraints, and zoning restrictions. DIET is intended to allow "what-if" analysis by estimating trade-offs among environmental, economic, and employment opportunities under different eco-industrial park planning scenarios.

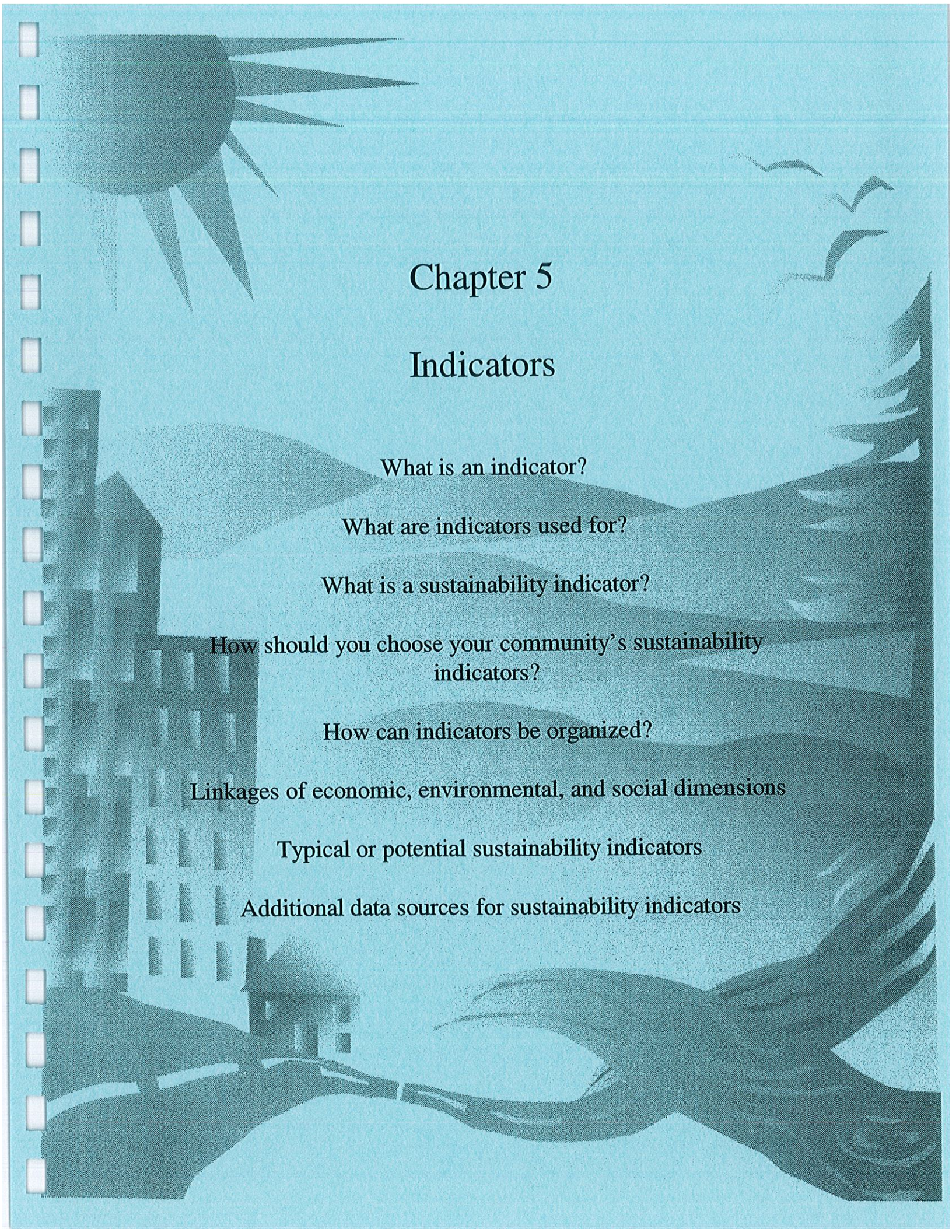
Another EPA decision support tool under development is FaST (the Facility Synergy Tool), which can be used alone or in conjunction with DIET. FaST is used to identify potential materials exchange, energy trading, and purchasing coordination opportunities among industrial facilities. FaST achieves this potential coordination through a data base with facility profiles; those profiles can be used to identify possible facility linkages. There are 13 facility profiles under development, including organic chemical facilities, paint manufacturers, steel manufacturing, coal-powered electric utility, and composting facilities. In addition, EPA is working with Criterion, Inc., the developers of INDEX, on an update to that software package for use at the local level.

For additional information on these EPA tools, contact: U.S. Environmental Protection Agency, Office of Policy, 401 M Street, S.W., Washington, DC 20460 or at *http://www.smartgrowth.org/resources/ecoind_res.html*.

Looking Ahead

As more communities engage in smart growth planning activities, it is likely that there will be a number of software packages to aid decision makers. Some state- or national-level tools may be modified to be usable at the local level (as is occurring with PoleStar). No doubt many of the new software packages will have scenario capabilities. How extensively they will incorporate environmental, social, and economic sustainability dimensions remains to be seen.

There are many advantages to using computer-based tools: Their capacity to handle large and diverse data sets increases daily, and the more sophisticated versions enable complex interactions to be understood. However, they are only aids to decision making; they do not replace the need for good judgment by local officials, staff, and other community members. A community considering the use of a computer-based tool will, of course, be aware of the costs of the necessary hardware and software, but they also should be mindful that a commitment to developing staff technical capability is being made.



Chapter 5

Indicators

What is an indicator?

What are indicators used for?

What is a sustainability indicator?

How should you choose your community's sustainability indicators?

How can indicators be organized?

Linkages of economic, environmental, and social dimensions

Typical or potential sustainability indicators

Additional data sources for sustainability indicators

What is an indicator?

We use indicators in our daily lives, perhaps without thinking about it. We track the Dow Jones Industrial Average, our weight, our checkbook balance. A parks and recreation manager monitors use of ballfields by leagues; a utility manager tracks water or electricity usage per day.

An indicator provides descriptive or analytic information on conditions or trends. The *Community Indicators Handbook* (1997) defines indicator as

> a measurement that reflects the status of some social, economic, or environmental system over time. . . Generally an indicator focuses on a small, manageable, tangible and telling piece of a system to give people a sense of the bigger picture (page 53).

Let's examine this definition:

- A "measurement" is something that can be quantified (i.e., a number can be attached). The measurement can be from an existing quantitative data source (e.g., property tax receipts). Under some circumstances, it may not be possible to begin with a quantitative data set. In those situations, a rating system can be devised with numbers attached to the ratings later. For example, your community may be concerned with the condition of homeless shelters. You can rate the shelters as good, fair, or poor and then attach a score, such as 3, 2, and 1, to these evaluations.

- Examples of "social, economic, and environmental" measurements are, respectively, number of births, per capita income, and amounts of hazardous waste generated at a facility.

- "Over time" merely suggests that it is preferable that indicators be tracked over several years to determine where we have been, where we currently stand, and where we are going. Examining trends can help in assessing whether conditions are getting better, worse, or staying the same. For example, average house prices over the last 10 years gives a community historical as well as current information. Realtors may use the pricing data to project likely average house prices for the next five years. If affordable housing is decreasing, the community may wish to address policies affecting this trend. Presenting the information in a chart or graph permits visualization.

- A "system" describes something interrelated, with indicators as small pieces of information that tell us about the larger system. We may not be able to see or understand all aspects of the system; however, from indicators we can glean

some parts. For example, your cholesterol level tells something about your health; graduation rates in a community tell us something about the educational system; property taxes speak to resource availability.

What are indicators used for?

Indicators serve many functions:

(1) assessment,
(2) problem or issue identification,
(3) policy development (e.g., what a local government will do to correct a problem),
(4) goal-setting or evaluation, and
(5) comparison across communities.

Each of these functions can be performed separately or in sequence; obviously, there is some overlap among the functions.

Assessment. Assessments usually measure program performance; for example, whether a recycling program has increased recycling rates. Or an assessment can monitor conditions, such as the number of clean air days. Or assessments can examine trends, such as the number of premature births at the local hospital over several years. Assessments may be done by local officials (e.g., the recycling program manager) or by another local organization (e.g., the hospital).

Problem or issue identification. Assessments may highlight a possible problem. For example, tracking elementary school reading test scores may indicate a problem if the test scores are consistently lower than other communities. It is important to understand the exact measurement: Is the test score an average, where children with learning disabilities are included? The assessment may only identify a general problem, and further effort may be needed to specifically address the cause. The root problem could be student-teacher ratios, inadequate diets, inadequate library material, illiteracy among the parent population.

Policy development. Policy development seeks to address a problem or issue. In the above case, it may be to improve reading ability. Obviously, many policies on educational programs could be addressed: a policy to reduce the student-teacher ratio, a policy to improve the adequacy of the school library, or a policy to establish an adult reading program.

Goal setting and evaluation. After a policy is initiated, goal setting occurs. It is useful to have one or more indicators chosen to reflect that policy and goal. For example, the community may set a numerical goal on minimum reading test scores. After several

years, the community assesses where the community stands in relation to that goal. Other indicators may be the number of books checked out from the library or student-teacher ratios.

Comparisons. Comparative analysis allows a community to examine where it stands in relation to communities with similar characteristics, both within and outside the immediate region. This comparison can aid a community in determining what its goals should be.

Indicators can become tools for change. To accomplish change, indicators must be *used*, not just collected. Moreover, it will take time to build a list of indicators, and instant change may not be observed. However, indicators can be a big help to long-term policy development.

In addition, indicators can serve as motivation for actions by private as well as public groups: Smart growth may require changes and new initiatives from many individuals and organizations, not just the local government.

What is a sustainability indicator?

Building upon the definition of an indicator, a *sustainability* indicator considers measurements and trends that link or combine all three dimensions of a sustainable or healthy community: economic, environmental, and social factors.

There are several desirable characteristics of sustainability indicators. The indicators should:

- consider external and internal *transboundary* effects. If water run-off from upstream activities affects your community's water supply, an indicator representing that run-off should be considered. Likewise, if your community's run-off affects a downstream community, that run-off activity should be considered. Air pollution is another example of transboundary effects. Air pollution does not respect county or municipal boundaries.

- consider external and internal *distributional* effects. Distributional effects are similar to transboundary effects: One community's income may be rising at the expense of another community; for example, when an industry relocates from another community.

- be *forward-looking*. The sustainability indicator can be a trend indicator, by providing historical information that provides indirect information about the future. Or the indicator can provide information about future conditions

through mathematical models. Finally, the indicator can be conditional; that is, it can provide information for *if-then* scenarios.

Besides these characteristics, there are other criteria (drawn together here from numerous sources) on what makes a good sustainability indicator. These involve input (e.g., community participation), characteristics of the data collected, and an emphasis on users. These criteria are listed below (not in a hierarchical order of preference); they suggest that an indicator should have the following qualities:

1. Relevance. The indicator should be relevant to the desired policy goal of the community. If the community's goal is improved education, the indicators might focus on graduation rates, percentage of high school graduates who seek additional technical/vocational training, number of high school graduates who attend and graduate from college, public school expenditures per student, and student-teacher ratio.

2. Appropriate spatial and temporal scale. If the community's interest is stormwater run-off, activities upstream and downstream should be taken into consideration. The indicator should also have the appropriate time scale. If the community's goal is employment, annual employment figures might be more appropriate than quarterly figures to take into account seasonal employment.

3. Measurable. The indicator should measure a feature that can be quantified. "Low crime rate" cannot be quantified, but number of murders, rapes, and burglaries can. On crime, is it the number of reported rapes or the number of convictions? These two measures are different.

4. Good data quality. The data should be supported by sound collection methods that can be repeated consistently over time. In addition, the community should understand exactly what the indicator measures.

5. Longitudinal data. Ideally, an indicator will have been collected over time, with consistent collection methods. This allows for historical trends to be observed.

6. Easy data availability. Data for the indicator should be affordable and accessible. Prohibitively expensive indicators, while perhaps representing the ideal, may not be an option for many communities. Instead, the community should choose indicators where the data are available and accurate and can be obtained easily.

7. Important and easily communicated information. The indicator should provide information that is worthwhile; that is, it should measure a factor important to the decision-making group. It should also be presented in terms the public and decision makers can understand.

8. Community-developed. The indicators should be developed with input from community members and be useful for the intended audience.

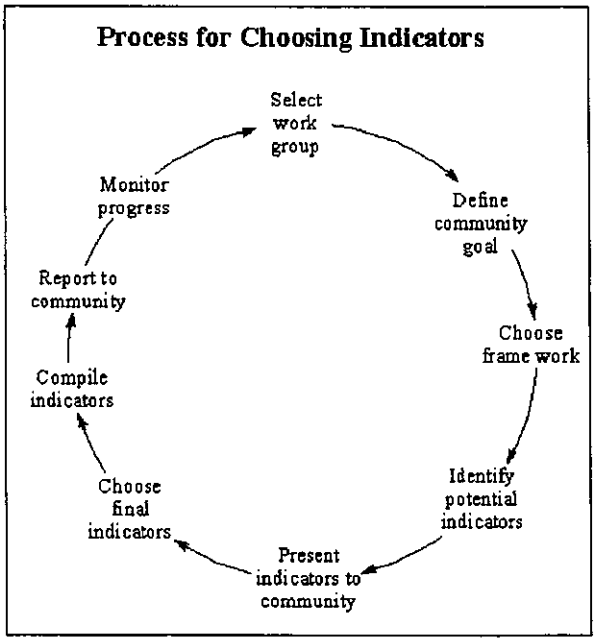
Criteria for Developing a Set of Sustainability Indicators

Input	Data Characteristics	End Users
Community-developed	Relevant	Easily communicated
	Appropriate spatial/temporal scales	
	Measurable	
	Good data quality	
	Longitudinal data	
	Easy data availability	
	Forward-looking	
	Considers transboundary effects	
	Considers distributional effects	

How should you choose your community's sustainability indicators?

There is no magic number of indicators, nor is there an ideal set. Jacksonville, Florida, chose 74 indicators for nine broad categories; 259 indicators were used by the State of Oregon. Seattle, Washington, narrowed a list of 100 into 40 indicators; the President's Council on Sustainable Development's Indicators Workgroup settled on 41 indicators. The number of indicators should be manageable and realistic; what that number is depends on the community.

Simply put, the community should choose its list of sustainability indicators as it builds toward smart growth. Its list should reflect where the community wishes to go. It should be a participatory process, as detailed in other parts of this guide. The final selection of indicators will depend upon goals of the community, data accessibility, and resource availability. However, one process that a community might consider in developing its list of sustainability indicators is set out below.



1. Group selection. Although it is important to have citizen involvement, it might be appropriate when developing indicators to select a small citizens work group. However, it is important that the citizens group be diverse, to allow access to broader groups and organizations within the community, to lend credibility to the group's activities, and to engage different skills. Some members should be good at communicating; others should be good at analyzing data.

2. Goal definition. As discussed in Chapter 3, defining the community's goals is essential. Defining the community's goals assists in determining the appropriate

indicators and clarifies the purpose of choosing sustainability indicators. It also can help the indicators work group stay focused.

3. Framework. As discussed below, the group should organize the indicators. In addition, it should consider criteria to evaluate potential indicators. As mentioned above, the criteria should consider the community's resources. Selecting the framework and evaluation criteria should precede identifying the indicators.

4. Identifying Potential Indicators. Reviewing data collected by various government agencies and other organizations could be a helpful starting point. This search can identify ready sources of data for indicators; it can also point out technical problems. For example, are data collected annually or every two years? If it is important to have annual data, an indicator based on biennial data may be rejected.

The indicators group should discuss whether brainstorming with a broader group is advisable at this point, or whether specialized assistance is needed. Specialized help might come from someone who teaches math at a local community college or high school, or an engineer with the local utilities board. These technical experts may be able to identify potential problems not considered by the indicators group.

Potential indicators can be identified by considering those listed at the end of this chapter, and by reviewing reports prepared by other communities, as well as by developing a set of indicators from sources unique to the community. A review of other communities' reports on their use of indicators may highlight potential opportunities and pitfalls.

5. Presentation to Community. After the potential indicators have been identified by the indicators work group, they should be presented to the community for feedback.

One option is to convene public meetings on the proposed set of indicators. At the first meeting, the goals, selection criteria, indicators, and process of developing the indicators should be described, and feedback should be sought. A second public meeting should be held to present the revised list of sustainability indicators. The indicators work group should consider hiring a facilitator for these meetings. (See Appendix E for a list of possible sources of facilitation assistance.)

If public meetings aren't possible (or even if they are), the group might consider publication in the local newspapers, or mailings to churches, the League of Women Voters, Jaycees, Kiwanis Clubs, local environmental groups, and other organizations. The group may decide to make presentations to community organizations or speak on radio call-in broadcasts. The idea is (1) to have as wide a distribution as possible, and (2) to emphasize that feedback from the community is requested so that the work group can turn the potential indicators into a final set of indicators. Local organizations may be able to assist in this effort, and the newspaper could seek suggestions.

6. Data Compilation. After the final set of indicators is chosen, the data should be collected. This may be a time-consuming effort. Some potential sources of data are provided at the end of this chapter, as well as in Chapter 7 and in Appendices A-D.

The work group might consider preparing a preliminary analysis of the data, to assess how the community is faring. The results may be surprising.

7. Report to the Community. After the indicators have been chosen, the data collected, and the preliminary assessment performed, this information should be conveyed to the community. Again, the outlets for this information can be as broad as funds allow, but at a minimum, publication in a local newspaper seems a worthwhile beginning point.

A report to the community serves several purposes: It provides feedback to community members. It gives them a glimpse of where the community stands in relation to its goals. It can bring home the point that smart growth involves personal action as well as action by business and governmental agencies.

8. Monitoring Progress. Sustainability indicators, goal setting, and compiling data are of little value without ongoing monitoring. This requires an obligation to make the smart growth effort more than a paper exercise. As discussed in Chapter 3, monitoring enables the community to evaluate where it stands in relation to its goals. It may also suggest a change in goals and/or indicators. It may be determined, for example, that the particular indicator chosen simply does not provide the data needed by the community. Or the community may reach a goal and choose another goal and set of indicators. Selecting indicators and then monitoring them is an iterative process, not a linear process.

How can indicators be organized?

A number of frameworks have been developed by communities that are systematically working toward sustainability. These frameworks fall into the following categories: (1) domain-based, (2) goal-based, (3) sectoral-based, (4) issue-based, (5) causal, and (6) combination.

- **Domain-based.** The domain-based framework begins with the basic dimensions of sustainable development—social, economic, and environmental—and then identifies indicators for each of the three. This framework ensures coverage of the three dimensions; one drawback, however, is its failure to reveal linkages among the three dimensions.

- **Goal-based.** The goal-based framework directly links the three dimensions of sustainability by focusing on community goals, rather than on a specific dimension per se. The framework requires setting community goals first; then

indicators are created to reach the goals. Broad goals can then be divided into categories and subcategories, with selected indicators based on the subcategories. For example, one goal may be an economically healthy community. One category could be the community's debt. Subcategories might include per capita debt and short- or long-term bond issues. Another category might be employment. Subcategories might include manufacturing or service employment and welfare payments.

- **Sectoral-based**. The sectoral-based framework focuses on the governing unit's areas of primary responsibility, such as education, housing, transportation, recreation, and public safety. Indicators would be developed for each area, to help ensure accountability and responsiveness. This type of framework is useful for elected and administrative officials and the general public, but it has limited ability to link across different areas.

- **Issue-based**. This model is organized around key sustainability issues rather than local programs. These issues might be, for example, education, poverty, economic development, housing, water pollution, or crime. Like the sectoral-based model, this model is easy to communicate to officials and the public; however, a concerted effort must be made to link the sustainability dimensions.

- **Causal**. One frequently used framework for indicators was developed by the Organization for Economic Cooperation and Development and the Canadian government: *pressure-state-response*. This framework attempts to answer "what and why" questions: "What is happening, why is it happening, why is it significant, and what are we going to do about it?"

  Trends describe the *state* (the condition that exists). Indicators of the *pressure* being exerted from various activities (the causes or driving forces) answer the "why" question. The *response,* or actions to change the state, focus on programs or policies to deal with the problem. An example of the pressure-state-response framework is a water condition problem identified by the indicators (state). The pressure is the use of septic tanks rather than a sewer system. A response could be a water department's efforts to increase septic tank inspections (a policy or program response).

- **Combination**. Although each of these frameworks has disadvantages, they offer possibilities for a community to consider. In addition, one framework can be combined with another. For example, a sectoral-based framework can be modified to include categories and subcategories that span across the sustainability dimensions and incorporate aspects of the pressure-stress-response framework.

Linkages of Economic, Environmental, and Social Dimensions

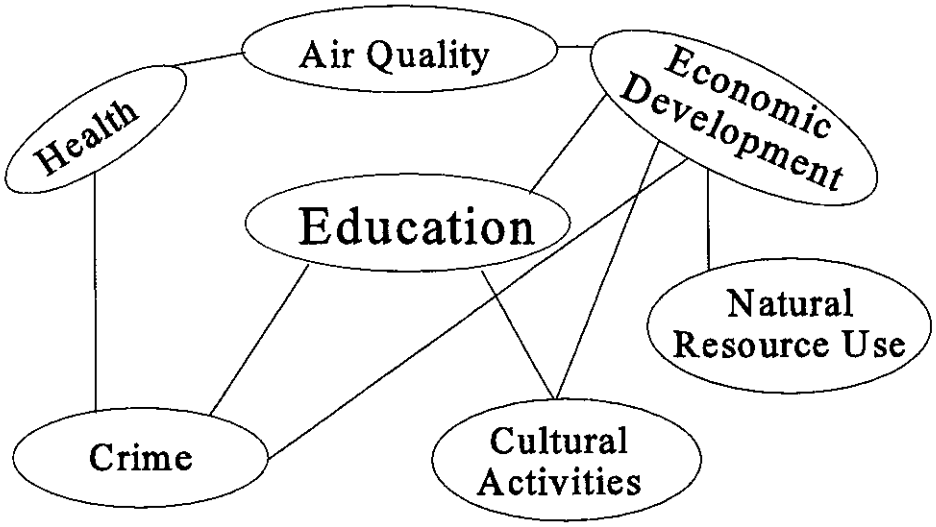
Throughout this chapter we have alluded to links among the economic, environmental, and social dimensions of sustainability.

One way to think about these links is to consider questions that might arise either within the work group developing the potential set of indicators or through presentation of the indicators to a community-wide audience for feedback. For example, while the use of ballfields is a social indicator (a measure of recreation), it also represents economic and environmental activities. In this example, the following questions might arise:

- Who uses the ballfields?
- Does dust create breathing problems for users?
- Does traffic flow into the ball park create noise or air problems for the surrounding community?
- Is the park slated for improvement?
- Is its improvement a higher priority than other (e.g., inner city) park development?
- Are refreshments sold at the games?
- Who sells the refreshments? Is there a competitive bid?

Another way to think about the links among these three dimensions is to consider the flow of cause and effect. One community goal may be to increase the educational level of its members (a social goal); monitoring high school graduation can help measure progress toward that goal. An educated population can attract and retain businesses that provide employment and tax revenue. The larger tax base may lead to social improvement in the community through additional funding for libraries or other activities. With education and employment, there could be a decrease in crime. However, new firms may lead to an increase in waste generation, and natural resource use. This cause and effect set of linkages is illustrated below.

Example of Linkages among
Economic, Environmental, and Social Dimensions



Typical or Potential Sustainability Indicators

Sample sustainability indicator categories may include: health, education, public safety, recreation, transportation, economic development, housing, water quality, air quality, solid waste, arts and cultural activities, wildlife preservation, and land preservation. The list of sustainability indicators below is not exhaustive, but it provides examples. Potential sources of data are included.

Economic

1. Unemployment rate
   Sources: local Tennessee Department of Employment Security office, local chamber of commerce, local economic development office

2. Distribution of income
   Sources: U.S. Bureau of the Census, local chamber of commerce, local economic development office

3. Distribution of jobs by sector
   Sources: local Tennessee Department of Employment Security office, local chamber of commerce, local economic development office

4. Distribution of housing
Sources: local board of realtors, local homebuilders association, local economic development office, planning commissions

5. Median value of land by acre by use
Sources: local board of realtors, local homebuilders association, planning commissions, property tax assessor

6. Net change in number of jobs
Sources: local Tennessee Department of Employment Security office, local chamber of commerce, local economic development office

7. Vacancy rate in housing and commercial structures
Sources: local board of realtors, municipal or county building inspection or permit unit

8. Ratio of business closure to business licensing
Sources: municipal or county business license office, Tennessee Department of Economic and Community Development, local chamber of commerce, local economic development office

9. Age distribution
Sources: U.S. Bureau of the Census

Social

1. High school graduation rate
Sources: local school board, Tennessee Department of Education, local chamber of commerce, local economic development office

2. High school drop-out rate
Sources: local school board, Tennessee Department of Education

3. Percentage of high school graduates who receive higher education
Sources: Tennessee Department of Education, local school board

4. Number of homeless people
Sources: religious or church associations, local or state offices of the Departments of Human Services, Children's Services, Mental Health and Mental Retardation, Health.

5. Percentage of population living in substandard housing
Sources: local housing authority, U.S. Bureau of the Census, local U.S. Housing and Urban Development office

6. Total population change
Sources: U.S. Bureau of the Census, local economic development office, local chamber of commerce, planning commission

7. Population distribution across geographic region
Sources: U.S. Bureau of the Census

8. Public school expenditures per student
Sources: local school board, Tennessee Department of Education

9. Student to teacher ratio in elementary and high school
Sources: local school board, Tennessee Department of Education

10. Crime statistics by age, sex, and type of crime
Sources: police or sheriff's department, Tennessee Bureau of Investigation

11. Ratio of local law enforcement officers to public
Sources: police or sheriff's department

12. Percentage of population living below the poverty level
Sources: local housing authority, local chamber of commerce, local municipal or county housing inspection office

13. Illiteracy level
Sources: local school board, social organizations, church/religious organizations

14. Number of births to women without 12 years of education
Sources: local Department of Human Services, local Department of Children's Services, local hospitals, local religious or social organizations

15. Library circulation rates
Sources: local libraries

Environmental

1. Number of clean air days
Sources: local air pollution board, Tennessee Department of Environment and Conservation

2. Percentage of population without potable water
Sources: local utility boards, local water department offices

3. Percentage of population not on sewers
Sources: local utility boards, local water department offices

4. Percentage of prime agriculture land
Sources: property tax assessor or register of deeds

5. Percentage of population using public transportation or car pooling
Sources: local transportation authority

6. Percentage of households participating in recycling programs
Sources: public works office, solid waste office, recycling center, environmental organizations, private waste management industry

7. Tons per capita of solid waste generated annually
Sources: public works office, solid waste office, private waste management industry

8. Tons of hazardous waste generated annually
Sources: Tennessee Department of Environment and Conservation, U.S. Environmental Protection Agency

9. Tons of toxic releases annually
Sources: Tennessee Department of Environment and Conservation, U.S. Environmental Protection Agency

10. Number of new housing units not within five miles of shopping centers
Sources: board of realtors, homebuilders association, building permits office, planning commission

11. Number of environmental education classes in public and private schools
Sources: local school board, Tennessee Department of Environment and Conservation, Tennessee Department of Education

An important criterion in choosing indicators is easy and cheap data availability. Data should be affordable and accessible; prohibitively expensive data sources should be avoided if possible. To facilitate data collection efforts, we have included four appendices that list standard sources of data. Appendix A covers general sources of environmental, economic, and social information. Appendices B, C, and D provide specific sources for economic, environmental, and social data, respectively. In addition to these sources, data can be "mined" from other sources, such as historical writings on the community, community social organizations, and environmental groups. Each community no doubt has unique circumstances that will influence not only the data collection efforts but the sources of information as well. We encourage each community to think of the appendices as a beginning point, not an end point.

Additional Data Sources for Sustainability Indicators

A trip to the courthouse may be a good starting point. In fact, local government offices can provide a wealth of information. Police departments can report on crime rates; the building inspection department can provide information on abandoned housing and new residential development. From the tax assessor, vacant parcels of land can be determined. Public housing authorities can give data on number of public housing units and may be able to determine categorical block grant information and expenditures. (Block grant information may also be available through housing authorities.) Local employment offices can be used to estimate the number of unemployed people. School systems can give data on drop-out and graduation rates; local libraries will have circulation rates. Public works departments can provide information on solid waste generation or sewer permits.

Beyond the courthouse, hospitals will have data on birth and death rates. Local utilities should have information on daily or weekly sewer, water, and electricity usages. Local social welfare organizations can provide information on children and women who have been physically abused. Other local organizations may provide environmental data, such as recycling participation and markets and land use efforts. Local environmental organizations may monitor environmental conditions. The private sector waste management industry can provide information on waste generation. Planning commissions may have information on traffic patterns.

Other information can be gleaned from chambers of commerce. (Some track employment data.) Neighborhood associations can identify vacant land, abandoned buildings, and may have information on various environmental factors (e.g., wetlands, sewer problems). Church and religious organizations may have data on homeless shelters and other social aspects of the community. Drug rehabilitation and family planning organizations may have knowledge on social characteristics of the community.

Communities may also look to the state and federal governments for data. For example, as noted in Appendix C, the Tennessee Department of Environment and Conservation (TDEC) collects annual data on hazardous and solid waste generation and toxic releases to the air, water, and land, as does the U.S. Environmental Protection Agency. TDEC's Office of Reengineering is compiling an inventory of all publications and brochures distributed by TDEC divisions to provide information on particular subjects. The Office of Reengineering staff also are developing formal outreach programs in regional environmental assistance centers.

The Tennessee Department of Economic and Community Development has seven regional offices that may have information on efforts to attract industries. (See Chapter 7 for a list of these offices.) Local offices of the Tennessee Department of Human Services can provide data on recipients of Families First benefits, the number of recipients potentially entering the workforce in the next several months, the number of TennCare recipients, or how many community members receive food stamps. Tennessee's Department of Children's Services may have data sources for the number of homeless children.

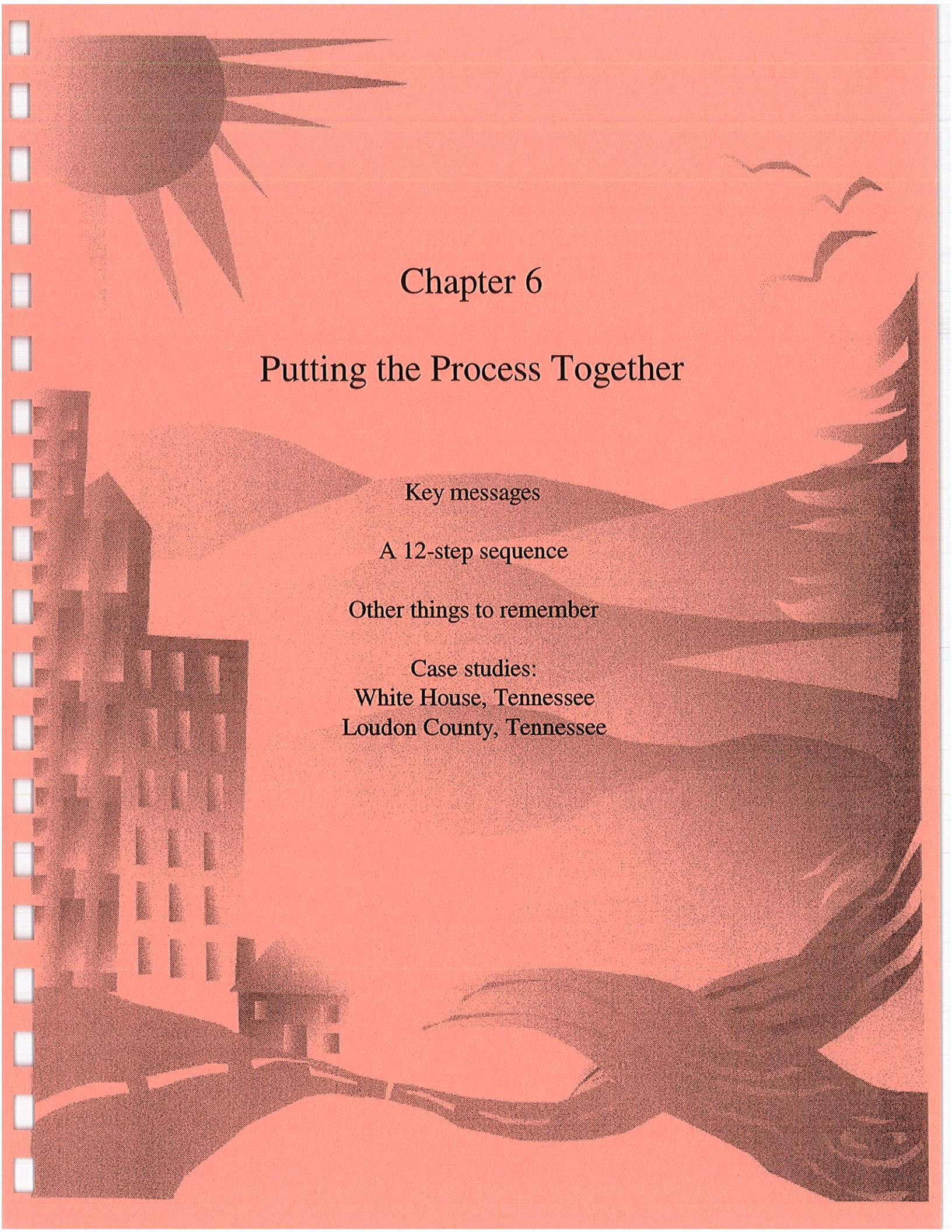
Key Sources

Hart Environmental Data. 1998. *Sustainable Community Indicators Trainer's Workshop Manual.* North Andover, MA: Hart Environmental Data. *http://www.subjectmatters.com/indicators/index.html*

Maclaren, Virginia W. Spring 1996. Urban Sustainability Reporting. *Journal of the American Planning Association* 62,2: 184-202.

Redefining Progress. 1997. *The Community Indicators Handbook.* San Francisco, CA: Redefining Progress.

Sustainable Seattle. 1993. *Indicators of Sustainable Community: A Report to the Citizens on Long-Term Trends in Our Community.* Seattle, WA: Metrocenter YMCA.



Chapter 6

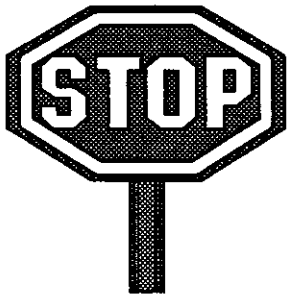
Putting the Process Together

Key messages

A 12-step sequence

Other things to remember

Case studies:
White House, Tennessee
Loudon County, Tennessee



Before reading any further, please turn to the back of this chapter and read two short case studies: one about White House, the other about Loudon County.

These are just two examples of how Tennessee towns and counties are tackling growth issues; there undoubtedly are many more. These two cases illustrate very different approaches to conducting a visioning and planning process. One used a small citizens' group as the focus; the other, a set of public workshops and open houses. Each approach has strengths and limitations.

Key Messages

From these cases, and from what has been said in the preceding chapters of this guide, a few key messages can be distilled:

- *Politics.* A visioning and planning process is embedded in the ongoing politics of the community. While the process should not be wholly dictated by local politics, it should be designed with political realities in mind.

- *Key decision makers.* They should be informed about and engaged in the visioning and planning process and its outcomes.

- *Hot issues.* An impending Wal-Mart or interstate may trigger the visioning and planning process, but it should not dominate it. The issue will need attention, and it can serve as a catalyst to attract people to the visioning and planning process. However, the process should treat the issue as part of a larger pattern of potential change, not as a centerpiece.

- *Long-range thinking.* A visioning and planning process, by definition, should not focus solely on immediate concerns; it consider both the long range (where the community wants to be headed) and the short to medium range (actions to get there).

- *Core group.* A core group is needed to bring continuity to the process, get its work done, and serve as ambassadors to the community. If the core group is

made up partly of local citizens who have not had local leadership roles before, it will also build community capacity to tackle other issues.

- *Outreach.* Two-way communication with the broader community is needed at key points (when goals are being established, and again when options are being assessed), to keep community members informed, get their feedback, and develop community understanding of and support for the process and its outcomes.

- *Early basic information.* People need some basic information before they participate in exercises to identify their values and set goals. Values aren't always fully fleshed out; often, they are constructed based upon what we learn. Even if people have lived in a community for years, they may need to learn about aspects of it that don't touch their daily lives.

- *Local resources.* A visioning and planning process should be designed to take advantage of the community's particular resources (local leaders, agencies, and non-profit organizations, as well as other sources of assistance, such as colleges and universities).

- *Computer-based tools.* They offer promise, but they are only aids; they should not be substitutes for community involvement or good judgment. In addition, the more sophisticated tools may, for the time being, be viable only for a few communities, until they become less expensive and more user-friendly.

- *Indicators.* They are a popular, low-tech means to bring structure to a visioning and planning process and its follow-up work, monitoring. They also can be good communication tools and can help to fire up the community by giving tangible meaning to abstract goals. However, they are not easy to choose (and the wrong ones can be misleading); it may be difficult to get the required data; and it also may be difficult to sustain momentum to monitor indicators over time.

A 12-Step Sequence

With these key messages in mind, we suggest below a basic, 12-step sequence for a visioning and planning process. At each step, there are choices to be made. Information on these choices has been given in the preceding chapters, especially Chapter 3. These choices cannot be made out of context; they should be made by the community, taking into account its own particular make-up.

VISIONING AND PLANNING: A BASIC 12-STEP SEQUENCE

1. Form a core group.
2. Distill basic information.
3. Consult with community members on their visions for the community.
4. Hold a visioning retreat.
5. Gather further information; lay plans for later monitoring.
6. Do forecasting.
7. Boil down information.
8. Develop options.
9. Assess and refine options.
10. Consult with community members on the options.
11. Finalize the options and monitoring plan.
12. Officially approve the plan.

Form a core group.

Form a core group, such as a committee or task force, to lead the process. Initial activities of the group may include setting the time horizon for the visioning and planning activity (e.g., 10 or 20 years), sketching out the process, establishing the ground rules under which it will operate, and identifying information to be gathered in Step 2, as well as possible computer-based tools to aid later steps in the process.

Step 1 is crucial, and factors to consider in choosing the core group could take up a whole report in itself. For guidance, check some of the resources shown in Chapter 7 (including a September 1993 report, *Stakeholder Involvement*, by English et al.). See also Chapter 3's section, "Identifying Values and Setting Goals," for a discussion of committees and task forces.

The members of the core group should be instructed to think of themselves, not mainly as representatives of special interests, but as "trustees" for the community. The group may include agency staff as well as citizens, but they should operate as equals. To help foster a climate of equality, the chair (if the group has one) perhaps should be a private citizen, not an elected or administrative official, or a private citizen might serve as co-chair with a local official.

Distill basic information.

Gather and distill basic information about the community. This might be pulled together as a "community profile," and it might be compiled solely by staff or also by the core group. See Chapter 3's section, "Gathering, Integrating, and Forecasting Information," for information on community profiles, indicators, and geographic information systems. See also Chapters 4 and 5 for information on, respectively, computer-based tools and indicators, and Appendices A-D for data sources.

Consult with community members on their visions for the community.

Communicate the results of Steps 1 and 2 to the community's members, and then consult with them about their values concerning the community and its future (particularly its environmental, social, and economic dimensions). During this step, such techniques as surveys (including visual preference surveys), public forums (or meetings and workshops), and public access cable TV programs might be used. See Chapter 3's section, "Identifying Values and Setting Goals," for information on these techniques. See Appendix E for a list of sources of facilitation assistance.

Hold a visioning retreat.

Hold a "visioning retreat" over a single evening, a weekend, or several closely-spaced meetings. This might be led by the core group (perhaps with an outside facilitator—see Appendix E), and perhaps augmented with other community leaders. At the retreat, the results of Step 3 should be taken into account, and techniques such as scenario-building might be used to help develop a vision statement with goals. See Chapter 3's section, "Identifying Values and Setting Goals" for information on such techniques.

Identify and gather further information; lay plans for later monitoring.

Select indicators, if they are to be used, and identify their data sources and other information to be gathered; then get this information. While the core group would initiate this step and decide how information should be gathered and integrated, the actual work might be carried out by others (e.g., outside experts, a research committee, community mapping teams, Key Performance Area task forces). See Chapter 3's section, "Gathering, Integrating, and Forecasting Information," for information on these techniques. See also Chapter 5 for information on indicators and Appendices A-D for data sources.

During this step, the use of a computer-based tool to integrate information and assist in Steps 6 through 9 might be considered, if it wasn't considered already in Step 1. See Chapter 4 for information on computer-based tools.

During this step, the core group also should lay preliminary plans for later monitoring (e.g., using indicators or benchmarks), including considering who might do the monitoring (e.g., trustees, Key Performance Area task forces, agency staff, outside experts, stakeholders). See Chapter 3's section, "Monitoring Change," for information on these techniques, and Chapter 5 for information on indicators.

Do forecasting.

Forecast where the community is headed in terms of key factors (population, employment, land use, agriculture, wildlife habitat, transportation, education, public finances, etc.) over the planning time period. Short-range (e.g., five-year) as well as longer-range forecasts may be needed. This step might be carried out by the core group and/or others involved in Step 5. Formal, quantitative techniques such as trends extrapolation and models might be used, but they should be accompanied with more qualitative techniques based upon collective good judgment, such as making comparisons to other communities, conducting intention and expectation surveys, and preparing forecasting scenarios. See Chapter 3's section, "Gathering, Integrating, and Forecasting Information," for information on these techniques.

Boil down information.

Distill the information and predictions from Steps 5 and 6 into understandable, easily communicated messages. Communicate large patterns, not minutiae; let people know where they can get more detailed information. This step might be done by staff, outside help, or the core group. See Chapter 3's section, "Gathering, Integrating, and Forecasting Information"; see also Chapter 5 for information on indicators.

Develop options.

Brainstorm on options, taking into account the results of the preceding steps. This might be done through a charette with the core group and staff, or it might be done within Key Performance Area task forces and then integrated by the core group. See Chapter 3's section, "Developing and Assessing Options," for information on these techniques.

Assess and refine options.

Narrow, assess, and refine the options. This activity should be done by the core group, using techniques such as a decision matrix, charting the options' pros and cons, the Delphi technique, or indicators as assessment tools. See Chapter 3's section, "Developing and Assessing Options," for information on these techniques; see also Chapter 5 for information on indicators.

Consult with community members on the options.

Present the refined options to the community for feedback, using techniques similar to those used in Step 3. This step should be led by the core group, assisted by staff.

Finalize the options plan, with the accompanying monitoring plan.

Select the final options to be put together as the plan, and refine and finalize the plans for monitoring begun in Step 5. This activity should be led by the core group, with staff or outside assistance in preparing the plan. The accompanying monitoring plan should have the input of those who did the information gathering and prediction in Steps 5 and 6. See Chapter 3's section, "Monitoring Change," for a discussion of various monitoring techniques; see also Chapter 5 for a more detailed discussion of indicators.

Officially approve the plan.

At last . . . the plan is reviewed and approved (one hopes!) by the local planning commission and decision-making body, with the required public hearings. They also may want to use a non-binding referendum to get formal input on the plan, or key aspects of it. If they do so, however, they should be sure that the plan has been very well-publicized. See Chapter 3's section, "Making Decisions," for a discussion of this crucial step.

Others Things to Remember

. . . The process does not stop with these 12 steps, of course. First, the plan must be turned into actions with *implementation strategies*. (Strategies may have been discussed beginning at Step 8.) Second, ongoing monitoring of both incremental change and major events should be conducted. Despite the best effort to predict and guide its future, every community is subject to unexpected forces for change. And third, every community should anticipate that its visioning and planning process will need to be revisited. To stretch community tolerance for this activity, small-scale, interim visioning and planning efforts can be conducted between larger-scale efforts.

During the process, one important corollary activity not mentioned above is *evaluation*. At key steps in the process (especially Steps 3, 4, 8, 9, and 10), those guiding it can learn from participants about whether it is going well. This can help them improve later steps in the process; it also can be instructive for other, similar efforts within the community and for other communities.

In Step 1, when the core group is formed, a useful activity might be to discuss the group's expectations of the process—in effect, setting standards for later evaluations. Expectations should not be set too high, as the following box illustrates, but making expectations explicit helps let the group know when it is straying off course.

Measures of success used by the Tennessee Forest Management Advisory Panel:

- Ideal
  Total agreement on all findings and recommendations
  No minority position reports
  Recommendations filed [by pre-established early deadline]

- Successful
  Differences of opinion and judgment clearly understood and well-defined
  Agreement on most recommendations
  Minority position reports clarify differences and provide informed guidance
  Recommendations filed [within extended, reasonable deadline]

- Unsuccessful
  No significant agreement
  Failure to clarify and define differences
  Numerous minority position reports that lack substantive guidance
  Failure to meet report deadlines

Source: Tennessee Forest Management Advisory Panel established under Senate Joint Resolution 230

As this box suggests, a process may fall somewhat short of the ideal and still be successful, or it may fall woefully short and be a flop.

The success of a smart growth visioning and planning process will, in the final analysis, be determined mainly by its tangible, on-the-ground outcomes: Is the community's environmental, social, and economic well-being improved as a result? Is the community on a sustainable path? But it will also be determined by whether the process helps build a stronger, more resilient and cohesive community. As noted in the Preface, communities aren't just places; they are social phenomena that must be nurtured. A good visioning and planning process can help nurture the social community, even as it makes the physical community a more sustainable, enjoyable place to live.

WHITE HOUSE

The White House in Tennessee predates the White House in Washington, D.C. Around 1796, a two-story house painted white was built about 30 miles north of Nashville, up on the Highland Rim along the pike to Louisville, Kentucky. The house, which became a stage coach inn, was referred to informally as "the white house," and for more than a century, the town that grew up around the inn also was called "The White House." Around 1950, it dropped the article and became White House.

White House, for most of its life, was a small but thriving community of farms and local businesses. In 1971, when the city incorporated, its population was 574. (It previously had incorporated twice but both times had dissolved its incorporated status after a few years.) With the advent of Interstate 65, White House began to grow. By 1980 its population was 2,225; by 1997, it was 5,594. Most of this growth has occurred in the 1990s.

White House straddles the boundary between Robertson and Sumner counties, which are part of the eight-county Nashville Metropolitan Statistical Area — a rapidly growing part of Tennessee. White House's annual growth rate since 1990 has averaged 15 percent, making it one of the fastest growing cities in this region. Much of its growth has come from middle-income families, many with young children, who previously lived in Nashville and, while retaining their jobs in the city, have sought a quieter, safer, more rural place to live. Interstate 840, which — if plans go through — will connect Interstate 40 east of Nashville with Interstate 65 just north of White House, is likely to spur even greater growth.

Shortly after the city incorporated in 1971, the city enacted a zoning ordinance and adopted subdivision controls as well as a comprehensive plan. In the late 1980s, a process called "Vision 2000" was undertaken, but with limited public input and with an emphasis on strategic planning within the city's departments. In the early 1990s, the city hired its first Planning and Codes Director, Larry Allen, who had worked as a planner in the greater Nashville area for a number of years. (Until then, the city had relied upon the Local Planning Assistance Office within the TN Department of Economic and Community Development's Middle Tennessee Regional Office.)

In 1995, concern about the effects of rapid growth on city services prompted an impact fee study prepared for White House by James Duncan and Associates, which in turn led to the November 1995 adoption of an impact fee structure covering new residential, commercial, and industrial development. Resulting revenue may be used for such capital projects as road, drainage, lighting, fire and police protection, and recreation improvements related to new development. And in 1996, spurred by concern that the city's growth not impair its small-town character, White House embarked upon a comprehensive planning process, using a planning horizon of 2020 and an intensive, citizen-based approach.

The 1996-97 comprehensive planning process was orchestrated by Larry Allen with the help of a Nashville-based consulting firm, RM Plan Group, using a citizens task force as the focal point. The process was first suggested by one of White House's aldermen and had the backing of its long-standing mayor, Billy Hobbs. (Hobbs has lived in White House for 40 years — he came to the city as its high school principal — and has been mayor for all but 5 years since the city was incorporated 27 years ago.) The process also had the support of other elected and administrative officials, including the city's planning commission, but the intent was to make it non-political. In other words, private citizens, not city officials or representatives of special interests, were to serve on the task force.

Using such means as newspaper ads, together with some arm-twisting, White House citizens were encouraged to apply to serve on the task force. The main objective was to have representation from each neighborhood. In all, 25 members were selected by Larry Allen in consultation with Billy Hobbs. While geographic diversity was the sole criterion, the task force had a mix of ages, men and women, and professions. Of the initial membership, approximately half remained committed throughout the process.

The process began in September 1996 and was completed in July 1997. It included a newspaper survey conducted mid-way through the process and periodic public meetings (about a half-dozen in all). Nevertheless, the main work was done by the citizens task force in conjunction with the planning director and Al Raby, the consultant from RM Plan Group. The task force chose to have no chair, although it did select a spokesperson to report on the proposed plan at the conclusion of the process. The task force met once or twice per month, with each meeting lasting two to three hours. All meetings were open; a few non-members attended occasionally, including, at times, local officials. The meetings entailed an iterative effort to develop and refine the comprehensive plan concepts and translate them into land use scenarios. The consultant would supply information, pose "what if" questions, record task force members' suggestions, and then follow up at succeeding meetings with design alternatives that translated their suggestions into mapped land uses.

The consultant's work was facilitated by photodigital maps owned by the White House Utility District which, for a $6000 fee, were transferred to the consultant and used to generate land use maps. The total cost of the process was approximately $40,000. This sum was mainly spent on consultant fees; it does not include staff time and the unpaid but extensive time spent by the task force members.

The result of the task force process was a 49-page comprehensive plan prepared by the consultant for the task force and released for public review in June 1997. It included chapters on the planning background, growth determinants, development goals and objectives, existing and future land use, urban design, "mobility" (roadways, bike paths, and sidewalks), parks and open space, water and wastewater, and implementation (including zoning, development financing, and clustering to conserve land and minimize trips). It was concurred to by the planning commission and was then sent to the Board of Mayor and Aldermen, where it was adopted with no changes after a reading and public hearing.

The plan covered both White House's incorporated area (approximately 5,400 acres as of mid-1997) and the surrounding unincorporated area within its Planning Area (approximately 21,000 acres in 1997). As of 1997, 28 percent of the land in the total Planning Area was residential and 69 percent was agricultural or "farmstead." The values of the city as expressed through the planning process were strongly in favor of low-density single family housing, and the plan reflected these values: Of the total Planning Area (about 26,000 acres in all), most of it was allocated to low-density housing in the future land use plan. Agricultural and farmstead uses would be retained along the western border of the Planning Area; a strip near Interstate 65 would include light to medium industrial uses; and the town center would include multi-family residences, particularly for active retirees, as well as commercial activity. The plan also alluded to the need for new parks for the community and for neighborhoods as they develop, and it also referred to greenway improvements being considered under a separate city-led study.

Attendance at public meetings held during the course of the process varied from about 25 to over 100 people. Despite efforts to get people engaged in the process (for example, task force members went door-to-door surveying their neighbors' opinions), few people showed much interest until the plan became tangible. When it did, some last-minute concerns were raised, and some members of the public had difficulty understanding that the plan was conceptual and amendable rather than determinative.

Nevertheless, the plan was largely accepted as responsive to a vision shared by those who voiced their opinions during the planning process. So far, at the time of this writing (August 1998), the spirit of the plan apparently is being followed, although it has not led to changes in zoning or to implementation of some of its concepts, such as multi-family housing units in the town center and some clustered developments elsewhere. The impact fee structure is to be revisited within about five years; when the comprehensive plan is revisited will depend on growth rates and patterns, as well as on major triggers for land use change.

Observations:

- The citizens' task force approach built leadership in the community and made the process a grassroots effort, not something handed to the public by officials. Nevertheless, the task force make-up was criticized by some people (especially in retrospect) for having too many newcomers and too few people with long-standing roots in White House.

- The task force did not actively seek public input until well into its process, but when it did, it went to great lengths. The task force members found it difficult to get people to attend public meetings, however. When people finally did (especially when the proposed plan was being considered), the task force encountered "Why didn't we know about this?" objections from a few people.

- One task force member indicated that extensive early public input — e.g., through a kick-off survey and through well-publicized public meetings early in the process — would have been preferable.

- While the city officials accepted the plan, it remains to be seen whether they will adhere to it and will actively seek to implement its more controversial elements. On the one hand, city officials such as members of the planning commission and board of zoning appeals perhaps should have been more actively involved in the plan development to help build their allegiance to it. On the other hand, if they had been closely involved, the plan might have become a political document that would last only as long as the officials remain in office.

LOUDON COUNTY

Loudon County in east Tennessee is changing. The land was once used mainly for farming; people clustered in a few small, self-contained towns and villages. In 1990, the population was 31,255 and had increased only slightly over the prior decades. (In 1940, it was 19,838.) But by 1998, the population had grown to an estimated 38,001 — a 23 percent increase in 8 years. Rapid growth is expected to continue for the foreseeable future.

Much of the land in Loudon County remains open, used for pasture or crops with wooded hillsides and ravines. But because of increased use of Interstates 75 and 40, as well as improvements of other roads, northern Loudon County is now dotted with subdivisions and has become home to people working in Knox County and Oak Ridge. (Knox County, immediately to the northeast of Loudon County, is one of Tennessee's four most populous counties; the City of Oak Ridge is the site of a large U.S. Department of Energy (DOE) complex and related businesses.) Loudon County has attracted its own commercial and industrial development as well. In addition, with construction of the Tellico Dam by the Tennessee Valley Authority (TVA) and a subsequent upscale development (Tellico Village) on Tellico Lake, the county has begun to attract well-to-do retirees. According to 1997 figures, the median price of new housing in Loudon County was among the highest in the state.

In 1971, Loudon County enacted a zoning ordinance and established a plan for the county. This action, which was spearheaded by a local judge, was virtually unprecedented in rural east Tennessee, where people have championed private property rights over "government interference." It helped pave the way for a recent Loudon County initiative to prepare a growth management plan. In the early 1990s, Patrick Phillips, who had worked for the Knoxville Regional Office of the Tennessee Department of Economic and Community Development, was hired by Loudon County, becoming the first full-time director of the county's Office of Planning and Community Development. While a 1996 proposal to adopt a development impact fee requirement did not succeed, the county officials did agree to a growth management planning process.

There are five incorporated municipalities in Loudon County: Greenback, Lenoir City, Loudon Town, Philadelphia, and Farragut (which straddles the Loudon/Knox border but is mainly located in Knox County). The growth management planning process has included all of these places as well as the unincorporated areas of the county. In conducting the process, Pat Phillips has been assisted by several contractors: Barge, Waggoner, Sumner and Cannon, Inc. (BWSC) (planning consultation), Wilbur Smith Associates (transportation engineering), and McCarty Holsaple McCarty (architectural consultation). In its early days, the process also was aided by staff from TVA's Quality Communities Initiative and the "Futurescapes" program of the East Tennessee Community Design Center. (For a description of these two programs, see Chapter 7.) Costs are expected to total approximately $205,000, of which $20,000 was provided by TVA and $70,000 by the Community Reuse Organization of East Tennessee (CROET, an organization which has received funds from DOE to promote regional reindustrialization in the wake of DOE down-sizing). The remainder has been covered by local utilities and by the county and municipal governments.

The process was kicked off in the fall of 1996 with a visioning retreat conducted by TVA's Quality Communities Initiative at the request of the county's Chamber of Commerce. At the retreat, more than 50 county leaders discussed their images for the county's future. As a result, it became clear that planning and land use were an important priority. The process began in earnest in the summer of 1997 with a survey using the paid services of the University of Tennessee's Social Science Research Institute. This survey was sent to 800 randomly selected registered voters in the county; 400 people responded. The survey asked people to rate the overall quality of life in their community, specific aspects of their quality of life, services they received, possible problems in their community, possible goals for the county, and preferences regarding economic growth, job recruitment, and types of housing. The survey laid the groundwork for community visioning meetings conducted in fall 1997.

For the visioning phase, the county was divided into eight sections based on community clusters, with one community meeting held in each section. The meetings were widely advertised in newspapers and through flyers, posters, and radio and television announcements. The meetings each attracted from 25 to 75 people, including, in several cases, one or more members of the county's planning commission. The meetings were held in the early evening with snacks; they were arranged and facilitated by BWSC staff and subcontractors, with Pat Phillips on hand to answer questions. At each meeting, a visual preference survey was conducted. The session then turned to seeking participants' responses to five questions, each focused on the particular community rather than on the county as a whole:

(1) current or prospective land use and development issues,
(2) extent of industrial and retail development that should be sought,
(3) key scenic and natural features of the landscape that should be preserved,
(4) the character of the community and whether it should change, and
(5) ideas about how to preserve scenic beauty and the natural environment while also having sustainable development.

Participant comments were recorded onto flipcharts and the pages were posted on the wall. At the end of each meeting, each participant received five adhesive dots and was asked to "vote" by placing the dots next to the issue(s) they found to be most important. In March 1998, the *Loudon County Growth Management Plan: Visioning Report* was released after having been reviewed and approved by the county planning commission.

By intention, the visioning stage was conducted without providing background information to participants. During the fall and into 1998, information was assembled by BWSC based upon data and other sources obtained through Pat Phillips. Altogether, six maps were created covering the following topics: existing land uses, utilities and cultural features, surface hydrology (mainly wetlands), soils and forest types, terrain gradients, and traffic counts. In most cases, standard information sources were used for these maps. The traffic count maps included counts conducted by the Tennessee Department of Transportation and the Transportation Center at the University of Tennessee, Knoxville. According to Pat Phillips, a geographic information system (GIS) instituted by Loudon County in 1995 was among the first county-based systems in the state and was critical to the process.

These maps, together with the vision report for the county as a whole and its eight sections, were used as the basis for a charette in which the planning staff, including the consultants, brainstormed on options. For each section, they developed three sets of options displayed as future land use maps, accompanied with narratives: (1) a "vision plan" that translated into land uses the community's aspirations voiced in the summer 1997 survey and the fall 1997 community meetings, (2) an "economic plan" that translated into land uses what would happen with uncontrolled development, and (3) a "balance plan" that sought to take both economic and other physical factors into account but retain the spirit of the visions expressed. These maps and narratives and the supporting informational maps were displayed at open houses held in three locations around the county in July 1998. Each open house was held on a weekday from 3 p.m. to 8 p.m. At each one, nearby sections of the county were covered, but none displayed all eight sections or the county as a whole. The planning team, however, considered the "fit" of the sections in developing the options. At the open houses, planning staff and consultants were on hand to guide people through the maps, and people were asked to provide written comments on which future land use plan they preferred.

At the time of this writing in August 1998, the reactions to the options displayed at the open houses have not been distilled, nor is there a count of the number of people who attended. The intent is to have a third phase addressing the final plan and implementation measures (such as transferable development rights, public acquisition of conservation easements, design criteria, and capital improvement priorities) in fall 1998. Pat Phillips has said that, like other Tennessee counties, Loudon County will have to establish a coordinating committee pursuant to the May 1998 growth policy law. (For a summary of this legislation, see Chapter 1.) However, he hopes that the work to date will expedite the work of the coordinating committee.

Observations:

- Loudon County's process has not been cheap, and special resources have been at its disposal: the CROET funds as well as TVA, the East Tennessee Community Design Center, and the University of Tennessee, Knoxville. But the stakes are high: The county is in a period of rapid change and is laying the groundwork for guiding development and its infrastructure improvements for the next 20 years.

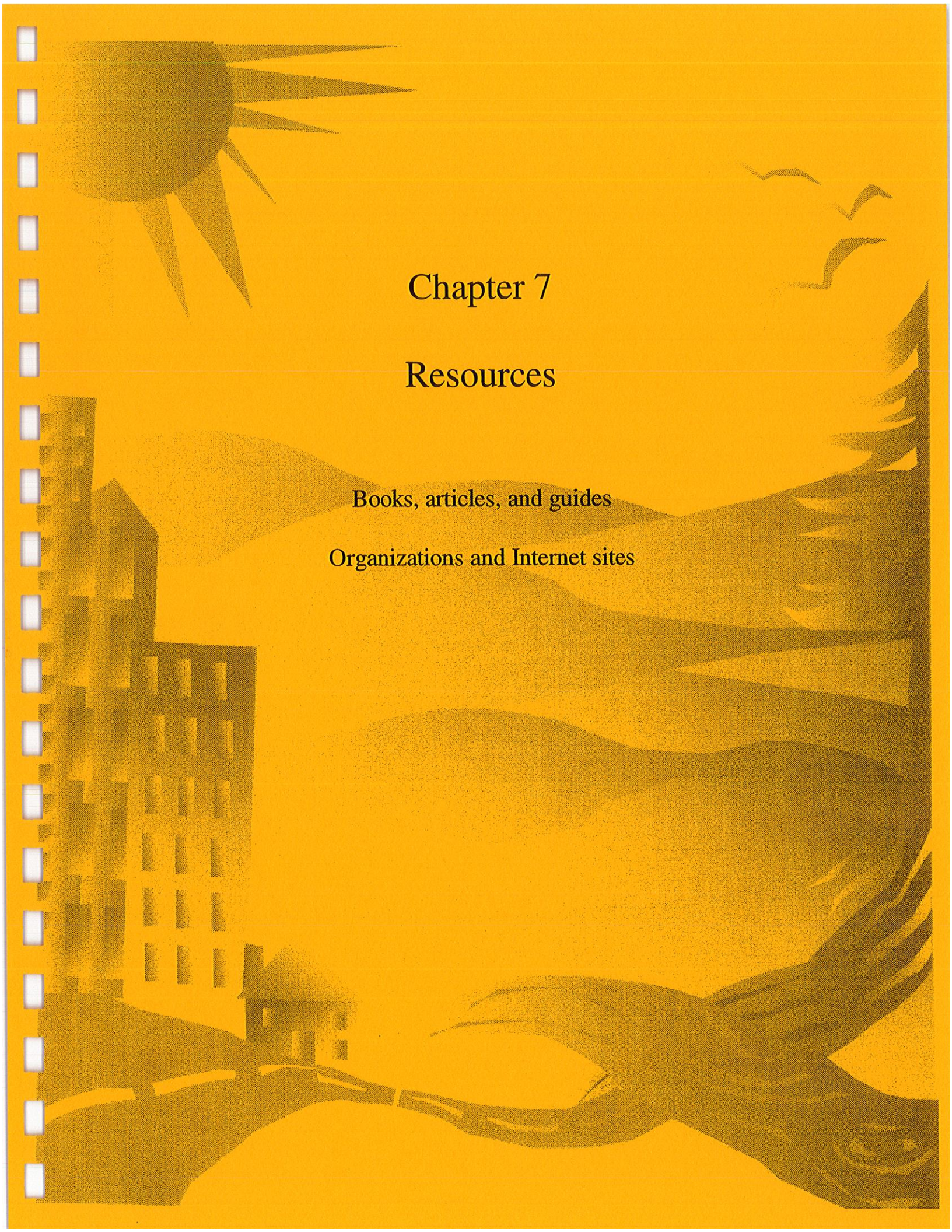
- Despite a great deal of effort to attract participants, especially to the fall 1997 visioning workshops, the turnout has been somewhat sparse. As one member of the planning team commented, "Getting public input is the most difficult part of this."

- Those who did come out displayed a lot of unanimity: Most wanted Loudon County to stay the way it is. It remains to be seen whether this common vision can be translated into land use implementation measures that will be acceptable to the planning commission and the county commissioners. The early and continued involvement of planning commission members should help.

- The absence of background information during the visioning phase was intentional: Participants were to say what they wanted Loudon County to *become*. But it may have contributed to some participants' difficulty in making their visions specific by giving tangible examples of what they did and didn't want.

- After the visioning phase, only professional planners were involved in gathering information and developing options. In deciding to go with this more traditional approach, the process was probably expedited, but perhaps at the expense of building community leadership and buy-in to the options developed.

- A formal participant evaluation explicitly inviting comment on the process has not been conducted at each stage. Both Loudon County and others following in its footsteps could learn from its mistakes and successes.



Chapter 7

Resources

Books, articles, and guides

Organizations and Internet sites

Chapter 7 is not intended to serve as a list of works cited, nor is it an exhaustive bibliography. Instead, these publications, organizations, and Internet sites have been useful to us in preparing this guide. These resources may be useful to others as well, as they embark upon smart growth visioning and planning processes: Every community, urban or rural, can benefit from knowing what is happening elsewhere and what processes have been attempted.

The first section contains a list of *books, articles, and guides*. Most of the books and articles are readily available at a city or regional library. The guides have step-by-step explanations of different process and implementation techniques. Many of these publications were authored by an organization listed (with contact information) in the second section of this chapter.

In the second section, *organizations and Internet sites* are listed. A number of these organizations can provide technical assistance. Moreover, a number of publications can be found on the Internet, together with a great deal of other information available at the click of the "mouse." This information is, for the most part, available through the Internet free of charge. Even if you do not have a home computer with Internet access, many public libraries today offer access to the Internet.

For *further resources*, see also the five appendices following Chapter 7. Appendices A-D list common sources of data; Appendix E lists possible sources of assistance in process facilitation.

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ORGANIZATIONS AND INTERNET SITES

American Farmland Trust
http://www.farmland.org
1920 N Street NW, Suite 400
Washington, DC 20036
(202) 659-5170
American Farmland Trust works to stop the loss of productive farmland and to promote sustainable farming practices.

American Planning Association
http://www.planning.org
122 S. Michigan Ave., Suite 1600
Chicago IL 60603
(312) 431-9100
A national organization, it has several divisions and publications, such as the *Planning Advisory Service* and *Journal of the American Planning Association.*

Growing Smart

The American Planning Association launched Growing Smart in 1994. Its long-term aim was to help states modernize existing statutes and change managers. There are three phases which result in two major products. Phase I focuses on state and regional planning and the relationships occurring between these entities. Phase II will result in model local planning legislation. Phase III provides communities with model implementation tools to manage change. The two major publications include a *Legislation Guidebook* and a set of working papers titled, *Modernizing State Planning Statutes: The Growing Smart Working Papers.*

Source: *http://www.planning.org/plnginfo/growsmar/gsindex.html*

Cascade Neighborhood Sustainable Community Profile
http://weber.u.washington.edu/~common/cases/case2.html#summary
Cascade Neighborhood Council
1215 Thomas Street
Seattle, WA, 98109
(206) 624-0692
The Cascade Community Profile looks at a variety of concerns. The profile was the result of collaboration at the University of Washington College of Architecture and Urban Planning and the UW Center for Sustainable Communities.

Center for Livable Communities
http://www.lgc.org/clc
Local Government Commission

1414 K Street, Suite 250
Sacramento, CA 95814
(800) 290-8202
The Center for Livable Communities helps local governments and community leaders in their land use and transportation planning and in adopting programs and policies that lead to more livable and resource-efficient land patterns.

Center for Excellence for Sustainable Development
http://www.sustainable.doe.gov
U.S. Department of Energy
Office of Energy Efficiency and Renewable Energy
Denver Regional Support Office
1617 Cole Boulevard
Golden, CO 80401
(800) 363-3732
This site provides a wide array of sustainable development information, including a toolkit to learn, plan, and implement sustainable development. This toolkit is located at *http://www.sustainable.doe.gov/toolkit/toolkit.htm.*

Center for Sustainable Communities Bibliography
http://www.weber.u.washington.edu/~common/library/bib.html
This is an extensive bibliography maintained by the University of Washington.

CITYgreen
http://www.amfor.org/ufc/cgreen/cgad.html
American Forests
POB 2000
Washington, DC 20013
(202) 955-4500 ext. 227 or (800) 368-5748
CITYgreen is a software package for mapping urban ecology and measuring the economic benefits of trees, soils and other natural resources.

Cyburbia: Planning and Architecture Internet Resource Center
http://www.cyburbia.org
This site is managed through the School of Architecture and Planning at the State University of New York, Buffalo. It provides Internet resources for the built environment, covering the topics of planning, architecture, urbanism, and others.

East Tennessee Community Design Center
1522 Highland Ave
Knoxville, TN 37916
(423) 525-9945

FutureScapes Program

The FutureScapes Program began in the early 1990s, with East Tennessee Community Design Center volunteers and staff working in conjunction with the Tennessee Valley Authority. The concept behind the program is to find a balance between environmental protection and economic development by working with the natural environment -- a concept that echoes the thinking of landscape architect Ian McHarg (*Design with Nature*, 1969) and has been promoted by Robert Yaro, who directed the Center for Rural Massachusetts at the time he consulted with the Community Design Center.

The FutureScapes program has undertaken demonstration projects in a few communities such as Pittman Center and Loudon County. It accepts projects on a limited basis only. Their approach emphasizes a participatory process and planning goals driven by the values of the community members. A report on the FutureScape project for Pittman Center can be purchased from the Community Design Center. To reach the Center, call (423) 525-9945. An Internet site is expected to be online shortly.

Electronic Tools for Community Sustainability
http://www.cpcug.org/user/dcf
This web page provides introductory information about a number of different electronic tools useful to community sustainability.

E Source
http://www.esource.com
E Source provides computer links to Internet sites concerning energy end-use technologies, related applications, and market issues.

Foundation for Global Sustainability
http://korrnet.org/fgs
P.O. Box 1101
Knoxville, Tennessee 37901-1101
(423) 524-4771
This site highlights East Tennessee issues regarding sustainability. Emphasis is placed on the individual's role in making a difference.

Geographic Information System Web Sites
http://gisdasc.kgs.ukans.edu/dasc/gis_sites.html
This site has links to several GIS-related software systems.

Green Communities
http://www.epa.gov/region03/greenkit/index.html
Green Communities is a term popularized by the United States Environmental Protection Agency. These communities integrate characteristics of a healthy environment, a growing economy, and a high quality of life.

Indicators of Sustainability Homepage
http://www.subjectmatters.com/indicators/HTMLSrc/Indicators.html
Internet site maintained by Maureen Hart through the Lowell Center for Sustainable Production, University of Massachusetts.

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 in an independent, nonprofit organization that develops local leadership and public policies for rural communities.

HUD 2020 Community Planning Software Tool
http://www.hud.gov/cpd/c2020sft.html
Community 2020 is a GIS-based software product developed for the United States Department of Housing and Urban Development.

Joint Center for Sustainable Communities
http://www.usmayors.org/USCM/sustainable
National Association of Counties
Jerry McNeil, Director Community Services Division
(202) 942-4237
This center promotes the roles that local officials must play in building sustainable communities.

Land View III for Windows
http://www.epa.gov/swerosps/bf/lvinfo.htm
U.S. Census Bureau CMS (921)
POB 277943
Atlanta, GA 30384-7943
Developed by the U.S. EPA and the U.S. Census Bureau, it uses geographic and demographic information together with environmental databases.

Lincoln Institute of Land Policy
http://www.lincolninst.edu
113 Brattle Street
Cambridge, MA 02138-3400
(800) 526-3873
The Lincoln Institute of Land Policy is a nonprofit educational institution established in 1974. The Institute's goals are to integrate the theory and practice of land use and taxation and to understand the multidisciplinary forces that influence them.

National Civic League
http://www.ncl.org/ncl
1445 Market Street, Suite 300
Denver, CO 80282-1717
(303) 571-4343
The NCL promotes the principles of collaborative problem-solving and consensus-based decision making through research and an awards program. The Internet site hosts information about NCL's current programs, publications and membership.

The Nature Conservancy
http://www.tnc.org
Center for Compatible Economic Development
7 E Market Street
Leesburg, VA 22075
(703) 779-1728
The Nature Conservancy preserves habitats and species by buying the lands and waters. It is the largest private company of its kind.

PICCED (Pratt Institute Center for Community and Environmental Development)
http://www.picced.org/techast/index.htm
Steuben Hall, 379 DeKalb Ave, 2nd FL
Brooklyn, NY 11205
(718) 636-3486
PICCED provides technical assistance in the areas of architecture and planning to community-based non-profits to build and sustain the economic, social and physical infrastructure of their communities.

President's Council on Sustainable Development
http://www.whitehouse.gov/PCSD
730 Jackson Place, NW
Washington, DC 20503
(202) 408-5296 For reports, call (800) 363-3732
The President's Council on Sustainable Development (PCSD) was established by President Clinton in June 1993 to advise him on sustainable development and develop approaches to achieve economic, environmental, and equity goals.

Regional Rural Development Centers
http://www.nal.usda.gov/ric/ruralres/regional.htm
This U.S. Department of Agriculture site accesses the sites of the four regional rural development centers in the United States (North Central, Northeast, Southern, and Western), as well as the Rural Information Center and the Rural Information Resources sites.

Renew America
http://solstice.crest.org/environment/renew_america
1200 18th Street, NW, Suite 1100
Washington, D.C. 20036
(202) 721-1545
Renew America is a non-profit organization founded in 1989. It is a network of community and environmental groups, businesses, government leaders and civic activists that was founded to exchange ideas about the environment.

Rocky Mountain Institute
http://www.rmi.org
1739 Snowmass Creek Road
Snowmass, CO 81654-9199
RMI promotes energy efficient and sustainable use technologies for communities and businesses.

Rural Development Action Team Home Page
http://www.rurdev.usda.gov/redat/index.html
The Rural Economic Development Action Team (REDAT) was created to promote interagency partnerships within the U.S. Department of Agriculture to enhance the effectiveness of USDA rural development actions.

Rural Economic Development and Community Resources
http://www.nal.usda.gov/ric/ruralres/economic.htm
Listing of links to related topics in the fields of economic development and rural communities.

Rural Information Center
http://www.nal.usda.gov/ric/ricpage.htm
(800) 633-7701
The U.S. Department of Agriculture's Rural Information Center, RIC, provides information and referral services to those working with and for rural communities and rural community groups and individuals.

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 forum for assisting smart growth practices across the United States. Includes a bibliography of fiscal, economic, environmental, and social impact methodologies and models.

Solstice: Sustainable Energy and Development Online
http://solstice.crest.org
Solstice is the Internet information service of the Center for Renewable Energy and Sustainable Technology (CREST), and is a site for sustainable energy and development information.

Southern Appalachian Man and the Biosphere Cooperative
http://sunsite.utk.edu/samab
1314 Cherokee Orchard Rd
Gatlinburg, TN 37738
(423) 436-1701
SAMAB is a partnership of federal and state agencies that focuses on the Southern Appalachian Biosphere Reserve.

Southern Appalachian Assessment (SAA)

The Southern Appalachian Assessment (SSA) was released in July 1996. It provides county-by-county information for the SSA area, which includes *eastern Tennessee* as well as parts of West Virginia, Virginia, North Carolina, South Carolina, Georgia, and Alabama. The report consists of five volumes: a summary report and atmospheric, social/cultural/economic, terrestrial, and aquatic reports. The reports are available via the Internet (*http://www.fs.libs.uga.edu/toc.htm*) and in print. The set is also available on CD-ROM and is formatted for ARC/INFO. To view a description of the database contents, see *http://sunsite.utk.edu/neighborhoods/SAMAB/samab/data/data_intro.html*.

The SSA was prepared by federal agencies (the U.S. Department of Commerce, Environmental Protection Agency, Fish & Wildlife Service, Forest Service, Geological Service, and National Biological Service, with the Appalachian Regional Commission, Tennessee Valley Authority, and U.S. Department of Energy's Oak Ridge National Laboratory) and state agencies (the GA Department of Natural Resources, NC Department of Environment, Health, and Natural Resources, and TN Department of Environment and Conservation). It was coordinated by the Southern Appalachian Man and the Biosphere (SAMAB) Cooperative.

Southern Rural Development Center
http://ext.msstate.edu/srdc
Box 9656
Mississippi State, Mississippi 39762
(601) 325-3207
The Southern Rural Development Center (SRDC), one of the USDA's four Regional Rural Development Centers (see above), serves thirteen Southern states, Puerto Rico, and the Virgin Islands.

Spotlighting What Works: A Showcase of Community Planning Successes in the Field
http://www.hud.gov/cpd/blueribl.html
Spotlighting What Works, a bulletin that shares information three times each month about the professional practices of HUD field office staff, grantees, and nonprofit organizations.

Sustainable Chattanooga
http://www.chattanooga.net
Chattanooga Area Chamber of Commerce
1001 Market Street
Chattanooga, TN 37402
(423) 756-2121
This site has links to other resources, contact organizations, and descriptions of current programs being implemented in Chattanooga.

Sustainable Communities Information
http://www.cfn.cs.dal.ca/Environment/SCN/SCN_home.html
1657 Barrington St., Suite # 133
Halifax, Nova Scotia B3J 2A1
(902) 422-4276
Database of tools and resources on sustainable livelihoods and green economics

Sustainable Development Databases/Resources on the WWW
http://www.lib.utk.edu/samab/SDD.htm
This is not as extensive as other bibliographies but is still useful.

TIGER Map Service
http://tiger.census.gov/cgi-bin/mapsurfer
This U.S. Census Bureau site provides high-quality and detailed maps of the United States, using public geographic information.

Tennessee (State of)
http://www.state.tn.us
This is the official State of Tennessee Internet site. It has links to all the governmental departments and services available within the State of Tennessee.

Tennessee Association of Community Partnerships
http://www.tnacp.org
(615) 214-3076
The Association of Community Partnerships is a collaborating organization of Tennessee's community leaders, exploring and facilitating the use of partnering and information technology to enhance economic development in communities and statewide.

Tennessee Conservation League (Lucius Burch Center For Conservation Planning)
http://www.nashville.org/conservation.html
300 Orlando Avenue
Nashville, TN 37209
T: (615) 353-1133
F: (615) 353-0083
The TCL provides conservation education programs to encourage stewardship of Tennessee's natural resources.

Tennessee Conservation League -- Natural Resource Planning

The Tennessee Conservation League is a non-profit organization based in Nashville whose mission is to provide conservation education programs to encourage the responsible stewardship of Tennessee's natural resources. Recently, as one of its programs, the Tennessee Conservation League has 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. (See Appendix C.) Executive Director of the Tennessee Conservation League: Ann Murray, (615) 353-1133. *http://www.nashville.org/conservation.html*

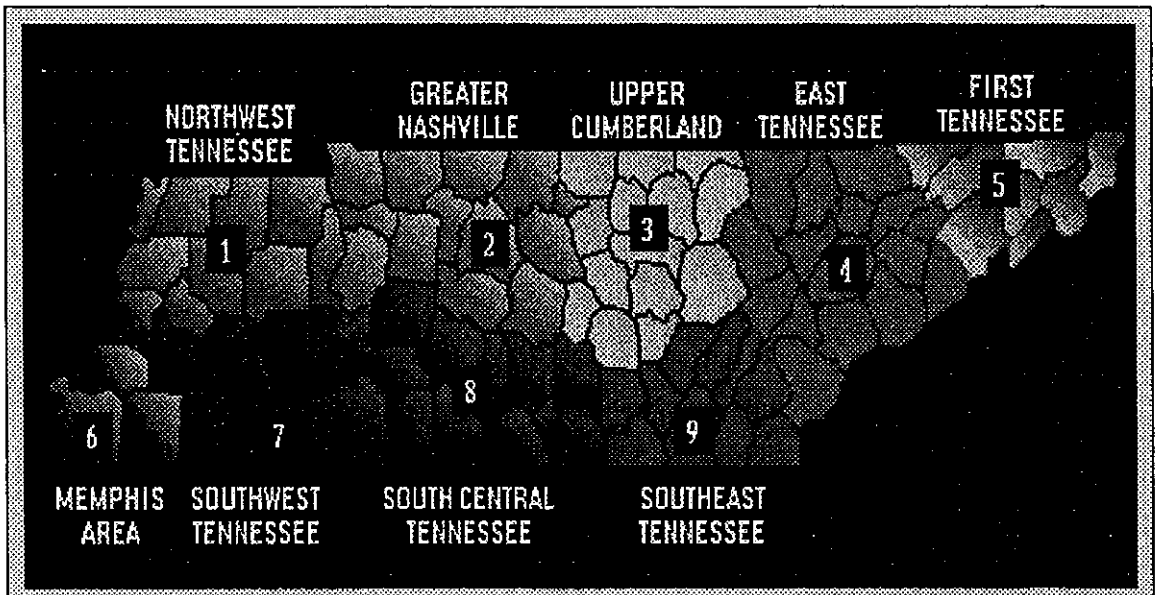
Tennessee Department of Economic and Community Development
http://www.state.tn.us/ecd
Rachel Jackson Building, 320 6th Avenue North
Nashville, TN 37243-0405
(615) 741-3282
(800) 342-8470
DECD assists existing firms and recruits new economic development, as well as assisting communities to capitalize on of economic development opportunities. Through its regional local planning assistance offices, it also provides land use regulation and planning assistance to municipalities and counties on a contract basis.

Tennessee Department of Environment and Conservation
http://www.state.tn.us/environment
21st FL, L & C Tower
401 Church Street
Nashville, TN 37243
(888) 891-8332
TDEC manages the state's park system and is responsible for the state's environmental regulation and facilities permitting.

Tennessee Department of Environment and Conservation
Environmental Assistance Centers

Environmental Assistance Centers (EACs) have been established to be a single point of entry to direct inquires to regional locations and to act as a clearinghouse for departmental information. For more information, see *http://www.state.tn.us/environment/oor/index.html* or call (888) 891-8332. The following is a listing of each of the state's EACs with their corresponding counties.

EAC	Counties
Memphis EAC Suite E-645 Perimeter Park 2510 Mount Moriah Road Memphis, TN 38115-1520 T: (901) 368-7939 F: (901) 368-7979	Shelby, Fayette, Tipton
Jackson EAC 362 Carriage House Drive Jackson, TN 38305 T: (901) 661-6200 F: (901) 661-6283	Lake, Obion, Weakley, Henry, Dyer, Gibson, Carroll, Benton, Lauderdale, Crockett, Haywood, Madison, Henderson, Decatur, Chester, Hardeman, McNairy, Hardin
Columbia EAC 2484 Park Plus Drive Columbia, TN 38401 T: (931) 380-3371 F: (931) 380-3397	Perry, Hickman, Maury, Marshall, Bedford, Coffee, Moore, Lewis, Wayne, Lawerence, Giles, Lincoln, Franklin
Nahville EAC 537 Brick Church Park Drive Nashville, TN 37243 T: (615) 226-6918 F: (615) 650-7301 *and* Nashville EAC-Joelton 300 Morgan Road Joelton, TN 37080 T: (615) 299-8451 F: (615) 299-8749	Stewart, Montgomery, Robertson, Sumner, Trousdale, Houston, Dickson, Cheatham, Humphreys, Williamson, Davidson, Williamson, Rutherford, Wilson
Cookeville EAC 1221 South Willow Avenue Cookeville, TN 38506 T: (931) 432-4015 F: (931) 432-6952	Macon, Clay, Pickett, Fentress, Jackson, Overton, Smith, Putnam, Dekalb, White, Cumberland, Cannon, Warren, VanBuren
Chattanooga EAC Suite 550 - State Office Building 540 McCallie Avenue Chattanooga, TN 37402 T: (423) 634-5745 F: (423) 634-6389	Grundy, Marion, Sequatchie, Hamilton, Bledsoe, Rhea, Meigs, McMinn, Bradley, Polk
Knoxville EAC Knox, Suite 200 - State Plaza 2700 Middlebrook Pike Knoxville, TN 37921 T: (423) 594-6035 F: (423) 594-6105	Scott, Campbell, Claiborne, Morgan, Anderson, Union, Grainger, Hamblen, Roane, Jefferson, Cocke, Loudon, Blount, Sevier, Monroe
Johnson City EAC 2305 Silverdale Road Johnson City, TN 37601 T: (423) 854-5400 F: (423) 854-5401	Hancock, Hawkins, Sullivan, Johnson, Greene, Washington, Carter, Unicoi



Development Districts — Regional Development Teams

Tennessee's system of development districts are voluntary associations of municipal and county governments divided into nine Tennessee regions (see map). Formed in the 1960s, they provide a forum for local governments to solve regional problems concerning economic development and growth. *http://www.state.tn.us/ecd/counties/developm.htm*

Within the past two years the development districts, working with the Tennessee Valley Authority, have established Regional Development Teams (RDTs). The teams are made up of experts who can assist communities and avoid duplication of effort. Typically, team members are agencies with region-wide responsibilities for providing technical assistance or funds to local communities for economic and community development. Each regional team has about 20 organizations. Each district has completed a RDT resource workbook that lists names, major services, and contact points for each agency. (DD=Development District)

East TN DD
5616 Kingston Pike
POB 19806
Knoxville, TN 37939-2806
(423) 584-8553

First TN DD
207 N Boone St, Suite 800
Johnson City, TN 38604-5626
(423) 928-0024

Greater Nashville Regional Council
501 Union St, 6th Floor
Nashville, TN 37219-1705
(615) 862-8826

Memphis Area Association of Governments
157 Poplar Room B150
Memphis, TN 38103-1948
(901) 576-4610

Northwest TN DD
124 Weldon St, POB 963
Martin, TN 38237-0963
(615) 587-4215

South Central TN DD
815 S Main St, POB 1346
Columbia, TN 38402-1346
(615) 381-2040

Southeast TN DD
POB 4757
Chattanooga, TN 37405-0757
(423) 266-5781

Southwest TN DD
27 Conrad Dr, Suite 150
Jackson, TN 38305-2850
(901) 669-7112

Upper Cumberland DD
1225 S Willow Avenue
Cookeville, TN 38506-4194
(615) 423-4111

TN Department of Economic and Community Development
Local Planning Assistance

The Tennessee Department of Economic and Community Development has a number of programs to help communities. (For a complete list of these programs, see the Department's Internet site -- *http://www.state.tn.us/ecd*) Among its programs is the Local Planning Assistance Program. Through its regional offices, the Department provides technical assistance to counties and municipalities on a contractual basis. (The Local Planning Assistance Office Internet site is *http://www.state.tn.ecd/locplan.htm*.)

Northeast Regional
POB 1022, Tri-City Airport Station
HYW 75
Blountville, TN 37617
(423) 323-1203

Knoxville Regional
Room 706, 531 Henley St
Knoxville, TN 37901
(423) 594-6074

Southeast Regional
State Office Bldg, Suite 690
540 McCallie Ave
Chatanooga, TN 37402
(423) 634-6376

Middle
6th Floor, Rachel Jackson Bldg
320 Sixth Ave N
Nashville, TN 37243- 0405
(615) 741-2373

Cookeville
621 E 15th St, Suite C
Cookeville, TN 38501-1820
(615) 528-8331

West
Lowell Thomas State Office Bldg
225 Martin Luther King Dr, Suite 401
Jackson, TN 38301
(901) 423-5765

Memphis Area
170 N Main St, Suite 1212
Memphis, TN 38103
(901) 543-7425

Tennessee Environmental Council
http://www.nol.com/tec.html
1700 Hayes Street Suite 101
Nashville, TN 37203
(615) 321-5075
TEC is a statewide environmental advocacy group, working on environmental policy on the state level. TEC has individual members and member organizations from across Tennessee.

Tennessee Smart Growth Coalition
President: Bill Miller, Manager of Environmental Affairs, Saturn Corporation
MD M-10, POB 1500
Spring Hill, TN 37174
(931) 486-7471

Tennessee Smart Growth Coalition

The Tennessee Smart Growth Coalition is a newly formed non-profit organization made up of a diverse group of individuals from business, industry, local and state government, environmental organizations, academia, agriculture, forestry, and so forth. The purpose of the coalition is to serve as a catalyst for the cooperative building of a sustainable future for Tennessee and its communities. The coalition has a board of directors led by its president, Bill Miller, Manager of Environmental Affairs, Saturn Corporation, MD M-10, P.O. Box 1500, Spring Hill, TN 37174, (931) 486-7471.

Tennessee Valley Authority
http://www.tva.gov
400 West Summit Hill Drive
Knoxville, Tennessee 37902
(423) 632-2101
The Tennessee Valley Authority, a federal corporation, is the nation's largest electric-power producer. It serves a seven-state region in the Southeast.

Tennessee Valley Authority -- Quality Communities Initiative

TVA's Quality Communities Initiative provides assistance to communities and regions (typically, non-urban counties) in undertaking processes to assess needs, evaluate trends, establish goals, outline recommended actions, and implement projects. The approach emphasizes building leadership and teamwork and combining "total quality improvement" principles with strategic planning. The focus is on economic development. The Quality Communities program is within TVA's economic development division, which is now funded by TVA's power supply side; it can only accept applicants within TVA's power service region.

The Quality Communities program has an extensive manual available in print and on CD-ROM. The manual describes the four phases of the Quality Communities process -- "Organize," "Plan," "Act," and "Grow" -- and includes suggestions and checklists. It also includes an extensive section on tools that can be used for team building, group decision making, meeting management, vision statements, problem solving, community meetings, and community action teams.

The Quality Communities Initiative holds an annual conference which, as of 1999, will be co-hosted with the U.S. Department of Agriculture's Rural Development program in Nashville. The Quality Communities Initiative is directed by Phil Scharre, a Community Development Specialist with TVA (423) 632-6394.

Tennessee Wildlife Resources Agency
http://www.state.tn.us/twra/genmain.html
POB 40747 Ellington Agricultural Center
Nashville, TN 37167
T: (615) 781-6643
F: (615) 781-6667
The TN Wildlife Resources Agency controls gaming licenses, boating activities, game quotas and numbers, and wildlife resources law enforcement.

United States Department of Agriculture
http://www.rurdev.usda.gov
14th & Independence Avenue SW
Washington, DC 20250
(202) 720- 2791
This site highlights topics relating to agriculture, and more generally, to a healthy and productive nation in harmony with the land (the USDA Vision).

United States Department of Housing and Urban Development
http://www.hud.gov
451 7th Street SW
Washington, D.C. 20410
HUD promotes fair and affordable housing and home ownership, decreasing homelessness, and jobs and economic opportunity.

United States Environmental Protection Agency
http://www.epa.gov
(800) 241-1754
The mission of the U.S. Environmental Protection Agency is to protect human health and to safeguard the natural environment.

University of Tennessee Center for Business and Economic Research
http://cber.bus.utk.edu/Default.htm
College of Business Administration
Glocker Building, Suite 100
Knoxville, Tennessee 37996-4170
(423) 974-5441
The mission of CBER is to produce and disseminate new information in the general area of economic research, and in the specific areas of economic development, regional economics and fiscal policy.

University of Tennessee Institute for Public Service
http://www.ips.utk.edu
The University of Tennessee, as a federally-designated land-grant institution, is assigned a three-fold mission of instruction, research, and public service with offices in Johnson City, Knoxville, Chattanooga, Cookeville, Nashville, Martin, Jackson, and Memphis.

UT Institute for Public Service

The University of Tennessee's Institute for Public Service includes several different agencies that provide service 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 (see description in Chapter 1), these units will, 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: (423) 974-0411; CGT phone number: (423) 974-9609.

The University of Tennessee Water Resources Research Center
http://eerc.ra.utk.edu/divisions/wrrc/default.html
Timothy Gangaware
University of Tennessee
Suite 311 Conference Center Building, 600 Henley Street
Knoxville, TN 37996-4134
T: (423) 974-2151
F: (423) 974-1838
The Water Resources Research Center is a federally-designated state research institute supported in part by the U.S. Geological Survey. It uses research experts in academia, government, and the private sector. The Center facilitates resource issues and serves as an information clearinghouse for federal, state, and local issues.

Urban Land Institute
http://www.uli.org
1025 Thomas Jefferson Street NW, Suite 500 W
Washington, DC 20007-5201
(800) 321-5011
The Urban Land Institute is a nonprofit education and research organization. Its mission is to provide responsible leadership in the use of land, especially developed land.

The W.K. Kellogg Collection of Rural Community Development Resources
http://www.unl.edu/kellogg
The Collection contains rural community development materials funded by the Kellogg Foundation and other selected sponsors of recognized rural programs.

Appendices

Appendix A
General Sources of Economic, Environmental, and Social Data

Appendix B
Sources of Economic Data

Appendix C
Sources of Environmental Data

Appendix D
Sources of Social Data

Appendix E
Sources of Civic Assistance

APPENDIX A

GENERAL SOURCES OF ECONOMIC, ENVIRONMENTAL, AND SOCIAL DATA

This appendix provides a list of the main sources of general data for the State of Tennessee. Also included in this appendix is a listing of the Federal Depository Libraries and regional data resource centers throughout the state. The data described in this appendix can be obtained using a variety of methods: the Internet, CD-ROM, and printed literature. For each data source, we describe: how to access the data, the level(s) for which the data were collected (e.g., state, county, municipality), the type of data, the date of the most recent data available, the frequency of the data collection, the date first collected, limitations concerning the data that might be useful to know, and contact information. The information in this appendix is organized under the following headings:

General Data Sources

Federal Depository Libraries and State Data Centers

General Data Sources

1990 Census Lookup contains the U.S. Bureau of the Census's 1990 data. It can be found at *http://venus.census.gov/cdrom/lookup* or *http://www.census.gov*. To access the data, we followed these procedures:

1. Select STF3A detailed geography - county, place, tract, etc.
2. Go to level state--county (*tracts and block groups)
3. Click on Tennessee
4. Submit
5. Retrieve the areas you've selected below
6. Choose county
7. Submit
8. Choose tables to retrieve (population, race breakdowns, etc.)
9. Submit
10. Select the tables you wish to retrieve
11. Submit
12. Choose a data retrieval option
13. Submit
14. Receive output

Previous Census data can be found in paper copies at HA201 (YEAR).A56 and at C3.223 (YEAR).

Source:	**U.S. Census**
How to access:	Internet, paper, CD-ROM
Level:	nation, region, state, county, municipality, metropolitan statistical area, urban, rural, minor civil division, tract, and block
Type of information:	housing, population, economic, agriculture, and social
Most recent data available:	1990, 1996 (sample data)
Frequency of collection:	10 years, 2 years (sample data)
Date first collected:	1790
Limitations:	need to understand the organization of the data
Contact:	Federal Depository Library *or* county or municipal library *or* Census State Data Centers: TN Department of Economic and Community Development 320 Sixth Avenue North 8th Floor Rachel Jackson Building Nashville, TN 37243-0405 (615) 741-2211 *and*

University of Tennessee-Knoxville
Center for Business and Economic Research
100 Glocker Business Building
Knoxville, TN 37996-4170
T: (423) 974-6080
F: (423) 974-3100

Source:	***Tennessee Statistical Abstracts*** (HA645.T4 1996/97)
How to access:	paper and LOTUS 1-2-3 diskettes (IBM compatible)
Level:	state and county
Type of information:	population, income and prices, employment and earnings, manufacturing, mining, construction and housing, trade and services, communication, transportation, energy, agriculture and forestry, climate, and use, recreation, banking and insurance, government organization and elections, government finances, education, health and vital statistics, public assistance and social insurance, law enforcement, and Tennessee rankings. Each table is referenced to a larger government agency.
Most recent data available:	1996/1997
Frequency of collection:	annual
Date first collected:	1969
Contact:	Federal Depository Library *or* Center for Business and Economic Research College of Business Administration 100 Glocker Business Administration Building University of Tennessee, Knoxville Knoxville, TN 37996-0570

Source:	**Census Bureau's Map Stats**
How to access:	Internet
Level:	state and county
Type of information:	general economic data, general census profiles, and maps also available
Most recent data available:	1996 (economic) and 1990 (census)
Frequency of collection:	5 years (economic) and 10 years (census)
Date first collected:	online from 1993
Limitations:	data broken down using Standardized Industry Codes
Contact:	*http://www.census.gov/datamap/www/index.html*

Source:	***County and City Data Book*** (HA202.A36 1994)
How to access:	paper and CD-ROM

Level:	state, county, and municipality
Type of information:	agriculture, banking, climate, crime, education, elections, federal funds and grants, government finances and employment, health, housing, journey to work, labor force and employment, land area, manufacturers, money income and poverty, personal income, population, retail and wholesale trade, service industries, vehicles available, veterans, and vital statistics. Each table is referenced to a larger government agency.
Most recent data available:	1994
Frequency of collection:	varies by topic (about 8-10 years)
Date first collected:	12th volume
Contact:	Federal Depository Library

Source:	***Statistical Abstracts of the United States*** (HA202 1997)
How to access:	paper
Level:	national, state, and local
Type of information:	population, vital statistics, health and nutrition, education, law enforcement, courts, prisons, geography and environment, parks, recreation, travel, elections, state and local government finances and employment, federal government finances and employment, national defense and veterans affairs, social insurance and human services, labor force, employment, earnings, income, expenditures, wealth, prices, banking, finance, insurance, business enterprise, communications, energy, science, transportation-land, transportation-air and water, agriculture, natural resources, construction and housing, manufacturers, domestic trade and services, foreign commerce and aid, outlying areas, comparative international statistics, and industrial outlook
Most recent data available:	1997
Frequency of collection:	annual
Date first collected:	1878
Limitations:	level of data varies with the type of information
Contact:	Federal Depository Library

Source:	***State and Metropolitan Area Data Book*** (HA203.S83 1991)
How to access:	paper and diskette (IBM compatible) and tape
Level:	national, state, municipality, and metropolitan statistical area
Type of information:	data from over 50 federal and private agencies, each table is referenced to a larger government agency

Most recent data available:	1991
Frequency of collection:	9 years
Date first collected:	1955
Contact:	Federal Depository Library

Source:	**U.S. Fact Sheets**
How to access:	Internet
Level:	state
Type of information:	population, employment, income, farm characteristics, and farm financial indicators
Most recent data available:	1998
Frequency of collection:	varies (about 5-10 years)
Date first collected:	varies, some from 1980
Limitations:	majority only broken down by metro or non-metro
Contact:	*http://www.econ.ag.gov/epubs/other/usfact* *or* Economic Research Service (202) 694-5700 x. 45543

Source:	**Tennessee Department of Economic and Community Development**
How to access:	Internet
Level:	state and county
Type of information:	demographics, climate, health care, taxes, education, transportation, employers, utilities, and industrial locations
Most recent data available:	1996 and estimates to 2010
Frequency of collection:	based on census data
Date first collected:	1990 (online)
Contact:	*http://www.state.tn.us/ecd/services.htm* *or* Department of Economic and Community Development Rachel Jackson Building 320 6th Avenue North Nashville, TN 37243-0405 (615) 741-3282 In Tennessee: 1-800-342-8470 Outside of Tennessee: 1-800-251-8594

Federal Depository Libraries and State Data Centers

Tennessee State Data Center

- Department of Economic and Community Development, 8th Floor, Rachel Jackson Building, 320 6th Avenue North, Nashville, TN 37219, (615) 741-1676
- Center for Business and Economic Research, Suite 100, Glocker Business Administration Building, The University of Tennessee, Knoxville, TN 37996-4170, (423) 974-6074

East Tennessee Data Resources

Federal Depository Libraries

- E. W. King Library, King College, Bristol, TN 37620, (423) 968-1187
- Sherrod Library, East Tennessee State University, P.O. Box 22450A, Johnson City, TN 37614-0002, (423) 929-4337
- Carson-Newman College Library, Russell Avenue, Jefferson City, TN 37760, (423) 475-9061
- Lawson-McGhee Public Library, 500 Church Street, SW, Knoxville, TN 37902-2505, (423) 544-5750
- The University of Tennessee Law Library, College of Law, 1505 W. Cumberland, Knoxville, TN 37996-1800, (423) 974-4381
- John C. Hodges Library, The University of Tennessee at Knoxville, Knoxville, TN 37996-1000, (423) 974-4127
- U.S. TVA Technical Library, 1101 Market Street, Chattanooga, TN 37402, (423) 751-4913
- Cleveland State Community College Library, P.O. Box 3570, Cleveland, TN 37320-3570, (423) 472-7141
- Chattanooga-Hamilton County Bicentennial Library, 1001 Broad Street, Chattanooga, TN 37402-2652, (423) 757-5310
- Jesse Ball DuPont Library, University of the South, Sewanee, TN 37375-4005, (615) 598-5931

Census Depository Library

- J. Fred Johnson Memorial Library, Broad and New Streets, Kingsport, TN 37660-4292, (423) 229-9465

State Data Center Affiliates

- First Tennessee-Virginia Development District, Suite 800, 207 North Boone Street, Johnson City, TN 37601, (423) 928-0224
- East Tennessee Development District, Westwood Building, 5616 Kingston Pike, P.O. Box 19806, Knoxville, TN 37939-2806, (423) 584-8553

State Data Center Affiliates (cont.)

- Southeast Tennessee Development District, 25 Cherokee Boulevard, P. O. Box 4757, Chattanooga, TN 37405-0757, (423) 266-5781
- Oak Ridge Public Library, Civic Center, Oak Ridge, TN 37830, (423) 483-6386
- Knoxville/Knox County Metropolitan Planning Commission, Suite 403, 400 Main Avenue, Knoxville, TN 37902-2476, (423) 215-2500
- Chattanooga-Hamilton County Regional Planning Commission, 100 East 11th Street, 200 City Hall Annex, Chattanooga, TN 37402, (423) 757-5216

Middle Tennessee Data Resources

Federal Depository Libraries

- University Library, Tennessee Technological University, P. O. Box 5066, Cookeville, TN 38505, (615) 372-3408
- Andrew L. Todd Library, Middle Tennessee State University, P. O. Box 13, Murfreesboro, TN 37132, (615) 898-2772
- Public Library of Nashville and Davidson County, 8th Avenue N. and Union, Nashville, TN 37203-3585, (615) 259-6004
- Fisk University Library, 17th Avenue N., Nashville, TN 37208-3051, (615) 329-8641
- Brown-Daniel Library, Tennessee State University, 3500 J. Merritt Blvd., Nashville, TN 37209-1561, (615) 320-3682
- Vanderbilt Law Library, College of Law, Nashville, TN 37240, (615) 322-2568
- Vanderbilt University Library, 419 21st Avenue S., Nashville, TN 37240-0007, (615) 322-7100
- Felix G. Woodward Library, Austin Peay State University, Clarksville, TN 37044, (615) 648-7618
- Tennessee State Library and Archives, State Library Division, 403 7th Avenue N., Nashville, TN 37219, (615) 741-2451
- John W. Finney Memorial Library, Columbia State Community College, P.O. Box 1315, Columbia, TN 38401, (615) 388-0120

State Data Center Affiliates

- Upper Cumberland Development District, 1225 South Willow Avenue, Cookeville, TN 38506-4194, (615) 432-4111
- Greater Nashville Regional Council, 6th Floor 501 Union Street, Nashville, TN 37219-1705, (615) 862-8828
- South Central Tennessee Development District, P.O. Box 1346, Columbia, TN 38402-1346, (615) 381-2040
- Department of Economic and Community Development, 8th Floor, Rachel Jackson Building, Nashville, TN 37243, (615) 741-1995

West Tennessee Data Resources

Federal Depository Libraries

- Paul Meek Library, The University of Tennessee at Martin, Martin, TN 38238-5047, (901) 587-7060
- Luther L. Gobbel Library, Lambuth College, Lambuth Blvd., Jackson, TN 38301-5296, (901) 425-2500
- Memphis and Shelby County Public Library and Information Center, 1850 Peabody Avenue, Memphis, TN 38104-4025, (901) 725-8855
- Cecil C. Humphreys School of Law Library, University of Memphis, Memphis, TN 38152, (901) 678-2426

Regional Depository and State Data Center Affiliate

- John W. Brister Library, University of Memphis, Memphis, TN 38152, (901) 678-2206

State Data Center Affiliates

- Northwest Tennessee Development District, 124 Weldon Street, P.O. Box 963, Martin, TN 38237, (901) 587-4215
- Southwest Tennessee Development District, 27 Conrad Drive, Suite 150, Jackson, TN 38305-2850, (901) 668-7112
- Library, The University of Tennessee at Martin, Martin, TN 38238, (901) 587-7065
- Memphis Area Association of Governments, 157 Popular Avenue, B150, Memphis, TN 38103, (901) 576-4610
- Bureau for Business and Economic Research, University of Memphis, Memphis, TN 38152, (901) 678-2281
- Memphis and Shelby County Office of Planning and Development, City Hall, 125 N. Main Street, Memphis, TN 38103, (901) 576-6610
- Tennessee Small Business Development Center, University of Memphis, South Campus Building 1, Memphis, TN 38152-0001, (901) 678-2500

APPENDIX B

SOURCES OF ECONOMIC DATA

This appendix provides a list of some key sources for standard economic data. Much of the data available through these sources is organized using Standard Industrial Classifications (SIC). The data described in this appendix can be obtained using a variety of methods: the Internet, CD-ROM, and printed literature. For each data source, we describe the following: how to access the data, the level(s) for which the data were collected (e.g., state, county, municipality), the type of data, the date of the most recent data available, the frequency of the data collection, the date first collected, limitations concerning the data that might be useful to know, and contact information. The information in this appendix is organized under the following headings:

General Regional Economic Profiles

Agriculture

Consumer -- Spending and Goods Price Movements

Employee/Employer -- Payroll, List Sales, Receipts, and Number of Employees
Employee/Employer -- Employment, Earnings, and Working Conditions

General Regional Economic Profiles

Source:	**Regional Economic Information System**
How to access:	Internet
Level:	state, county, and metropolitan statistical areas
Type of information:	average per capita income, derivation of total personal income, earnings by source, type of employment by industry, and BEARFACTS (a generalized annual county report). Also has icons to click to other government databases.
Most recent data available:	1995
Frequency of collection:	annual
Date first collected:	1969 (online)
Limitations:	general information
Contact:	*http://www.govinfo.kerr.orst.edu/reis-stateis.html*

Agriculture

Source:	***Census of Agriculture*** (HD1769.C46)
How to access:	CD-ROM, paper, and Internet
Level:	county
Type of information:	land use and ownership, operator characteristics, crops, machinery and equipment, livestock, fertilizer, poultry, chemicals, market value of products, energy expenditures, irrigated land, production expenses, type of organization, farm programs, and corporate structure. (The census includes as a farm every place from which $1,000 or more of agricultural products were produced and sold or normally would have been sold during the census year.)
Most recent data available:	1997
Frequency of collection:	5 years
Date first collected:	1982 (Internet), 1860 (paper)
Contact:	Federal Depository Library *or* Gene W. Danekas, State Statistician Ellington Agricultural Center Box 41505 Nashville, TN 37204-1505 1-800-626-0987 T: (615) 781-5300 F: (615) 781-5303 *or*

	To order TN statistical publications: *http://www.nass.usda.gov/tn/rlsetoc.htm* *http://www.nass.usda.gov/tn/rptfrm98.txt*
Source:	**U.S. Department of Agriculture** (National Agricultural Statistics Service)
How to access:	Internet, paper (orderable), and CD-ROM (orderable)
Level:	nation, state, and county
Type of information:	a variety of data relating to agriculture
Most recent data available:	1998
Frequency of collection:	varies; some monthly, quarterly, annually, etc.
Data first collected:	varies
Limitations:	historical data are limited on some topics
Contact:	*http://www2.hqnet.usda.gov/nass* *or* 1-800-727-9540

Consumer -- Spending and Goods Price Movements

Source:	**Bureau of Labor Statistics, Department of Labor** *Consumer Expenditure Survey* (L2.3:2425) *CPI Detailed Report* (HD6983.A23)
How to access:	paper and diskettes (*Consumer Expenditure Survey*)
Level:	selected metropolitan statistical areas
Type of information:	buying habits of American consumers based on a household survey
Most recent data available:	1998
Frequency of collection:	annual
Date first collected:	1888-91 (*Consumer Expenditure Survey*) 1913 (*CPI Detailed Report*)
Limitations:	limited level of data; diskettes are Lotus 1-2-3 or ASCII
Contact:	Federal Depository Library *or* Bureau of Labor Statistics (202) 606-6900

Employee/Employer -- Payroll, List Sales, Receipts, and Number of Employees

Source:	**Economic Census 1992**
How to access:	Internet, paper, and CD-ROM
Level:	state, county, and metropolitan statistical area

Type of information:	retail trade, wholesale trade, taxable service industries, manufacturers, mineral industries, and minority-owned businesses
Most recent data available:	1992
Frequency of collection:	5 years
Date first collected:	1810
Limitations:	some data are presented using Standardized Industry Codes
Contact:	Federal Depository Library *or* *http://www.govinfo.kerr.orst.edu/econ-stateis.html*

Source:	***County Business Patterns*** (HC101.A184)
How to access:	paper and CD-ROM
Level:	state and county
Type of information:	annual data on establishments by employment size and payroll, also includes data on some economic activities not covered in other censuses such as banking, real estate, and insurance
Most recent data available:	1995
Frequency of collection:	annual
Date first collected:	irregular intervals from 1946, annually from 1964
Limitations:	data arranged using Standardized Industry Codes
Contact:	Federal Depository Library

Employee/Employer -- Employment, Earnings, and Working Conditions

Source:	**Bureau of Labor Statistics, Department of Labor**
How to access:	Internet and paper
Level:	national, state, and metropolitan statistical area
Type of information:	labor force, employment and unemployment, prices and living conditions, consumer expenditures, compensation, working conditions, safety and health, productivity, employment projections, and occupational outlook
Most recent data available:	monthly and 1997
Frequency of collection:	monthly (*Monthly Labor Review*) or annually (*Handbook of Labor Statistics*; HD8064.A3 before 1989, then HD8051.A63 after 1997)
Date first collected:	1987 (Online), 1973 (paper version, *Monthly Labor Review*)
Limitations:	different release dates for different sets of data *Handbook of Labor Statistics* wasn't published between 1989 and 1997
Contact:	*http://www.dol.gov*

http://www.bls.gov
or
Department of Labor Regional Office:
Region IV-Atlanta
Room 500
1371 Peachtree Street, NE
Atlanta, GA 30367-2302
(404) 347-4416

APPENDIX C

SOURCES OF ENVIRONMENTAL DATA

This appendix provides a list of data sources useful for compiling environmental information. In several situations, data can be accessed through one or more sources, such as the U.S. Environmental Protection Agency or the Tennessee Department of Environment and Conservation. Instructions for using the Internet for data retrieval are provided for several key sources. It should be noted, however, that Internet sites are updated periodically, and the instructions are current only as of January 1999. To assemble this list of sources, we expanded upon the list of environmental indicators discussed in Chapter 5; however, we also took into consideration ease of access. Thus, some data sources were excluded due to their downloading difficulty or the space required on a hard drive. We note the information that is GIS-specific. The information in this appendix is organized under the following headings:

Air Quality

Endangered Species

Energy Use

Fish and Wildlife

Land -- National Forests
Land -- Ownership
Land -- Soil Conditions

Transportation -- Average Daily Traffic
Transportation -- Federal, State, and County Roads
Transportation -- Means of Transportation to Work
Transportation -- Place of Work
Transportation -- Traffic Counts
Transportation -- Travel Time to Work

Waste -- Contaminated Land
Waste -- Hazardous Waste Generation
Waste -- Hazardous Waste Recycling, Treatment, and Disposal Facilities
Waste -- Solid and Hazardous Waste Land Disposal Units
Waste -- Solid Waste Generation and Recycling Rates
Waste -- Toxic Release Inventory (TRI) Data

Water -- Drinking Water Quality
Water -- Drinking Water Violations
Water -- Floodplains
Water -- National Pollutant Discharge Elimination System (NPDES) Permits
Water -- Sources of Drinking Water
Water -- Watershed Quality Indicators

<u>Other Sources of Environmental Data</u>:
Tennessee Wildlife Resources Agency and Tennessee Conservation League: GIS-based Maps
U.S. Geological Survey

SOURCES OF ENVIRONMENTAL DATA

In late 1996, the Tennessee Department of Environment and Conservation created the Office of Reengineering. The Office of Reengineering is developing a "single point of entry" system to direct inquiries to a regional location. Environmental Assistance Centers (EACs) have been established to be that entry point and act as a clearinghouse for departmental information. (See Chapter 7 for a list of the EACs.) A state-wide toll free number (1-888-891-TDEC) has been established for EAC assistance. The EACs are linked to electronic data management systems to allow field offices and divisions to be on-line to program information and data, provide tracking of all inquires and applications and provide quick access to regulations and other pertinent information. For more information, see *http://www.state.tn.us/environment/oor/index.html*.

The U.S. Environmental Protection Agency provides "Environmental Profile" data via the Internet for five environmental media: air quality, drinking water, surface water, hazardous waste, and toxics release inventory. The data have been aggregated to the county level. The descriptive statistics in the Environmental Profiles are based on databases managed by EPA. Data for each of the individual statistics are not available for every county. Typically, data are available for areas where environmental monitoring stations and/or regulated facilities are located. To access the information, go to *http://www.epa.gov/ceis*:

1. Click on environmental profiles (on left side of web page)
2. Click on Tennessee
3. Select county
4. Choose one of the five environmental profile data areas
5. Click on submit

The environmental profile will report descriptive statistics, with graphs and brief descriptions summarizing the existing information on the environmental medium.

In addition, within each environmental medium, EPA has included an "About the Data" description. In "About the Data," you can gain information on such issues as: how the data are collected, the strengths and limitations of the data, what the data tell about health risks, the data collection process, and contaminants regulated under appropriate federal statutes. As an example, "About the Data" for air quality includes:

What Is the Pollution Standards Index (PSI)?
How Are the Data Collected?
How Is the PSI Computed?
How Good Are the Data? What Are Their Limitations?
What Do the Data Tell Me About Health Risks?
A Closer Look at the Data in the Pollution Standards Index: What Law Mandates the Collection of PSI Data?
What Contaminants Are Regulated Under CAA?
Who is Required to Collect Air Quality Data Used in the PSI?
What is the Aerometric Information Retrieval System/Air Quality Subsystem?
Where Can I Find More PSI Information on the World Wide Web?
Notes on Tables 1 and 2

See: *http://yosemite.epa.gov/CEIS/CEIS.NSF/$$All/about_air2*

Air Quality

Source:	**U.S. Environmental Protection Agency**
How to access:	Internet and paper
Level:	county
Type of information:	pollutant standards index (PSI) based on criteria air pollutant emissions
Most recent data available:	1996
Frequency of collection:	annual
Date first collected:	1986
Limitations:	PSI values are reported in local news media (television, newspapers, and radio) serving metropolitan areas with populations exceeding 200,000. The PSI provides information about daily levels of air pollution for five of the six major air pollutants regulated under the Clean Air Act. As a measure of community-wide air quality, the PSI may not be available for every county. Five of the six criteria pollutants are reported: sulfur dioxide (SO_2), carbon monoxide (CO), particulate matter less than 10 micrometers (PM10), volatile organic compounds (VOC), and nitrogen oxides (No_x) on an annual basis for counties.
Contact:	*http://www.epa.gov/ceis*. Additional air quality data can be accessed at *http://www.epa.gov/airsdata*. Paper copies of air quality data are available through the Tennessee Department of Environment and Conservation, Environmental Assistance Centers, 1-888-891-TDEC (8332)

Four counties have air pollution control offices: Knox, Shelby, Davidson, and Hamilton. Those offices can be contacted for PSI information based on criteria air pollutant emissions. The date of most recent available data is 1997; data are collected annually; and most of these offices began collecting data in the early 1980s.

The U.S. Environmental Protection Agency's Office of Air Quality Planning & Standards has data on air quality available via the Internet. The AIRSdata website has the following types of information:

Sources are the major point sources of air pollution. Source Reports display the estimated annual emissions of air pollutants from individual sources (plants, factories, etc.), and indicate whether the sources are complying with applicable regulations. The reports also list the number of sources and total pollutant emissions in each type of industry.

Monitors tell how much pollution is in the air. Monitor Reports provide annual summaries of air pollution measurements at individual monitoring stations, and tell where monitoring stations are located. Monitor Queries provide direct access to an interim AIRS database which has more detailed information. Complete monitor descriptions and summary data are available now, and individual readings of air pollution levels (raw data) will be added.

Monitor Report Types include values (a summary, by year, of the pollutant levels reported by each monitoring site); trends (indicator value of annual pollutant level in multiple years for each monitoring site); address (the address of each monitoring site plus additional descriptive information); count (the number of monitors at each location, which indicates pollutants that are measured at each monitoring site); and PSI (annual summary by county of Pollutant Standards Index values - maximum, median, days with good/bad air quality).

Maps show the locations of major air pollution sources, monitoring sites, and areas of the country where air pollution levels exceed health-based EPA standards.

Contacts gives the names, addresses, and phone numbers of people in EPA and state environmental agencies to contact about air pollution data.

Air quality data are available for carbon monoxide, nitrogen dioxide, sulfur dioxide, ozone, particulate matter (particles smaller than 10 micrometers), and lead.

The main website is *http://www.epa.gov/airsdata/*. For specific information, go to *http://www.epa.gov/airsweb/srcaddr.htm* (or click on address at main website) and choose Tennessee as the geographic location. Click on "show list of counties" to access county information. Select pollutant, and then click on generate report.

Endangered Species

To access information on endangered species and plants and their locations in the state, contact:
Tennessee Department of Environment and Conservation
Division of Natural Heritage
8th Floor, L&C Tower
401 Church Street

Nashville, TN 37243-0447
(615) 532-0431
http://www.state.tn.us/environment/nh
or
U.S. Fish and Wildlife Service
446 Neal Street
Cookeville, TN 38501
(931) 528-6481
http://www.fws.gov/r4eao/wildlife/ndxeso.html

Energy Use

Source:	**U.S. Department of Energy** Energy Information Administration
How to access:	Internet and paper
Level:	state
Type of information:	primary energy consumed by source petroleum consumed by product energy consumption by sector residential, commercial and industrial use transportation use of energy electric utility use of energy energy prices energy expenditures Tennessee's energy prices and rankings Tennessee's energy expenditures and rankings
Most recent data available:	1995
Frequency of collection:	annual from 1970
Date first collected:	1960
Limitations:	data not broken out at sub-state level
Contact:	*http://www.eia.doe.gov/emeu/sep/sep95_95/tn/frame.html* Paper copies of energy use are available from local utility districts.

Fish and Wildlife

Source:	**U.S. Fish and Wildlife Services**
How to access:	Internet
Level:	some county data
Type of information:	general information on fish and wildlife populations across each county and the state
Most recent data available:	1998

Frequency of collection: when needed
Limitations: This site is primarily used to publish *Federal Register* notices and other general information. Specific data are limited.
Contact: *http://www.fws.gov/search* (search for data and Tennessee)

Land--National Forests

Source: **U.S. Forest Service (U.S. Department of Agriculture)**
How to access: Internet
Level: county
Type of information: national forest service land--forest and grasslands acreage
Limitations: information provided is limited
Contact: *http://www.fs.fed.us/database/lar/welcome.htm*

Land--Ownership

Source: **Local Register of Deeds or Property Assessor's office**
How to access: paper
Level: county
Type of information: tracts and owners of land
Most recent data available: 1997
Frequency of collection: annual
Date first collected: depends upon county
Limitations: historical information should be available
Contact: local register of deeds or property assessor's office

Land--Soil Conditions

Source: **Local offices of the U.S. Department of Agriculture's Natural Resources Conservation Office**
How to access: paper
Level: county
Type of information: soil, depth to bedrock, general types of bedrock, texture of each layer in soil, in some counties engineering properties to use in consideration of roads or septic tank use, etc.
Most recent data available: depends on county
Frequency of collection: depends on county
Date first collected: depends on county
Limitations: the types of information depend on age of soil map
Contact: USDA's county Natural Resources Conservation Office. Soil conditions related to septic tank use are also available through the Tennessee Department of Environment and

Conservation, Division of Groundwater Protection or TDEC's Environmental Assistance Centers, 1-888-891-TDEC (8332).

Transportation--Average Daily Traffic

A bound volume showing the annual average 24-hour traffic volume on highways and collector routes. Contains one map for each of Tennessee's 95 counties and many of its larger cities. Revised annually around April 1. Prices are established to cover the expense of printing. Normally requests are handled the same day received. For large quantities or requests requiring reproduction, allow 3 to 5 days for processing and reproduction. All orders must be prepaid. For price information, contact:
Tennessee Department of Transportation
Map Sales Office
505 Deaderick Street
Suite 300, James K. Polk Bldg.
Nashville, TN. 37243-0345
T: (615) 741-2195
F: (615) 741-1791

Transportation--Federal, State, and County Roads

Source:	**Tennessee Department of Transportation**
How to access:	paper
Level:	county
Type of information:	federal, state, and county roads within each county--by mileage by different type of road; historical information on state and federal roads; and plans for new construction
Most recent data available:	1997
Frequency of collection:	depends on road
Date first collected:	1980
Contact:	Glenn Beckwith Planning Division Tennessee Department of Transportation Suite 900 James K. Polk Building Nashville, TN 37243 T: (615) 741-3421 F: (615) 532-8451 E-mail: gbeckwith@mail.state.tn.us

Transportation--Means of Transportation to Work

Source:	**U.S. Census Bureau**

How to access:	Internet
Level:	county
Type of information:	means of transportation to work (e.g., car, truck, public transportation)
Most recent data available:	1990
Frequency of collection:	every 10 years
Date first collected:	1970
Limitations:	updated only with decennial census; historical data are available in paper copies only
Contact:	*http://venus.census.gov/cdrom/lookup* for 1990 data

Transportation--Place of Work

Source:	**U.S. Census Bureau**
How to access:	Internet
Level:	county
Type of information:	number of residents who work in county, outside of county, and outside state of residence
Most recent data available:	1990
Frequency of collection:	every 10 years
Date first collected:	1970
Limitations:	updated only with decennial census; historical data are available in paper copies only
Contact:	*http://venus.census.gov/cdrom/lookup* for 1990 data

Transportation--Traffic Counts

Source:	**Tennessee Department of Transportation**
How to access:	paper
Level:	county
Type of information:	vehicular traffic flows within county
Most recent data available:	1998
Frequency of collection:	annual
Date first collected:	1985
Contact:	Steve Allen Tennessee Department of Transportation Division of Traffic and Safety Planning Section Suite 1000, James K. Polk Building 505 Deaderick Street Nashville, Tennessee 37243-0344 T: (615) 741-6741 F: (615) 532-0353 E-mail: sallen@mail.state.tn.us

Transportation--Travel Time to Work

Source:	**U.S. Census Bureau**
How to access:	Internet and paper
Level:	county
Type of information:	time to work in minutes
Most recent data available:	1990
Frequency of collection:	every 10 years
Date first collected:	1980
Limitations:	updated only with decennial census; historical data are available in paper copies only
Contact:	*http://venus.census.gov/cdrom/lookup* for 1990 data

Waste--Contaminated Land

National Priorities List (Superfund) sites

Source:	**U.S. Environmental Protection Agency**
How to access:	Internet
Level:	county
Type of information:	information on potentially contaminated sites, site inspections, preliminary assessments, and remediation of contaminated sites
Most recent data available:	October 1998
Frequency of collection:	updated frequently as site information changes
Date first collected:	1980s
Limitations:	The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) and record of decision (ROD) information data sets are enormous data files and require large amounts of hard drive space.
Contact:	*http://www.epa.gov/superfund/sites/index.htm*; paper copies of this information may be available from Tennessee Department of Environment and Conservation, Environmental Assistance Centers, 1-888-891-TDEC (8332)

State superfund and voluntary cleanup sites

Source:	**Tennessee Department of Environment and Conservation, Division of Superfund**
How to access:	paper
Level:	county
Type of information:	contaminated sites on the state priorities list as well as the National Priorities; progress in cleanup process

Most recent data available:	list of state superfund sites, October 1998
Frequency of collection:	list of state sites is updated quarterly
Date first collected:	1980s
Contact:	Tennessee Department of Environment and Conservation, Environmental Assistance Centers, 1-888-891-TDEC (8332)

Waste--Hazardous Waste Generation

Source:	**U.S. Environmental Protection Agency**
How to access:	Internet
Level:	county
Type of information:	hazardous waste generated by large quantity generators (those generating over 1,000 kilograms per month of hazardous waste regulated under the Resource Conservation and Recovery Act) and amount of hazardous waste managed by commercial and onsite facilities in the county through recycling, treatment, and/or disposal
Most recent data available:	1995
Frequency of collection:	biennial
Date first collected:	1989
Limitations:	These data are for large quantity generators only; small quantity generators (those generating between 100 and 1,000 kilograms per month) are excluded from this data set.
Contact:	*http://www.epa.gov/ceis*

Source:	**Tennessee Department of Environment and Conservation, Division of Solid Waste Management**
How to access:	paper
Level:	county
Type of information:	Hazardous waste generated by small and large quantity generators regulated under the Resource Conservation and Recovery Act. Information can also be accessed on amount of hazardous waste managed by commercial and onsite facilities in the county through recycling, treatment, storage, and/or disposal.
Most recent data available:	1996
Frequency of collection:	annual
Date first collected:	1985
Limitations:	These data are more comprehensive than the information available from the U.S. Environmental Protection Agency; however, the data are available in paper copies only at this point.

Contact:	Tennessee Department of Environment and Conservation, Environmental Assistance Center 1-888-891-TDEC (8332)

Waste--Hazardous Waste Recycling, Treatment, and Disposal Facilities

Source:	**Tennessee Department of Environment and Conservation, Division of Solid Waste Management**
How to access:	paper
Level:	county
Type of information:	permit status, amount, and types of waste managed or disposed at facility
Most recent data available:	1996
Frequency of collection:	annual
Date first collected:	1985
Contact:	Tennessee Department of Environment and Conservation, Environmental Assistance Centers, 1-888-891-TDEC (8332)

Waste--Solid and Hazardous Waste Land Disposal Units

Source:	**Tennessee Department of Environment and Conservation, Division of Solid Waste Management**
How to access:	paper
Level:	county
Type of information:	permit status and volumes of waste managed at commercial and onsite solid and hazardous waste land disposal units
Most recent data available:	1997
Frequency of collection:	volumes of waste received on an annual basis
Date first collected:	depends on land disposal unit
Contact:	Tennessee Department of Environment and Conservation, Environmental Assistance Centers, 1-888-891-TDEC (8332)

Waste--Solid Waste Generation and Recycling Rates

Source:	**Tennessee Department of Environment and Conservation, Division of Community Assistance**
How to access:	Internet and paper
Level:	county or region
Type of information:	solid waste generation per capita and recycling rates
Most recent data available:	1996
Frequency of collection:	annual

Date first collected:	1996
Limitations:	historical data on waste generation are not provided on the web page
Contact:	*http://www.state.tn.us/environment/dca/redreslt.htm*, or Tennessee Department of Environment and Conservation, Environmental Assistance Centers, 1-888-891-TDEC (8332)

Other Sources
Local solid waste management office
Local waste management firms operating landfills

Waste--Toxics Release Inventory (TRI) Data

Source:	**U.S. Environmental Protection Agency**
How to access:	Internet and paper
Level:	county
Type of information:	report on approximately 600 designated chemicals released to air, water, and land. Facilities report quantity of designated chemicals transferred offsite for disposal, treatment, energy recovery, or recycling.
Most recent data available:	1996
Frequency of collection:	annual
Date first collected:	1988
Limitations:	The figures present total annual reported toxics release inventory (TRI) chemical releases of manufacturing facilities that are of a certain size and industrial output. TRI does not account for all toxic releases for a given county. Since 1987, the inventory has changed in chemicals included and reporting requirements.
Contact:	*http://www.epa.gov/ceis* Paper copies of TRI data are available from the Tennessee Department of Environment and Conservation, Environmental Assistance Centers, 1-888-891-TDEC (8332).

Water--Drinking Water Quality

Source:	**Local utility district**
How to access:	paper
Level:	district
Type of information:	water quality from main source of drinking water supply
Most recent data available:	last month

Frequency of collection:	daily, depending upon chemical testing; about 60 tests are performed in each month
Date first collected:	utility required to keep data for three years; some utilities may have information beyond that
Limitations:	frequency of testing depends upon quality of water
Contact:	local utility district

Water--Drinking Water Violations

Source:	**U.S. Environmental Protection Agency**
How to access:	Internet and paper
Level:	county
Type of information:	violations of EPA standards for community water systems (systems providing drinking water to more than 25 people located in an area year-round)
Most recent data available:	1997
Frequency of collection:	depends upon county
Date first collected:	1991
Limitations:	Information is *not* available for every county in Tennessee. Water systems often provide drinking water to consumers in multiple counties. The population served does not necessarily correspond with population residing in the county.
Contact:	*http://www.epa.gov/ceis* Paper copies may be obtained from the Tennessee Department of Environment and Conservation, Environmental Assistance Centers, 1-888-891-TDEC (8332)

Water--Floodplains

Source:	**Tennessee Valley Authority**
How to access:	paper
Level:	stream
Type of information:	flood elevations, observed and predicted
Most recent data available:	1997
Frequency of collection:	event or need driven
Date first collected:	depends on stream-specific information, but some data date back to the 1930s
Limitations:	streams and location-specific information only
Contact:	River System Operations Tennessee Valley Authority 400 W. Summit Hill Drive

Knoxville, TN 37902
(423) 632-6065
E-mail: rsolakeinfo@tva.gov
http://www.lakeinfo.tva.gov

Water--National Pollutant Discharge Elimination System (NPDES) Permits

Source:	**Tennessee Department of Environment and Conservation, Division of Water Pollution Control**
How to access:	paper
Level:	county
Type of information:	permits for municipal, industrial, and other discharges of wastewater
Most recent data available:	1997
Frequency of collection:	annual
Data first collected:	depends on when permit was issued
Contact:	Tennessee Department of Environment and Conservation, Environmental Assistance Centers, 1-888-891-TDEC (8332)

Water--Sources of Drinking Water

Source:	**U.S. Bureau of Census**
How to access:	Internet and paper
Level:	county
Type of information:	sources of county's drinking water supply
Most recent data available:	1990
Frequency of collection:	every 10 years
Date first collected:	1970
Limitations:	only 1990 data are available electronically
Contact:	*http://venus.census.gov/cdrom/lookup* for more recent data, contact Tennessee Department of Environment and Conservation, Environmental Assistance Centers, 1-888-891-TDEC (8332); local health departments

Water--Watershed Quality Indicators

Source:	**U.S. Environmental Protection Agency**
How to access:	Internet
Level:	stream
Type of information:	overall watershed quality score
Most recent data available:	1997

Limitations:	The overall index of watershed indicators is a 5-point scale of water quality based on 14 characteristics. Information provides only a snapshot of watershed conditions. Only one year's data are available on the webpage.
Contact:	*http://www.epa.gov/surf/iwi.* To access: (1) click on "Locate Your Watershed"; (2) At "Locate by geographic unit by entering in your zip code, state, county, tribal nation, watershed number or stream name," click on desired geographic unit (e.g., for county, enter county name) and submit; (4) if county is desired geographic unit, choose appropriate county revealed through "List of Counties produced by Search"; (5) click on "Watershed health (Index of Watershed Indicators) information about this county"; (6) click on the map to zoom in on desired watershed. The 5-point index of watershed indicators will be provided.

Other Sources of Data

Much of the following information is based on data collected by the U.S. Geological Survey (USGS). It typically comes in the form of 1:24,000 scale quadrangle sheets. The date of preparation depends on the geographic area of interest.

Tennessee Wildlife Resources Agency and Tennessee Conservation League: GIS-based Maps

To access the following GIS-based maps available through the Tennessee Wildlife Resources Agency, the local government may submit a request to:

Tennessee Wildlife Resources Agency
Central Office
Ellington Agricultural Center
P.O. Box 40747
Nashville, TN 37204
Director's Office: (615) 781-6552
http://www.state.tn.us/twra/genmain.html
or
The Lucius Burch Center for Conservation Planning
c/o Tennessee Conservation League
300 Orlando Avenue
Nashville, TN 37209-3257
T: (615) 353-1133
F: (615) 353-0083
E-mail: conserve.tcl@nashville.com

The Lucius Burch Center will conduct a needs assessment with the counties, forward the information to TWRA, and facilitate the transfer of data.

Boundary Lines

Level:	county
Type of information:	county boundaries lines only
Most recent data available:	depends upon county
Frequency of collection:	depends upon county
Date first collected:	depends upon county
Limitations:	scale 1:100,000

Land Use

Level:	county
Type of information:	land use/land cover
Most recent data available:	1993
Frequency of collection:	1990-1993
Date first collected:	1990
Limitations:	Anderson Level II general land cover interpreted from 1990-1993 satellite imagery, at 25 meter resolution. Distributed as 1:24,000 quadrangles.

Public Land

Level:	county
Type of information:	public land by political boundaries
Most recent data available:	depends upon county
Frequency of collection:	depends upon county
Date first collected:	depends upon county
Limitations:	scales vary

Recreation

Level:	county
Type of information:	recreation atlas
Most recent data available:	depends upon county
Frequency of collection:	depends upon county
Date first collected:	depends upon county
Limitations:	to receive this information, the requester must first submit a letter to: Alison Brayton, Recreation Planning Manager Recreation Resources Division Tennessee Department of Environment and Conservation 401 Church Street, 10th Floor, L&C Tower Nashville, TN 37243 (615) 532-0755

E-mail: abrayton@mail.state.tn.us
Approval letter can then be forwarded to TWRA or the Lucius Burch Center.

Rivers

Level:	county
Type of information:	Tennessee Rivers Information System
Most recent data available:	depends upon county
Frequency of collection:	depends upon county
Date first collected:	depends upon county
Limitations:	to receive this information, the requester must first submit a letter to: Reggie Reeves, Director Division of Natural Heritage Tennessee Department of Environment and Conservation 401 Church Street, 8th Floor, L&C Tower Nashville, TN 37243-0447 (615) 532-0431 E-mail: rreeves3@mail.state.tn.us Approval letter can then be forwarded to TWRA or the Lucius Burch Center.

Roads, etc.

Level:	county
Type of information:	roads, streams, power and utility lines, and railroads (Tiger 1995 data from the U.S. Census Bureau)
Most recent data available:	1995
Frequency of collection:	depends upon county
Limitations:	The 1995 Tiger/line files are an extract of selected geographic and cartographic information from the Census Tiger data base. Scale 1:100,000

Topography

Level:	county
Type of information:	topographic quad sheet images
Most recent data available:	depends upon county
Frequency of collection:	depends upon county
Date first collected:	depends upon region
Limitations:	Maps show and name prominent natural and cultural features. Cannot be analyzed, but can be used as a base map for vector data. Map is as current as USGS topographic quadrangle. Scale 1:24,000

Vegetation

Level:	county
Type of information:	vegetation land cover
Most recent data available:	1997
Frequency of collection:	1990-1997
Date first collected:	1990
Limitations:	Land use types taken from the Land Use/Land Cover file. Forest communities interpreted from 1995 aerial videography and labeled using The Nature Conservancy Southeastern Vegetation Classification system. Distributed as 1:24,000 quadrangles.

U.S. Geological Survey (USGS)

The U.S. Geological Survey (USGS) systematically collects and analyzes data to evaluate the quantity, quality, and use of water resources. The USGS:

(1) conducts
- water-resources appraisals describing the occurrence, availability, and physical, chemical, and biological characteristics of surface and ground water and
- basic and problem-oriented hydrologic and related research that aids in alleviating water resources problems and provides an understanding of hydrologic systems sufficient to predict their response to natural or human-caused stress.

(2) coordinates the activities of Federal agencies in the acquisition of water resources data for streams, lakes, reservoirs, estuaries, and ground water.

(3) provides scientific and technical assistance in hydrologic fields to other Federal, state, and local agencies, to licensees of the Federal Energy Regulatory Commission, and to international agencies on behalf of the Department of State.

(4) administers the State Water Resources Research Institutes Program and the National Water Resources Research Grants Program.

To access,

1. go to: *http://water.usgs.gov/data.html*
2. Click on type of data of interest. Choices are:

   A. Real-time water data
   B. National Water Information System (historical records of daily streamflow and peak flows for around 20,000 stations).
   C. Water-Quality (a collection of high-quality records from the Water Quality Monitoring Network with explanations and quality-assurance information).
   D. Suspended-Sediment Database (information on sediment flux in rivers).
   E. Hydro-Climatic Data Network (HCDN) Streamflow Data Set, 1874-1988.
   F. GIS Data for Water Resources
   G. Water Use Maps and searchable data by county and watershed.
   H. Acid Rain (precipitation chemistry and atmospheric deposition data from over 200 stations provided by the National Atmospheric Deposition Program [NADP]).

APPENDIX D

SOURCES OF SOCIAL DATA

This appendix provides a list of some key sources for standard social data. The data described in this appendix can be obtained using a variety of methods: the Internet, CD-ROM, and printed literature. For each data source, we describe the following: how to access the data, the level(s) for which the data were collected (e.g., state, county, municipality), the type of data, the date of the most recent data available, the frequency of the data collection, the date first collected, any limitations concerning the data that might be useful to know, and contact information. The information in this appendix is organized under the following headings:

Crime and Justice -- Crime and Arrest Data
Crime and Justice -- Corrections and Facilities Data

Education

Health

Housing

Recreation

Crime and Justice -- Crime and Arrest Data

Source:	**Police Department**
How to access:	paper
Level:	municipality
Type of information:	crime and arrest data, criminal justice data, data that are reported to the FBI
Most recent data available:	1997
Frequency of collection:	annual
Date first collected:	in many cases, since the municipality's incorporation
Contact:	Local Crime Analysis Unit Police Department Administrator *or* municipal library (in larger cities)

Source:	**Sheriff's Department**
How to access:	paper
Level:	county
Type of information:	crime and arrest data, criminal justice data, facilities information, and data that are reported to the FBI
Most recent data available:	1997
Frequency of collection:	annual
Date first collected:	varies
Contact:	County Crime Analysis Unit Sheriff Department Administrator *or* county library (in some counties)

Source:	**Federal Bureau of Investigation,** **Tennessee Bureau of Investigations** *Uniform Crime Report: Crime in the United States*
How to access:	paper, CD-ROM, and Internet
Level:	city and county
Type of information:	general crime statistics
Most recent data available:	1997
Frequency of collection:	annual
Date first collected:	1930
Contact:	public library *or* Tennessee Bureau of Investigations (FBI) (423) 544-3634

Source:	**Crime and Justice Electronic Abstracts**
How to access:	Internet
Level:	nation, state, county, and metropolitan statistical area
Type of information:	crime and arrest data, criminal justice data, corrections, and demographic data by jurisdiction
Most recent data available:	1998
Frequency of collection:	varies
Date first collected:	some online data from 1960
Limitations:	Most of the data sets are very large files and are difficult to download without Adobe Acrobat reader. Location and demographic data for all 3000+ U.S. counties and U.S. census links; however, municipal data is available only for cities larger than 100,000, and county data is available only for the 90 most populated U.S. counties.
Contact:	*http://www.ojp.usdoj.gov/bjs/dtdata.htm#state*

Source:	***Sourcebook of Criminal Justice Statistics*** (HV6787.S68)
How to access:	paper
Level:	national
Type of information:	report of crime and justice statistics in the U.S.
Most recent data available:	1997
Frequency of collection:	annual
Date first collected:	1973
Contact:	Federal Depository Library

Crime and Justice -- Corrections and Facilities Data

Source:	**Tennessee Department of Corrections**
How to access:	Internet and paper
Level:	state
Type of information:	state prison facilities, prison populations, and capacities
Most recent data available:	1998 (online)
Frequency of collection:	monthly update online
Date first collected:	typically since the opening of the facility
Limitations:	does not include county or city correctional facilities
Contact:	*http://www.state.tn.us/correction* *or* Tennessee Department of Corrections Pam Hubbins, Public Affairs Director 320 6th Avenue North Rachel Jackson Building Ground Floor

Nashville, TN 37243-0465
(615) 741-2072

Education

Source:	**County and City School Boards**
How to access:	paper
Level:	school system
Type of information:	test scores, free/reduced lunch percentages, special education, student mobility, student behavior, employee salaries, school system budget
Most recent data available:	1997-98 school year
Frequency of collection:	annual
Date first collected:	since opening of school
Limitations:	no data on the percentage of graduates seeking higher education
Contact:	School System's Office of Research and Evaluation *or* School Board Financial and Administrative Secretaries

Source:	**Tennessee Department of Education**
How to access:	Internet
Level:	state, county, and city
Type of information:	21st Century Schools Report Card information: student demographics, student performance, system demographics, and finances
Most recent data available:	1998
Frequency of collection:	annual
Date first collected:	1991 (online)
Contact:	*http://www.state.tn.us/education/mstat.htm* *or* Tennessee Department of Education Jane Walters, Commissioner 6th Floor, Andrew Johnson Tower 710 James Robertson Parkway Nashville, TN 37243-0375 (615) 741-2731

Health

Source:	**Public Health Department**
How to access:	Internet and paper
Level:	county

Type of information:	hospitals, home health care, population, alcohol use surveys, nursing homes, deaths, and births
Most recent data available:	1998, projected to 2010 (population data)
Frequency of collection:	varies by data
Date first collected:	1989 (online)
Limitations:	limited historical data available online
Contact:	*http://funnelweb.utcc.utk.edu/~chrg/hit/main/index.htm* *or* Regional Public Health Department Community Development Specialists *or* Tennessee Department of Health Bill Wirsing Tennessee Department of Health, Research and Development Cordell Hull Building, 6th Floor 426 5th Avenue, North Nashville, Tennessee 37247-5261 (615) 532-7901 *or* Community Health Research Group Sandra L. Putnam, Ph.D. Director and Research Professor Community Health Research Group The University of Tennessee Suite 309, Conference Center Building Knoxville, Tennessee 37996-4133 T: (423) 974-4511 F: (423) 974-4521 E-mail: sputnam1@utk.edu

Housing

Source:	**United States Census of Population and Housing**
How to access:	Internet, paper, and CD-ROM
Level:	state, county, minor civil division, and municipality
Type of information:	value, occupancy rates, percentage built before 1940, facilities, number of numbers, and ownership
Most recent data available:	1990
Frequency of collection:	10 years
Date first collected:	1790
Limitations:	only incorporated municipalities are included
Contact:	Federal Depository Library

	or county or municipal library *or* *http://www.census.gov*
Source:	**Tennessee Housing Development Agency**
How to access:	paper and CD-ROM
Level:	county
Type of information:	census-related, single and multi-family federal housing project information, median home sales prices (1997), building permits (1997)
Most recent data available:	varies
Frequency of collection:	varies, uses census sample data (2 years)
Date first collected:	varies
Limitations:	most of available data is taken directly from the U.S. Census
Contact:	Cheryl Jett (615) 741-9677 E-mail: cjett@mail.state.tn.us
Source:	**Association of Realtors/Board of Realtors**
How to access:	paper
Level:	parcel
Type of information:	active listings and numbers sold
Most recent data available:	1998
Frequency of collection:	varies
Date first collected:	varies
Limitations:	specific to Multiple Listing Service; coverage varies
Contact:	local board of realtors *or* local realty company
Source:	**Property Tax Assessor**
How to access:	paper
Level:	parcel
Type of information:	median appraised value of residential sectors, single family housing by building permits, residential building permits, non-residential building permits, and total permits
Most recent data available:	1997
Frequency of collection:	4 years
Date first collected:	since the municipality's incorporation

Limitations:	may be expensive, one year delay before data are electronically accessible, only current collection data are available at the property tax assessor's office
Contact:	local property tax assessor *or* for past data, contact the city/county archives office

Source:	**Department of Housing and Urban Development**
How to access:	HUD 2020 software (CD-ROM)
Level:	county
Type of information:	printable maps detailing dispersion of rental and owner ownership, overcrowding, median value, vacancy, median rents, rent by percency of income, CRA underserved areas, pre-1940 housing, renter/owner occupied, density, and single/multi family
Most recent data available:	1996
Frequency of collection:	varies
Date first collected:	HUD data has been collected since the agency's inception. Some data found on the HUD 2020 software is based on census data.
Limitations:	requires fairly sophisticated computer capabilities
Contact:	local HUD Office, Community Builders in Knoxville, (423) 545-4384

Recreation

Source:	**Tennessee Wildlife Resources Agency**
How to access:	paper and Internet
Level:	state, county, and municipality
Type of information:	game licensing, lake and river activity
Most recent data available:	1998
Frequency of collection:	seasonal
Contact:	Box 40747 Ellington Agricultural Center Nashville, TN 37167 T: (615) 781-6643 F: (615) 781-6667 *or* *http://www.state.tn.us/twra/genmain.html*

APPENDIX E

SOURCES OF CIVIC ASSISTANCE

During each step in a visioning and planning process, a participatory approach can help to build widespread agreement and support within the community. The issues tackled with smart growth planning are often contentious, however, and political and emotional currents may run strong. For this reason, it may help to get the assistance of a qualified, neutral, outside agent. These agents are often called facilitators; they also may be called (with somewhat different meanings) negotiators, mediators, leadership directors, or conflict management specialists. Collectively, they could be referred to as "civic assistance providers."

Below is a list of some civic assistance providers in Tennessee. Only not-for-profit providers are listed, but in addition, a number of services are available within the state on a for-profit basis. Following the list is a selection of some of the many books that provide valuable insights, often through the use of case studies, in the field of civic assistance. Internet sites on conflict resolution follow the listing of books. None of these lists are exhaustive; instead, they simply are intended to help readers initiate their search for civic assistance with their visioning and planning processes.

In Tennessee, a statewide network of Community Mediation Centers (CMC) is being built in conjunction with Victim-Offender Reconciliation Programs (VORP). The following are seven CMCs in Tennessee:

CMC/VORP of Knoxville (VG-005)
John R. Doggette, Director
912 South Gay Street, Suite L-300
Andrew Johnson Building
Knoxville, TN 37902
T: (423) 594-1879
F: (423) 594-1890
E-mail: doggette@esper.com

Anderson County Center for Community Justice/VORP Anderson County (VG-004)
Anne Sides
POB 4081
Oak Ridge, TN 37831-4081
T: (423) 457-7208
F: (423) 457-7208

The Mediation Center/VORP of Columbia
Jacson Chapman
104 West 7th Street Suite B
Columbia, TN 39401
T: (931) 840-5583
F: (931) 840-0269

Mid South VORP
Mary Ellen Bowen, Executive Director
Lewis County Courthouse
c/o Office of the Peace Education
1500 Acklen Avenue
Nashville, TN 37212
(615) 297-4167

CMC/VORP of Crossville (VG-002)
David Massengill, Executive Director
15 Division Drive
Crossville, TN 38555
T: (931) 484-0972
F: (931) 484-0972

VORP of Nashville (VG-001)
Anita Campbell Coe, Executive Director
522 Russell Street
Nashville, TN 37206
T: (615) 256-2206
F: (615) 256-2962
E-mail: anitacoe@aol.com

Mediation Service of Putnam County/VORP
Linda Mix, Director
122 South Madison Avenue
Cookeville, TN 38501
T: (931) 528-7145
F: (931) 528-4265

A few other non-profit sources in Tennessee that could be consulted are:

Better Business Bureau/CMC
Bert Hubbell
P.O. Box 198436
Nashville, TN 37219
T: (615) 256-8223
F: (615) 254-8356
E-mail: BBBNash@aol.com

VORP
Valerie Horton
2012 21st Avenue South
Nashville, TN
T: (615) 256-2206
F: (615) 256-2962

Arbitration and Mediation Services, Inc.
427 High Street
Chattanooga, TN 37403
(423) 265-3505

Mediation Association of Tennessee
Knoxville Chapter
Melanie Grand, Administrator
(888) MAT-TENN

Tennessee Valley Authority
Quality Communities Initiative
Phil Scharre, Community Development Specialist
400 West Summit Hill Drive
Knoxville, TN 37902
(423) 632-2101
(For a description of the Quality Communities Initiative program, see Chapter 7.)

BOOKS ON CIVIC ASSISTANCE

Encyclopedia of Conflict Resolution
Heidi Burgess and Gary M. Burgess
Santa Barbara, CA: ABC-CLIO, 1997.

This text is intended to aid groups in the sorting of options available to them during dispute resolution. The book also explains common words and concepts. Contact information for dispute resolution organizations, training providers, mediator referrals, and university-based programs are included in the appendices as well as information on qualifications, certifications, and trainings.

FutureScapes
East Tennessee Community Design Center (CDC)
1522 Highland Avenue
Knoxville, TN 37916
T: (423) 525-9945
F: (423) 522-6760

The *FutureScapes* Manual (due out in January 1999) has a chapter (4) that discusses the benefits of using the FutureScapes approach. Within this chapter one can find information on citizen participation, consensus building, collaboration, and leadership building. The CDC also has trained facilitators. *(For a description of the FutureScapes Program, see Chapter 7.)*

Innovations in Group Facilitation: Applications in Natural Settings
Lawrence R. Frey, editor
Cresskill, NJ: Hampton Press, 1995.

"The facilitation strategies and aids examined in these studies include the application of decision support systems to group decision-making and problem-solving tasks, refinements in conventional brainstorming and creative problem-solving techniques,

focus groups as a source of information for generating and evaluating solutions to social problems, and 'Interactive Social Modelling' as a means of helping groups articulate and understand the problems and issues they seek to resolve."(p viii)

Planning in the Face of Conflict: Negotiation and Mediation Strategies in Local Land Use Regulation
John Forester
Journal of the American Planning Association, Summer 1987: 303-314.

Six mediated-negotiation strategies are presented that highlight the communicative and emotional skills planners can employ.

The following books address environmental/public lands dispute resolution:

Environmental Dispute Resolution
Lawrence S. Bacow and Michael Wheeler
New York, NY: Plenum Press, 1984.

This book attempts to teach people a structured, analytic approach to the major environmental issues in dispute. Original case studies were taken from the EPA and edited for teaching purposes. The organization of this book reflects the order often followed during negotiations.

Public Lands Conflict and Resolution: Managing National Forest Disputes
Julia M. Wondolleck
New York, NY: Plenum Press, 1988.

"Environmental and industrial groups want to participate more directly in what happens in the national forest system because they have such a great stake in it . . ." (p ix) The ideas found in this book are taken from scholars and practitioners in the field of public lands dispute resolution.

Resolving Environmental Disputes: Approaches to Intervention, Negotiation, and Conflict Resolution
Lawrence E. Susskind, James R. Richardson, and Kathryn J. Hildebrand
Laboratory of Architecture and Planning: MIT, June 1978.

This book is designed for public agency personnel who are trying to balance citizen participation, public agencies, private interests, and the environment. Case studies are

used to showcase the nine steps toward dispute resolution. Techniques for intervention, negotiation, and conflict resolution are also discussed.

INTERNET SITES ON CIVIC ASSISTANCE

Below are some Internet sites that provide useful guidance on conflict resolution. For other Internet sites on civic assistance more generally, see also Chapter 7.

CHET: Conflict Resolution
http://www.star.hsrc.ac.za/chet/texting/management/conflict.html

Conflict Resolution: Slide Presentation, Slides 35+
http://ietf.org/wgchair/sld035.htm

Conflict Resolution Center International
http://www.conflictres.org

Conflict Resolution, Mediation, and Negotiation Series (Publications by Jossey-Bass)
http://www.jbp.com/bininfo/kritek.toc.html

Conflict Resolution Page
http://www.geocities.com/Athens/8945

University of Colorado
http://www.Colorado.EDU/conflict

Founded in 1973, the Energy, Environment and Resources Center (EERC) at the University of Tennessee-Knoxville is one of the nation's oldest and largest university-based multidisciplinary research units devoted to environmental issues. The EERC played a key role in creating the Waste Management Research and Education Institute (WMREI), a state-funded Center of Excellence established in 1985 and housed at the University. Since its inception, WMREI, which remains a close affiliate of the EERC, has spearheaded projects in the areas of sustainable development, recycling, environmental education, biotechnology, and regional economic development.

For more information on EERC or WMREI, visit our web page at *http://eerc.ra.utk.edu* or contact Dr. Jack Barkenbus, Executive Director, EERC, 311 Conference Center Building, University of Tennessee, Knoxville, TN 37996-4134.