

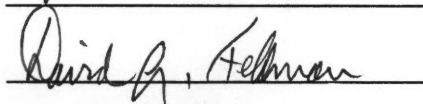
To the Graduate Council:

I am submitting herewith a thesis written by Robert Edward James entitled "Development Along the Northwestern Boundary of the Great Smoky Mountains National Park: Can the Park's 'Soft-Edge' Boundary Be Preserved?" I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the Degree of Master of Science, with a major in Geography.



Carol Harden, Major Professor

We have read this thesis
and recommend its acceptance:

Accepted for the Council:



Associate Vice Chancellor and
Dean of the Graduate School

DEVELOPMENT ALONG THE NORTHWESTERN BOUNDARY OF THE
GREAT SMOKY MOUNTAINS NATIONAL PARK:
CAN THE CHARACTER OF THE PARK'S "SOFT-EDGE" BOUNDARY BE
PRESERVED?

A Thesis
Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville

Robert E. James

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ABSTRACT

Development along the Great Smoky Mountains National Park's northwestern boundary threatens the "soft-edge" characteristics of its bordering communities. The "soft-edge" characteristics enable visitors to gradually transition from the urban to natural environment, and mitigate human impacts on the natural environment. Between 1970 and 1994 the Knoxville Metropolitan Area population grew from 424,586 to 631,097. Between 1988 and 1997 Park visitation increased from 8.8 million to 9.9 million.

This thesis questions whether the "soft-edge" character of the Park's northwestern boundary can be preserved in light of the increasing population and development pressures on the bordering communities. In this thesis I have reviewed the roles of the parties who have an interest in the land-use decisions occurring along the Park's boundary. These parties include the National Park Service; the communities of Pittman Center, Gatlinburg and Townsend; federal, state, and local governments; and locally-based conservation organizations. I reviewed a significant amount of literature including National Park Service publications; community land use plans and zoning ordinances; federal, state and county government documents; as well as books and articles concerning the subject. I also interviewed NPS, community, and local conservation officials.

The results show that none of the parties acting alone are likely to be able to take actions that would be adequate to preserve the character of the "soft-edge" boundary. Eventually, the NPS will likely have to seek additional regulatory authority or provide financial incentives or other assistance to enhance the communities' preservation efforts.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION.....	2
Research Objectives.....	7
The Study Area.....	8
Boundary Issues.....	13
Gateway Communities.....	16
II THE ROLE OF THE NATIONAL PARK SERVICE.....	20
What Can GSMNP do to Protect Its Boundary ?.....	20
Analysis.....	31
III. THE NEIGHBORING COMMUNITIES.....	39
Gatlinburg.....	39
Pittman Center.....	45
Townsend/Tuckaleechee Cove.....	61
IV. THE ROLE OF FEDERAL, STATE and COUNTY GOVERNMENTS.....	86
Federal Level.....	86
State Level.....	91
County Level.....	99
V. THE ROLE OF LOCAL CONSERVATION ORGANIZATIONS.....	104
National Parks Conservation Association.....	104
Foothills Land Conservancy.....	105
Friends of the Smokies.....	106
VI. DISCUSSION.....	109
REFERENCES.....	120
APPENDICES.....	127
VITA.....	131

LIST OF TABLES

TABLE	PAGE
3-1 Sonoran Institute Recommendations.....	43
3-2 Pittman Center Soils Types and Associated Limitations.....	49
3-3 Stated Goals for Pittman Center as Set Forth in the 1987 Land Use Plan.....	52
3-4 Summary of Pittman Center's Zoning Ordinances.....	53
3-5 Concept Plan for Pittman Center.....	57
3-6 Building Blocks for a Vision of the Cove's Future.....	74

LIST OF FIGURES

FIGURE	PAGE
1.1 Great Smoky Mountains National Park.....	3
1.2 Study Area.....	9
3.1 Pittman Center Land Use Map.....	47
3.2 Pittman Center Slope Map.....	48
3.3 Pittman Center Soils Map.....	51
3.4 Townsend's Proposed Urban Growth Boundary.....	66
3.5 Tuckaleechee Cove Floodplains.....	67
3.6 Tuckaleechee Cove Topography.....	70
3.7 Tuckaleechee Cove Soils Constraints.....	72
3.8 Tuckaleechee Cove Existing Land Use Plan.....	73
3.9 Tuckaleechee Cove Recommended Development.....	76
3.10 Tuckaleechee Cove Proposed Land Use.....	77

CHAPTER I

INTRODUCTION

Congress provided for the establishment of the Great Smoky Mountains National Park (GSMNP) in 1926. GSMNP is comprised of over 800 square-miles of mountainous wilderness situated on the Tennessee-North Carolina border (Figure 1.1). The 1982 General Management Plan offers the following description: “Great Smoky Mountains National Park is distinguished by the extraordinary diversity and abundance of its plants and animals, the beauty of its mountain terrain and waterways, the quality of its remnants of pioneer culture, and the sanctuary it affords for those resources and for its modern human users” (USDI 1982). For seven decades GSMNP has maintained the characteristics that have distinguished it from other National Parks and has fulfilled its purpose as a sanctuary. One reason the Park has been successful is its relative isolation and the buffering effect of national forests and rural areas bordering the Park. This situation is changing, however, with respect to some of the rural areas bordering the Park on the Tennessee side.

On the Tennessee side, GSMNP borders four Tennessee counties: Blount, Sevier, Monroe, and Cocke. Knox County, the most populous in east Tennessee, is only about forty miles from the Park boundary. Over the past thirty years local and regional population has grown remarkably. Between 1970 and 1994 Knox County’s population grew from 276,293 to an estimated 357,447 (Nolt 1997).

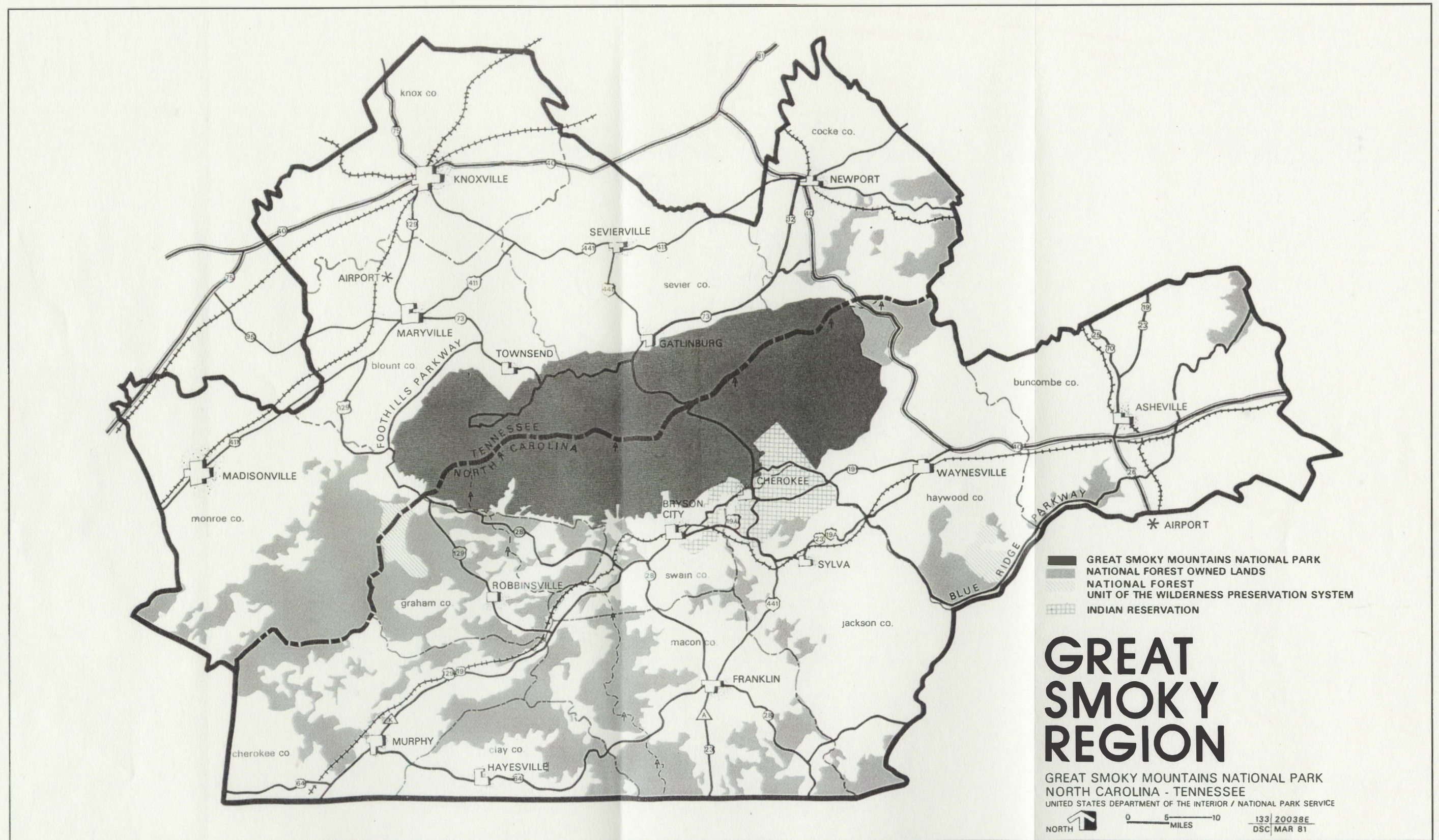


Figure 1.1 -- Great Smoky Mountains National Park -- Source: GSMNP, 1982, General Management Plan, Great Smoky Mountains National Park, U.S. Dept. of Interior, National Park Service.

population has grown remarkably. Between 1970 and 1994 Knox County's population grew from 276,293 to an estimated 357,447 (Nolt 1997). Blount County grew from 63,744 to 94,565 while Sevier County more than doubled in population, from 28,241 to 58,194. The Knoxville Metropolitan Area (Knox, Blount, Sevier, Anderson, Grainger, and Jefferson counties) grew from 424,586 people to 631,097 (Nolt 1997).

As the population has grown, so has residential and commercial development in the nearby communities. Concurrent with the growth of the neighboring area, tourist visitation of GSMNP has also increased. Between 1988 and 1997 Park visitation increased from 8.8 million to 9.9 million annually (USDI 1998). Much of this visitation takes the form of auto traffic on the main route connecting Gatlinburg, Tennessee and Cherokee, North Carolina, and on the loop road around Cades Cove. This increase in visitation has affected resources within the Park and has brought additional developmental pressure on neighboring communities. Unlike large western parks, where significant visitor services are provided within the parks, GSMNP's visitors are served almost exclusively by the communities bordering the Park.

The adequacy of national park boundaries has long been a controversial subject. The early national parks were primarily created to preserve their scenery. Frederick Law Olmstead, the renowned landscape architect, commented on the 1864 Yosemite Act, "it is the will of the nation as embodied in the act of Congress that this *scenery* shall never be private property, but like certain defensive points upon our coast it shall be held solely for public purposes" (emphasis added). Biological conservation had nothing to do with the establishment of early park boundaries. A park boundary was intended to encompass the

most significant topographic features, not protect the biological relationships within the park. Boundaries were set so as to not jeopardize the economic potential of the surrounding area (NPCA 1988). Consequently, tourist towns grew up around the entrances to some parks while rural industry developed around others (Foresta 1984).

During the 1960s and 1970s the National Park Service (NPS) became increasingly concerned with development close to parks (Foresta 1984). In the early years, neighboring land was not usually a problem because the early parks were surrounded by other public lands (Foresta 1984). One park superintendent noted that, “the parks used to be islands of civilization in the wilderness. Now the thing has inverted, they’re islands of wilderness in a sea of civilization” (Foresta 1984). GSMNP officials would like to maintain a transition zone or “soft-edge” between their wilderness island and the developing neighboring communities. A “soft-edge” boundary serves to gradually transition visitors from a developed environment to the Park’s natural environment (Interviews Benge, 1999; Francis 1999). Shawn Benge and Phil Francis are two NPS officials actively engaged in efforts to preserve the boundary landscape. These officials are striving to preserve an environment that is predominantly natural, but allows commercial and residential development that is in harmony with the natural environment of the Park. Due to its relatively remote location, GSMNP has had a “soft-edge” boundary with most of its neighboring communities since its inception. Until recently only Gatlinburg, Tennessee had developed in such a way as to threaten that “soft-edge” character.

By 1980, the National Park Service (NPS) had become increasingly concerned with the threats facing the parks. The NPS surveyed its managers about the threats and

1994). More than fifty percent of the threats identified by the superintendents were characterized as external (Lowry 1994). Air pollution was the number one external threat; however, two less obvious categories of external threats were also identified: encroachment and aesthetic degradation. Encroachment includes nonindigenous plants and animals, unwanted noise, and fires caused by humans (Lowry 1994). Aesthetic degradation includes issues such as land development outside the parks and urban intrusion along the boundaries (Lowry 1994). Historically, encroachment and aesthetic degradation were more prone to occur at locations near urban areas and not at more remote parks such as GSMNP. However, recent growth and development in the communities bordering GSMNP's northwestern boundary is now threatening the character of GSMNP's "soft-edge."

A survey of U.S. National Park superintendents by the National Parks and Conservation Association in 1979, found that sixty-six percent of 203 National Parks had problems with incompatible uses on adjacent lands (Shaw 1996). The most frequently cited incompatible uses were residential and commercial developments (Shaw 1996). A 1994 survey of superintendents revealed that eighty-five percent of the parks are experiencing physical threats from outside their boundaries (Howe 1997). Nearby urbanization affects parks in a variety of ways, including water and air pollution, diversion and depletion of water resources, loss of habitat, and displacement of biota (Shaw 1996). Direct impacts on wildlife include vehicle collisions, increased hunting or poaching, and predation or harassment of wildlife by domestic or feral pets (Shaw 1996). Not surprisingly, the issues now facing GSMNP have occurred in other locations. Therefore,

surprisingly, the issues now facing GSMNP have occurred in other locations. Therefore, the actions being taken by GSMNP, the neighboring communities, and other interested parties, may potentially be of use at other parks.

Research Objectives

This study questions whether the northwestern “soft-edge” boundary of the GSMNP can be preserved in light of the threat posed by population growth and development in adjacent communities. It is assumed that preservation of the “soft-edge” is a desirable outcome. To answer this question it is necessary to identify the parties who have the resources or the authority and the interest to influence land use decisions that would preserve the “soft-edge” boundary. It will also be necessary to evaluate the extent of their authority and resources, and the actions that are being taken to preserve the boundary. Obvious parties are the GSMNP and the neighboring communities of Townsend, Pittman Center, and Gatlinburg. Other potential parties are the U.S. Environmental Protection Agency (EPA), state and county governments, as well as local conservation organizations. I am unaware of any other research efforts specifically focused on the GSMNP’s boundary, and I am hopeful that this research will contribute to a better understanding of the challenges facing both Park officials and the residents of the neighboring communities in formulating a strategy that will preserve the “soft-edge.” Whether the “soft-edge” boundary can be preserved is a question that can be studied from many perspectives. I have chosen to study this issue primarily through a legal/policy perspective since it will be those types of decisions that will decide the fate of the “soft-

edge.” I have also included substantial information on the geography of the boundary area because many of the actions that have given rise to the problem result from the communities’ geographic location. Moreover, physical geographic conditions along the boundary may influence both regulatory and developmental decisions. The research for this study was accomplished through a comprehensive literature search and interviews of key personnel involved in the boundary preservation effort.

The Study Area

The study area is composed of GSMNP and three Tennessee communities located outside the Park’s northwestern boundary. The three communities are Townsend, Gatlinburg, and Pittman Center, Tennessee (Figure 1.2). These communities were chosen because they are located along the portion of the northwestern boundary that is most threatened by growth and development.

The Great Smoky Mountains, which lie within the Park’s boundary, and from which the Park takes its name, are the highest mountain range of the Blue Ridge Province of Appalachia (Strahler 1977). The Blue Ridge Province consists of a narrow mountainous belt extending from northern Georgia to Maryland (Strahler 1977). Traveling north to south, the Blue Ridge Province begins to broaden around Roanoke, Virginia and reaches its greatest width of between eighty and one hundred miles in North Carolina and Tennessee (Raitz 1984). The southern Blue Ridge is reported to have over forty-six peaks above 6,000 feet and 288 more peaks above 5,000 feet (Raitz and Ulack

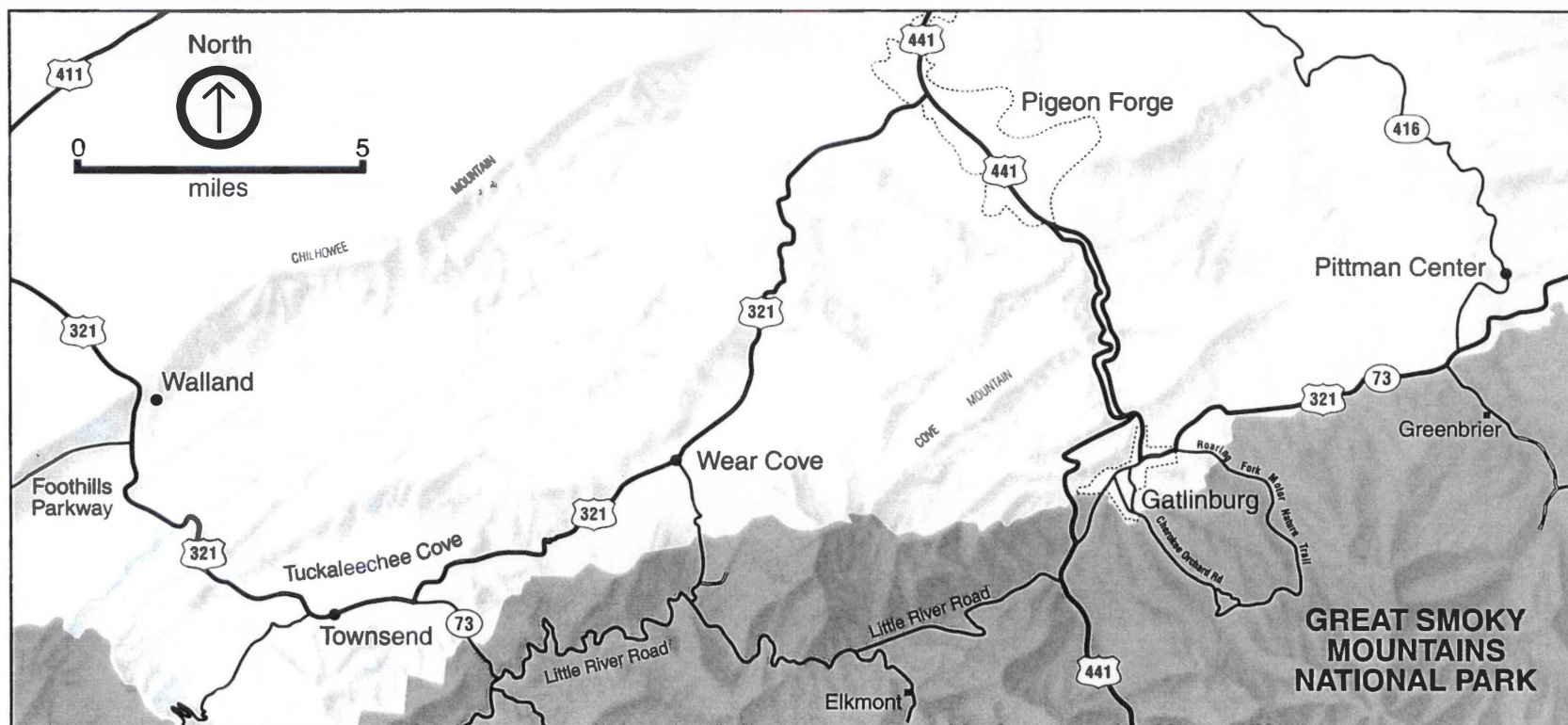


Figure 1.2 -- Study Area -- Source: UTCL, 2000.

1984). The Great Smoky Mountains are located between the Pigeon and Little Tennessee Rivers (Williams 1995). The North Carolina/Tennessee state line divides the Park into roughly equal portions.

Topographically, the two sides of the Great Smokies are quite different. The North Carolina side, for many miles, is quite mountainous (Williams 1995). On the Tennessee side, only a couple of small mountain ridges parallel the Smokies before leveling out in the Tennessee Valley (Williams 1995).

The Great Smoky Mountains National Park was created by an act of Congress in May 1926. Unlike the eighteen national parks previously established in the American West, it was not carved from existing federal land, but purchased from private landowners and acquired through private land donations (Campbell 1960). The approximately 515,000 acres comprising the GSMNP involved 6,600 privately owned tracts (Campbell 1960). Over eighty-five percent of this acreage was owned by eighteen timber and pulpwood companies, and approximately 1,200 tracts were farm sites. Summer homes and privately held lots made up the remainder. Approximately one-third of the Great Smokies was still covered by mature forest at the Park's creation (Campbell 1960).

It was no mistake that GSMNP was accorded the status of National Park. GSMNP contains the most biologically diverse vegetation in the entire National Park System and more tree species than anywhere in the United States (USDI, undated). Furthermore, the largest concentration of black bears, between 400 and 600, inhabit the Park. In addition to its abundant natural resources the Park has preserved seventy-seven structures illustrating Appalachian history and culture (USDI, undated). It is the most

heavily visited Park in the National Park System, averaging over nine million visitors annually (USDI, undated).

Gatlinburg, Pittman Center, and Townsend are communities located on the northwestern boundary of GSMNP. Gatlinburg and Pittman Center are located in narrow mountain valleys with steep hillsides. Gatlinburg is located along the main highway (US 441) connecting the Tennessee and North Carolina sides of the Park. The community caters to tourism and is densely developed with structures arrayed along the mountainsides and the valley floor. Pittman Center has remained largely free of commercial development because it is not located along a main entry into the Park, and also because employment is available in neighboring communities. Like Pittman Center, Townsend is not located along the main entry to the Park and has managed to avoid the dense commercial and residential development that characterizes Gatlinburg. However, geographic dissimilarities have recently made Townsend more vulnerable to development than Pittman Center. Unlike Pittman Center, Townsend is located in a large cove area with more developable land, and the Townsend entrance into GSMNP is being increasingly used due to congestion in Pigeon Forge and Gatlinburg. The NPS has recognized Townsend's plight and has identified the community as one of the park system's most threatened gateway communities. As a result of this recognition, more emphasis on Townsend's history and geography are included in this paper.

Tuckaleechee Cove, the valley in which Townsend is located, is in the southeastern section of Blount County adjacent to the GSMNP. Chilhowee Mountain separates Tuckaleechee Cove from much of Blount County. Tuckaleechee Cove is separated by

ridges from Wears Cove, which is approximately three hundred feet higher, and Cades Cove, which is approximately seven hundred feet higher (Cate and Calloway 1986). These coves are composed, in part, of Ordovician limestones exposed to erosion for millions of years (Cate and Calloway 1986). Tuckaleechee Cove has an estimated population of 2,800 and a watershed area of approximately thirty-two square miles. The Little River, originating from springs and runoff high in the Great Smokies, flows through the middle of the cove. U.S. Highway 321/State Route 73 runs parallel to the Little River and through the small city of Townsend. This route is now one of the major entrances to the National Park (Figure 1.1).

There were Cherokee villages in the cove at one time, but they apparently had been abandoned by the time European/American settlers arrived in the 1790s (Cate and Calloway 1986). Tuckaleechee Cove was legally opened to European/American settlement in 1798 when the First Tellico Treaty was concluded with the Cherokees (Cate and Calloway 1986). The first mention of a white man in Tuckaleechee Cove was 1740 when a packman recorded his route from Virginia to the Indian Villages (Burns 1957). His route followed the Little River, and he noted that a path branched off near the Tuckaleechee towns into Cades Cove (Burns 1957). The first European settlers of Cades Cove, John and Lucretia Oliver, used an Indian path to cross Rich Mountain from Tuckaleechee Cove into Cades Cove for the first time in 1818 (Rozema 1995). Cades Cove was named for a Cherokee Chief named Kade (Rozema 1995).

The community of Townsend was established in 1902 along with the Little River Lumber Company (Burns 1957). The city is named after one of the company's owners,

W.B. Townsend, who established a saw mill and post office (Burns 1957). The Little River Railroad was established shortly thereafter to carry lumber and ran from Townsend to Walland, about seven miles northwest of Townsend. The railroad was extended east of Townsend to Elkmont in 1908 and later southeast to Tremont (Burns 1957). Both Tremont and Elkmont are now part of the National Park. The main highway through the Little River Gorge follows this old railroad bed (Burns 1957). Today Townsend is primarily a residential and tourist community of approximately 330 people. The city limits comprise less than three-fourths of a square mile.

Boundary Issues

The threat of development on the GSMNP's boundary is a significant concern of the NPS. In discussing the GSMNP, Shawn Benge, the principal planner for the Park, stressed that the reason the NPS is primarily focused on the communities of Pittman Center and Townsend is their potential to grow more rapidly than other communities bordering the Park (Benge 1999). Consequently, the NPS has directed most of its planning assistance and monetary resources to these communities, and to Tennessee's regional transportation planning efforts. Benge explained that the NPS's goals are to preserve the existing "soft-edge" with Townsend and Pittman Center, and to assist Gatlinburg's efforts in reclaiming some of the "soft-edge" characteristics that have been impacted by development (Benge 1999).

Benge further explained that a "soft-edge" boundary performs several important functions between the Park and the neighboring communities. First, a "soft-edge"

gradually transitions the visitor from an urban to a natural environment. Second, a “soft-edge” helps to protect indigenous species in the park by separating them from exotic species planted in newly developed areas outside of the Park. Third, a “soft-edge” provides fire protection for structures built too near the Park, in the event a fire in the Park crosses its boundary, and provides protection for the Park in the event of a fire near the boundary. Firefighters would have more flexibility in fighting fires in a “soft-edge” zone outside the Park than on lands inside the Park, which are subject to strict controls. Fourth, a “soft-edge” serves as a wildlife corridor and mitigates human and wildlife conflicts. Such conflicts have occurred in Gatlinburg, where black bears often leave the park in search of garbage in nearby residential and commercial developments. Fifth, Park visitors prefer a “soft-edge” with views of farms, pastures and woodlands to that of urban or suburban landscapes (Benge 1999).

Over ninety percent, or 478,000 acres, of GSMNP is zoned as natural environment. The remaining is zoned as follows: historic preservation and landscape management, 1.2 percent or approximately 6,165 acres; development including transportation and utilities, 6.6 percent or approximately 35,000 acres; and reservoir (Fontana) 0.9 percent or approximately 4,587 acres (USDI 1982). The extraordinary biodiversity found in the Park’s natural environment distinguishes it from other parks and caused its inclusion in the United Nations’ Biosphere Reserve Program.

Recognizing the shortcomings of inadequately drawn boundaries for parks in the developed countries, park planners in Latin America, Asia, and Africa have attempted to protect core natural areas with buffer zones. Buffer zones have been defined as “areas

peripheral to national parks or reserves which have restrictions placed on their use to give an added layer of protection to the nature reserve itself and to compensate villagers for the loss of access to strict reserve areas”(Sayer 1991). Thus, buffer zones have both biological and social benefits (Sayer 1991). As a practical matter, buffer zones tend to be conceived as relatively narrow strips of land on park boundaries where sustainable uses of natural resources are permitted (Sayer 1991). This buffer zone model is useful in developing countries, where the land next to the protected area is used primarily for resource extraction and/or low intensity agriculture. For many years GSMNP has had a *de facto* buffer zone similar to that of developing countries, in that it was mainly bordered by national forest and undeveloped rural areas. The same is true for many of the large parks in the western United States.

The ideal buffer zone advocated for protecting core natural areas in developing countries may not be practical for many parks in developed countries since much of the land around the parks is already developed. However, buffer zones created by local government authorities have met with some success in the United States. In the 1970s, a county comprehensive plan was passed to establish a buffer zone between Saguaro National Monument and the expanding city of Tucson, Arizona. The plan specified that a three mile buffer of privately owned land be created where only lower density development would be allowed. Within one mile of the national monument the recommended density was one unit per four acres. This plan was threatened, however, when the city annexed a portion of the buffer zone and approved a major development near the boundary. Reacting to this threat to the Park’s boundary, the NPS actively

participated in the local zoning review and approval process. The NPS succeeded in reducing the size of the development project and preserving the canyons extending into the monument as wildlife corridors. Additionally, height restrictions and architectural controls were agreed upon (O'Leary 1987).

Gateway Communities

The GSMNP, carved out of Tennessee's and North Carolina's mountains, is considered one of the most spectacular parks in the National Park System. As discussed earlier, its relative isolation was one of the reasons for the Great Smokies' designation as a national park.

"Gateway communities" is a term referring to those towns and cities that border public lands (Howe, McMahon and Propst 1997). Townsend and Pittman Center are gateway communities of less than 1000 people about twenty-five miles from each other. Both communities are located along Tennessee State Highway 321. Between these two communities lies Gatlinburg, a larger gateway community of about 3500, conveniently located at the most popular entrance to the Park. Over the last fifty years, Gatlinburg has developed to serve a tourist population with little regard to its impacts on the Park. Many residents of Townsend and Pittman Center regard Gatlinburg's development as an undesirable model (Howe, McMahon and Propst 1997).

Townsend and Pittman Center are both at crossroads. Historically, Townsend has marketed itself as the "Quiet Side of the Smokies," in contrast with its boisterous neighbor Gatlinburg. For years Townsend has been little more than a back entrance to the Great

Smokies with a few motels and rustic cabins to accomodate park visitors. In the past few years, however, increasing traffic congestion in Gatlinburg and Pigeon Forge has caused visitors to seek alternative entrances. The fact that Townsend is the most direct entrance to Cades Cove, the most popular destination in the Park, also contributes to increased traffic and is threatening to change Townsend's character.

Pittman Center is a small community about ten miles north of Gatlinburg and about eight miles from Pigeon Forge, a community not on the boundary of the Park, but in close proximity. Pigeon Forge has established itself as tourist and shopping destination with dozens of factory outlets, motels, and recreation such as Go-cart racing and bungee jumping. Pittman Center, on the other hand, has charted a course of planned development very different from its larger neighbors and serves as an example as an exemplary gateway community (Howe, McMahon and Propst 1997). In 1986, Pittman Center passed its first Land Use Plan and shortly thereafter enacted zoning ordinances. For the past fourteen years these actions have offered protection from uncontrolled development to Pittman Center and benefitted its neighbor, GSMNP. However, the growth of Gatlinburg and Pigeon Forge is increasingly threatening the rural undeveloped character of Pittman Center as well as natural qualities of the Park (Coykendall Interview 1999).

Many gateway communities have confronted growth and development similar to that now threatening Townsend and Pittman Center and have adopted different strategies in dealing with it. Some communities, seeking to capitalize on their proximity to a national park, have developed on lands directly adjacent to the park and/or have not controlled the type of development to avoid impairing park aesthetics. Other communities

have taken into account their special obligations as park neighbors and have attempted to develop in a manner that is compatible with the character of the Park. Gatlinburg is representative of the first type.

Horace Albright, former Director of NPS, described how Gatlinburg had changed in a letter to Michael Frome in 1978:

I well remember that when I was Director [of the National Park Service, from 1929 to 1933], I spent two weeks in the Great Smokies, riding horseback everywhere, and I remember Gatlinburg. On returning to Knoxville, I remember publicly declaring that Gatlinburg was the ideal national park gateway town, and compared its beauty, serenity, good taste, etc., with gateway towns and cities in the West -- Estes Park, Colorado, West Yellowstone and Gardiner, Montana, etc. A few years later Gatlinburg had "gone over the dam". I could not say anything good about it. I feel about it like I do Lake Tahoe -- I never want to see it again (Frome 1966).

Frome went on to point out how Gatlinburg has gone even further "over the dam" with "tawdry tourist fare" of wax museums, mysterious mansion, a haunted house, and over four hundred gift and specialty shops. In addition, the density of development, the congested automobile and pedestrian traffic, the noise, and excessive lighting, are the antithesis of the "soft-edge" concept. Mitchell (1994) has described Gatlinburg as the "mother of all gateways" and expressed concern that with Gatlinburg and Pigeon Forge as role models, gateway communities throughout the park system seem to be moving beyond the basic services to egregious (sic) entertainment.

Pittman Center and Townsend, on the other hand, are attempting grow and develop in such a manner as to preserve the characteristics that provide a "soft-edge" boundary with the neighboring GSMNP. Not situated on the historic main route into the

Great Smokies, and not having been subjected to similar developmental pressures as Gatlinburg, these communities have been able to preserve much of their natural beauty and historic landscape.

Townsend and Pittman Center have many things in common as communities. One of the most significant is their similar goal of not becoming another Gatlinburg. Despite their similarities, however, there are significant differences. For example, Townsend has considerably more developable land than Pittman Center and is facing greater development pressure due to its popularity as an entrance to Cades Cove.

This thesis examines a number of issues in seeking to answer the question of whether the northwestern “soft-edge” boundary with the GSMNP can be preserved. In Chapter II, I look at the authority of the NPS and the actions being taken by GSMNP officials to preserve the “soft-edge.” I also examine the actions taken at or near other parks to preserve their boundaries from encroaching development. Chapter III focuses on the neighboring communities, their land-use plans and ordinances and the actions they are taking. In Chapter IV, I look at the roles of other federal agencies, as well as state and county governments, in determining future land uses along the boundary. Chapter V focuses on the roles of local non-profit conservation organizations in the boundary question. Finally, Chapter VI discusses whether the actions and authorities of the various stakeholders are sufficient to preserve the “soft-edge.”

CHAPTER II

THE ROLE OF THE NATIONAL PARK SERVICE

What can GSMNP do to protect its boundary?

Origin, Authority, and Responsibilities of the National Park Service

The Organic Act of 1916 is the starting point for examining NPS authority for protecting its resources. In addition to creating the NPS, the Organic Act imposed often conflicting duties on the Secretary of the Interior. The Secretary is charged with protecting park resources while providing for public access, and ensuring that the parks are left “unimpaired for the enjoyment of future generations.” One can easily see the dilemma for the NPS. If the public is granted too much access, or if public access is made too easy, then park resources are likely to be impaired. GSMNP offers a good example of this management dilemma during the summer vacation and fall leaf-watching seasons. Unlimited public access creates traffic jams, as well as noise and air pollution.

The Secretary has clear authority under the Organic Act of 1916 to deal with threats occurring within park boundaries (Simon 1988). However, the authority and responsibility for protecting park resources from external threats under the 1916 Act is less clear. In response to the Secretary’s uncertain authority, the Organic Act was amended in 1978, to clarify the Secretary’s responsibilities. These responsibilities clearly include protecting the national parks from harmful external activities (Simon 1988). Under the 1978 amendments, the Secretary may consider such actions as purchasing peripheral lands or entering into cooperative agreements limiting the use of those lands, instituting

lands or entering into cooperative agreements limiting the use of those lands, instituting common law nuisance and trespass actions, and bringing legal actions under federal or state environmental protection statutes. As a result of those amendments, the NPS has several options for addressing the impending development in communities on the northwestern boundary of GSMNP.

In 1992 the NPS held its 75th anniversary symposium in Vail, Colorado. The NPS recognized the new challenges it was confronting from population growth and economic and social activities that threatened its mission to manage and protect the national park system. The NPS seized this opportunity to strategize about the future. Over 700 experts from the government and private sector gathered to discuss the future of the national park system. The report produced from this effort is entitled *National Parks for the 21st Century: The Vail Agenda* (NPS 1992). Some of the problems the experts considered in 1992 are similar to those now confronting GSMNP. The recommended strategies found in *The Vail Agenda* are important in evaluating the adequacy of the NPS' efforts to preserve the GSMNP's "soft-edge" boundary.

In *The Vail Agenda*, the NPS outlined six strategic objectives and numerous recommendations for achieving those objectives. The NPS also reaffirmed that its primary responsibility was the protection of park resources from both internal and external impairment. Two recommendations were made to protect parks from external impairment. The first stated, "the National Park Service should provide technical and planning assistance to public and private parties able to mitigate external and transboundary threats to park unit resources, and to those able to influence the quality of

visitor enjoyment and enlightenment through their provision of gateway services.” The second stated, “the National Park Service should utilize available resource, expertise, and cooperative relationships to ensure compliance with applicable law when external activities otherwise endanger park resources” (National Park Service 1992).

Another important product of the Vail Symposium was NPS’s sustainable design initiative. This initiative grew out of a finding that the national parks were being stressed by a variety of factors including: 1) population increases; 2) park visitation increases; 3) demographic changes; 4) increased numbers and types of sites to manage; 5) environmental degradation; 6) lack of capable [park] leadership; and 7) need to protect whole ecosystems. The members of the symposium recognized that these problems are beyond the scope of standard park management, and that sustainability is a way to address these problems.

Shortly after the symposium, the NPS published *Guiding Principles of Sustainable Design* to govern facility planning and design in the national parks. The goal of the NPS is that implementation of these sustainability principles in the parks would serve as an example for the broader public. Even though these principles are intended for internal facility planning and design, some of the principles could easily be applied to influence development outside the parks. Discussed below are five principles, which if incorporated into the Townsend’s and Pittman Center’s land use plans and design criteria, would assist in preserving the character of GSMNP’s “soft-edge.”

The first principle, *interpretation*, stresses that visitor experiences should involve natural and cultural resources. Furthermore, visitor experiences should be

environmentally and culturally compatible encouraging protection of the resource. The second principle focuses on *natural resources*, emphasizing that facilities should to the fullest extent possible function within the ecosystem and its constraints. For example, this principle seeks to minimize the effects of increased noise and erosion, as well as vegetation alteration. The third principle focuses on *cultural resources* and seeks to ensure that providing access to these resources does not create additional environmental deterioration. The fourth principle concerns *site design* and promotes: 1) recognizing context (impact on larger community); 2) treating landscapes as interdependent and interconnected; 3) promoting biodiversity; 4) reusing already disturbed areas; and 5) making a habit of restoration. The fifth principle focuses on *building design* and the need for “sense of place.” This principle emphasizes that planners and developers have “an opportunity and responsibility to protect the sanctity of a place, its people, and its spirit” (Guiding Principles 1993). Adherence to these principles in the growth and development of the neighboring communities would help to preserve the “soft-edge” character along the boundary with the Park.

GSMNP General Management Plan

All national parks are required to produce plans for managing their resources. GSMNP is currently operating under a plan published in 1982. Prior to the publication of the General Management Plan, the GSMNP’s superintendent published in 1978 certain management objectives for GSMNP. These objectives were incorporated into the 1982 plan, which establishes broad management strategies for achieving the objectives. Two of

these objectives are important in analyzing the NPS response to the threat posed by development on the Park's northwestern boundary.

The first objective is:

to protect and perpetuate the significant and diverse natural resources and ecosystems found at Great Smoky Mountains National Park, keeping them as free as possible from the adverse influences of human intrusion, consistent with legislative and executive mandates and NPS policies.

The second objective is:

to work with state, federal, and local governmental and private organizations to ensure that the park and its programs are coordinated with theirs, and are supportive of their objectives, as far as proper management of the park permits, and that their programs are similarly supportive of park programs.

With respect to the first objective, the NPS has sufficient authority to protect its resources from most adverse human influences. The two main exceptions at GSMNP are air pollution and excessive development along its boundaries. The second objective is actually a means to achieving the first, since the NPS is limited by law from regulating development activities outside of Park boundaries. Accordingly, it stands to reason that achieving this second objective is absolutely necessary for the Park to adequately protect its boundaries.

One of the major features of the management plan is that it establishes management zones in which to carry out the strategic objectives inside the Park. The "natural environment" zone encompasses ninety percent of the Park. Ironically, it is the presence of the "natural zone" at the park periphery that creates problems when a gateway community such as Gatlinburg becomes too urbanized. This juxtaposition creates

problems in managing wildlife habitat, keeping the Park free of exotic vegetation and maintaining the aesthetic integrity of the park. As long as the area remains essentially rural, like Townsend and Pittman Center, the juxtaposition poses few problems.

Different Types of Parks

The early national parks were primarily concerned with natural preservation. In the 1930s, with the inclusion of the major Civil War battlefields, historic preservation gained importance. In the 1960s and 1970s, increased resources were directed to cultural preservation and urban national parks (Foresta 1984). Many of these parks were located near larger eastern urban areas. Since the communities bordering the GSMNP are concerned with their own historic and cultural preservation and are being threatened by urban growth, it is beneficial to consider some other types of parks.

During the 1960s and 1970s the NPS began experimenting with the idea of “greenline” parks in or near urban areas. This approach perhaps was established first by the British park system whose primary purpose was to preserve “the rural landscape and its scenic amenities”(Foresta 1984). The British system was established in 1949. Until then Britain lacked a formal national park system because the only large rural landscapes had been in private ownership for centuries. This type of park system does not require changes from private ownership to public ownership, only agreements to provide public access by the private landowner (Corbett 1983).

Another successful greenline system is found in Germany where the federal government provides general guidelines that states and towns must follow in zoning

decisions. Like the British system, the German system does not require the government to purchase the property to accomplish its conservation goals (Corbett 1983). Presumably, the German guidelines suggest land use restrictions that achieve conservation purposes that are then imposed at the local level.

Britain's success with greenline parks may be attributable to a long history of public access to private lands, while Germany's success may be related to the value placed on natural and agricultural areas by the German people in this heavily industrialized country (Corbett 1983). The greenline approach has been long admired by American conservationists and planners wanting to preserve significant landscapes, natural systems, and recreational resources without displacing communities or incurring the costs of land acquisition. Under either greenline approach, however, a private property owner's rights are limited either through government regulation or through the transfer of those rights in return for monetary payment. These approaches should be considered by the NPS at GSMNP, since both Townsend and Pittman Center have rural landscapes that the NPS wishes to preserve.

The greenline concept has been applied successfully in certain areas of the United States; one of the most notable is Adirondack State Park in New York (Foresta 1984). Successful greenline parks in the United States have relied heavily on relatively recently developed conservation tools such as transfer of development rights, purchase of scenic easements, creation of private land trusts, in addition to fee simple acquisition and zoning (Blair 1987). Zoning and transfer of development rights are examples of governmental regulation while the others usually require some form of monetary payment.

Three applications of the greenline park system, one in Great Britain and two in the United States, are discussed below.

North York Moors

A good example of the British greenline park concept is illustrated by the North York Moors National Park in northern England. In a British “greenline” park, the people live, work and farm under agreements that limit and regulate those activities and provide for public access to these rural areas as long as their activities are unobtrusive and do not harm the resource (Blair 1987). North York Moors, a sparsely populated area located close to densely populated urban areas, has approximately thirteen million visitors annually (Statham 1994). In addition to serving as a park, North York Moors is a living place for farmers, foresters, hunters, fisherman, and other land users. Farmland occupies about forty percent of the park’s area (Statham 1994).

All of the principal habitats of North York Moors have been created or strongly influenced by human activity. The two main habitats are moorland and farmland. The dominant vegetation of the moorland is heather, which provides habitat for birds, reptiles and certain invertebrates. The primary threat to moorland habitat was sheep grazing, but this has abated somewhat due to reduced income. Grouse hunting is a significant commercial activity in the moorlands. Farmland wildlife habitat, however, is increasingly threatened by drainage for increased farm acreage and increased use of pesticides and herbicides. Farms have become larger while at the same time employing fewer people.

Hedges and stone fences have been neglected or replaced with wire fencing. Lastly, income from farming has fallen (Statham 1994).

North York Moors is an attractive area which draws retirees and other persons employed outside of the park area. The attractiveness of North York Moors, to retirees and tourists, has resulted in a significant increase in housing costs. The new immigrants have caused social disturbance by buying up cottages for second homes and leaving them empty during the winter months (Statham 1994). Presumably, the social disturbance referred to by Statham results from housing shortage.

Since most of North York Moors is privately owned, the National Park Authority (NPA) must rely on the cooperation of the landowners to achieve its land management goals for preserving farmland wildlife habitat. This cooperation has been achieved by promoting or reintroducing traditional farming techniques. The NPA has made grants for planting trees and hedges, restoring walls, and managing woodlands. The NPA has also entered into agreements that provide financial incentives for retaining and maintaining important habitats (Statham 1994). These financial incentives apparently are similar to the agricultural subsidies, such as those for sugar and peanuts, granted to American farmers for decades. These financial incentives make it possible for farmers to earn a living when complete reliance on the free market economy would not. These types of agreements with private landowners are also similar to "less-than-fee" purchases made by NPS at certain greenline parks in the United States. However, NPS experience with managing land under these types of agreements has had mixed results (Foresta 1984).

Santa Monica Mountains National Recreation Area

The Santa Monica Mountains National Recreation Area (SMNRA) was created in 1978 in the Los Angeles area. The approach used for creating SMNRA borrowed from the greenline park approach. Congress drew a boundary of 147,465 acres around the national recreation area and around it delineated a larger “zone of influence” totaling 225,000 acres. About twenty percent of the land in the recreation area was already publicly owned, including three state parks, eight state beaches, a state historical park, four county parks, and seven city parks. About ten percent of the property within the recreation area remains privately owned. Thus, NPS does not have exclusive jurisdiction within the recreation area and must reach cooperative solutions with other government agencies and private property owners. Among the other government agencies having land-use or regulatory responsibilities within the boundary are the California Department of Parks and Recreation, the Los Angeles County Department of Beaches and Harbors, the Los Angeles City Department of Recreation and Parks, the California Coastal Commission, the State Coastal Conservancy, and the Santa Monica Mountains Conservancy (The Conservation Foundation 1995).

In September 1997, the NPS, California State Parks, and Santa Monica Mountains Conservancy began the planning for the General Management Plan for the Recreation Area. A newsletter was created to disseminate information to the public. Among the concerns of the planners were private development of large residences along ridgelines intruding on scenic vistas, and population growth creating competition for remaining open spaces resulting in higher land prices (Santa Monica National Recreation Area 1997).

Because of the pressures of development, preservation of an adequate amount of open space is often critical if a greenline park is to be viable. At SMNRA, the NPS has worked cooperatively with local and national land trusts in acquiring additional open space. In 1996, the Santa Monica Mountains Conservancy and the Trust for Public Land acquired eight parcels of land to assist in completing a trail system (Santa Monica National Recreation Area 1997).

Columbia River Gorge National Scenic Area

In November 1986, Congress created the Columbia River Gorge Scenic Area. It is part greenline park and part National Recreation Area. Federal jurisdiction is vested in the U.S. Forest Service (USFS), rather than the NPS. The legislation was passed because local and state government actions were inadequate to protect the Gorge's nationally significant resources (Blair 1987). The Act borrowed heavily from legislation creating the Sawtooth National Recreation Area and the Cape Cod National Seashore.

In 1980, the NPS investigated the Gorge under its authority to monitor areas that might merit inclusion in the National Park System (Blair 1987). The NPS published a study that detailed disturbing development trends and analyzed the Gorge's multi-jurisdictional government problems. The Scenic Area has multiple jurisdictional entities. The Gorge divides two states, Washington and Oregon. In addition, there are six counties, seven ports and nine cities within the area. The USFS is the largest landowner (Blair 1987). Fortuitously, the release of the NPS study coincided with an attempt to subdivide and develop a natural area across the Columbia river from Multnomah Falls, the

Gorge's most famous waterfall. The attempted subdivision illustrated the inability and unwillingness of the local county to protect the Gorge's nationally significant values (Blair 1987).

The Columbia River Gorge Scenic Area Act divides the area into three management areas. Special Management Areas (SMAs) are those areas with the most significant scenic, natural, cultural, and recreational values and are administered directly by the USFS. General Management Areas (GMAs) are governed by the Columbia River Gorge Commission, which has 12 voting members, half appointed by the two governors and half by local county commissioners (Blair 1987). The Urban Areas (UAs) are allowed to make only minor boundary revisions. Two thirds of the commissioners must approve revisions, and one of the criteria is that the revision not significantly reduce agricultural areas, forest lands, or open space.

Analysis

The NPS is keenly interested in community development along its boundaries and is actively involved with local planning, particularly on the Tennessee side of the GSMNP, according to Shawn Benge, lead planner for the Park. In 1986, approximately 500,000 visitors entered GSMNP through Townsend. By 1998, this had increased to over 2,000,000 visitors (Access Issues 1998). Townsend has strong ties with Cades Cove, one of the premier attractions of the Park. Many land use planning issues overlap between the NPS and Townsend and Pittman Center, and there is a mutual interest in ensuring that the area avoids the type of growth and development found in Gatlinburg.

Benge and the NPS consider Townsend and Pittman Center special in that they are still relatively rural, and contrast dramatically with their more densely developed neighbors, Pigeon Forge and Gatlinburg. Both communities have the opportunity for development that is sustainable and will preserve the “soft-edge” character that exists along their boundaries with the Park. Benge’s most pressing concerns involve growth and development issues in Townsend (personal communication 1999). The Tennessee Department of Transportation (TDOT) estimates that traffic through Townsend will double by 2010 and this traffic increase will double the impacts on the Park. As with most transportation departments, TDOT’s solution to Townsend’s traffic problem is to widen Highway 321 to carry more traffic. Phil Francis, Acting Superintendent of GSMNP, shares Benge’s concerns about Townsend’s growth, but he is also concerned with tourism increases within the Park itself. Francis describes the Smokies as being “the hub of a spoked wheel with growing traffic spokes extending from the Midwest, Atlanta, the Carolinas, and Virginia” (personal communication 1999). Excessive and poorly planned development in Townsend to accommodate tourists and residents could cause aesthetic problems, as well as environmental degradation from exotic species. Potentially harmful contacts between residents and park wildlife would likely increase.

Despite NPS concerns, legal and policy constraints limit the NPS’s ability to control the development in neighboring communities. Acting Director Francis is well aware of the limits on NPS authority (Francis Interview 1999). Francis believes that the NPS’s primary role and responsibility with respect to external threats is to serve as a catalyst to ensure that issues that affect GSMNP are addressed in the proper manner by

outside authorities. For example, air quality in the Park is impacted by air pollution sources outside of Park boundaries. While NPS has no direct authority to abate the air pollution originating outside the Park, it has gathered data to demonstrate its negative impacts on the Park and has helped raise the issue to a state and national concern (Francis Interview 1999).

Similarly, if a neighboring community's development would adversely impact the Park, then NPS officials would attempt to influence local decision-making so as to minimize those impacts (Francis Interview 1999). Recognizing the potential for Townsend, in particular, to develop in ways that might threaten the character of the Park's "soft-edge" boundary, the NPS provided \$40,000 in 1998 for a Proposed Land Use Plan for Townsend/Tuckaleechee Cove (Benge Interview 1999). This plan is discussed further in Chapter III. Shawn Benge believes that the Townsend/Tuckaleechee plan, if properly implemented and adhered to, can preserve the "soft-edge" character along the boundary.

The NPS has also provided \$10,000 and participated in a design study seeking to minimize the impacts of the widening of Highway 321 on Townsend's rural character. This plan is discussed further in Chapter III. In other actions taken to preserve its "soft-edge," the NPS has provided in-kind services for similar planning efforts for Pittman Center and brokered the services of a planning consultant for Gatlinburg (Benge Interview 1999). In addition to his regular duties, Benge also serves on the Townsend/Tuckaleechee Cove Advisory Board.

The NPS has also recognized that other state highway projects in Blount and Sevier counties will likely spawn additional traffic and development near the Park. In

response to this broader predicament, NPS has provided \$10,000 and entered into a Cooperative Agreement with the Knoxville Metropolitan Planning Commission (MPC) to develop a regional transportation alternatives study. Recently, the NPS worked with the Federal Highway Administration and MPC to obtain \$600,000 for Regional Transportation Planning (Benge personal communication 2000).

How successful Park officials will be in curbing the TDOT's zeal for more or expanded roads that would result in more growth along its boundary is anyone's guess. TDOT is planning a 2.1 mile extension of Pellissippi Parkway in Blount County and a 2.6 mile expansion of Highway 321 in Sevier County in 2000-2001. TDOT justifies both of these projects on the need to accommodate additional growth. According to Joe Tarr, TDOT has a reputation of arrogance and not taking seriously the concerns of people who are affected by its projects (Tarr 2000). Tarr also notes that once a TDOT project is planned it is likely to go forward, and that the department does not continually reassess itself (Tarr 2000). Therefore, people who want to head off problematic roads should get involved in the early stages when the MPO is holding public hearings on its transportation plans (Tarr 2000). Benge's role, in working with the communities of Gatlinburg, Pittman Center, and Townsend, has been both as a planner and catalyst or resource provider. The actions he and Phil Francis are taking are consistent with the recommendations from *The Vail Agenda* and authority granted to the NPS by Congress. Benge is confident that the character of the "soft-edge" boundary can be preserved, if Townsend and Pittman Center are able to implement their proposed plans and policies.

One must question, however, if these *Vail Agenda* type actions will be enough to preserve the “soft-edge” character considering the growth projections for Blount and Sevier counties. There is a strong argument to be made that the NPS is doing all it can considering GSMNP is located in a conservative region of the country that is wary of federal intrusion. During the 20th century many thousands of acres of private property were taken by the federal government from landowners in this area (Nolt 1997). In the 1920s it was for the Park, in the 1930s for the Tennessee Valley Authority (TVA), and in the 1940s for the Department of Energy’s Oak Ridge Reservation (Hales 1997). Residents of this region are wary of utopian visions from the federal government (Hales 1997). State and local politicians, as well as Congressional representatives, are usually conservative and oppose federal involvement in local and state matters. Many East Tennesseans would consider development outside of the Park as a purely local or individual concern and not a federal matter (Coykendall and Barger Interviews 1999). Moreover, the NPS has probably not recovered from the erosion of power and authority that it suffered in the Reagan era (Lowry 1994). This diminution of authority plus the politically conservative nature of the region limits the capacity of the NPS to extend its activities into local development matters.

It can certainly be argued that stronger measures are necessary. Without doubt, GSMNP would certainly be in a stronger position to protect its boundary if a “zone of influence” similar to that found at SMNRA, or a regulatory structure like that of Columbia River Gorge, were established that would give the NPS more authority in dealing with the local communities. But is such action possible in East Tennessee in light of the residents’

attitudes regarding private property and the absence of an immediate and significant threat?

In pursuing either of these alternatives, the NPS would likely face stiff resistance from some property owners who are hostile to federal government interference with regard to their private property. The National Parks and Conservation Association (NPCA) has observed that “the heart of opposition to park service power over nonfederal land are respect for private property rights and resistance to federal intrusion into what are genuinely perceived to be purely local affairs” (The Conservation Foundation 1985). Moreover, strategies in addressing these oppositional forces would need to be tailored for the specific location. For example, exerting influence over a subdivision development near the boundary of the Great Smokies might require a different approach than one near Point Reyes National Seashore in California (New Generation 1985). Unlike eastern Tennessee, much of California has a long history of extensive land use controls.

Other legal or regulatory solutions present other problems. If the development were so obnoxious as to create a public nuisance or the development encroached on a boundary line the NPS could seek assistance from the courts. However, typical residential and commercial development is hardly ever considered a nuisance, and development outside of Park boundaries would not be considered a trespass under common law. Furthermore, development could occur outside of the Park that could threaten the Park’s boundary, but not violate federal or state environmental protection statutes. The most practical alternatives for the NPS, considering the current status of the law, are either

acquiring threatened properties or entering into cooperative agreements limiting development of those properties.

The juxtaposition of developable private property in the neighboring communities with public property that must be preserved in its natural state is bound to create tension. Ownership of private property has some peculiar and revered notions in this country. In medieval England, land was the principal form of wealth (Freyfogle 1995). The landowner had security, independence, and status. Even though other forms of wealth have overshadowed land in modern times, land and home ownership still represent a badge of independence and success (Freyfogle 1995). Land ownership also represents a haven from the outside world. Englishmen used property ownership and the rights associated with it to resist intrusions from the crown. Thus, property ownership became an inherent human right and private land was needed to counterbalance the power of the state (Freyfogle 1995).

These ideas crossed the Atlantic with the British colonization of the eastern United States and are strongly held by residents of East Tennessee. Both Jim Coykendall, the Pittman Center Planner, and Don Barger, the Regional Director of NPCA, emphasized in their 1999 interviews that strongly held ideas about private property rights were major obstacles to preserving the GSMNP's "soft-edge" (Coykendall and Barger personal communications 1999).

In order to preserve the character of the "soft-edge" boundary the NPS must find some way to restrain development. The lands adjacent to the GSMNP are important to the Park, but likely do not possess the scenic or recreational qualities necessary to warrant

Congress establishing them as National Recreation or Scenic areas. The greenline approach taken at North York Moors, on the other hand, offers a flexible and cost efficient means of preserving environmentally important lands. It also relies upon a strategy that considers and complements the desires of the local communities. Given the importance of maintaining at least some of the GSMNP's "soft-edge" boundary containing elements of the area's agricultural past, the NPS should consider a conservation scheme similar to that being employed at North York Moors. A pay for conservation plan in certain strategic areas along the boundary would provide income to local landowners who would rather conserve than develop.

CHAPTER III

THE NEIGHBORING COMMUNITIES

As noted in the introduction, three communities in various stages of development are located along the GSMNP's northwestern boundary. The degree to which these communities are able to influence and control their growth and development will dramatically affect the nature of their boundaries with the Park. Gatlinburg, which is already substantially developed, and Pittman Center are located in Sevier County. Townsend is located in eastern Blount County near the Cades Cove entrance to the Park. Both Sevier County and Blount County are experiencing rapid population growth as well as increased tourist visitation. As of August 2000, neither of these counties had land use plans or zoning ordinances. Consequently, it is important to examine the land use plans, zoning ordinances, and other actions that these neighboring communities are taking to preserve the Park's "soft-edge." Examination of these plans and other actions will provide insight into the level of commitment each community has to preservation of the environmental and cultural qualities that are critical to preserving the "soft-edge" with the Park.

Gatlinburg

Not long ago Gatlinburg was a small village that was virtually inaccessible until the advent of the automobile and modern highways (Foscue 1945). It is unknown when the first settlers arrived, however, some were established by the early 19th century. Some of

the first families have descendants who own much of the property today (Foscue 1945). The community was originally known as White Oak Flats, but was changed to Gatlinburg in 1860 when Radford Gatlin established a post office. Primary contributors to Gatlinburg's early development were the logging industry and the Pi Beta Phi Settlement (Foscue 1945). Pi Beta Phi, the first national college fraternal organization for women, became concerned about the living conditions in Appalachia. Because of the dearth of schools in East Tennessee, Sevier County was chosen for a settlement school. The school initially placed special emphasis on industrial and agricultural subjects to assist the students in making a living in their own homeland (Frome 1966).

It was the establishment of GSMNP, however, with its headquarters near Gatlinburg, and the building of modern highways that made Gatlinburg a modern resort center (Foscue 1945). Today Gatlinburg typifies how unplanned development can impact the experience of the Park visitor and Park resources. Historically, Gatlinburg has developed with little regard for the Park's interests. Chalets, condominiums and commercial facilities have been built very close to the Park's boundaries in areas where black bears feed on acorns to fatten up for the winter. In low mast years this leads to bears being killed on highways or shot in backyards (Howe, McMahon and Propst 1997). Moreover, views of the Smokies from Gatlinburg have been altered by an observation tower, scores of high-rise developments, an aerial tramway, and a fifteen-story hotel (Howe, McMahon and Propst 1997).

Gatlinburg's Land Use Plan and Ordinances

Gatlinburg passed its latest Land Use Plan (the Plan) in 1991. In the section dealing with growth and development the Plan acknowledges the benefits of tourism, but points out that some serious problems have resulted from the continuous influx of visitors. On peak tourist days the city must provide services for over 60,000 while its permanent resident population is only around 3500. Specific problems that are identified are congestion, development on steep slopes, and flooding. However, these problems are characterized as mere obstacles to be overcome to ensure economic growth. The Plan does not discuss how development may affect GSMNP.

Approximately forty-seven percent or 3148 acres of Gatlinburg is considered developed. Only 158 acres of this amount are considered public property, and sixty-eight acres of public property are used for parking or utilities. The Land Use Plan's mission statement for Gatlinburg declares the following:

The City Commission and the Administration of the City of Gatlinburg are committed to EXCELLENCE in the provision of QUALITY municipal services designed to PROTECT the lives and property of visitors and citizens, to PROMOTE the natural beauty and tourism activities of the area, and to PROVIDE for responsible and orderly growth.

The Plan contains open space guidelines recommending that residential densities be lowered in environmentally and/or geologically sensitive areas. It also contains general guidelines for protecting the environment and creating aesthetically pleasing places. These guidelines are not ordinances and, thus, are unenforceable. The only goal in the Plan that could imply some responsibility or duty to GSMNP is one stating "to preserve, protect,

and enhance the unique character of Gatlinburg and its surrounding region and at the same time encourage a more harmonious and higher standard of development.”

Gatlinburg participates in the National Flood Insurance Program and has adopted comprehensive floodplain management regulations. Since much of Gatlinburg was developed in the floodplain, it has an extensive flood warning system. In 1998 Gatlinburg commissioned a study by the Sonoran Institute that has resulted in a garbage container ordinance to discourage bears from leaving the Park, and a proposed sign ordinance to improve the aesthetics of the community. This study is discussed below.

The Sonoran Institute Study

Despite this long history of ignoring the adverse impacts it had on the Park, Gatlinburg has recently begun an effort to change its image. In striving to become a different community and better neighbor to the Park, the Gatlinburg Chamber of Commerce, Southern Appalachian Man and the Biosphere Cooperative (SAMAB, and the Tourism Advisory Board commissioned a study by the Sonoran Institute (Propst and Gilliam 1998). The Sonoran Institute is a nonprofit organization based in Tucson, Arizona that focuses on community-based strategies to preserve the ecological integrity of protected lands while meeting the economic aspirations of adjoining communities (Howe and Propst 1998). The following recommendations set forth in Table 3-1 were extracted verbatim from the 1998 Sonoran Institute Study.

TABLE 3-1: Sonoran Institute Recommendations

1. Envision Gatlinburg as a Distinctive Gateway Destination Distinguish from Pigeon Forge and Sevierville Do not compete on their terms
2. Develop Local Leadership Create <i>Gatlinburg Gateway Foundation</i> to carry out local projects and promote philanthropy
3. Solidify Gatlinburg's Status as America's Premier Gateway Community Address water quality concerns Identify and protect critical lands around Gatlinburg Showcase Gatlinburg's unique local assets through better land use policies Empower the Environmental Design Review Board Improve the aesthetic quality of signs in Gatlinburg through a combination of private incentives, technical and financial assistance, and phased-in standards
4. Improve the Product for Visitors Make a dramatic gesture symbolizing a new approach to tourism Revitalize each entrance into Gatlinburg, focusing special attention on the north entrance Develop an attraction that highlights and builds upon Gatlinburg's unique status and mountain heritage Create an Arts and Crafts district downtown with a link to Riverwalk Develop a new regional transportation plan Develop public and private funding sources to implement these recommendations
5. Build on Gatlinburg's Advantage as a Great Place to Walk Develop a plan for expanding the Riverwalk Build upon the successful trolley system with a long range partnership for expansion Market the assets that attract repeat visitors and have long term appeal

Source: Propst, Luther, and Gilliam, Catherine, November 1998, Profile of Gatlinburg and Recommendations, Sonoran Institute, 41 pp.

Tom Trotter is a local architect who is supplying time and energy in implementing the Sonoran Institute's recommendations. Several times a week during his lunch hour, Mr. Trotter hikes from Gatlinburg to GSMNP Headquarters. He is acutely aware of the noise and clutter abutting the Park's boundary. During one of these hikes Mr. Trotter shared some of his thoughts with me about Gatlinburg's past and future.

Mr. Trotter grew up in the Gatlinburg area and believes, in part, that some of Gatlinburg's problems stem from having too much property concentrated in the hands of a few families. Furthermore, some of these families have even become absentee landlords and are oblivious to what Gatlinburg has become. He and others are attempting to persuade the community that not only does Gatlinburg have a responsibility to be a good neighbor to the Park, but that the community's economic well-being is dependent upon a change in development patterns. It is his hope that Gatlinburg will continue to act on the Sonoran Institute's recommendations and that the Gatlinburg edge of the Park boundary will "soften" as a result.

Shortly after this interview, Gatlinburg held a community action conference relating to the study's recommendations. The conference was held on January 18, 2000, and attracted approximately 350 attendees. Mr. Trotter reported that conference attendees displayed a lot of enthusiasm for changing Gatlinburg's image. The conference report indicates that twenty-three action teams with 216 members have been formed (Conference Report 2000). Action teams will address such issues as: a) communication and education about Park resources; b) development of a museum/botanical garden; c) problem bears and reduction of trash; d) pollution reduction and health improvement; e) elimination of

water pollution; and f) protection of undeveloped green space (Conf. Rep. 2000). Trotter, in a later telephone call, related that Gatlinburg had recently taken action to require bear-proof garbage containers in communities adjacent to the Park.

If Gatlinburg does an outstanding job of implementing the Sonoran Institute's recommendations, its boundary with the GSMNP will undoubtedly "soften" to some degree. However, given the high density development that has already occurred and the intrusive nature of some of the architecture and entertainment, it will take further study and followup actions to achieve the "soft-edge" boundary the Park desires.

Pittman Center

Pittman Center is a small community located a few miles north of Gatlinburg on Highway 321 in Sevier County. As noted earlier, Sevier County has no land use regulations. Recognizing the threat of unplanned development from the examples of Gatlinburg and Pigeon Forge, a few farsighted residents of Pittman Center seized the initiative a couple of decades ago and took action to control development. In 1974 the community incorporated and has successfully prohibited billboards and garish signs, limited development to the town's core, and taken measures to protect the Little Pigeon River, which runs through town (Howe, McMahon and Propst 1997). Pittman Center has also limited development on slopes and hillsides, a bold move considering that many of the hillsides in nearby Gatlinburg have been developed as high end real estate. The community has benefited from some strong leaders such as former mayors Conley Huskey and Judy Perryman (Coykendall Interview 1999). A brief discussion of Pittman Center's

plans and ordinances, as well as projects related to sustainable development are set forth below.

Pittman Center's Land Use Plan

Pittman Center passed its first Land Use Plan (the Plan) in 1986. In the section dealing with growth and development, there is a brief discussion on the changes the tourist economy has brought to Sevier County, Gatlinburg, and Pigeon Forge since the formation of GSMNP. The Plan recognized that lack of sanitary sewerage and public water, and topographic restrictions had prevented uncontrolled growth in the city. The community also recognized that infrastructural deficiencies and topographical barriers would not long contain the spillover growth pressures from Gatlinburg, Pigeon Forge, and Sevier County, and that a Land Use Plan was needed to control development. Figure 3.1 illustrates the land use in 1986.

The Land Use Plan assessed the natural factors affecting development, population growth, and economic trends, and performed an existing land use analysis. The natural factors analysis focused on topography, geology, hydrology and drainage, soils, and climate. The analysis concluded that mountainous terrain was the major factor affecting the area's growth potential, since approximately ninety percent of the land area has slopes of greater than twenty percent (Figure 3.2). Elevations within the corporate limits range from 1,200 feet at the Little Pigeon River to 3,800 feet on Webb Mountain. The Plan notes that steep slopes cause problems with erosion, sanitation hazards, road grades, and mud and rock slides. Mitigating these types of problems increases development costs.

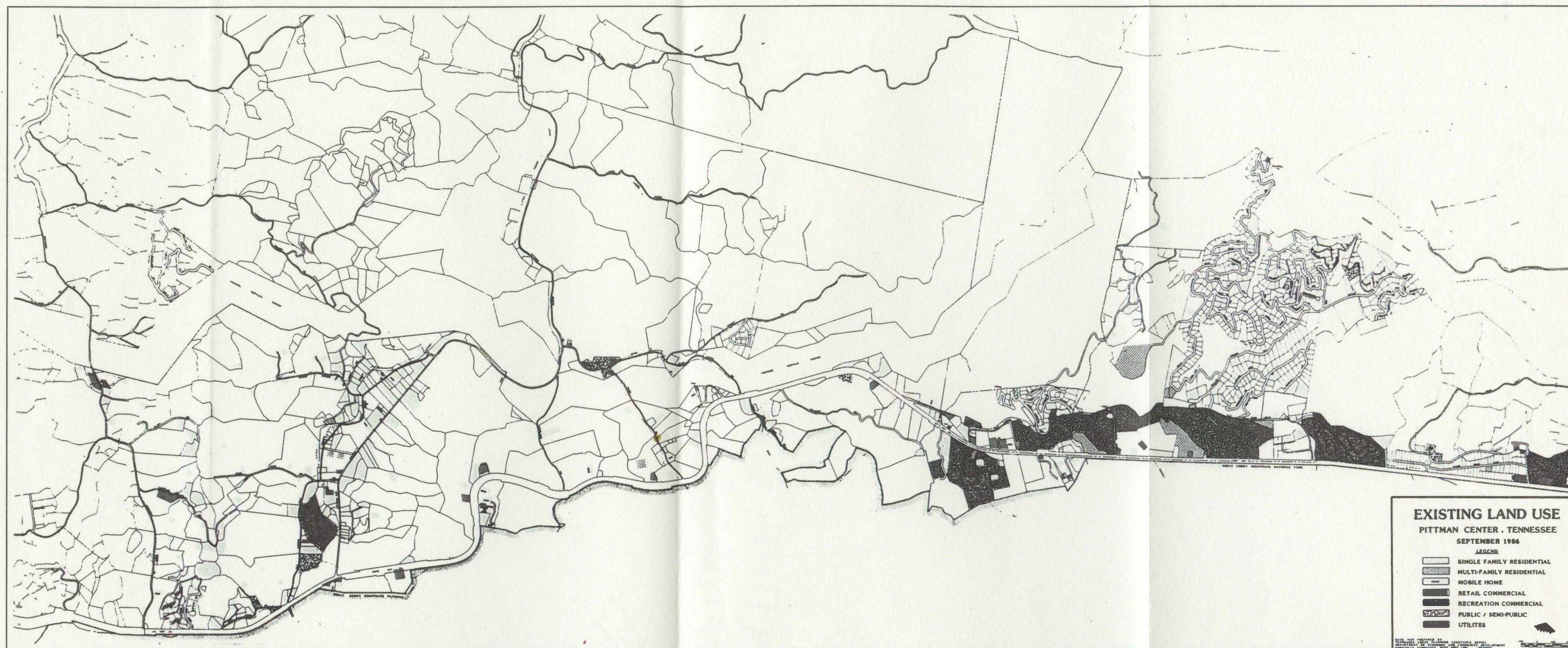


Figure 3.1 -- Pittman Center Land Use Map -- Source: Land Use Plan, Pittman Center, Tennessee, 1987.

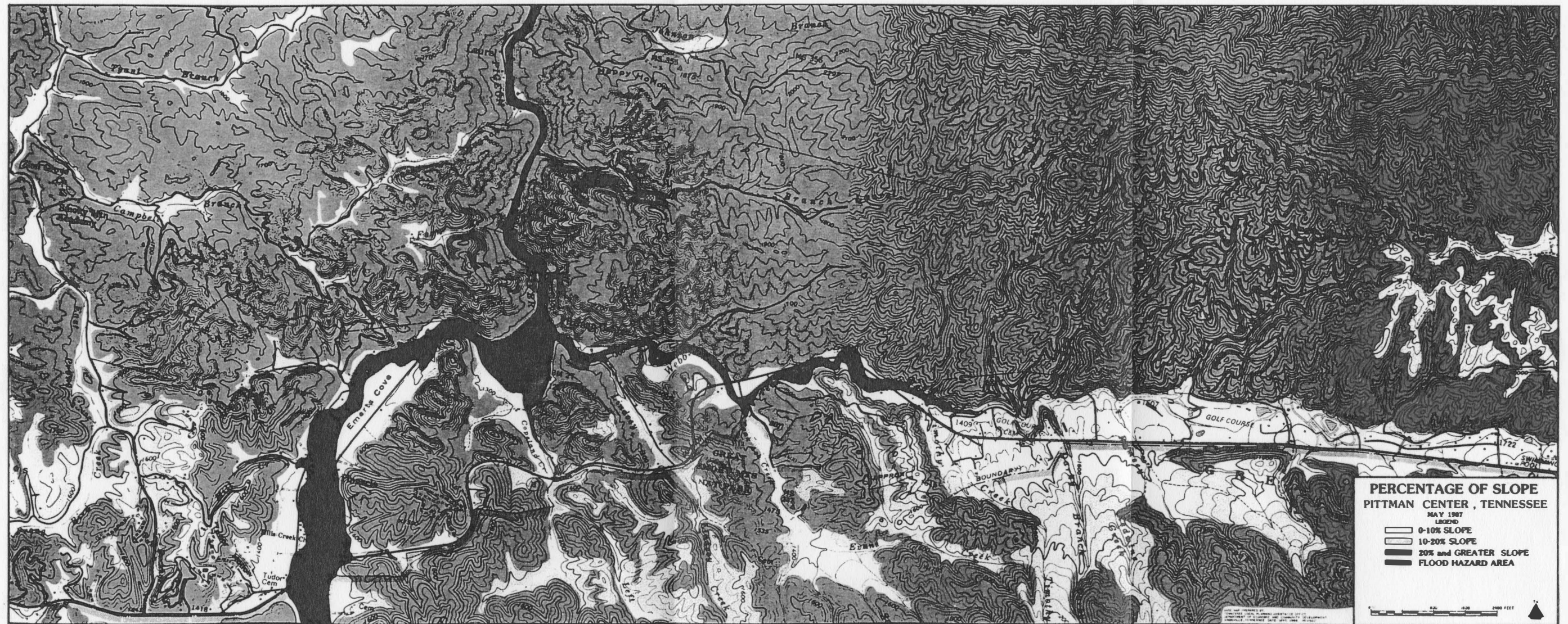


Figure 3.2 -- Pittman Center Slope Map -- Source: Land Use Plan, Pittman Center, Tennessee, 1987.

According to the Plan, Pittman Center is described as predominantly mountainous and is characterized by shallow soils. The U.S. Soil Conservation Service supplied information on soils in Pittman Center. The general soil types and their associated limitations are shown in Table 3.2. Each of these soil types is rated as good, moderate, or poor. “Good soils” impose only minor limitations to development. They have suitable percolation rates for septic systems, slopes slight to level, greater depth to bedrock, and a generally low watertable. “Moderate soils” impose moderate limitations on development. The percolation rates are marginal, slopes rolling to steep, shallow depth to bedrock, and an occasionally high watertable. “Poor soils” impose severe limitations.

Table 3-2: Pittman Center Soil Types and Associated Limitations	
Good soils - Minor Limitations	- Jefferson - no limitations - Hayter - no limitations - Allen - no limitations
Moderate Soils - Moderate Limitations	- Sequatchie - flooding, watertable - Barbourville - slope - Staser - brief flooding - Hamblen - frequent flooding - Stoney Colluvium - high watertable, flooding
Poor Soils - Severe limitations	- Ramsey - extreme slope, very shallow - Cotuco - frequent flooding, poor percolation - Tyler - very poor percolation - Prader - very poor percolation - Manongahela - very poor percolation

Source: Land Use Plan, Pittman Center, Tennessee, 1987, 36 pp.

Figure 3.3 illustrates the soils in Pittman Center. The percolation rates are unsuitable and sites have excessive slopes with bedrock often at or near the surface. Ramsey soils, which are considered poor, cover approximately eighty percent of Pittman Center. The remaining twenty percent are along streams draining the area. The stated goals for Pittman Center as set forth in the 1986 Land Use Plan are illustrated in Table 3-3.

Pittman Center's Zoning Ordinance

Pittman Center is keenly aware of its close relationship with GSMNP. The statement of purpose for the community's zoning ordinance emphasizes that the city is striving to insure "quality development throughout the city that does not conflict with, but enhances our special relationship to the Great Smoky Mountains National Park." Jim Coykendall, the Pittman Center Planner, in a 1999 interview, explained that most residents of Pittman Center are sensitive to activities that impact the Park. Even though the two communities are comparable in size, Pittman Center has a more comprehensive set of zoning ordinances than Townsend. With respect to environmental and aesthetic matters, Pittman Center has enacted: 1) a low density residential district; 2) an open space/recreational district; 3) a flood hazard overlay district; 4) standards for signs and other advertising restrictions; 5) erosion and sediment control; 6) standards for buffer zones; 7) septic system and sewage standards; and 8) water course protection and water retention standards. These ordinances are summarized in Table 3-4.

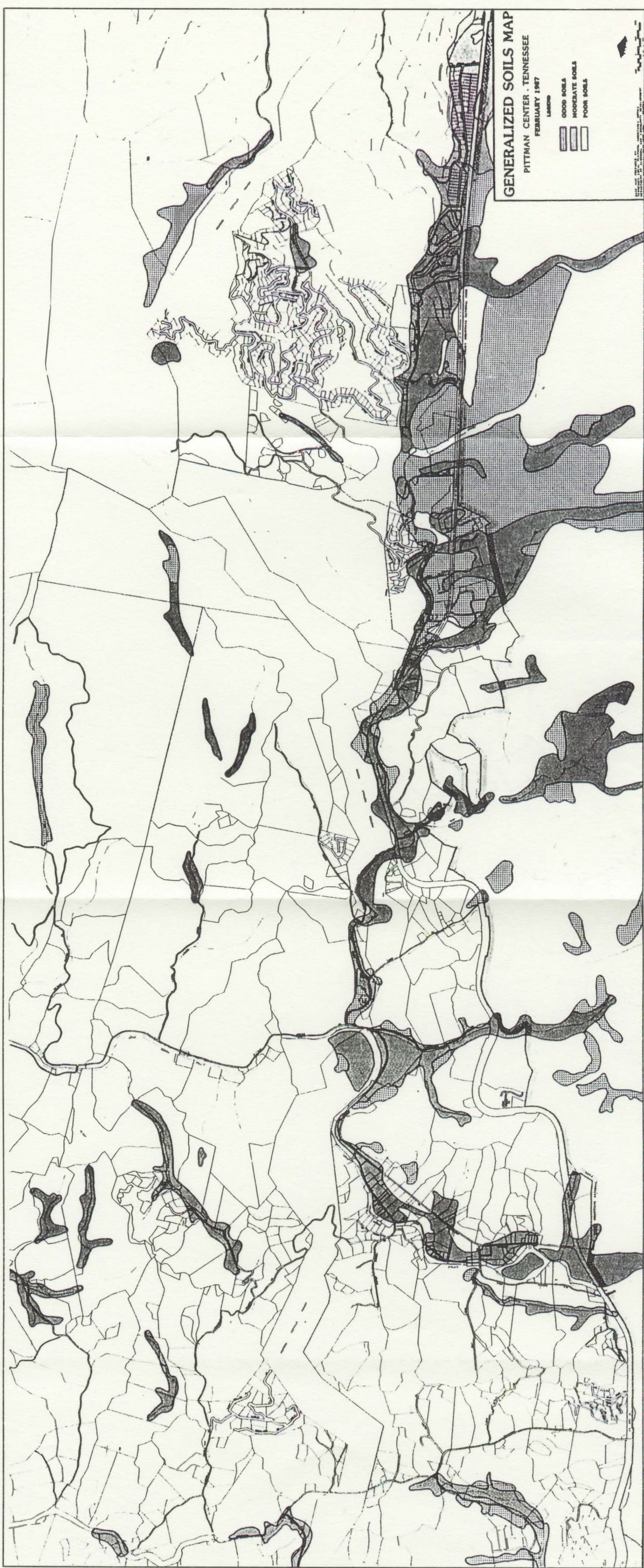


Figure 3.3 -- Pittman Center Soils Map -- Source: Land Use Plan, Pittman Center, Tennessee, 1987.

TABLE 3-3: Stated Goals for Pittman Center as Set Forth in the 1987 Land Use Plan
1. To protect the physical environment and natural resources for the use and enjoyment of the present and future citizens and visitors
2. To preserve, protect, and enhance the unique character of Pittman Center while encouraging a harmonious and higher standard of development
3. To maintain the present quality of residential neighborhoods, upgrade declining residential neighborhoods, and provide for the orderly and logical development of new residential neighborhoods
4. To provide and properly locate new and expanding commercial activities compatible with the total community environment.
5. To provide for development and maintenance of an appropriate level of government services including transportation, public health, safety, recreation, utility, and administrative services.
6. To ensure adequate land for the development and maintenance of a well-balanced open space program.
7. To coordinate the planning efforts of Pittman Center with those of all branches, units, and agencies of governments in Sevier County.

Source: Land Use Plan, Pittman Center, Tennessee, 1987, 36 pp.

The Urban Growth Boundary Report

Tennessee's Comprehensive Growth Management Act requires that all municipalities submit an Urban Growth Boundary Report. Pittman Center submitted its Urban Growth Boundary Report in January 2000. The report was required to include population projections, the costs and projected costs to accommodate growth, and the land management requirements of future growth. This report projects Pittman Center's population to increase from 564 to 874 persons by the year 2020. This is the lowest projected increase of any incorporated area in Sevier County. However, this growth is at a higher rate than any growth experienced in Pittman Center's history.

TABLE 3-4: Summary of Pittman Center's Zoning Ordinances
Low Density Residential District Established to protect areas of excessive slope, poor soils, and other environmental concerns. Imposes height restriction on structures.
Open Space/Recreational District Established to protect areas of excessive slope, poor soils, and other areas of environmental concern while providing for suitable development. Specification of certain uses that require buffer zones and height restrictions.
Flood Hazard Overlay District Ensures development in this district complies with the requirements of the National Flood Insurance Program.
Standards for Signs and Other Advertising Restrictions Prohibits rotating, flashing, moving, reflecting or blinking signs unless they are required by law or government agency. No inflatable or internally lighted signs are allowed. Signs cannot be painted or attached to trees or rocks or other natural features.
Erosion and Sediment Control Controls land-disturbing activities that cause contamination of water supplies and water resources, the clogging of watercourses, ditches, sinkholes, and natural drainage ways, or erosion of land which may jeopardize existing structures. Land disturbing activities require permits except for nursery operations, garden plots (in most cases), and land management practices. Buffer zones required when actions take place in drainage areas and near watercourses.
Standards for Buffer Zones At least 15 ft. of vegetation or berms or combination of both between commercial and residential districts.
Septic Systems and Sewage Standards Soil survey required before issuance of a permit for septic system. Maximum slope no greater than 20 percent and depth to bedrock greater than six ft. (More stringent than state standards, where maximum slope is no greater than 30 percent and depth to bedrock must be at least four ft. TDEC Rule 12-1-6.03(4)(c) 1&2). Septic tank and drainfield must be at least 50 ft. From high watermark of any drainage way, stream, or impoundment. No rock outcrop within 300 ft. down slope from septic system.
Water Course Protection and Water Retention Standards Buffer strip of 10 ft. from the edge of normal water flow level. Buildings must be set back 25 ft. From the edge of the normal water flow level. Commercial zones to use natural infiltration of storm water wherever possible. State Local Planning office and adjacent communities to be notified before a watercourse can be altered.

Source: Pittman Center Zoning Ordinance, 1993, 89 pp.

The report notes that it has not been the goal of Pittman Center to become an economic or job center, but rather to preserve a rural residential setting for its current and future residents. Approximately 2,985 of the city's 4,029 acres are vacant of commercial, industrial, or residential uses. Most of the so-called vacant acreage is forested; however, some is used for agriculture or lies fallow. Approximately 2,605 acres have physical constraints, including slope, karst topography, and floodplains, that make them appropriate for only low density development. Only 273.7 acres are available that do not have physical constraints and are suitable for high density urban development.

I interviewed Colin McLeod, a planner with Tennessee's Local Planning Assistance Office, in February 2000 regarding the proposed Urban Growth Boundary and future development in Sevier County. Mr. McLeod opined that Sevier County is very much growth oriented and that this orientation often overrides conservation concerns. He explained that there are no county zoning ordinances, and he was unaware of any county open space policies that would form a basis for conservation actions. Mr. McLeod, who hails from southern California, also predicted that Sevier County will face a dilemma in the near future if it continues its pattern of development with little regard for conservation. Considering Sevier County is virtually dependent on a tourist economy, Mr. McLeod questions whether tourists from the Midwest and urban South will continue to vacation in Sevier County if it becomes too much like their own suburban communities.

SAMAB and Futurescape Projects

SAMAB Report

In 1990 the Southern Appalachian Man and the Biosphere Cooperative (SAMAB) chose Pittman Center for a case study entitled “Sustainable Development For Communities With Tourism-Based Economies In The Southern Appalachian Highlands.” The purpose of this project was to devise a means for tourist-oriented communities in the Southern Appalachian highlands to plan future development so as to retain the cultural and natural heritage of their communities and minimize the potential for conflict that might occur on neighboring areas such as GSMNP. John Peine and Hugh Welch directed the study.

The study utilized a four-part strategic planning process: 1) resource inventory; 2) community issues and a vision for the future; 3) concept plan; and 4) implementation strategies. The results of this process are briefly discussed below.

The natural resource inventory assembled data on vegetation types, geology and fault lines, soils, slope analysis, streams and floodplains, and aspect. The cultural inventory included the theme of pioneer families and proximity to the National Park. The study also performed a viewshed analysis and profiled land ownership. An important piece of the resource inventory focused on the economic growth of Sevier County. The study emphasized the enormous pressure of tourism-related development on Sevier County. A series of public meetings produced a vision statement for the community that the Planning Commission later adopted. The vision statement expresses the type of community that Pittman Center desires to be. The vision statement is meaningful in that it

captures the special relationship the community has with GSMNP and assumes economic development should reflect that relationship. The vision statement declares:

To create and perpetuate a quality living environment and to encourage quality development that supports that end. To encourage development that supports a tourist-oriented economic base that relates to and magnifies our unique relation to and with the Great Smoky Mountains.

SAMAB viewed the construction of a clear and concise vision statement as the most important step in the strategic planning process. SAMAB reasoned that a clear vision provides the foundation for definitive planning and well targeted regulation.

In reviewing Pittman Center's vision statement, a later study recommended the following actions to achieve it: 1) low density development; 2) preservation of wide corridors of natural vegetation along roadways and the river and creeks; and 3) preservation of forest growth on ridgetops and steep slopes. More specifically, Highway 321 must be preserved as a scenic highway, and design review by the Planning Commission should always give priority to the preservation of the places and views which have been identified as "treasures" in the landscape inventory (Futurescape Project 1995). As a result of its study in Pittman Center, SAMAB created a concept plan with six focus areas upon which the community can achieve its vision (Table 3-5).

TABLE 3-5: Concept Plan for Pittman Center	
1. Primary Commercial Corridor.	This should be the primary area where the appropriate architectural design criteria should focus to create a “villagescape” rather than a strip development.
2. Scenic Primary Roadways.	Calls for the community to enforce the scenic highway designation of Highway 321.
3. Flood Hazard Area.	Calls for a flood warning system, protection of streambank vegetation, and development of a recreational trail system.
4. Foothills Parkway.	Recommends cooperation between the community and NPS in construction a trail network linking key roadways with outstanding scenic resources.
5. Key Viewsheds.	Calls for a ridgetop and slope protection strategy, as well as architectural controls in the key viewshed.
6. Streams, Wetlands, and Ponds.	Recognizes that these waterbodies need protection from erosion due to construction and agriculture and recognizes the need to protect groundwater quality.

Source: Peine, John D., and Welch, Hugh G., 1990, Sustainable Development Strategies for Communities with Tourism-Based Economies in the Southern Appalachian Highlands, Southern Appalachian Man and the Biosphere Cooperative, Gatlinburg, Tennessee, 52 pp.

To implement the concept plan, SAMAB planners recommended that Pittman Center adopt a set of ordinances, standards and guidelines to control and coordinate development (Peine and Welch 1990).

The first of these recommendations is a River Corridor Ordinance. The citizens of Pittman Center indicated that the river was their most important resource. The key components of the suggested river corridor ordinance are: a) orient the townscape on the river; b) prohibit structures that divert flow; c) prohibit the direct taking of water from the river; d) prohibit the construction of structures in a floodplain zone; e) prohibit the

removal of native plants within fifty feet of the streambank; and f) develop recreational facilities along the river at selected locations.

Secondly, a Ridge Top Ordinance was proposed to discourage ridgetop development through the performance zoning ordinance, prohibit ridgetop structures in the prominent foreground of priority viewsheds, and compensate certain ridgetop landowners by direct purchase or transfer of development rights. Structures that are allowed to be built on ridges would need to be set back fifty feet from the brow of the hill or at a distance so as not to be visible from a public roadway, whichever is more restrictive. The ordinance would also require nonreflective materials to be used for roof and walls, paints to be dark earth-tone, height restricted to twenty-five feet above the natural terrain slope occupied by the structure, and removal of native plants and trees to be minimized.

Recommended primary street design standards would: a) limit access from parking lots and shopping areas; b) provide for pedestrians and bicyclists on one side of street; c) screen parking lots and commercial structures with a fifteen foot landscaped setback; and d) use of street lights that conserve energy and minimize glare.

The recommended Community Model Sign Ordinance would include the authority to: a) enforce state sign regulations for scenic highways; b) ban off-premise signs; c) amortize nonconforming signs and billboards; d) adopt a style for signs that reflects the cultural themes of the community; e) control on-premise signs; and f) develop a tourist information program associated with the sign ordinance.

SAMAB also recommended that Pittman Center adopt architectural guidelines for commercial structures which would: a) encourage designs to showcase community architectural and cultural traditions; b) encourage the use of native materials in structure construction and landscape architecture; c) use earth-tone exterior colors; d) allow a maximum of ten units for motel/condo structures; e) allow a maximum building height of thirty-four feet; and f) in critical viewsheds, allow a maximum building height of sixteen feet.

Performance Zoning was recommended by the SAMAB planners as the most innovative concept in the report. Developers who agreed to perform according to the priorities of the community would be rewarded by getting permission to develop at higher densities in appropriate areas.

A particularly interesting recommendation for dealing with the GSMNP boundary was the development of Ordinances to Mitigate Potential Conflicts Along National Park Boundary. These ordinances would ensure that pets and other domestic animals would not be allowed to harass wildlife in the Park. The planting of non-native species would not be allowed south of Highway 321. Helicopter operations would not be allowed to use land within the city limits. Garbage containers used within the city limits would be bearproof. Unfortunately, these ordinances have not been adopted.

The Futurescape Project

Recognizing its potential as a model community, Pittman Center was selected in 1995 from a group of seven communities to participate in a demonstration project on

sustainability conducted by the East Tennessee Community Design Center and TVA. The Futurescape planners derived five goals for the community from the community's vision statement and community-wide workshops. The five goals are: 1) preserve water quality; 2) preserve the community's mountain heritage; 3) enhance the natural environment and open space; 4) build a local economy which promotes the other goals and provides good investment returns; and 5) build with an excellence worthy of the environment.

The project coordinators concluded that "the Pittman Centers of the country carry a tremendous share of responsibility for protecting the whole country's environmental heritage." Annette Anderson, the principal coordinator, eloquently and succinctly summed up in the project report the responsibilities of Pittman Center to the Great Smokies:

The citizens of Pittman Center are the stewards of 5,000 acres of land and water of exceptional quality at a gateway to the Great Smoky Mountains National Park. Their domain is a national treasure. The legislation and the administrative capacity put in place by the nation to protect the treasure are limited. What gets enforced is what Pittman Center demands to be enforced and what it, itself, legislates and enforces.

The citizens of Pittman Center are to be commended for their efforts in planning for future development that is in harmony with the character of the "soft-edge" boundary with the Park. However, economic projections in the Futurescapes Report indicate that by 2020 there will be a demand for two thousand tourist units in Pittman Center while the proposed development standards would only allow five hundred units. It will require extraordinary political leadership and citizen commitment to adhere to this standard in the face of pressure to build more.

Townsend/Tuckaleechee Cove

Townsend is at a crossroads. For decades it has been promoted as “the quiet side of the Smokies,” offering a vacation experience for visitors to GSMNP that was compatible with the Park’s goals of natural, cultural, and scenic preservation. A visitor to Townsend would feel almost as though he or she had not left the Park. For decades Townsend has remained sparsely populated with views of unspoiled mountain ridges and acres of pasture land. Surrounding Townsend is the Tuckaleechee Cove where most of the developable land is located. The Tuckaleechee Cove is bisected by the Little River, one of the most scenic and unpolluted rivers in Tennessee.

The residents of Townsend/Tuckaleechee Cove have enacted, or are currently considering enacting, a set of ordinances and plans to control development. Townsend passed a Land Use Plan outlining its development goals in 1986. At that time, the Townsend Planning Commission believed the statement of goals represented its citizens’ opinions regarding future development of the community. Two of these goals serve to illustrate Townsend’s dilemma: 1) to secure Townsend as a major tourist center in the county and East Tennessee Region; and 2) to provide adequate space for commercial development and for preservation of the aesthetical (sic) qualities of the community. Like the goals of the NPS, Townsend’s goals conflict with each other. Can a community become a major tourist center and still preserve the same aesthetic character of a small rural community? Gatlinburg has achieved the status of a major tourist center, but has lost many of the aesthetic qualities essential for preserving a “soft-edge” boundary with GSMNP.

In seeking to preserve the “aesthetical qualities” Townsend has adopted two policies: 1) a historical land use policy; and 2) an open space policy. With respect to historical land use, the policy advocates developing a plan for preserving and restoring historical sites and relating new structures within historic areas to existing structures with regard to color, form, materials height, and site; adopting historic buildings for present day uses; and maintaining open space areas of historical importance and including these areas in the open space program. The open space policy advocates providing appropriately located open spaces for local and tourist populations and preserving places of rare natural beauty and areas of truly historic interest. It also advocates seeking approval by the planning commission of all proposed open space and examining all publicly-owned land for open space and recreation potential before sale or disposal by the town.

In 1999 I interviewed Ron Beckman, a Townsend Planning Commissioner and Vice-President of the Townsend Heritage Council. Mr. Beckman stated that most Townsend residents want the community to remain the “peaceful side of the Smokies.” Mr. Beckman added that the Townsend Heritage Council was formed about eight years ago and has been actively involved in modifications to the Highway 321 expansion. The Heritage Council also encourages businesses to design their buildings in the “heritage style” which is either log home or board and batten. Mr. Beckman reported that the Heritage Council has been effective in influencing several projects, including the new Town Center.

Zoning Ordinances

Townsend's zoning ordinances were updated in 1996. The ordinances are not extensive and offer only minimal protection of natural features in Townsend's efforts to preserve the "soft-edge" characteristics important to GSMNP. The most significant ordinances in terms of protection against environmental and aesthetic degradation are those governing the placement of telecommunications towers, flood protection/water course protection, and sign regulations. Each of these regulations is discussed below.

a. Regulations Governing the Placement of Telecommunications Towers

In June 1999, Townsend enacted an ordinance regulating the placement of telecommunications towers. The ordinance requires, where feasible, that additional antennae should be placed on existing towers, and, furthermore, that the approval of the construction of any tower generally shall be contingent on the capability of installing additional antennae. Lighting on the tower will not be allowed to exceed legal minima. Noise from the towers must be mitigated. Tower colors and design must blend into their immediate environment (e.g., towers screened by trees and landscaping, screened roof-mounted antennas that are designed to look like light or flag poles). All fences and support structures must be screened by vegetation. If a tower ceases to be used for six months it must be removed by the owner.

b. Flood Protection/Watercourse Protection

Townsend is enrolled in the National Flood Insurance Program. Consequently, Townsend has a flood protection ordinance applying to the Little River that offers some protection of human life and property. The setback requirements are as follows: 1) no

commercial structure is permitted within fifty feet; 2) no multi-family structure is permitted within forty feet; and 3) no single family residence is permitted within twenty-five feet. No structure of any sort is permitted within fifteen feet of any stream in Townsend. Unfortunately, the ordinance does not require the preservation of vegetation that would help preserve the water quality of the Little River.

c. Sign Regulations

Townsend has made a significant effort in attempting to curb unrestricted signage that would detract from the natural beauty of the Park and degrade the image of the community. In addition to the state sign regulations that apply to State Scenic Highway 321, Townsend has imposed sign regulations taking into account its relationship with the Great Smokies. The regulations state that “it is important that the city maintain an attractive appearance because it is one of the main entrances into the Great Smoky Mountains National Park and the city wishes to project itself to visiting tourists and local residents as the Peaceful Side of the Smokies.” The ordinance prohibits flashing lights and the only intermittent lights allowed are for time and temperature. The ordinance regulates sign size, location, and color in some instances.

Urban Growth Boundary Report

Like Pittman Center, Townsend has prepared an Urban Growth Boundary Report to comply with the Comprehensive Growth Management Act. This report includes, along with other information, population projections and land management requirements for potential future growth over the next twenty years. The purpose of this information is to

support Townsend's proposed urban growth boundary within Blount County. Townsend's urban growth boundary is shown in Figure 3.4.

The report estimates Townsend's population at 602 in the year 2020. Currently, the land area of Townsend is estimated at 389 acres with approximately 189 acres of that acreage being vacant land. Vacant land may be developed, but 123 of those acres have been deemed suitable for low density development only. Sixty-five acres have been designated suitable for high density urban development. Currently, there are only 15.5 acres of unrestricted commercial land in the existing city of Townsend. Development in the remaining vacant acreage is limited due to topography and floodplain constraints. Tuckaleechee Cove floodplains are illustrated in Figure 3.5. There are no identified karst related sinkholes in the current city limits (Urban Growth Boundary Report, Townsend 1999).

Public water service is provided by the Tuckaleechee Cove Utility District. Townsend has no direct role in providing this service. Expansion of this service into the undeveloped areas is ongoing. Sewer service is not currently available in the City or surrounding area. The lack of sewer service "significantly limits development in the area" (Urban Growth Boundary Report, Townsend 1999). Bart Hose, a planner with the Local Planning Assistance Office in Knoxville who authored the report, expressed his belief in a telephone interview in 1999 that development would soon overwhelm Townsend if the community decides to construct a sewer system.

Topography is a major constraint on urban growth in Townsend and Tuckaleechee Cove. The urban growth boundary report summarizes the topographical constraints to



Figure 3.4 -- Townsend's Proposed Urban Growth Boundary -- Source: Urban Growth Boundary Report, Townsend, Tennessee, January 2000, Local Planning Assistance Office, Knoxville, TN.

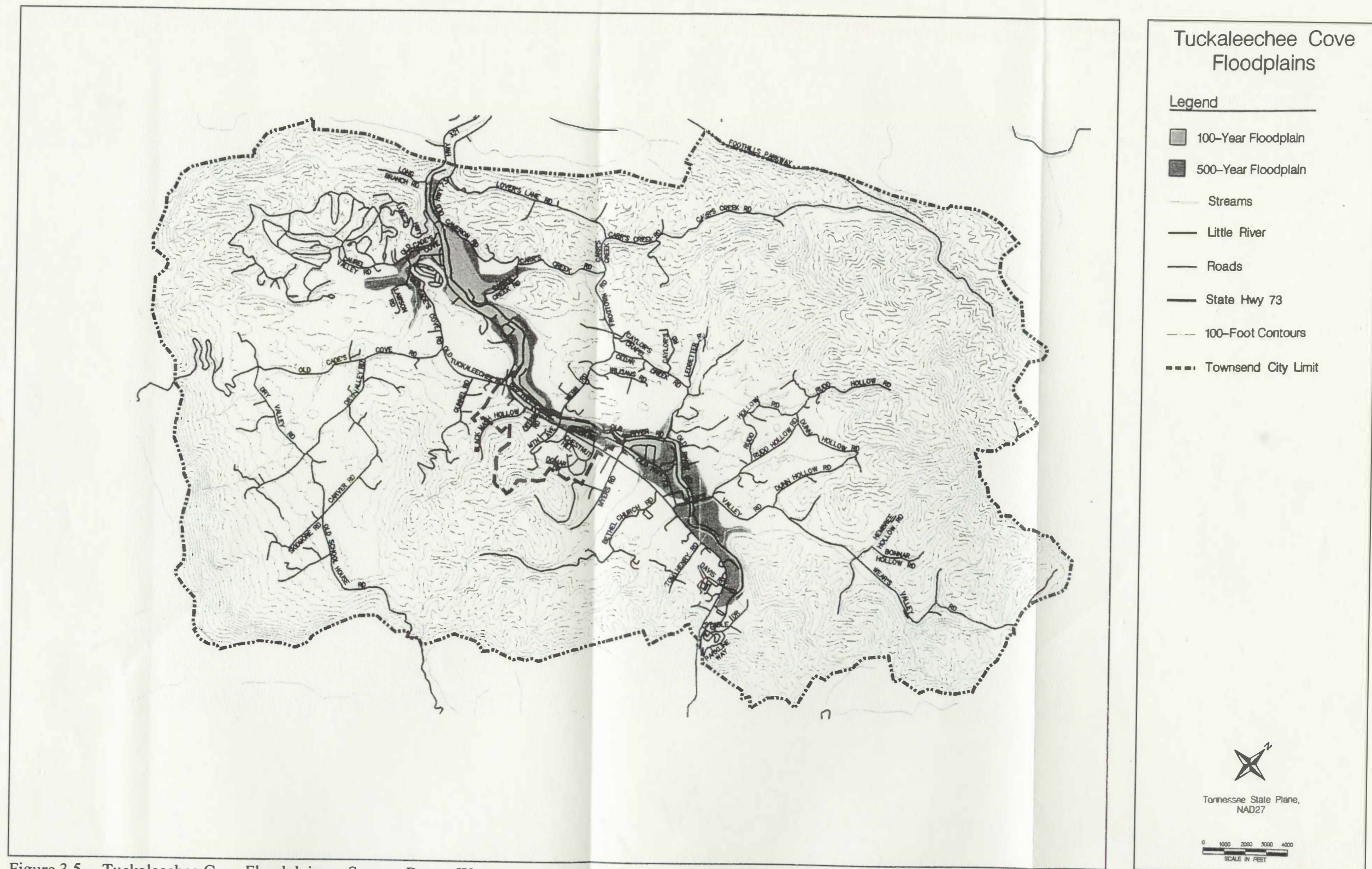


Figure 3.5 -- Tuckaleechee Cove Floodplains -- Source: Barge, Waggoner, Sumner and Cannon, Inc. October, 1998, Townsend -Tuckaleechee Cove Development Plan, Phase 2: Proposed Land Use Plan, prepared for the Tuckaleechee Cove Advisory Board.

urban growth. The cove is characterized by a fairly small area of flat to rolling topography, surrounded by steep and mountainous lands. The potential for urban development and the projection of a logical growth boundary is physically defined by the cove itself. The area north of Townsend, across the Little River, is bounded by steep topography associated with several mountains. Between the Little River and these mountains, the land is more rolling and could accommodate higher density development. To the south and east of the city lies the GSMNP, limiting expansion in that direction. To the southwest lies the Dry Valley area, which could accommodate higher density development. However, because of the distances involved, Townsend is not currently proposing to extend the growth boundary in this area. Finally, urban expansion to the west along the Highway 321 corridor is limited by steep topography located a short distance from the current city limits (Urban Growth Boundary Report, Townsend 1999).

Most forested tracts are located on steep upland ridges. These tracts provide a timber resource as well as valuable wildlife habitat. The steep topography of these ridges will likely limit development, although that has not been true in Gatlinburg.

Recognizing the many physical constraints, Townsend has proposed that its urban growth boundary be expanded over the next twenty years to approximately four times its current size. Under this growth scenario, Townsend would become a linear city about five miles long and varying between 1/4 and 2/3 miles wide. Most of Tuckaleechee Cove would remain outside of the city (Urban Growth Boundary Report, Townsend 1999). Under this plan it would not be Townsend's responsibility to regulate development in the

remainder of Tuckaleechee Cove. This responsibility would fall on Blount County.

Townsend/Tuckaleechee Cove Proposed Land Use Plan

In response to increasing development pressure, a twelve member board composed of local citizens and government officials, known as the Tuckaleechee Cove Advisory Board (TCAB), was appointed by the Blount County Commission. TCAB is charged with developing a strategy for Townsend and Tuckaleechee Cove's future growth. In October 1998, TCAB was presented with a draft report by the consulting firm of Barge, Waggoner, Sumner and Cannon which contained a proposed twenty year land use plan for Tuckaleechee Cove. The Proposed Land Use Plan, however, has not been finalized due to a funding shortfall (Beckman personal communication 1999). The Proposed Land Use Plan offers a good description of the current land use conditions found in Townsend/Tuckaleechee Cove (See Appendix 2).

The discussion on topography in the Proposed Land Use Plan is similar to that of the Urban Growth Boundary Report in emphasizing that development in the cove is limited to the flatter areas along the Little River and in small side coves such as Dry Valley (Figure 3.6). Barge, Waggoner, Sumner and Cannon also did a soils analysis, grouping the soils into types described as having low, medium, or high constraints to development. The soil information was taken from the U.S. Department of Agriculture Soil Conservation Service's Soil Survey for Blount County. Soils located on the floor of the cove and in the valleys were considered to be low constraints to development.

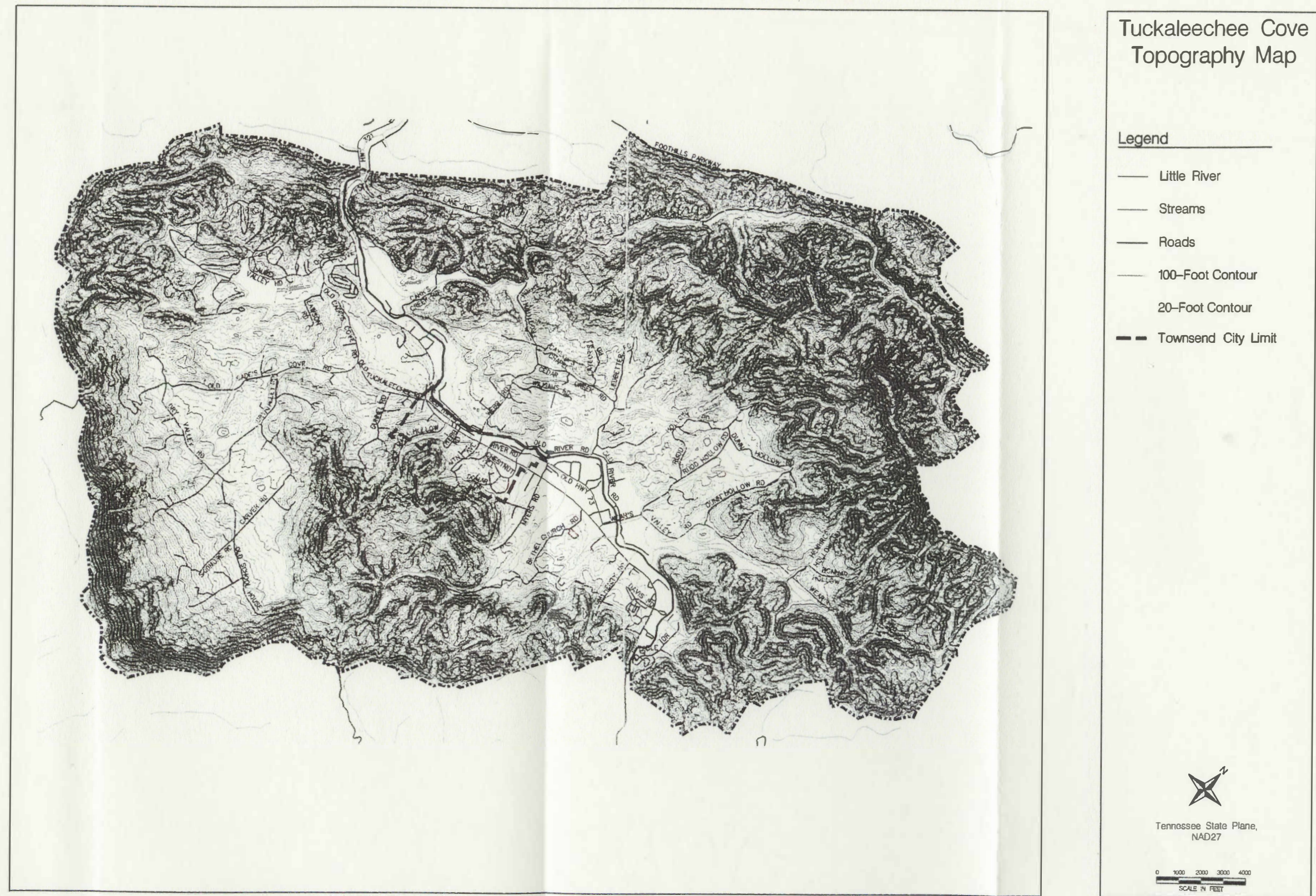


Figure 3.6 -- Tuckaleechee Cove Topography -- Source: Same as Figure 3.5.

As distance from the Little River increases so do the soil constraints on development (e.g., steeper slopes, shallower soils, rock outcrops, etc.) (Figure 3.7). Existing land use is shown in Figure 3.8.

To identify the values and future vision of cove residents, the consultants conducted a visioning process in 1998 similar to that conducted by Pittman Center and consistent with the process recommended by the University of Tennessee's Smart Growth Guide (English, Peretz, and Manderschied 1999). Numerous focus groups furnished information and opinions, and over 2,500 residents and property owners in the Cove received a questionnaire. As a result of this process, the consultants identified eleven building blocks for a vision of the Cove's future (See Table 3-6). Barge, Waggoner, Sumner and Cannon's report also produced the following vision statement for the cove:

a primarily bedroom resort community that is developed in harmony with the natural environment with sufficient small commercial development, again built in harmony with the environment, and enhanced infrastructure and government services necessary to serve the economic and social needs of the community

This vision statement should energize the preservationists in that Townsend's vision for its future looks remarkably similar to the status quo. Shawn Benge, (NPS Park Planner personal communication 2000), stated that Townsend/Tuckaleechee Cove, as it currently exists, provides the type of "soft-edge" the GSMNP desires along its boundary. He also expressed the belief that adoption and implementation of the Proposed Land Use Plan would preserve the "soft-edge" character of the boundary.



Figure 3.7 -- Tuckaleechee Cove Soil Constraints -- Source: Same as Figure 3.5.

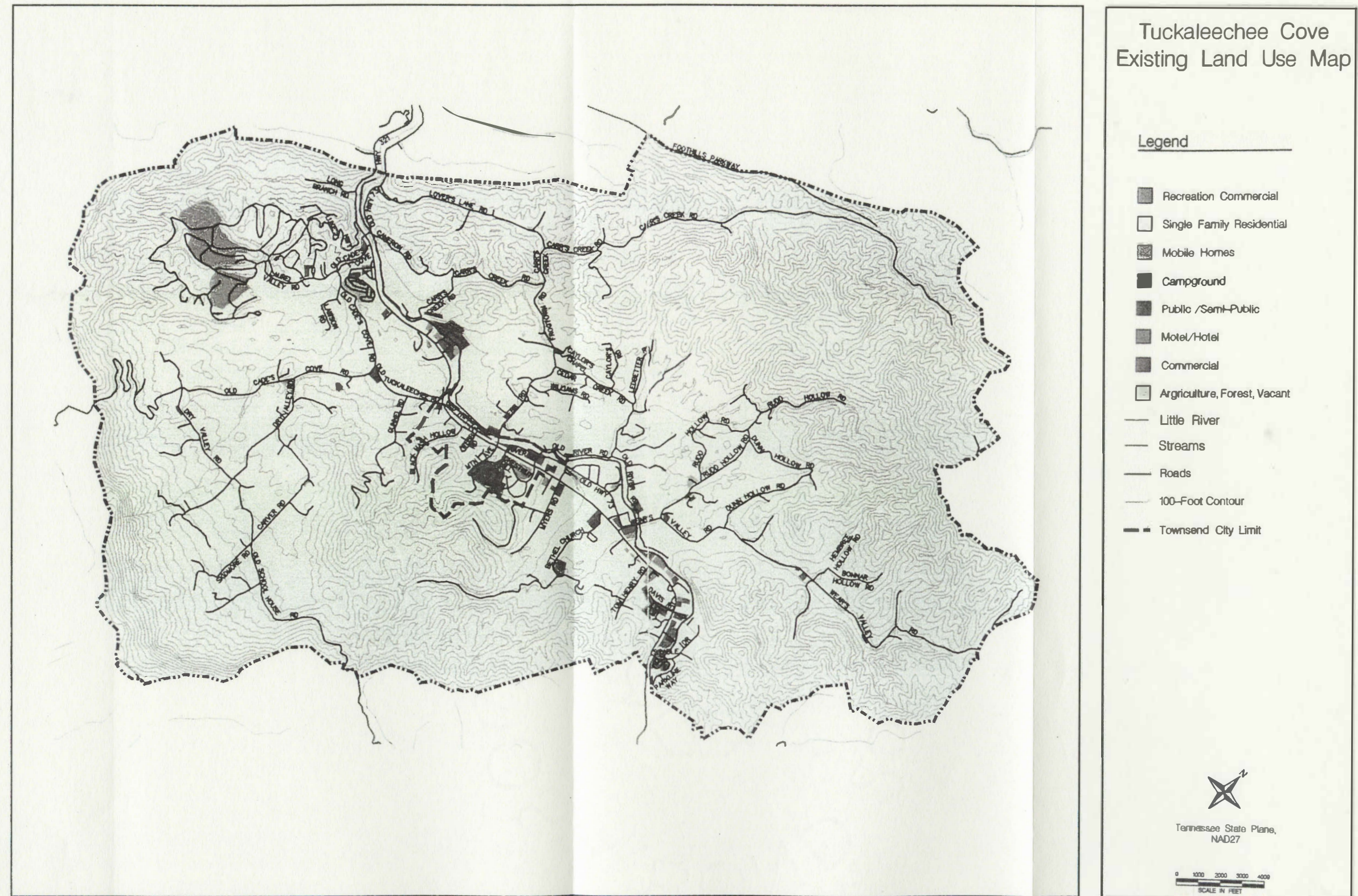


Figure 3.8 -- Tuckaleechee Cove Existing Land Use Plan -- Source: Same as Figure 3.5.

TABLE 3-6: Building Blocks for a Vision of the Cove's Future
Preserve, protect and maintain the natural features of the cove, such as the Little River, vegetation, open space, views, vistas, and ridgetops.
Preserve the quiet, peaceful, and rural character of the cove and protect the treasures of the cove.
Protect the cove, and particularly the Little River, from pollution and degradation, primarily through the installation of a sewer system.
Protect the rights of individual property owners.
Avoid uncontrolled growth of commercialism that has plagued Pigeon Forge.
Encourage the development of local, small, well-maintained businesses that are built in harmony with the natural environment to better serve the economic and social needs of the cove residents and visitors.
Provide for more effective transportation planning (locally and regionally) and road construction that eases current and future traffic congestion (road building should not destroy the character of the cove).
Provide sufficient infrastructure (sewer, water, etc.) and government services (police, fire, emergency services, etc.) to serve current and future residents while limiting the tax burden on the residents.
Encourage the development of a primarily residential resort style community that maintains the small-town atmosphere and continues to count its people and family atmosphere as one of its greatest assets.
Encourage a spirit of cooperation and teamwork among all cove residents in order to work together in solving the cove's problems and communicate openly and frequently with the residents as problems are addressed and decisions contemplated.
Provide for effective, fair, impartial, even-handed local government leadership that represents and understands the interests of all the people of the cove.

Source: Barge, Waggoner, Sumner & Cannon, 1998, Townsend-Tuckaleechee Cove Development Plan, Phase 2: Proposed Land Use Plan, prepared for Tuckaleechee Cove Advisory Board, 63 pp.

The recommended development scenario in the Proposed Land Use Plan proposes significantly different land uses for the community. Appendix 3 contains the important elements of the recommended development scenario and is illustrated in Figure 3.9. The Proposed Land Use Plan establishes the following land use classifications for Tuckaleechee Cove: Town Center District, Residential District, Planned Tourism District, Commercial District, Heritage District, Mountain District, and Community/Open Space District. Each of these districts is briefly described below:

Town Center District

The proposed Town Center District is located out of the hundred-year floodplain near the Little River. It is comprised of forty-eight acres (0.23% of cove acreage) and is designed to give the community a focal point (Figure 3.10). Suggested land uses include commercial (retail, restaurants, lodging), public/institutional (town hall, post office, library, museum, small park), and residential.

Residential District

The proposed Residential District is comprised of 3,109 acres (14.88% of cove acreage) and is primarily intended for the development of residences at densities of one to three units per acre. It is located outside of the hundred-year floodplain (Figure 3.10). Under the plan, the district does not require conservation subdivision design, but developers would be encouraged to utilize it. In conservation subdivisions, developers are allowed to cluster development on lots that are smaller than is normally allowed in return for dedicating remaining land as open space (Barge, Waggoner 1998).

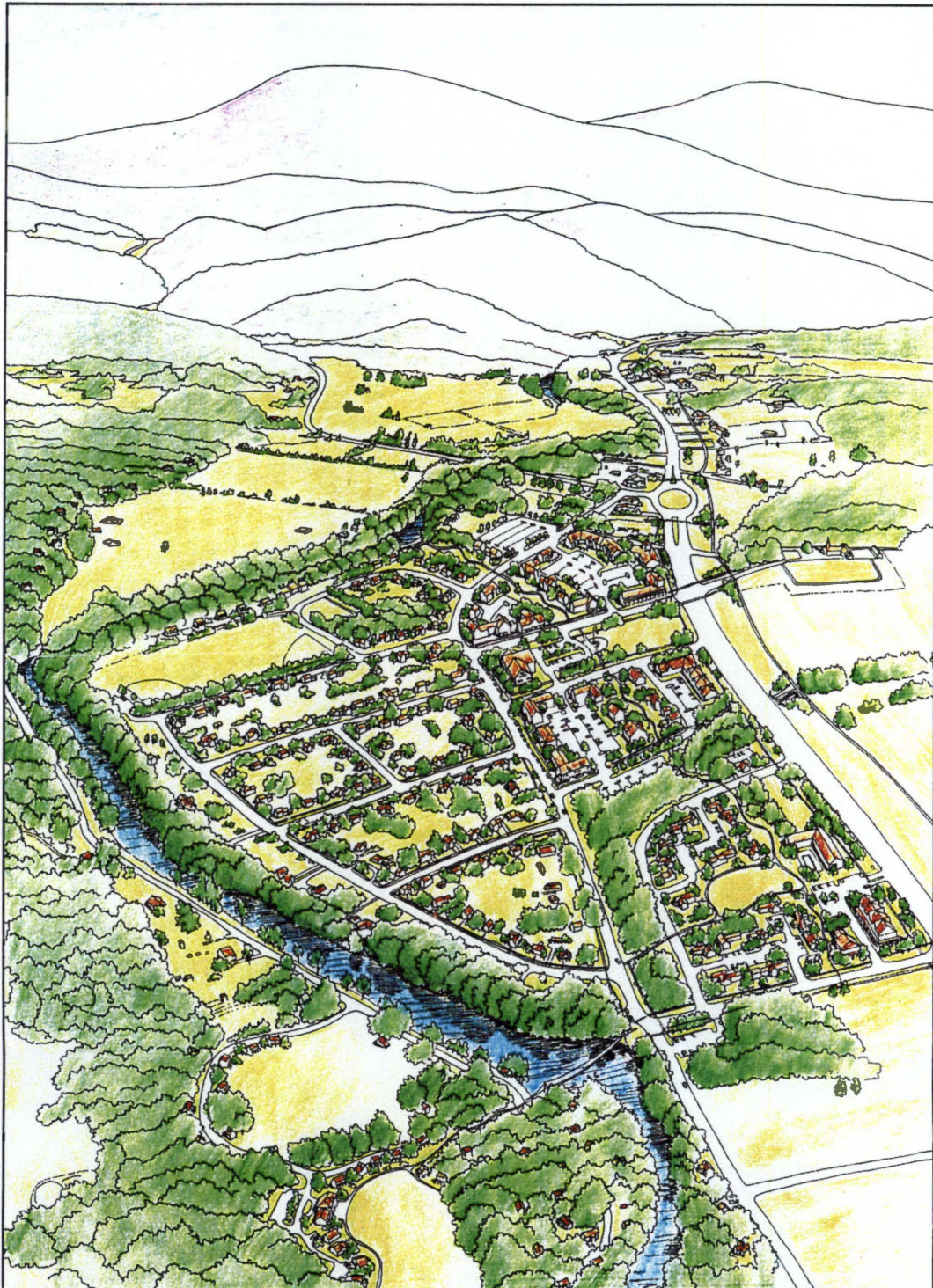


Figure 3.9 -- Tuckaleechee Cove Recommended Development -- Source: Barge, Waggoner, Summer and Cannon, Inc. October, 1998, Townsend-Tuckaleechee Cove Development Plan, Phase 2: Proposed Land Use Plan, prepared for the Tuckaleechee Cove Advisory Board.

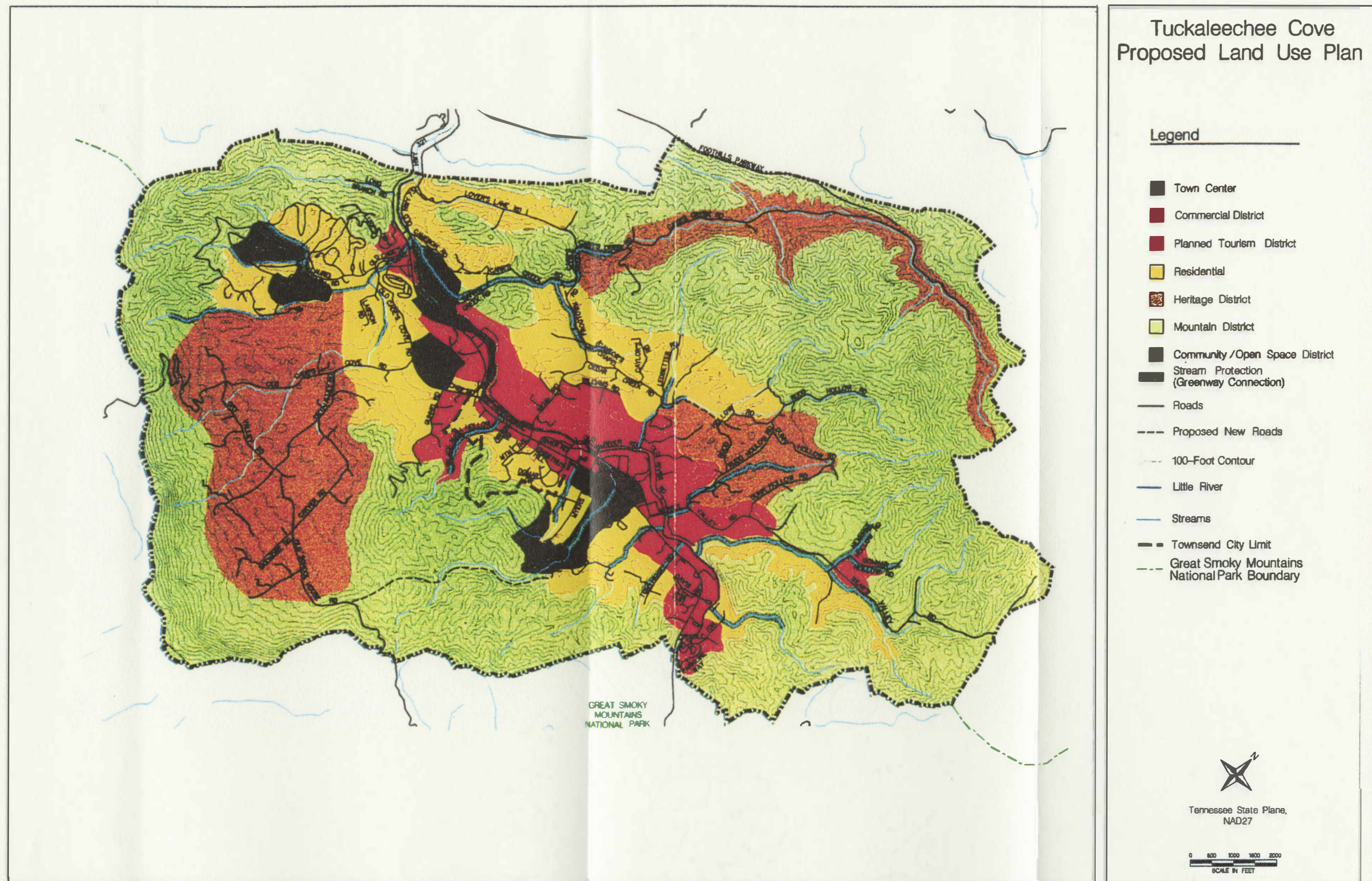


Figure 3.10-- Tuckaleechee Cove Propsed Land Use -- Source: Barge, Waggoner, Summer and Cannon, Inc. October, 1998.

At least one conservation subdivision is already underway in Blount County. Little Mountain is an environmentally sensitive community of thirty-five one-acre lots with one hundred acres preserved as forest (The Appalachian Voice 1999). Other allowable uses within the residential district would include institutional/public (churches, schools, fire stations), agriculture/forestry, low-intensity commercial, and low-intensity lodging.

Planned Tourism District

The planned Tourism District is comprised of 1,218 acres (5.83% of cove acreage) (Figure 3.10). The proposed land use plan states that uses in this district should have a “family-oriented” atmosphere. Properties in this area should be integrated to complement each other (i.e., connected walking trails, coordinated traffic flow, scenic views, complementary architectural design). Under the plan, this district would not have large-scale commercial enterprises or amusements like those found in Gatlinburg and Pigeon Forge. Passive recreational opportunities such as picnic areas, fishing areas, parks with playgrounds and ballfields, and walking trails would be incorporated. Visitor lodging would consist of cabins, campgrounds, bed and breakfast establishments, and small hotels. The plan places this district so that visitors and residents are within walking distance of the river and the commercial areas along the highway.

Commercial District

The proposed Commercial District is comprised of 280 acres (1.34% of cove acreage). It is located outside of the hundred-year floodplain on or near Highway 321 in order to provide easy access to tourists and residents (Figure 3.10). Suggested uses include hotels/motels, retail shopping centers, amusements (as a use permitted on review),

restaurants, manufacturing (as a use permitted on review), rental shops, office, and services. The consultants recommend that 25,000 square feet is the maximum for any one commercial establishment and that a “big box” retailer such as a Wal-Mart Superstore would be inappropriate. They also recommend the adoption of design guidelines (see below) encouraging the Heritage concept and site guidelines dealing with signs, landscaping, and maximum lot coverage ratios.

Heritage District

The Heritage District is comprised of 3,390 acres (16.23% of cove acreage). This district is intended to protect those features (primarily large, open pasture areas surrounded by steep ridges) from development that would significantly alter the cove’s existing character. Barge, Waggoner, Sumner and Cannon recommend that as much land as possible remain in pasture for agricultural use, and that new development be tucked into existing tree lines.

Three primary areas are suggested as Heritage Districts: Dry Valley, Dunn Hollow, and the Carr’s Creek area (Figure 3.10). New development in the Heritage District is recommended to be primarily low-density residential and to be designed so that it does not significantly alter the existing pastoral and agricultural settings. Other uses could include small-scale lodging (bed and breakfast establishments, cabins, low-intensity recreation such as horse stables, cottage industries, and dining establishments). Under the plan, development density would be dealt with on a case-by-case basis, depending on how it would affect the character of the cove.

Mountain District

The proposed Mountain District is comprised of 12,177 acres (58.3% of total cove acreage). This district includes those areas above 1,300 feet in elevation (Figure 3.10). These areas have steep slopes (>15%) and are mostly covered in forest. The soils are not appropriate for development, and development would be monetarily and environmentally costly because public water is not presently available. New development would likely cause erosion on these steep slopes. Moreover, development on the slopes and ridgetops has the potential to destroy much of the cove's scenic beauty.

The consultants recommend that any new development be limited to low-density (minimum five acres per dwelling unit) and low intensity uses, while minimizing the removal of existing vegetation. New structures should be designed to blend in with their environment as much as possible. Ridgetop development should be discouraged due to negative visual impacts on the cove. Strict construction guidelines should be required to minimize erosion. Suggested uses are single-family residential (low-density), forest, and low-intensity lodging.

Community/Open Space District

The proposed Community/Open Space District consists of 665 acres (3.18% of cove acreage) (Figure 3.10). Four areas in the cove have this designation: Mitchell Hollow, a portion of the area between Old Tuckaleechee Cove Road and Highway 321; a portion of the area between Cameron Road and Little River; and a large area in Laurel Valley. According to the plan, these areas should be left relatively undeveloped.

Mitchell Hollow is identified as the most scenic viewshed for Highway 321. The consultants opine that the visual characteristics of Mitchell Hollow would not be degraded if it were used as a spray irrigation field for wastewater effluent. The area between Old Tuckaleechee Cove Road and Highway 321 could be used as a spray irrigation field or for parks and ballfields. The area between Cameron Road and Little River is almost entirely in the hundred-year floodplain and should not be developed due to the risk of potential flooding. The consultants also note that areas in Laurel Valley can be used for existing and future recreational opportunities.

The Highway 321 Corridor Dilemma

For several decades Tuckaleechee Cove has been bisected by a narrow two lane highway, Highway 321. Recently, due to the increased traffic congestion in Pigeon Forge and Gatlinburg, Highway 321 has emerged as an attractive alternative route for tourists traveling from Knoxville and other cities to the west and south of the Park. The popularity of this alternative, however, has resulted in long delays and congestion during certain periods in Townsend.

In the Fall of 1996, the TDOT announced that funding had been approved to widen the highway through Tuckaleechee Cove (Barge, Waggoner, Sumner, and Cannon 1998). Local officials and residents were concerned that the TDOT project could damage the rural character and encourage development like that in Pigeon Forge. TDOT presented two alternatives for widening the highway in 1997 that met with unfavorable community reaction. Alternative A was designed as a five-lane road with a continuous

center-left turn lane and twelve foot wide paved shoulders. Alternative A would be eighty-eight feet wide. Alternative B was basically the same design except for a twenty-two foot wide grass median with breaks for left hand turns (Barge, Waggoner, Sumner, and Cannon 1998).

Due to concerns about proposed highway design, the TCAB and the City of Townsend contracted with the East Tennessee Community Design Center (ETCDC) to solicit community input and develop an alternative highway design. In 1998, ETCDC contracted with the engineering/planning firm of Barge, Waggoner, Sumner and Cannon Inc. to develop the *Highway 321 Corridor Study*. This effort recommended significant changes to the 4.8 mile road widening project and proposed that the project be divided into five segments. According to Shawn Benge, (personal communication 2000) TDOT accepted most of the recommendations in the report.

The first segment is approximately 1.2 miles long and runs from Kinzel Springs to the Family Inn Motel. This segment is the physical and visual entrance into the cove and existing commercial development is sparse. A new greenway trail is proposed for this segment with access to the Little River. Furthermore, a new community gateway park with picnic area is recommended. The highway study report also recommends that the median be up to seventy feet wide to accommodate the mass planting of trees, which will preserve the rural ambience. Lastly, a box culvert under the road is proposed to allow pedestrians and cyclists to continuously travel on the greenway trail (Barge, Waggoner, Sumner and Cannon 1998) .

The second segment is approximately 0.4 miles long and runs from the Family Inn to Nawger Nob (a small commercial establishment). This segment is more commercial, so five lanes with a continuous turn lane is recommended by the consultants. However, this segment would have grass shoulders rather than the paved shoulders proposed by TDOT. A new greenway trail is proposed along with wildflower plantings.

The third segment is approximately 2.2 miles and runs from Nawger Nob to Wear's Valley Road. This is the most intensely developed portion of the cove. Five lanes with "splitter islands" and curbs and gutters are recommended. "Splitter islands" tend to slow traffic and provide safe havens for pedestrians. A new greenway trail and two box culverts are proposed along with a sidewalk on the north side of the highway.

The fourth segment is approximately 1.16 miles long and runs from Wears Valley Road to Little River Village. The report recommends three lanes with "splitter islands" and grass shoulders for this section. A new sidewalk would be constructed on the north side of the road, and a new visitors center is proposed at the segment's end, which may be considered as a visitors' center for Cades Cove.

The fifth segment would remain two lanes to the boundary of the Park. The consultants recommend that widened shoulders, pulloffs and additional parallel parking should be considered.

Except for a recommendation concerning a "roundabout" at the intersection for Wears Valley, TDOT has adopted many of ETCDC recommendations, integrating them into the current road-widening project which began in 1999. This project has suffered delays, however, due to the discovery by University of Tennessee archaeologists of

significant Native American habitation of the Townsend area from approximately 500 B.C. to the 1700s (Knoxville News-Sentinel 2000a). On March 31, 2000, a mediation session was sponsored by the Federal Advisory Council on Historic Preservation in an attempt to resolve a dispute over the relocation of burial sites found in the highway's path (Knoxville News-Sentinel 2000b). Currently, the portion of the project related to Native American burial sites is on hold while construction on other portions continues.

The expansion of Highway 321 is a controversial project. To some degree it has divided the community. It is unclear if the majority of residents oppose the expansion and uncertain if the project could be stopped even if they did. Ultimately, this is a political question that must be resolved between the local residents and the state, which apparently feels expansion is necessary.

Analysis

Both Pittman Center and Townsend are taking actions that will help preserve the “soft-edge” boundary of GSMNP, while Gatlinburg is taking strides to “soften” its image and the boundary it shares with the Park. Whether these actions will be enough to preserve the boundary is questionable. TDOT is currently widening Highway 321 through Townsend enabling the road to carry even more traffic. TDOT also has planned to widen Highway 321 through Pittman Center. All three communities recognize that the preservation of open space is critical, yet none of them has a mechanism for acquiring open space property or requiring it from developers. One such mechanism is in place in Boulder, Colorado. In 1967, Boulder became the first city in the United States to use

local sales taxes for open space acquisition. By 1995 Boulder's open space preservation totaled 25,000 acres with a goal of 33,000 acres (Zazlowsky 1995). Gatlinburg is well-positioned financially with its large tourist economy to undertake such action. However, such action is unlikely due to the homage paid to private property rights and the traditional Appalachian belief that you can only develop through growth. Open-space preservation has never been a high priority for that community. Pittman Center, on the other hand, appears to have a stronger conservation ethic than Gatlinburg and should consider adding an open space acquisition fund similar to Boulder's to its plans for the future.

Furthermore, Townsend and Pittman Center are only now beginning to face the similar kind of development pressure that consumed the open space in Gatlinburg. There is still time to put such a mechanism in place before development overruns these communities.

Each of these communities enjoys a good relationship with the Park. However, it appears that these relationships are specific to the individual community and the Park, with little or no coordination between them for acting in concert or in the Park's best interests. The efforts of the communities and the NPS would likely be more effective in preserving the boundary if they coordinated their efforts. Based on this research, it appears that Pittman Center is more advanced than the other communities in its efforts to control the size and nature of its growth. There is much that Gatlinburg and Townsend could take from Pittman Center's experience in promoting land-uses that would assist in preserving the character of the "soft-edge." Most important would be the creation of a community vision which recognizes the unique relationship to the GSMNP and the responsibilities that flow from that relationship.

CHAPTER IV.

THE ROLE OF FEDERAL, STATE and COUNTY GOVERNMENTS

Federal Level

Along the eastern and southern boundaries of GSMNP, the USFS has substantial land holdings. The national forest lands form an effective buffer since these lands are not subject to the same development pressure. The land along the northwestern boundary, however, is not federal land and the federal government is limited in its authority to control or even influence development. Obviously, the NPS is the federal agency with the most direct interest in sustainable and compatible development along the northwestern boundary of GSMNP. Other federal agencies also have some regulatory authority and presence in the area although not as evident as the NPS. The EPA has jurisdiction to enforce several environmental statutes. The most well-known are the Clean Air Act, Clean Water Act, and the statutes concerned with hazardous substances. The U.S. Geological Survey (USGS) monitors the rivers, but has no management authority. USGS maintains gaging stations at Townsend and Walland along the Little River. The TVA is a quasi-governmental entity that once had considerable authority regarding development, but now is largely a provider of electrical power.

The EPA has long been concerned with growth and development issues. However, the EPA has no authority over land development. Understanding its statutory limitations in these matters, EPA contracted with the Planning Advisory Service in 1975 to publish a manual advocating protection of environmentally sensitive areas by using municipal and

county government police powers (Thurow et al. 1975). This manual provides guidance on how local governments can protect environmentally sensitive lands within their jurisdictions. Since Gatlinburg, Townsend, and Pittman Center all have environmentally sensitive lands, such as floodplains and steep hillsides that need protection, the EPA guidance would be a useful tool for these communities. Pittman Center has already enacted some ordinances similar to those promoted by EPA, but Townsend would especially benefit since it is nearing adoption of a new land use plan that will need well-drafted and enforceable ordinances. Adoption of ordinances similar to those promoted by EPA would limit development in these areas and help preserve the “soft-edge.”

Recognizing federal limitations in dealing with certain environmental problems, EPA has encouraged local governments to exercise their police powers to protect environmentally sensitive areas (Thurow et al. 1975). Although this policy initiative was primarily geared to protection of water resources, the protection measures advocated would provide other benefits as well. The manual defines “environmentally sensitive areas” as those land areas where destruction or disturbance will immediately affect the life of a community by either (1) creating hazards such as flooding and landslides; (2) destroying important public resources such as water supplies and the water quality of lakes and rivers; or (3) wasting important productive lands and renewable resources (Thurow et al. 1975). EPA believes that local regulation is needed because of the resources’ public nature and because the real estate market does not adequately consider the costs and benefits of resource protection (Thurow et al. 1975).

The five types of environmentally sensitive areas for which EPA encourages local protection are: (1) streams and creeks; (2) aquifers; (3) wetlands; (4) woodlands; and (5) hillsides. The most common land use control for protecting sensitive areas are zoning ordinances that define a special use or an overlay district. The ordinances establish permitted uses, prohibited acts, and special-use or conditional-use procedures (Thurow et al. 1975). A brief discussion of the environmental benefits of these sensitive areas and types of protective land use controls recommended is set forth below.

Streams and Creeks

Most stream protection ordinances focus on the establishment of a buffer zone, usually ranging from fifty to one hundred and fifty feet. The buffer zone's purpose is threefold: to retain the stream's natural condition, to protect the stream from the effects of development, and to protect development from the stream (i.e., floods). A vegetated buffer will absorb runoff and runoff energy, decrease sediment loads, and trap chemical and biological pollutants. Moreover, shade from the vegetation cools the stream, enhancing habitat.

Aquifers

Aquifers are natural reservoirs of relatively large quantities of groundwater. Land-use activities that have traditionally caused problems for groundwater are: 1) septic tanks below or near the water table; 2) sewer pipe leakage; 3) agricultural activities causing the percolation of agricultural chemicals into the aquifer; 4) leaking petroleum and chemical storage tanks; 5) solid and hazardous waste landfills; and 6) excessive use of salt on highways. Groundwater protection is often achieved indirectly through other statutes and

ordinances. For example, groundwater recharge is often achieved by wetlands and stream protection ordinances. Federal and state statutes protect groundwater by controlling the siting and construction of septic tanks, landfills, and petroleum storage tanks.

Wetlands

Wetlands are land areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under certain circumstances do support, vegetation typically adopted for life in saturated soil conditions (33 C.F.R. Section 323.2(c)). All wetlands have three characteristics: 1) water on the surface, usually shallow, all or part of the year; 2) hydric soils; and 3) hydrophytic vegetation. Wetlands are important for preserving water quality, mitigating flood damage and effects of drought, providing critical wildlife and aquatic habitat, and providing aesthetic and recreational opportunities. Wetlands are usually most directly threatened by dredge and fill activities. However, a housing development upgradient of a wetland can deposit runoff, silt, fertilizers, pesticides, and other by-products of urban living into the wetland. Permits under section 404 of the Clean Water Act and state law are usually required for dredge and fill activities in wetlands. A vegetated buffer required by local ordinance, similar to those used to protect streams, is also effective in helping to preserve wetlands.

Woodlands

Woodlands have many environmental benefits. They provide a rich habitat for many kinds of plants and animals and protect watersheds and soils by decreasing runoff and increasing groundwater infiltration. They buffer noise from freeways and factories, and serve as natural air conditioners when interspersed in suburban and urban areas.

There are essentially two types of local ordinances that apply to protecting woodlands.

Tree preservation ordinances are designed to protect yard and street trees by requiring permits for cutting mature trees. Protecting street trees is crucial if

Townsend/Tuckaleechee Cove is to avoid the cluttered appearance of Gatlinburg.

Farragut, Tennessee recently enacted a tree preservation ordinance that the communities in this study could use as a model for developing one of their own. However, due to its recent adoption the effectiveness of this particular ordinance is unknown.

Woodland protection ordinances are concerned with protecting specific wooded areas that are large enough to preserve woodland ecology. A woodland protection ordinance would benefit Park wildlife that stray outside of the boundary by providing large wooded areas for food and cover.

Hillsides

From an environmental perspective, hillside development should be regulated for several reasons. First, hillside disturbance can result in loss of soil stability, as well as increased erosion. Second, removal of hillside vegetation decreases the amount of water infiltration into the soil, thereby increasing runoff (Thurow et al. 1975). The problem with runoff on hillsides compared to flatter surfaces is its greater velocity and potential to erode. Third, loss of vegetation, soil erosion, and mass movement affect a community's aesthetic and economic resources. According to (Thurow et al. 1975), the principle approaches in local regulation of hillside development are slope-density provisions, which decrease allowable development densities as slope increases; and soil-overlay provisions, which assign use and density on the basis of soil characteristics in sloped areas.

Considering the topography of the communities bordering the GSMNP, hillside protection ordinances should be strongly encouraged by local planners.

EPA's recommendations for protecting environmentally sensitive areas would certainly benefit the boundary communities' planners in their efforts to preserve their communities and the character of the "soft-edge. While all of these suggested ordinances would bolster environmental protection and enhance the "soft-edge" effect, two would be especially useful in preserving the aesthetics of the communities. A tree protection ordinance could be developed to screen unsightly development along Highway 321. A woodland protection ordinance covering areas adjacent to the Park could provide wildlife habitat for animals that stray from the Park. Moreover, visitors to the communities would probably enjoy the convenience of viewing wildlife within walking or biking distance of their accommodations. Wildlife viewing in the communities could also serve to take some visitor pressure off the Park. This action would be particularly effective if it involved protected corridors linking the primary Park acreage with the Foothills Parkway. These community protected corridors would enable wildlife to migrate between the federally protected areas.

State Level

The state could also be a significant party in influencing development along the northwestern boundary. The state administers several environmental programs that are delegated from the federal EPA. The state is also very involved in transportation issues

that may encourage or discourage development. In the last few years state legislators have become increasingly concerned with unplanned growth that has led to urban sprawl.

In May 1998, Tennessee enacted the Comprehensive Growth Management Act (the Act) which requires counties and municipalities to develop joint plans for urban growth. The Act charges cities and counties to manage growth responsibly and to ensure the efficient use of land. The city and county plans are to include three types of areas: 1) urban growth areas for each municipality; 2) planned growth areas for each county; and 3) rural areas within each county. Essentially, the plan is to provide for more orderly development than the urban sprawl that is presently occurring (T.C.A. 6-58-101-115). Blount and Sevier counties are required to develop plans as are the communities bordering GSMNP. As previously discussed, Pittman Center and Townsend have already submitted their plans. With respect to the rural areas, which most of Tuckaleechee Cove and the Pittman Center area are likely to be designated, the Act places a duty on the counties to manage growth and natural resources in a manner which reasonably minimizes detrimental impact to agricultural lands, forests, recreational areas, and wildlife management areas.

Shortly after the passage of the Act, the University of Tennessee published a guide for Smart Growth that was specifically developed for Tennessee's non-urban municipalities (English, Peretz, and Manderschied 1999). The Smart Growth movement is a reaction to the chaotic, unplanned development that peaked in the 1990s. Considering Gatlinburg's and Pigeon Forge's history of unplanned and environmentally ill-advised growth, this guidance would be a valuable tool for boundary community planners.

Townsend's Ron Beckman was familiar with the document and indicated that he planned on referring to it in preparing future planning efforts (personal communication 2000).

Smart Growth proponents do not advocate curtailing all growth, but urge communities to plan wisely for their future. Communities engaged in smart growth are advised to embark on a visioning and planning process that will encourage their working together in responding to the forces of change.

Smart growth does not rely solely on the passage and use of land use controls. While land use controls are undeniably important, roads and utilities can be placed to influence growth patterns. Similarly, land use decisions affect a community's quality of life since they involve decisions about funding and placement of public parks, schools, and courthouses. How public lands and buildings are managed also affect the surrounding community. Finally, decisions about tax revenues, specifically impact fees, can influence how growth occurs (English, Peretz, and Manderschied 1999). At this time, the sprawl issues that generated the national smart growth movement are not widespread in Tennessee. However, the growth and development that is occurring in Knox, Blount and Sevier counties is following the familiar sprawl pattern.

As do many states, Tennessee has a scenic highway system. The purposes of the scenic highway system are to: 1) provide for the recovery and conservation of natural scenic beauty along designated scenic highways; 2) provide for a safe and attractive environment for tourists and travelers to enjoy Tennessee's scenic beauty; 3) maximize the potential of little used and bypassed sections of highway; 4) return economic viability to distressed areas through the promotion of tourism; and 5) provide for preservation of

routes of historical significance in urban and rural areas of Tennessee (T.C.A. 54-17-104). Junkyards and most advertising are not allowed within 2000 feet of scenic highways, either outside of corporate limits of any city or town or at any place within a “tourist resort county.”

The federal Clean Water Act provides for the delegation of authority to the states for the protection of state waters subject to certain requirements. Tennessee has been delegated that authority from EPA, and the primary streams exiting the Park along the northwestern boundary are subject to regulation by the state. Section 303(d) of the Clean Water Act requires states to compile a list of streams and lakes that are “water quality limited” or are expected to exceed water quality standards in the next two years and need additional pollution controls. Water quality limited streams are those that have one or more properties that violate water quality standards. Once a state designates a stream on the 303(d) list, the stream receives a priority for water quality improvement efforts, including enhanced state efforts to control non-point pollution sources such as agricultural and forestry activities. With respect to the Little River, only the portions within GSMNP and Tuckaleechee Cove are currently achieving state water quality standards. However, the Tuckaleechee Cove portion outside of the Park is now threatened by siltation from land development (303 List 1998). Bacteria from agricultural sources and septic systems also pose problems. In a 1999 telephone interview, I spoke with Jonathan Burr, a Tennessee Department of Environment and Conservation (TDEC) biologist, about water quality in the Little River. Mr. Burr indicated that over the last ten years, water quality, in

terms of clarity and color, has declined and the Little River had gotten more “greenish in color.”

The Little Pigeon River, originating in GSMNP, flows out of the mountains through Gatlinburg and Pigeon Forge on its way to the French Broad River. Growth and resulting declines in water quality are major concerns for areas outside of the Park. Human waste disposal is by far the biggest problem facing the river. Gatlinburg’s concrete sewer system was built in the 1950s, and septic tanks and drainfields often cause groundwater and surface water to mingle (Varma 1999). Development has led to erosion and silt buildup in the river and animal waste downstream from area farms further degrades water.

TDEC tested water quality for fecal coliform in the west prong of the Little Pigeon in the summers of 1990 and 1992. The west prong begins near the Sugarlands Visitor Center and flows through Gatlinburg and Pigeon Forge. The sampling results showed low level degradation inside the Park, but excessive and “dangerous” levels downstream of development (Varma 1999). In 1992, the geometric mean for the sample taken near Sugarlands was nineteen colonies of fecal coliform per one hundred milliliters of sample, while samples taken outside of the Smokies were as high as 2,564 colonies per one hundred milliliters. The state water quality maximum for body-contact recreational activities is 200, while the standard for fish health is 1,000 (Varma 1999). As described above, TDEC has issued bacteriological advisories for both the Little Pigeon River and the West Prong of the Little Pigeon River in Sevier County. These high bacteria counts result from improper connections to storm sewers, leaking sewers, and failing subsurface sewage

systems (Status of Water Quality in Tennessee 1998). It is unknown what actions TDEC has taken to reduce these levels or if the advisories are still in place.

For streams that are truly special, TDEC may recommend a higher level of water quality protection. This is achieved by designating certain waterbodies as Outstanding National Resource Waters (ORNW). In order to achieve this designation streams or lakes must provide:

- Valuable recreational opportunities (e.g., trout fishing, canoeing, kayaking)
- Ecological importance (high biodiversity, habitat for endangered aquatic species)
- Outstanding scenic values (within state or national park, state natural areas)
- Good water quality (consistently better than water quality standards)

TDEC personnel believe ORNW designation for the Little River would be appropriate through Townsend, if the community desires such designation. Greg Denton, who is responsible for the development of Tennessee's water quality standards, explained in a 1999 interview that the decision to follow this path would likely depend on Townsend's vision of its future. If Townsend wants to emulate Pigeon Forge or Gatlinburg, the designation would not be appropriate because following the same growth and development patterns as these communities would lead to similar degradation of the Little River.

Currently, the only portion of the Little River that has the ORNW designation is within GSMNP. Once a stream is designated as an ORNW, no new discharges or expansions of existing discharges, or mixing zones will be permitted unless the activity will not degrade water quality. The only stream in Tennessee with the ORNW designation

outside of GSMNP is the Little Pigeon River from the boundary of the Park to the downstream boundary of Pittman Center (Status of Water Quality in Tennessee 1998). Jim Coykendall, Chief of the Planning Commission for Pittman Center, reiterated what Greg Denton had said, that it was only through committed community advocacy that the ORNW designation was achieved for Pittman Center.

Another state mechanism for protecting and preserving land is the conservation easement. A conservation easement is a legal agreement that restricts the type and amount of development on a piece of property. The restrictions on the property are tailored by the owner and the easement holder. For example, an agricultural preservation easement would allow continued farming or ranching on a piece of property, but may or may not permit public access (Diehl and Barrett 1988). In order to take an ownership interest in land, such as an easement, an individual must be authorized by law. Tennessee law allows any public body or organization to acquire a conservation easement in land or structures (T.C.A. 66-9-303). This law provides the counties, the communities, or even a conservation organization, the ability to purchase or acquire by donation, property for conservation purposes.

Easements are often more permanent and restrictive than land use regulations, which are subject to political change. Easements keep property in private hands and on the tax rolls, and usually cost less than acquisition. Easements can be placed on all or part of the property. Many conservation easements allow limited development of property as long as it does not affect the conservation values the easement was designed to protect (Howe, McMahon, and Propst 1997).

Easement restrictions are typically permanent and “run with the land,” binding future property owners. Conservation easements are recorded with the county clerk to provide notice to lenders and purchasers of restrictions on the property (Howe, McMahon, and Propst 1997).

Conservation easements that are donated, rather than sold, usually provide tax benefits to landowners. The United States Internal Revenue Code defines “conservation purposes” as the preservation of land areas for:

- outdoor recreation by, or the education of, the general public;
- the protection of a relatively natural habitat of fish, wildlife, or plants, or similar ecosystems;
- the preservation of open space (including farmland and forest land) yielding significant public benefit for the scenic enjoyment of the general public, or pursuant to a clearly delineated federal, state or local government conservation policy;
- the preservation of historically important land areas or buildings (Diehl and Barrett 1988).

The value of the donation is the difference between the fair market value of the land without the restriction and the fair market value after the restriction (Howe, McMahon, and Propst 1997). While conservation easements hold promise for conserving important open space, the history of their effectiveness is relatively short. The first or even second generation of landowners may agree with the conservation purposes of the

easement, but future owners who may want to profit from the land might challenge the easement.

County Level

In many areas of the country, county governments are the governmental entities most involved with growth and development issues. Most counties have professional planners whose job is to ensure the orderly growth takes place. However, the counties next to the GSMNP have grown so rapidly that the county planning offices have not been able to keep pace.

Blount County

Between 1970 and 1990 Blount County's population grew from 63,744 to 85,969. Estimates of population growth in the 1990s shows this to be the fastest period of growth in Blount County's history. Population by the year 2000 is estimated to be around 105,000 and is expected to increase to 138,000 by 2020 (Blount County Planning Commission 1999). This growth is changing the character of the county. Rural areas are feeling the pressure of suburban development, second home, and recreation housing, and the demands of increased tourism. Needless to say, Blount County officials are concerned about this explosive growth. John Lamb, Planning Director for Blount County, indicated that most of the growth has been south and west of Maryville and that Townsend has not yet experienced rapid growth. When asked about protection of the Park's boundaries, Mr. Lamb expressed his opinion that this was an NPS issue and offered that the county would not create a buffer zone area for protection of the Park.

Currently, Blount county has not adopted zoning ordinances for land use control. However, considering the county's rapid growth, this circumstance may change. The only regulations that the county government has currently authorized the Planning Commission to enforce are subdivision regulations. These regulations set minimum standards for development of lots, roads, and utilities in the county.

In June 1999, the County Planning Commission adopted a document entitled *Blount County Policies Plan*. This plan endorses the formulation of regulations dealing with the following areas: 1) construction design in mountain areas to ensure public safety and minimize visual impact; 2) communication tower design that requires blending in with natural surroundings and encouraging the collocation of facilities; 3) adoption of a zoning ordinance; 4) adoption of floodplain regulations; and 5) adoption of sign regulations.

In addition to the recommendation of adopting specific regulations to address the above concerns, the plan enumerates several "Guiding Policies" or goals for future development decisions. Guiding Policy 1 calls for the preservation of the rural, small town, and natural character of the county. The county hopes to achieve this goal by encouraging developers to design subdivisions incorporating open space, and preserving areas of unique vegetation and natural features, such as springs, creeks, and wetlands. The county also has a goal of encouraging private conservation through the donation of land or money for the purchase of development rights. This would be accomplished through private conservation organizations or the establishment of a private Blount County Farm Trust. The county also intends to pursue grant and other funding sources for the purchase of development rights.

Specifically, with respect to Townsend-Tuckaleechee Cove, the county intends to continue its membership on the Tuckaleechee Cove Advisory Board (Blount County Planning Commission 1999). The county's goals for the Cove are to retain the area's rural character and ensure that new commercial development is consistent with the "small town and Appalachian heritage look of the area."

Blount County has published a guidance document describing responsibilities under the state's Comprehensive Growth Management Act. The guidance states that urban growth areas should be areas that "a reasonable and prudent person would project as the likely site of high density commercial, industrial, and/or residential growth over the next (20) years based on historical experience, economic trends, population growth patterns and topographical characteristics" (Blount County Guidance 1999).

Under the Comprehensive Growth Management Act, Blount County has proposed that Tuckaleechee Cove outside of Townsend be designated as rural. John Lamb believes such a designation is appropriate. This designation would allow only medium to low density industrial, commercial and residential growth. Additionally, Lamb stated his belief that without the addition of a sewer system Townsend/Tuckaleechee Cove will not experience extensive growth.

Lamb also discussed how a previous attempt to develop a plan for mountainside protection went awry. In the mid-1990s, out-of-state interests bought a large piece of property on Chilhowee Mountain, known as the Three Sisters Tract. In reaction to the potential development of this property, the Blount County Planning Commission proposed a mountain protection plan in 1997, but the plan was rejected by the Blount County

Council. Lamb indicated that controversy over the proposed mountain protection plan was so great that it is unlikely to be revived in the near future. He added, however, that any future county zoning ordinance would achieve some protection by allowing only very low density development on mountainsides over a certain degree of slope and that the slope's soil composition would be an important factor. In discussing other conservation options, Mr. Lamb indicated that developers will be encouraged to preserve trees even though a county-wide tree preservation ordinance is not contemplated. He also stated that the Planning Commission often sends developers to the Foothills Land Conservancy, a local land trust, for advice on preserving open space and on the tax benefits of such preservation.

Sevier County

In 1970, the population of Sevier County was 28,241. By 1990, it had increased to 51,043. During these two decades, Sevier grew faster than any other county in Tennessee. In a March 2000 interview, David Taylor, the Sevier County Planner, explained that Sevier County had no policies or plans similar to those developed by Blount County. According to Taylor, Sevier County contains a large number of people who believe that individuals have the right to develop their property however they please. Sevier County does not have an open space policy and only recently was zoning discussed at county planning and commission meetings. Taylor stated that zoning will be the subject of a November 2000 referendum. If zoning is endorsed by a majority of citizens, then the county council will likely take action to implement it. Even if zoning gets approval,

Taylor estimates that it will take two and one-half to three years to produce a land use plan.

When questioned about relationships with the Park, Taylor explained that Sevier County and the Park's primary common border area is in Wears Valley. The municipalities of Gatlinburg and Pittman Center form a jurisdictional buffer between the Park and county in much of the area so Sevier County does not get involved in their planning issues. When questioned about development near the Park's boundary, Taylor stated development near the Park is treated no differently than anywhere else in the county. Taylor related that some developers were conservation-minded and did their best to retain cover and develop in an environmentally friendly manner while others did not.

In summary, the federal, state, and county governments have substantial authority that can be applied to control development along the GSMNP's boundary. The federal government's role would likely be one of planning assistance with grants for protection of environmentally sensitive areas. The state could play a more significant role by ensuring that TDOT takes into account the concerns of local citizens and the NPS. The Comprehensive Growth Management Act provides a vehicle by which the counties and communities can begin to influence growth patterns and development. Ironically, it is the county level that may have the most influence of these three levels of government. Local growth and development issues are typically left to city and county governments. Both Blount and Sevier have grown to the point that zoning should be a realistic possibility in the near future.

CHAPTER V

THE ROLE OF LOCAL CONSERVATION ORGANIZATIONS

In addition to the governmental organizations discussed earlier, there are several locally based non-profit conservation organizations that are interested in the welfare of GSMNP. These organizations have different missions, but each could play a significant role in the preservation of the character of the GSMNP's "soft-edge" boundary. A brief description of each organization and the role it could play is discussed below.

The National Parks and Conservation Association (NPCA)

The NPCA was established in 1919. Its purpose is to defend, promote and improve our National Park System while educating the public about the parks. The southeastern regional office of NPCA is located in Clinton, Tennessee and is led by Don Barger. I interviewed Mr. Barger in 1999 regarding NPCA's position with respect to the threat of development on GSMNP's boundaries. He explained that over the last decade NPCA had become increasingly concerned with the development pressures on Park boundaries, particularly in the area near Townsend.

The NPCA has not actively participated, so far, in the efforts of GSMNP to influence the degree and type of development on its boundaries. However, Mr. Barger indicated that may be a future option if NPS and community efforts prove to be ineffective. Currently, he interacts frequently with Park personnel on a number of issues and is familiar with the actions taken by Shawn Benge to preserve the "soft-edge." He

had high praise for Mr. Bengé and the efforts that are being taken by the NPS; however, he is doubtful that the Park with its limited authority and acting alone can preserve the boundary. Mr. Barger, a native of Tennessee and former community organizer with Save Our Cumberland Mountains, is convinced that only a cooperative process, with citizens from the local communities taking the lead, can be successful.

Mr. Barger offered his opinion that the strongest experience that a national park can convey to the visitor is a sense of place. Consequently, the neighboring communities should also strive to attain or preserve a similar sense of place with the Park. Barger's sentiments are similar to those of Annette Anderson cited earlier, in that these boundary communities have special responsibilities to their neighbor, the Park. Mr. Barger is optimistic that Townsend and Pittman Center can succeed, but he is concerned about discussions of building a sewer system in Townsend. Barger believes that Townsend will undergo rapid and significant change toward higher density and more commercial development if a sewer is constructed.

The Foothills Land Conservancy

The Foothills Land Conservancy (Foothills) is a non-profit land trust located in Maryville, Tennessee. Foothills is dedicated to protecting land near the GSMNP from development. Foothills accomplishes this protection by acquiring property by purchase or donation with the goal of holding it in trust or transferring ownership to governmental conservation organizations for preservation of open-space (Brown Interview 1999).

Randy Brown is the Executive Director of Foothills Land Conservancy. Mr. Brown is keenly interested in development near the Park's boundaries, but does not work directly with Park planners on targeting properties for acquisition by Foothills. This likely results from Foothills' mission to acquire properties in a larger geographic area than the boundary area the Park is primarily concerned with. Mr. Brown commented on the Townsend/Tuckaleechee Cove situation and its Proposed Land Use Plan in a 1999 personal interview. Mr. Brown has doubts about Townsend's ability to control the development pressures and remain a gateway community with a "soft-edge" buffer with GSMNP. Mr. Brown believes the community is not united in preserving the Cove and that successful completion of the Highway 321 expansion and sewer construction will be too conducive to development. He opined, "if the community builds an infrastructure that will accommodate a Pigeon Forge, then a Pigeon Forge will occur." It is likely that Foothills would offer greater assistance if the Townsend/Tuckaleechee Cove residents were more united in their efforts to preserve the area.

Friends of the Smokies

Friends of the Great Smoky Mountains National Park (Friends) is a nonprofit organization located in Sevierville, Tennessee, dedicated to preserving the Great Smoky Mountains by raising funds and recruiting volunteers. I interviewed Charles Maynard, the Executive Director of the Friends group in March 2000. He informed me that Friends has given over four million dollars for park projects such as the Mount Cammerer fire tower

restoration, trail construction and restoration, as well as funding for environmental education.

Mr. Maynard is concerned about external development pressures on the Smokies, but the Friends organization is primarily focused on activities inside the Park. He added, however, that the group is also supportive of the preservation efforts of the local communities and other conservation organizations. As an example, he cited, the support the group contributed to the formation of the Gatlinburg Gateway Foundation, which is trying to reform Gatlinburg's image.

Mr. Maynard also praised Shawn Benge's efforts at encouraging sustainable development for the communities bordering the Smokies. Mr. Maynard did not foresee Friends taking a position on the zoning issue in Sevier County since the organization is dependent on donations and some members may oppose zoning. As was discussed earlier, many East Tennesseans attach great importance to private property rights. The position of Friends is prudent in that many of its individual members probably view zoning as a threat to their individual property rights.

The locally-based conservation organizations are concerned about increasing development along the boundaries of GSMNP. Even though they have different core missions, they all interact with the NPS and the local communities. Each of these conservation organizations is eager to contribute to preserving the character of "soft-edge" boundary, and the potential exists for greater cooperation between these organizations, the NPS, and the boundary communities in the future. It is likely that the local conservation organizations will need to assume expanded roles and assert themselves

politically, as well as assist in the acquisition of more open space in and around the communities, if the “soft-edge” is to be preserved. Political involvement could include lobbying efforts directed toward local governments to adopt zoning ordinances or toward the state to establish a state park near the national park boundary.

CHAPTER VI

DISCUSSION

The rural and natural characteristics of the northwestern boundary of GSMNP are being threatened by development outside the Park. Blount and Sevier counties are growing at an alarming rate. Gatlinburg now possesses an urban character and continuing growth now threatens the “soft-edge” the nearby communities of Pittman Center and Townsend have had with GSMNP. This study questions whether the “soft-edge” boundary that GSMNP currently has with the nearby communities can be preserved. Similar to many of the western national parks, GSMNP was selected for its magnificent scenery and relative isolation. For decades, GSMNP has had the benefit of national forests and rural land uses along its boundaries, but these land uses are now changing.

The existing GSMNP General Management Plan does not offer guidance for addressing the boundary problems the Park faces today. The Plan is concerned only with internal Park matters. It was drafted prior to the recommendations of the *Vail Agenda* for dealing with external threats, and long before the growth and development that is now threatening the Park. Even though GSMNP officials are taking actions that are consistent with *The Vail Agenda* recommendations, the Plan will need to be revised if it is to provide future NPS managers a better tool to manage the external threats developing along the GSMNP’s northwestern boundary. Insofar as application of the NPS’ Guiding Principles for sustainable development, the GSMNP does not offer much opportunity within its own borders. As noted earlier, over 90 percent is zoned “natural area.” Many of the earlier

built structures in the Park, such as the Wonderland Hotel and the Elkmont cabins, will eventually be removed in order for these areas to revert to natural conditions. The greatest opportunities for showcasing sustainable design principles lie in the neighboring communities.

I have realized after several discussions with NPS managers and planners that they are expending considerable effort in working with the local communities and others in trying to preserve the character of the Park's "soft-edge." The communities are planning and taking actions to preserve their own cultural and architectural heritage as well as open spaces. If fully adopted and implemented, these community actions will help to preserve the "soft-edge," at least during the near-term. However, it is uncertain whether these actions will be sufficient to preserve the "soft-edge" over time if growth continues.

Of three communities on the northwestern boundary, only Pittman Center has openly recognized the importance of its relationship with GSMNP and determined that economic development and land use should be compatible with that relationship. This is manifested in Pittman Center's vision statement. Neither Gatlinburg nor Townsend/Tuckaleechee Cove's vision statements, even mention GSMNP. Moreover, several of the building blocks for Townsend/Tuckaleechee Cove's future, as identified by Barge, Waggoner, Sumner and Cannon (1998), are inconsistent with ensuring that development is such that it serves to preserve the "soft-edge." For example, the third building block calls for protecting the Little River through the construction of a sewer system. A sewer system may protect the Little River's water quality in the near-term, but it will also enable larger-scale development to occur that likely will adversely impact the

river in the future. Another example is the fourth building block which calls for protecting individual property rights. This is a laudable goal in most circumstances; however, environmental protection actually requires the relinquishment of some individual property rights for the greater good of the community. Unless the residents of Townsend/Tuckaleechee Cove are willing to compromise on individual property rights, it is unlikely that the community will be able to preserve the “soft-edge” with GSMNP.

Over several decades Gatlinburg evolved from a community that derived its existence by providing meals and lodging to Park visitors to a community that became a tourist destination in and of itself. The activities and entertainment that Gatlinburg began to offer no longer had a nexus with the Park, but could be found just about anywhere in the country. Don Barger pointed out that it was necessary for a national park to convey a sense of place. It would seem to be a logical extension that boundary communities would also need to have a similar sense of place. Over time, Gatlinburg began to lose the sense of place that it shared with GSMNP, and the other boundary communities are now threatened with the same fate. If this continues, not only will the Park lose part of its “soft-edge” boundary, but the communities will lose the qualities that made them special. Colin McLeod speculated that development like that currently occurring in Sevier County may actually threaten the tourist economy of the area because at some point vacationers will not travel from one subdivision just to visit another.

In studying these communities it became obvious that Pittman Center comes closest to the type of community GSMNP prefers along its boundary. Pittman Center is mostly rural with strict planning controls. Visitors staying in Pittman Center or traveling

through the community to GSMNP experience a gradual transition to the Park's natural environment. Indigenous species are abundant and the many wooded areas reduce the possibility of human wildlife conflicts. Pittman Center's achievement as a model "soft-edge" community leads to the question of how and why it was able to accomplish this. There appear to be several factors or preconditions that have contributed to this accomplishment.

One major factor is geography. Unlike Gatlinburg, Pittman Center is not located beside a main entrance into the Park. Gatlinburg's dense development is at least partially due to its location at a park entrance. Pittman Center also has little developable land. It is surrounded by steep mountainsides and has poor soils. Another aspect of location is proximity to Gatlinburg, which houses tourists and provides jobs, and has relieved Pittman Center of that burden. Geographic location has helped to limit development pressures.

Another factor is the example of overdeveloped and poorly planned Gatlinburg as a neighboring community. It was the threat of Gatlinburg's rapid growth in the direction of Pittman Center that caused Pittman Center to incorporate and adopt stringent land use controls. If Gatlinburg's growth had been slower and better planned, Pittman Center may not have acted as aggressively as it did.

A third factor is that Pittman Center has been blessed with exceptional leadership. Leaders can be longtime residents who are upset with unmanaged growth or newcomers who do not want their new hometowns to become ugly or congested. More often than not, they are simply citizens who simply care a great deal about their community (Howe, McMahon and Propst 1997). Conley Huskey, the first mayor, pushed through

incorporation to thwart Gatlinburg's growth in that direction. Jim Coykendall, a longtime planning commission member, brought enlightened planning ideas to the community and fostered a strong relationship with the Park. Coykendall believes that if you can just get four or five people to commit the time and effort the rest of the community will come along (Howe, McMahon and Propst 1997). Coykendall also recognized the significance of having state ORNW status conferred on the Little Pigeon River and persuaded the community to pursue it. Subsequent mayors, Glen Cardwell and Judy Perryman were stalwart preservationists. Coykendall is a Knoxville architect who lives in Pittman Center. Perryman is a lifelong Sevier County native while Cardwell is a retired GSMNP official.

A fourth factor is the strong sense of place held and promoted by the residents. They have made the effort to articulate the vision of the relationship the community should have with the neighboring Park. Pittman Center is a rare community in that it is sensitive to the Park's needs as well as its own and is willing to take those into account when planning its future.

The factors contributing to Pittman Center's success are not duplicated in Townsend/Tuckaleechee Cove. The physical geography is not as limiting in Tuckaleechee Cove as Pittman Center. Tuckaleechee Cove has appreciably more developable land. Furthermore, the community is situated along what has evolved into a major entrance to the Park. While Townsend has some committed leaders like Ron Beckman who are attempting to ensure that development is carefully controlled, it does not appear to have as many committed leaders as Pittman Center does. Moreover, the community does not presently possess the same strong sense of place as Pittman Center.

In researching this paper I looked at actions communities in other parts of the country have taken in protecting open space and park boundaries. Boulder, Colorado uses proceeds from a local sales tax to purchase open spaces (Zaslowsky 1995). Tucson, Arizona has had some success with its zoning authority in protecting a park boundary. Larimer County Colorado, which includes Estes Park, approved a 0.25 percent sales tax to finance open space acquisition adjacent to Rocky Mountain National Park (Howe, McMahon, and Propst 1997). I recommend that the boundary communities of the GSMNP consider a local sales tax option to preserve remaining open spaces as these communities have done. It would be preferable and provide a larger tax base if Blount and Sevier counties would enact the tax as Larimer County has done. If the counties or communities act in concert with similar taxes, it is unlikely that any of them would lose business to a neighboring community as a consequence.

Front Royal, Virginia has constructed bike trails and footpaths linking the town with Skyline Drive, the northernmost segment of the Blue Ridge Parkway (Howe, McMahon, and Propst 1997). The GSMNP boundary communities should consider constructing trails linking the communities with the park and with the Foothills Parkway. The Foothills Parkway was created in 1944 to provide scenic vistas along the GSMNP's northern flank (Foothills Parkway 1998). It is administered by the NPS, but is only partially complete. The Foothills Parkway passes in close proximity to the boundary communities. The communities, situated between the Park and the Parkway, should be encouraged to establish a network of trails and habitat corridors linking the two

components of the Park System. Such a network could actually help extend the preservation of the “soft-edge” character out to the Foothills Parkway.

At this time, the absence of strong county or state government involvement in controlling the growth of Sevier and Blount counties argues for greater federal and non-profit organization involvement. The best-case scenario for protection would entail a partnership of federal, state, and local governments and non-profit conservation organizations. Each of these parties would recognize the need for collaborative efforts and a sharing of responsibilities. For example, the NPS could use the example of North York Moors and pay a stipend to certain landowners to preserve their hardwood forests so the bears that leave the Park could find mast. Foothills Land Conservancy could assist the NPS in identifying critical areas and could perhaps purchase easements on properties until the NPS obtained the necessary funding to purchase the properties.

A leader like NPCA’s Don Barger, with his prior experience in community organizing, could work with the local communities to strengthen their commitments to preservation and provide leadership on this issue. Moreover, the NPCA could bring national attention to the plight of the GSMNP and aid in efforts to obtain congressional funding. The NPS and NPCA should also try to broaden awareness of what is happening along the GSMNP boundary and attempt to enlist the support of other conservation organizations, such as the Sierra Club.

The state has limited regulatory authority in limiting development that might adversely impact the boundary. However, the state could bolster protection for wildlife that leave the Park in search of food by purchasing or administering critical areas outside

of the Park. This has already been done in partnership with Foothills Land Conservancy in the Abrams Creek area. The state should even consider establishing a state park near the boundary that would be developed in such a way as to be compatible with the Park. A state park could offer rustic accommodations, campgrounds, hiking trails, etc., that could alleviate some of the pressures on the Park. Moreover, a state park could be linked by trails with GSMNP much as the state parks in the Santa Monica Mountains are.

Guidance is available at both the state and federal level to assist the communities in their planning efforts. The boundary communities should incorporate EPA guidance on protecting environmentally sensitive areas into their land use plans and ordinances. Even Pittman Center should consider stronger actions, particularly with respect to hillside and mountaintop protection. Furthermore, there are statutory and regulatory protections for streams and the scenic qualities of Highway 321. Townsend should follow Pittman Center's example and request that the Little River through Tuckaleechee Cove be designated as an Outstanding National Resource Water. Locally-based conservation organizations are closely monitoring development in the region, but could take stronger actions to assist in the preservation of the "soft-edge."

There are abundant examples of how other parks and other communities have taken steps to mitigate the effects of external development on park boundaries. The NPS and the communities should strongly consider consulting other parks and communities in planning for future preservation of the "soft-edge" boundary of GSMNP.

One of the difficulties in assessing whether GSMNP's "soft-edge" boundary can be preserved is the NPS's imprecise definition of "soft-edge." Foresta traced the evolution of

the National Park system from its early focus on preservation of natural areas to historic preservation and later to increasing focus on cultural preservation in 1960s and 1970s (Foresta 1984). GSMNP is primarily a natural area. However, significant efforts have been made to preserve the history and culture of Appalachia in the Park. Thus, the ideal “soft-edge” would be both environmentally protective of, and culturally compatible with the Park. Achieving the latter may be more difficult than the former. In discussing the “soft-edge” concept, Shawn Benge indicated that park visitors preferred views of farms, pastures, and woodlands over urban and suburban landscapes. Preserving this rural landscape would be very much in keeping with British efforts in their national parks and the cultural preservation efforts of the NPS in other areas. Unfortunately, the current plans of the communities and the efforts of the NPS are not targeted to preserve the rural landscape. In fact, most farmland would largely disappear if Townsend’s proposed land use plan is adopted. It is unlikely that this function of the “soft-edge” will be preserved.

One of the most important questions raised by this study is whether the NPS is doing enough to preserve the “soft-edge.” The NPS is acting in accordance with the GSMNP’s General Management Plan and the recommendations of *The Vail Agenda*. Both Shawn Benge and Phil Francis impressed me with their concern and the efforts they are undertaking. However, their success is premised on an optimistic scenario in which external parties take much of the initiative and share their vision. It is conceivable that the GSMNP boundary situation may eventually become similar to that of Columbia River Gorge, where the state and local governments were unwilling to act for preservation. In

that event, if the NPS wants to preserve the “soft-edge” boundary, it may have to request additional authority and funding from Congress.

There are strong arguments for a greater NPS presence in Townsend/Tuckaleechee Cove to help alleviate visitor impacts on the Park. Geographically, Tuckaleechee Cove is similar to Cades Cove. A GSMNP visitor center located in Tuckaleechee Cove emphasizing Appalachian history and culture could help to alleviate visitor impacts in the Park. The NPS should even consider a shuttle service for tours of Cades Cove from Townsend to reduce automobile traffic. Furthermore, the NPS could use the visitor center to showcase the sustainable design principles produced by *The Vail Agenda*.

All of these potential solutions, however, are likely to fail over time unless the people who choose to live near GSMNP embrace a strong conservation ethic and resist further TDOT expansion and development pressures. The mission of the NPS is to preserve our nation’s significant natural, historic, and cultural areas. This requires that the lands and structures within these areas be almost immunized from human change, which runs counter to the way lands and structures are treated in areas outside of those protected areas. A “soft-edge” boundary that truly protects and preserves its neighboring park will, by necessity, be populated by people and communities that share many of the same values as those NPS personnel who have dedicated their lives to the National Parks. Townsend’s and the GSMNP’s success in achieving significant modifications to the Highway 321 Plan set a valuable precedent for cooperative action that will help to preserve the “soft-edge.” Hopefully, it will be followed by other such actions.

Will the “soft-edge” boundary with these three communities still exist in thirty years? No one can say for certain; however, it is likely the “soft-edge” characteristics of the boundary will be reduced to some degree in certain areas. Pittman Center will likely be the least developed and retain more of the “soft-edge” characteristics than the other communities. However, considering the growth projected for the region, it is hard to believe that even Pittman Center will not suffer some loss of its rustic character and biological habitat. Gatlinburg, to the contrary, may actually be able to soften its image. Currently, it is densely developed with insufficient land use controls. However, implementing the recommendations of the Sonoran Institute will partially address problems with architectural design criteria, water quality, and transportation. If these continue Gatlinburg may recover some of the sense of place it once shared with the Park.

Townsend/Tuckaleechee Cove will likely see the most change. The proposed land use plan advocates the extension of the sewer system. At some point proponents of adding the sewer system are likely to prevail, which will allow growth beyond the wishes and expectations of many of the current residents. Even though Townsend/Tuckaleechee Cove’s proposed land use plan has some commendable features, the character of the community will likely be much different if it is adopted. Most of the agricultural and forested land in the cove bottom would be converted for residential and tourism uses. Consequently, the number of residents and overnight tourists are likely to substantially increase as will impacts on the “soft-edge.”

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APPENDICES

APPENDIX 1

Townsend Current Land Use Conditions

- Undeveloped farms along many of the side roads maintain views and scenic character.
- Most of the existing tourist-related businesses, campgrounds, and RV parks north of the river are set back from the road behind hedgerows, preserving the character of the landscape as seen from the road.
- Nearly continuous tree cover along the riverbank helps to prevent erosion and siltation problems and keeps the water temperature from rising -- both of which are critical to survival of fish populations.
- Existing tourist cabins have generally been built well back from the road, tucked against woodland edges, and surrounded by undeveloped open space.
- Undeveloped mountainsides slow and infiltrate stormwater, protecting water quality in the Little River. Forest cover prevents erosion and filters particulates from the air. Ridgelines are visible from all areas of the valley.
- Historic landscape and open space of Mitchell Hollow provides long views treasured by motorists traveling east on Highway 321 towards the Park or Pigeon Forge.
- Undeveloped areas along the highway allow views up the hollows and the distant mountains. Despite the amount of development that has already taken place, the traditional pattern of clustered development interspersed with open space still exists.
- An important drainage channel flows through vegetation along the east edge of a trailer park that empties into the Little River.
- Most development along the river's edge has been in place long enough to be surrounded by trees and other vegetation.

Source: Barge, Waggoner, Sumner, & Cannon, October 1998. Townsend-Tuckaleechee Cove Development Plan, Phase 2: Proposed Land Use Plan, prepared for Tuckaleechee Cove Advisory Board, 63 pp.

APPENDIX 2

Townsend Recommended Development Scenario

- Views of the mountains are preserved by keeping development off the ridgelines and higher elevations.
- Important vistas across roadside farm fields are protected by limiting development and careful siting of new structures. Traditional activities in heritage districts are encouraged by programs promoting local farm and craft products. Mechanisms may be developed to link permanent preservation of key open space of farmland areas, such as this area or Mitchell Hollow, with density bonuses for building proposed in the new Town Center District. Open space or farmland preservation immediately outside of the Town Center District could be linked to allow higher density development in the center to hook into the new sanitary sewer system and thereby be exempt from the current septic limitations on development.
- Careful siting and construction of new homes can accommodate some of the demand for single-family houses on larger lots. The middle-ground between the farmland along the river and the scenic upland coves and steep hillsides is the best place for development outside of the proposed town center.
- The largest, most intact farms are protected to preserve the base of local farmland for future generations, even if they are not directly visible or accessible to the public.
- Central open spaces are identified for use as town playgrounds and ballfields; at the same time preserving important scenic resources. Recreational fields are an excellent use of infrequently flooded land such as a 100-year floodplain.
- New streets are used to complete the existing grid pattern of the neighborhood. New homes follow the setbacks and densities of the existing neighborhood rather than some arbitrary standard.
- Clearing along the Little River for any purpose is strictly controlled to limit siltation and warming of the water.

APPENDIX 2 (continued)

- North of the Little River, the Planned Tourism District continues the tradition of cabins and homes tucked into the wooded edges, with the open fields and scenic vistas protected for the benefit of everyone. Reduced road widths, common driveways, careful house siting and path networks make for a pedestrian friendly community.
- New structures are built close to the road and to each other, following traditional town planning principles that encourage walking from one building to another. Parking is placed behind buildings in the courtyards created by groups of structures. Parking is connected by alleys to make vehicular circulation easier.
- A central “village green” or “town square” provides a visual and functional focus for the town center that is reinforced by new buildings that line its edges.
- Key open spaces along the highway, such as Mitchell Hollow, are permanently protected from development to preserve vistas up the cove to the distant mountains. Since Mitchell Hollow comes right down to the heart of the new Town Center, it would be a great place to host large open-air festivals or events which would enhance and strengthen business and community in the Center.
- An underpass follows the line of the existing stream to provide safe pedestrian and bike connections to the existing bike trail on the south side of the highway.
- A buffer zone along the existing stream prevents problems with siltation and warming, and provides a filter strip to remove contaminants that run off nearby development.
- A higher density residential development suitable for families or senior housing does not need to look different from traditional single-family detached community. Some units are attached; shared parking lots are screened in the rear, and paths tie into the district-wide pedestrian network.
- New hotel and shop complexes use traditional architecture and siting principles to fit in. Limits on building footprint and parking keep the scale and character of the development to a level that doesn’t overwhelm the existing community.
- A traditional swing bridge provides direct pedestrian access from the tourist cabin development to the town center, reducing traffic and adding some local flavor to the tourist’s visit.

Source: Barge, Waggoner, Sumner & Cannon, October 1998. Townsend-Tuckaleechee Cove Development Plan, Phase 2: Proposed Land Use Plan, prepared for Tuckaleechee Cove Advisory Board, 63 pp.

VITA

Robert Edward James was born in Greenville, S.C. on April 22, 1951. He grew up near Greenville and graduated from Travelers Rest High School in 1969. He received a Bachelor of Arts in History from the University of South Carolina in 1974, and a Master of Arts Degree in Education from Furman University in 1978.

He was a high school teacher for a year and then served for five years in the U.S. Air Force. Three of those years were spent in Hessich-Oldendorf and Neu-Ulm, Germany. Following his stint in the Air Force he returned to the University of South Carolina where he obtained his Juris Doctor in 1987. From 1987 to 1992, he worked as an attorney with the U.S. Environmental Protection Agency in Atlanta, Georgia. From 1992 to 1994, he worked for the law firm of Hunton & Williams in Atlanta.

In the Fall of 1996, while working as an attorney for the U.S. Department of Energy in Oak Ridge, Tennessee, Robert began graduate school in Geography at the University of Tennessee at Knoxville. He is now working as an environmental attorney for Bechtel Jacobs Company LLC.