OPEN SPACE PLANNING FOR SMALL EXURBAN COMMUNITIES:

A CASE STUDY OF MADISON, GEORGIA

by

RICHARD ANDREW SIMPSON

(Under the Direction of Eric MacDonald)

ABSTRACT

This thesis argues for an open space planning strategy for Madison, Ga., a small rural community which faces imminent rapid growth. The strategy will develop a comprehensive open space plan that incorporates three features: (1) park and recreation areas, (2) historic resource open space, and (3) habitat conservation. Open space planning will engage the political process; five premises in support of planning in Madison are presented. The evolution of open space planning is reviewed, followed by a study of precedents in open space planning process, and an analysis of ethical issues in open space planning. An open space planning case study is conducted, guided by landscape planning principles within a framewsork of the municipal planning process, and includes an inventory of resources, a suitability analysis for land uses, and a proposed scenario design for a planning approach to conserve open space in Madison.

INDEX WORDS: Landscape planning, Municipal planning, Sprawl, Rural landscape, Exurban communities, Sustainability, Survey and analysis, Conservation, Historic preservation, Open space, Greenspace

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DEDICATION

To Rick,

for all your support and love.

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INTRODUCTION

Nearly fifty years have passed since Ian McHarg sounded his call to design with nature, his response, in part, to the cataclysmic degradation of our environment brought on by rampant suburban expansion in post-World War II America.

> Let us abandon the self-mutilation which has been our way and give expression to the potential harmony of man-nature. The world is abundant, we require only a deference born of understanding to fulfill man's promise. Man is that uniquely conscious creature who can perceive and express. He must become the steward of the biosphere. To do this he must design with nature. (McHarg 1969, 5)

His call, while not unheard, has mostly gone unheeded. Suburban sprawl continues unchecked in much of America as development eats further into the rural hinterlands of metropolitan regions.

Suburban development, with its low-density residential areas, superficially offered the promise of connection with nature. However, the scale of that development surrounding our metropolitan areas has resulted in a despoilment of nature on a large scale. The hinterlands of metropolitan areas, where rural landscape meets metropolitan sprawl, have witnessed a recurrent story where rural communities are surrounded and engulfed by large-scale suburban development.

Madison, Georgia, poised at the edge of the rapidly growing Atlanta metropolitan area, is faced with the fate shared by formerly rural communities now absorbed by metropolitan areas. Known regionally for its historic character and set amidst farms and forest, it was named America's #1 small town by *Travel Holiday* magazine in 2001 (in part because of its bucolic

setting). However, it now faces the loss of that small town badge as home subdivisions, some with more than 1,000 homes, sprout up in its midst.

In the face of such dramatic change, what tools and traditions can a small town like Madison employ to retain its historic relationship with its rural landscape, and, as a growing community, fulfill the potential foreseen by McHarg for "design with nature"? This thesis sets forth the options available to Madisonians and the citizens of other small towns faced with the same predicament of rapid suburban growth from an expanding metropolitan area.

In response to the challenge of retaining open space when faced by rapid development, it is argued in this thesis that a successful comprehensive open space plan can be created for the town of Madison that incorporates three general features: (1) park and recreation areas, (2) open space in and around the Madison Historic District, and (3) open space for habitat conservation. The ultimate purpose of this thesis is to design a scenario for the conservation of open space in Madison that will offer a strategy for incorporating those three features in a final open space plan, and which provides the community with a framework to approach community development.

It must be clear, however, that this thesis is not a substitute for a comprehensive planning study. It does not justify the dedication of open space for parks and recreation with user studies, or create a cultural landscape report to guide open space preservation in the Madison Historic District, nor does it justify the establishment of a community green infrastructure from the results of an ecological analysis. Instead, the proposal set forth by this thesis is meant to be a suggestion of the possibilities that can be realized by exurban communities like Madison when they also decide to plan their open space before development diminishes such possibilities.

To achieve its goals, this thesis begins by acknowledging that open space planning will engage the political process. For that reason, five premises in support of open space planning in Madison will be presented. These premises form the foundation upon which the argument for open space planning will be built. They will introduce issues that are specific not only to Madison, but also to similar, developing communities.

Next, to provide a context for planning in Madison, the evolution of open space planning is examined. Research for this context comes from a review of literature on the history and current trends in the traditions of open space planning that apply to the cases of small, developing communities. Topics to be covered in this review of context are public parks and recreation areas, regional open space planning, greenways, landscape planning, historic preservation and open space planning, and the conservancy movement and open space planning. The literature review will help create a backdrop from which an open space plan for Madison may be developed.

Following the presentation of context will be a review of precedent for planning in rural and once-rural communities that have experienced or are facing metropolitan expansion. This will be based upon literature research, and will present an overview of the planning process. There will be an emphasis on reviewing the municipal planning process. There will also be an examination of how the landscape planning process can contribute to the municipal planning process. In addition, there will also be a focus on the tools in the planning process that are available to small towns for open space planning. The review of planning process and planning tools will then be followed by a presentation of three examples of open space planning in rapidly growing exurban communities. The experience of Roswell, Georgia will be the first example. Particular attention is paid to the open space planning process and criteria found in the

Comprehensive System-Wide Recreation Master Plan 2001-2010, for the City of Roswell Recreation Commission, produced in 2001. Similarly, the city of Suwanee, Georgia is looked at for its experience with open space planning, with a focus upon its *Suwanee, Georgia. Recreation and Open Space Needs Assessment,* created in 2001 to help guide open space policy decision in that community. Thirdly, a review of the planning process for The Woodlands near Houston Texas is conducted. This will offer insights into new town development that utilized a landscape planning process approach.

Following the precedent offered by a review of the planning process, its tools, and examples, an analysis of some of the pros and cons of issues in open space planning for small communities is presented. The goal of this discussion is to better understand the ethical issues involved in making planning decisions in a community. This discussion will draw from the material presented in the context, precedent and planning examples.

Based upon the research on context in historic planning traditions, and guided by the precedent examined in the study of planning process, tools and examples, the case study of Madison will proceed. It will follow a landscape planning approach within the framework of the municipal planning process. A community profile and historic background will be investigated to provide a sound foundation for the study. An exploration of how Madison fits within the context of open space planning tradition will also be offered.

The case study continues by establishing goals to guide the case study planning process. Because of the importance of community input in goals, the 2004 *Morgan County, Georgia and City of Bostwick, Town of Buckhead, City of Madison & City of Rutledge: Joint Comprehensive Plan 2025* will be researched to find direction in community values and goals. Once a summary of goals is produced, a process of survey and analysis will follow with an inventory of

community resources and suitability studies. The inventories will look at the abiotic, biotic and cultural resources. These studies will analyze the contribution of resource factors to the suitability of community sites for the following uses: (1) conservation of open space that contributes to historic character, (2) park and recreation areas, (3) habitat conservation, and (4) urban development.

The results of these suitability studies will then inform a design process that relies on planning goals for direction in design decisions, and which ultimately results in the creation of a design scenario of conserved open space for Madison. The goal of this open space scenario's design is to suggest a coordinated open space planning approach for Madison that will address community concerns for historic preservation, parks and recreation areas, and sustainability in community development. Thus, the result of this case study will suggest a strategy for Madison that will retain the connection with nature it has enjoyed through history. Nature is the source of meaning for design if we are to understand and fulfill our promise as the conscientious creatures that can perceive and express, and ultimately achieve McHarg's goal of reaching out for "potential harmony of man-nature" (McHarg 1969, 5). It is hoped here, with this thesis, that the proposal for an open space plan for Madison will prove to be a useful guide to that community and other small, exurban communities that choose to take the opportunity to preserve open space, and their connection to nature, before rapid population growth overtakes them.

CHAPTER 1

FIVE PREMISES IN SUPPORT OF OPEN SPACE PLANNING IN MADISON

"Planning is politics!" (Daniels, Keller and Lapping, 5), and this thesis anticipates that open space planning, like all community planning, will inevitably engage the political process. The political process in small communities differs from that of larger urban areas in that citizens tend to have greater access to local government than people in large urban areas (Daniels, Keller and Lapping, v). Government is at a more familiar level in these communities, with politicians and government employees much more visible to fellow citizens; there is a special intimacy that is peculiar to smaller communities where the mayor may run the local hardware store and city council members are familiar faces. Anticipation of the political process acknowledges this intimate relationship of citizens to local government in these communities. More to the point is that, in this thesis, the citizens of Madison, like those in similar small exurban communities poised at the edge of expanding metropolitan areas, will be asked to make profound planning choices to determine their community's public policy for open space planning. This thesis ultimately proposes a proactive public policy of open space planning. The small-town political process will be engaged by such a proposal.

In support of action to develop this policy, five premises are presented that act as the basis upon which Madison's open space policy may be built: (1) Planning as a policy provides a proven method for identifying open space needs and in the process provides focus for achieving community open space and development goals; (2) In order to preserve the valued character of the community, open space planning should identify and conserve open space that defines

community character; (3) The land use planning process, especially its consideration of future open space, should be guided by principles of sustainability; (4) In small communities, diverse people can be engaged and brought together through the process of planning and dedicating open space; (5) Today's opportunity to plan for retention of open space in the community should be realized soon before it slips away.

These five premises are specific to Madison, yet also apply to other rural communities sharing Madison's planning predicament. To better understand the issues involved, an exploration of the ideas behind each premise follows.

Premise One: Planning is an Effective Policy

This thesis promotes a public policy of planning in small communities for the simple reason put forth in *The Small Town Planning Handbook* that "planning is action, and it makes good sense for a community to anticipate change in order to shape it and to take action to solve problems before they become worse" (Daniels, Keller and Lapping 1995, 5). For communities such as Madison, this makes perfect sense, given the potential for change due to their locations adjacent to expanding metropolitan areas. The authors of *The Small Town Planning Handbook* also sum up the potential power of planning when they state: "planning helps people to take responsibility for their community and mold it into the kind of place they want it to be" (Daniels, Keller and Lapping 1995, xvi). Change presents opportunities. Communities harness those opportunities when they take stock of their options, formulate goals and implement a course of action for achieving those goals. That is the power of planning.

There is a tradition of open space planning that can be drawn upon by all communities that wish to make the most of their potential. Such planning can profoundly affect how communities develop. By defining open space they also are defining where development can

occur. It may seem ironic that the undeveloped will define how development occurs; however this pattern has been evident ever since open space planning evolved as part of community development. The tradition of park development in western culture will be explored in greater detail later in this thesis, but one part of that tradition is offered here as an example of the connection between open space and development: park planning to increase property values of adjoining residential property. The origins of this development approach emerged in nineteenth century English cities. Regents Park in London and Birkenhead Park in a community near Liverpool were viewed as amenities that increased the property values of their surroundings (Chadwick 1966, 68). To pay for these parks, the surrounding lands were developed by using the profit from these residential developments to defray the cost of setting aside and developing the parks they fronted. Open space molded the pattern of development that occurred around these spaces, and set a precedent for viewing open space as a tool for guiding development.

The influence of open space planning on community development also will be illustrated later in this thesis with examples of the open space planning experience in three communities: Roswell, Georgia, Suwanee, Georgia and The Woodlands, Texas. Of these three, Suwanee in particular has had recent successes in open space planning that respond to the needs of a community faced with rapid suburban development. This planning experience is a particularly good example of a community that used a structured planning program to define community open space goals, turn those goals into objectives, and develop a plan for implementation resulting in an open space network now being enjoyed by its citizens. The point here is that Suwanee and the other two examples (reviewed later in Chapter Four**)** incorporated open space planning into their overall community planning program. For Suwanee, the results are a network

of parks and conserved areas with greenway links that has brought the city widespread recognition for its planning efforts.

Another example of the power of planning for communities comes from the field of landscape ecology and the emerging concept of green infrastructure. A greater discussion of this planning approach will occur later in this paper, but as an introduction, it is defined as "an interconnected network of natural areas and other open spaces that conserves natural ecosystem values and functions, sustains clean air and water, and provides a wide array of benefits to people and wildlife" (Benedict and McMahon 2006, 1). The process of planning for green infrastructure allows a community to assess its open space, identify important lands for protection, then design an open space framework that will guide future growth and land development, and also address land conservation decisions that protect natural resources (Benedict and McMahon 2006, 3). This approach is a response to diminishing resources, and a desire to recognize and value community resources thereby balancing development with environmental protection (Marsh 2005, 13). Once again, the emphasis is on the benefits to communities that take the time to conduct the resource assessment and use planning "to help decision makers arrive at informed and thoughtful decisions" (Daniels, Keller and Lapping, xvi).

To this end, a town like Madison should take advantage of the experience gained from an evolving cultural tradition in open space planning. The tradition of planning came to small communities later than it did urban areas (Daniels, Keller and Lapping, xiv), and open space planning in Madison has never been conducted in a comprehensive fashion. As will be seen later in the discussion of the context of Madison in Chapter Six, parks and open space are important as part of the cultural landscape of Madison's historic district. Open space has also been identified as an important feature of the community and surrounding county in the last comprehensive plan

for Madison, for cultural, aesthetic and environmental reasons. Additionally, the importance of open space is evident in the tradition of park and recreation development that has occurred, and also in the efforts of the community to regulate its designated historic district using guidelines that acknowledge open space as a key ingredient of the town's cultural landscape. So, in various ways, Madisonians have recognized the importance of open space to the community.

Yet, there has never been a sense of urgency nor a demand in the community to comprehensively plan open space. As competition for resources increases, and development pressures spark desires for a community response to growth, open space planning offers the same framework suggested by Benedict and McMahon for green infrastructure—"a guide to future growth and future land development." With this in mind, communities like Madison should pursue an open space planning policy to establish open space networks that will serve as a planning framework, to balance development needs of the community with the economic, cultural, and environmental needs for community open space.

Premise Two: Planning Can Preserve Open Space that Contributes to Town Character

Small town character is intrinsically linked with open space that surrounds and permeates the townscape. Open space is part of the cultural landscapes of rural communities. It "exists around the edges, and occasionally occurs also as scattered pieces of undeveloped land throughout the community," contributing to town character (Arendt 1994, 5). William Murtagh comments on this relationship in his observations of historic rural communities and the way their built environments are structured: "In small towns, open space tends to be no less organized, but is a much larger part of the area's composition because the defining elements of the environment are much less densely compacted. In the rural environment, open space becomes the predominant component" (Murtagh 1990, 135). He goes on to point out that, "Natural attributes

such as streams, ponds, swamps, and forest combine with man-made components to help identify the sense of locality of the rural landscape (Murtagh 1990, 135).

Murtagh's observations of rural communities are cited here because he is, on the whole, concerned with historic preservation in these communities. One thing that rural communities often share with one another is historic character partly based upon a relationship to open space. A great many rural communities grew slowly, stagnated or shrank in size during many of the decades of the twentieth century (Daniels, Kelller and Lapping 1995, xii), and Madison was no exception to that growth pattern. It's historic pattern of development is reflected in the built environment of the community, which has a well-developed nineteenth and early twentieth century townscape unmarred by extensive late twentieth century development, and still showing a relationship between townscape and the surrounding rural landscape.

In 1987, a large part of the community was designated as a historic district, regulated by a municipal historic preservation ordinance. The first set of guidelines for the district, created by University of Georgia historic preservation professor William Chapman, specifically noted the importance of pecan groves, meadows, pastures and kitchen gardens interspersed among the historic structures, and their contribution to the town's rural character (Chapman 1990, 44-45). The connection between open space and character has been recognized; moreover, the character of a rural community such as Madison will change dramatically if open space disappears.

This relationship between open space, character and change can be seen in the struggles experienced by Waterford, Virginia. Designated a National Historic Landmark in 1970, Waterford is a rural village in a landscape setting of open fields, pastures and woods, located 45 miles west of Washington, D.C. For historic Waterford, "the inescapable sense that you have traveled back in time comes from the interaction of the landscape with the townscape (Brabec

1993, 6). During the 1980s its designation as a National Historic Landmark was threatened when plans were announced to turn one of the farms within the boundaries of the landmark district into a subdivision. Had the context of open space been filled with modern development, the integrity of the protected cultural resources of the Waterford National Historic Landmark district "would have been destroyed" (Brabec 1993, iii). There was a clear recognition in the case of Waterford that open space needed to be protected if the historic character, which was derived in part from open space, were to be preserved.

In a more recent case, the aforementioned community of Suwanee, Georgia was motivated to conduct its open space comprehensive plan in 2001 when results of a focus group study showed strong community interest in maintaining rural character in that rapidly growing suburban community (Lose 2001, 1). Like Waterford and Madison, character was tied to open space, and a goal of the 2001 Suwanee plan was to achieve the preservation of 27 percent of the community as open space. In Suwanee, a community with very few historic resources but with vestiges of the woods and farms that defined community character, rapid development was diminishing the community's links to those character-defining rural elements.

All three communities had roots in a rural past but now were faced with rapid change brought on by metropolitan expansion. All three towns have valued character defined by their relationships to rural environments that are threatened. For Madison and Waterford, cultural resources are threatened by loss of open space. Open space planning has been employed extensively by both Waterford and Suwanee to protect open space, (their examples will be explored in greater detail later in this thesis). Their experience shows that, in order to preserve the valued character of a rural community faced with rapid growth, open space planning should be used as a tool to identify and conserve the open spaces that define community character.

Premise Three: Principles of Sustainability Should Guide Planning Decisions

Growth and development are accepted parts of American culture. This desire to accommodate growth can be seen throughout America at many different planning levels. On the statewide level, it's evident in Oregon's much-vaunted statewide planning process, which has as its overriding goal to plan for development while conserving farmland and natural resources. Just the very name of the Oregon department entrusted with administering the planning laws of the state—the Department of Land Conservation and Development—points to the importance in the planning process of both development and conservation as issues to consider (Oregon Department of Land Conservation 1997, 2).

On a local level and pertinent to this thesis, Morgan County, Georgia, and its communities (including Madison) have expressed this desire to balance growth and conservation in their joint comprehensive plan, published in 2004. This public document expresses that desire in its development and conservation goals and objectives. For example, one goal is to protect permanently more than 20% of the county's land area in open space, while at the same time goals have been set for commercial development in the county (Northeast Georgia 2004, 101-107; 135). There is recognition of the importance of protecting open space while simultaneously planning economic development for the community.

As human development continues at a seemingly never-ending pace, a growing awareness of a need for better environmental planning has emerged. This need is especially evident at the edge of burgeoning metropolitan areas. The challenge for Madison and other small towns on the urbanizing fringe is to grow in such a way that connection with nature, as so eloquently stated by Ian McHarg, will be maintained even as development occurs. The goal for communities like Madison is to "guide development toward environmentally responsive

landscape planning and design schemes that avoid mismatches between land uses and environment" (Marsh 2005, 2). Growing rural communities have the opportunity to guide development through planning to maintain vital environmental resources.

The growing awareness of the importance in simultaneously planning development while protecting the environment has encouraged ideas of sustainable development in recent decades (a greater investigation into these ideas occurs in Chapter Two). For the purpose of this thesis, a good definition proffered by Gary Meffe and Ron Carroll defines sustainable development as: "human activities guided by acceptance of the intrinsic value of the natural world, the role of the natural world in human well-being, and the need for humans to live on the income from nature's capital rather than on the capital itself" (Meffe et al. 1997, 601). Landscape ecologists and environmental planners have been working to create models for sustainable development. Jack Ahern, who promotes greenways as a form of landscape planning, offers one such model. He sees the objective of his landscape planning approach "is to establish a durable network capable of supporting basic ecological functions, protecting key natural and cultural resources and permitting other uses which do not impair landscape sustainability" (Ahern 2002, 50). It is to this end that rural communities faced with rapid development need to use the tools of open space planning to create strategies for identifying important lands for conservation, along with areas suitable for development. Madison and similarly challenged communities should adopt an open space planning process that is guided by principles of sustainability.

Premise Four: Planning Will Engage Diverse Segments of a Community

"To make a greenway…is to make a community (Little 1990, 38). Such are the high hopes attached to different forms of open space as potential building blocks of community development. Seven years before he began his work on Central Park in New York City,

Frederick Law Olmsted recognized this potential when he visited the recently opened Birkenhead Park near Liverpool, England. He christened it a "Peoples Garden", filled with visitors from all classes, from the wealthy attended by servants to large numbers from "the common ranks," all enjoying with equal vigor the delights of that recent invention, the public park (Olmsted 1967, 52-3). Open space for a community offers an opportunity for creating common ground, with the potential to engage people of different walks of life in the planning, creation and enjoyment of those spaces.

Olmsted saw this in the 1850s, and Charles Little in his *Greenways for America* recognized it nearly 150 years later. More recently, proponents of landscape planning have used concepts of landscape ecology to promote the benefits of community building through open space planning. For example, green infrastructure, as a framework for community development, engages different members of the community by providing places for people to live, work, shop and to enjoy nature (Benedict and McMahon, 2006, 2). By making open space planning an integral part of community planning, people are engaged to plan not just parks and recreation space, but make decisions about the shape of the total community structured around open space. Charles Little noted the beginnings of this with the greenway networks of communities such as Redding, Connecticut and Boulder, Colorado, where open space corridors were expanded to become dominant features of the landscape pattern, thus directing major development decisions (Little 1990, 57, 180).

This potential of open space as common ground for a community is, therefore, not only physical but also metaphorical. A greenway may wend its way through diverse neighborhoods creating a linear shared space. A special events park can bring diverse groups of people together for public events like fairs or concerts. Active recreation brings people together in open space,

as do passive activities such as hiking, biking or kayaking. But there is more to open space than just physical participation in enjoying the outdoors. Open space planning can guide community development much as physical infrastructure planning does with roads, schools, and utilities (Benedict and McMahon 2006, 4); it becomes a community planning tool and, hence, a tool for community-building.

This thesis will build upon this idea of connecting all members of a community to the planning process, in Madison and similar small, rural communities. As previously noted, citizens in small towns have greater access to their local governments than in urban areas. Yet, small towns still share with their urban counterparts varying levels of class and ethnic boundaries. Madison, with its history of class and race divisions, has work in store for itself to overcome those boundaries. Still, one powerful side-effect of the planning process occurs when people are encouraged to participate; "the more that people take part in the planning process, the more they will feel that the final plan is their plan" (Daniels, Keller and Lapping 1995, 6). The process of open space planning has the potential to reach out to Madison's diverse communities, to create its own "peoples gardens", and to build common ground for planning open space that will bind together the community physically, developmentally and symbolically.

Premise Five: Plan Open Space Before It Disappears

As noted earlier in premise two many rural communities across America such as Madison, Georgia, did not experience development pressure during the past fifty to one hundred years. These quiet communities, removed from major metropolitan areas, devoted much of their planning efforts to schemes that would encourage growth. The idea of having too much growth is foreign to these communities, which, for the most part, missed out on the post-World War II

development booms centered upon metropolitan areas. Hence, there has not been a sense of urgency to preserve open space in these communities.

Yet how often has the wistful thought been expressed: "you don't know what you have till it's gone?" Change over time usually happens in a piecemeal fashion, with the gradual development of a parcel of land here, there and soon everywhere. This results in what W.E. Odum described as "environmental degradation and the tyranny of small decisions" (Odum 1982, 728), a process of environmental fragmentation based upon small decisions that eventually drives planning policy (or, as is most often the case, a lack of planning policy). The potential scenario for Madison is that small decisions by many independent actors will lead to the gradual development of open space without any consideration of the ramifications to the community of those incremental losses.

The incremental loss of land in America adds up to a tremendous number of acres lost to development each year. The 1997 National Resources Inventory published by the Farmland Information Center of the American Farmland Trust reported that 2.2 million acres of open space were developed each year between 1995 and 1997. On average, 1.2 million of those acres were agricultural lands (Farmland Information Center 2000, 1). The pace at which land is lost is greatest around metropolitan areas, and metropolitan Atlanta, just to the west of Madison, grows at a rate of 55 acres per day (Kramer 2006, 5).

Two towns that will be studied by this thesis, Roswell and Suwanee, are now part of the Atlanta metropolitan area. Open space has disappeared rapidly in these two communities. In 1975, 73 percent of Roswell was classified as vacant and agricultural land, but by 2004 only 6.5 percent was vacant with no land classified as "agricultural" (Weitz 2005, 237; 263). Suwanee, located farther from Atlanta than was Roswell, still had 30 percent of its land classified as

undeveloped in 2001 (Lose and Associates 2001, 3.1). In 2004, Madison, an even greater distance from Atlanta (and still located outside the Atlanta metropolitan area), had over fifty percent of its land classified as vacant or agricultural. The direction of change points towards an increasing loss of open space the closer that these communities are to the metropolitan center.

All these numbers add up as evidence that Madison and other communities on the exurban fringe share what seems to be their inevitable fate: a loss of open space as the tide of suburban development washes over them, resulting in their absorption into a sprawling metropolitan region. In the case of Madison, given that a great amount of its land is still not developed, and knowing what fate seemingly awaits the city, the choice seems clear that open space planning is not only an opportunity—it is a priority given the rate of change in its region. Today's opportunity to plan for retention of open space in the community should be realized soon before it slips away.

CHAPTER 2

ESTABLISHING A CONTEXT IN THE TRADITIONS IN OPEN SPACE PLANNING

In order to plan for open space in small towns, members of those communities need to know the broader traditions in their culture regarding open space. Past patterns and traditions are suggestive of future directions in planning parks, recreation areas and conserved lands. To help understand the traditions that create a planning foundation for open space planning in small communities like Madison, this chapter presents a review of different elements of America's open space traditions that are pertinent to open space planning for small rural communities.

This review begins with a look at the roots of public open space in our culture, by examining the development of parks and eventually recreation lands. This study will follow the beginnings of public space usage for function and recreation. It charts the changes in public attitudes and desires for open space and the emergence of the patterns in parks and recreation areas that we recognize today. Building on these early open space traditions, the historic planning for open space on metropolitan and then regional scales will be explored in the second section. Emerging out of this broader view of regional planning are two unique approaches to open space. The first, greenways, expands upon the idea of networks that emerged from the tradition of regional planning. The second, landscape planning, defines a macro approach, which considers physical, biological, and cultural resources, with the processes and systems at work. Both greenways and landscape planning represent the attempt to perceive and plan open space on a larger and more complex level.

The broader perception of landscapes that has influenced open space planning in the latter half of the twentieth century has also had an impact on developments in historic preservation. The historic preservation approach to open space planning that is reviewed in the next section is more recent but adds a new dimension to planning traditions by accounting for valued cultural resources in communities. A final section will chronicle recent developments emerging from the conservancy movement. Planning tools and traditions that first began with public provisions of parks and open space have grown more complex over time. This exploration of the conservancy movement looks at new approaches to planning and conservation in communities, fulfilling many of the planning goals of the aforementioned traditions.

Looking at each of these topics individually will present a context for understanding land planning in small communities, such as Madison, that traditionally have not been pressed to plan for open space. Understanding the context for decision-making is also important because it provides insights into the myriad approaches derived from our tradition of open space planning that are potentially available for communities. The overall thrust of the review of each of these subjects is to understand the circumstances behind ideas of open space in American, and how the traditions in open space may affect planning decisions of communities. It begins with a review of the tradition in public parks and recreation areas.

Public Parks and Recreation Areas

The roots of America's public park traditions grew from seeds sown by European settlers who began arriving in America during the 1500s. Open space for use by the public was dedicated not only by the Spanish, with their plazas and common lands, but also by English settlers who carried with them a concept of land held in common, and also brought their version of the plaza in the form of town squares. Vestiges of the Spanish plazas, laid out according to

the Law of the Indies that guided Spanish urban development, can still be seen in San Antonio, Texas, Santa Fe, New Mexico, and in California (as in the cities of Los Angeles and San Francisco). The plazas served as both civic forums and as pleasure grounds for the public, while the common lands served dual purposes as a grazing ground for livestock and recreation space for town inhabitants (Rogers 2001, 221).

The English settlements along the Atlantic coast featured variations on the public square and shared open space. Examples include the town commons in New England communities, the squares that William Penn incorporated into his 1683 plan of Philadelphia, and James Oglethorpe's 1734 squares for each ward in his town plan for Savannah, Georgia. When taken together, these were notable English contributions to the early beginnings of public open space in America. Although the squares of Philadelphia and Savannah were modeled upon the private squares of London, they were not reserved just for the residents who bordered them, as was the tradition in London. In Philadelphia, for example, the intention from the very outset was that they be formally laid out with walks and trees and open for exercise and recreation by the townspeople (Girouard 1985, 248). Town commons generally had more utilitarian purposes such as the keeping of livestock, but they also set a pattern of public open space in communities. The tradition of commons and squares established in the cultural hearths of East Coast communities influenced the spread of this townscape settlement pattern as Americans emigrated westward across North America.

The Spanish plazas, and to some degree the town commons and squares, became foci for an important social use of outdoor space—recreational walking. This activity grew in importance in Europe and America as leisure time increased and urban areas grew in size. Public routes for parading were features of European cities during the 1600s and 1700s, and

became important as meeting grounds for society in an outdoor setting (Girouard 1985, 186-190). The Champs Elysees, the Mall and Rotten Row in London, Unter den Linden in Berlin, and numerous walks using the ramparts surrounding continental cities all served as public parade grounds for promenading.

Another response to social desires for gathering in outdoors space was the development of private pleasure gardens, an innovation of London society, with roots dating back to the late 1600s. They reached their peak of popularity during the eighteenth and early nineteenth centuries, with the London examples of Vauxhall and Ranelagh gardens setting the mode for imitators elsewhere in Europe (Girouard 1985, 191-193). They were meant to be places for society to parade and be seen in an outdoor setting of gardens.

The European ideas of recreation in the form of walks and pleasure gardens eventually became established in American communities. Pleasure gardens could be found across America, from Woodward's Gardens and the Willows in San Francisco (Young 2004, 38-39), to Peter's Park and Little Switzerland in Atlanta (Atlanta Historical Society 1986, 37). These private pleasure gardens and the continuing public desire for recreational walking courses influenced subsequent developments in cemeteries and parks.

By the nineteenth century, growing urban populations with leisure time fueled new ideas in open space. The earliest, formally designed forms of public open space in America are considered to be the Romantic landscapes of the rural cemetery movement, with Mt. Auburn Cemetery at Cambridge, Massachusetts, cited as the most significant example (Rogers 2001, 336). Inspiration for the creation of Mt. Auburn Cemetery and its progeny in the rural cemetery movement came from developments in France and Britain that aimed to create romantic images of rural beauty accessible to urban residents. These cemeteries not only provided resting places

for the dead, but also were designed with visitors in mind; they were destinations for those who wished to visit in remembrance of the entombed and also for people who came to walk for pleasure (Chadwick 1966, 181; Rogers 2001, 335). Andrew Jackson Downing, an early proponent of public parks in America and important figure in park development, used Mt. Auburn as an example to promote the virtues of park landscapes for city dwellers (Chadwick 1966, 181).

During the 1830s, as Mt. Auburn introduced ideas of Romantic era aesthetics into American landscapes, changing social attitudes across the Atlantic began to alter public perception of open space for city dwellers. The phenomenon of the burgeoning industrial age city and the need to accommodate a great many people living in an urban environment without access to open space became an increasingly important issue in western societies experiencing rapid urban growth. By the 1830s the English were debating on a national level the need for open space for workers and the common people of cities (Chadwick 1966, 50), and the awareness of this need found voice in America by the 1840s, especially in New York City. Social reformers in England started to press for public access to open space for all citizens during the 1830s and 1840s (Chadwick 1966, 50). The Royal parks in London began opening up to the general public beginning with St. James Park in 1835, and Regent's park in 1838.

Birkenhead Park is generally considered to be the first English public park, developed by an "Improvement Commission" empowered by an Act of Parliament. Funding for the park was provided by profits gained by developing the outer perimeter of the park property with upscale terrace housing, following the precedent set at Regent's Park in London. The next advance in park development came from nearby Manchester, an economic, social and political leader of its era. In 1844, the city of Manchester, by its own initiative, used public funds to purchase,

develop and open three parks for public access (Chadwick 1966, 97-98). There was no tie between park development and profits from real estate development, and the goal was satisfaction of civic recreation needs, not park design for residential leaseholders as at Birkenhead and Regent's. This achievement was the result of a shift in attitudes and political reforms that saw public access to open space go from being a privilege, granted by Royal overseers as in London, to a mid-level step where access to parks was made possible as part of public/private money-making improvement schemes, as at Birkenhead, to finally being a public right provided by government.

This change in attitude was already being adopted in the United States, especially in New York City, where calls for the creation of public parks were being made as early as the 1840s (Chadwick 1966, 181). By the 1850s, New York's Central Park came into existence as a public open space, a vision of the countryside in the city. In rapid succession, large American cities established similar versions of *rus in urbe*, until across the country, from Brooklyn's Prospect Park to San Francisco's Golden Gate Park, these expansive Romantic visions of the natural world became fixtures of American urban life.

Paralleling the development of nineteenth century parks and the shift in cultural attitudes as to who should have access to parks was a societal change in how nature should be interpreted and enjoyed. The English antecedents of Frederick Law Olmsted and Frederick Vaux's Greensward Plan for Central Park, (and thus the first phase of American park development), were based upon the tradition established by J.C. Loudon and interpreted by John Nash in London and Joseph Paxton in Lancashire: people should experience parks as a place for edifying yet passive exchanges with nature. Nature became something in which people found pleasure and enjoyment, marking "the beginning of a love affair with the environment", where nature was

valued for “its beauty, spiritual meaning, and influence on the quality of life” (Marsh 2005, 8). The influence of the Romantic view of nature was seen not only in the writings of Downing and the parks of Olmsted, but also in the emergence of landscape gardening that promoted ideals of “natural” landscapes. By the 1850s, village improvement associations had become active in America and were applying Romantic landscape concepts in such activities as cemetery and street beautification programs and the creation of parks (Marsh 2005, 8).

In contrast to the Romantic image of nature in parks, by the mid-nineteenth century a rationalistic attitude towards outdoor space and its role in society was emerging. This viewpoint favored parks and open space for functional reasons, and parks were developed more for organized leisure (Young 2004, 5). Early evidence of this emerging attitude can be seen in 1843 with the development of the previously mentioned parks in Manchester, England. The designer of those parks, Joshua Major, was required by civil authorities to provide playgrounds and facilities for a variety of games. Previously, parks were seen as walking environments, and games were considered a distraction from the benefits of nature (Chadwick 1966, 99). Increasingly, though, the emphasis on park design was as venues for organized sports and recreation. By the 1880s and 1890s, this attitude dominated park design in large American cities, and was reinforced by developments in education and social work that emphasized organized recreation (Lancaster 1983, 15).

This brief review of what has become known as the parks movement shows an evolution in ideas about community open space through the end of the nineteenth century. From beginnings rooted in a utilitarian need for jointly held common lands, ideas about open space evolved as Romantic Era ideas of nature shifted from the utilitarian to the aesthetic. Societal changes brought on by the rise of an urban culture based upon commerce and manufacturing led

to increases in income and leisure time. In addition, there changes were influenced by new ideas arising from the social reform movement, resulting in the promotion of the benefits of recreation. The result was a dramatic expansion in the provision of public open space for health, safety and welfare. From limited activities often provided by private enterprise, open space demands increased and became more complex, and increasingly were met by local governments.

The tradition of parks and recreation areas in our culture is still an important facet in the planning and development of open space for today's communities, and is an important consideration for towns such as Madison making decisions about their future needs. Historically as communities grew larger, the scale of open space planning included not just parks and recreation grounds for neighborhoods, towns and cities, but broadened to address open space needs on a metropolitan and regional scale. The tradition in parks and recreation areas is important to remember on the community scale, but consideration should also be made for open space concepts that have developed for that larger scale.

Regional Open Space Planning

The rapid expansion of American cities during the nineteenth and twentieth centuries was accompanied by new ideas in the development and conservation of open space. Frederick Law Olmsted's ideas on open space set important precedents for the development of not only community parks but also for community and metropolitan open space networks. By the 1860s, he was exploring ideas of connectivity between parks, with proposals first in Oakland and San Francisco, followed by actual park system developments in Buffalo and Brooklyn. These schemes expanded on his Central Park landscape by creating links between parks in the form of landscaped parkways. These initial versions of open space links were for carriage roads and

paths for walking and horseback riding, but their extensive lengths (Ocean Parkway connecting Prospect Park to Coney Island was six miles long), were on a scale heretofore unseen.

Olmsted also began to explore ideas of creating community park links that followed the linear forms of streams and rivers. The Olmsted and Vaux 1869 proposal for the new town of Riverside, Illinois, featured a park wending its way through the community, following the course of a river. In addition, generous amounts of open space coursing through residential neighborhoods were an important feature. In all, almost a third of the total area of Riverside was dedicated to public areas, including the parks, commons, greens and roads of the community (Rybczynski 1999, 293).

Building upon these open space network ideas, Olmsted devised a park system for Boston that was another step forward in the creation of a metropolitan approach to planning open space. The Emerald Necklace, as this park system came to be called, consisted of a series of parks connected by parklands along rivers and streams. The ideas of linear parks following rivers, introduced in the plan for Riverside, were expanded with the Boston system of parks, where open space, developed around the hydrologic system, served not only as recreation space but also had an environmental function for flood control. The Emerald Necklace defined the western boundary of the city and influenced patterns of development as the city expanded.

Park networks for cities growing at phenomenal rates were important city planning features during the latter half of the nineteenth century. The idea of large-scale systems of parks and their linkages is the most notable contribution from America to the nineteenth century parks movement and to the planning of towns (Chadwick 1966, 191). As planning tools, these networks of parks and parkways guided and shaped the development of metropolitan areas (Rogers 2001, 417). Chicago began development of its system of parks and connecting

boulevards in 1869, and notable park networks were created in Minneapolis, Cleveland and Philadelphia, just to name a few. These networks were created to serve densely settled, rapidly urbanizing communities. They combined the Olmstedian vision of bringing nature to city dwellers and the growing desire to provide facilities for organized recreation and leisure.

Paralleling the parks movement in American cities was a growing conservation movement that had the intention of protecting lands from damage and misuse, and of preserving wilderness. Originally tied to the Romantic Movement that factored so prominently in the development of urban parks, by the 1860s the conservation movement had become a strong force behind ideas of open space planning on a regional and national level. The 1864 establishment of the Yosemite Grant established the first public reserve of wild lands, and was followed eight years later by the establishment of Yellowstone as the first National Park. More parks followed, and as scientific thought became an important factor in the conservation movement, forest reserves were created that would became the managed lands of the National Forests. Eventually, the federal, state, and local governments established management programs and policies influenced by the conservation movement. This resulted in the creation of the National Park Service, the U.S. Forest Service, the U.S. Natural Resources Conservation Service, the U.S. Bureau of Land Management, and individual state departments of natural resources and parks.

Ideas from the conservation movement were incorporated into the regional planning ideas for metropolitan areas. In Boston during the late 1880s, a protégé of Olmsted, Charles Eliot, worked with Sylvester Baxter to create a zone of parks approximately ten to fifteen miles beyond central Boston that would form an outer necklace around the city. A first step in effecting their proposal was the establishment of a private advocacy group, the Trustees for Reservations, chartered by the Massachusetts legislature in 1891. Two years later, the Metropolitan Park

Commission was set up by the state government to assemble, oversee and maintain the network of scenic and historic sites advocated by Eliot, Baxter and the Trustees of Reservations. This proposed network was for a zone of parks, farms and forest, where open space was controlled in part, by public ownership, in other parts held in trust by a private/public commission, and elsewhere was regulated to guide development (Rogers 2001, 351). This approach to managing open space that is both public and private is not unlike the strategy adopted by the state of New York when, influenced by the conservation movement, it established the Adirondack State Park in 1892. Charles Eliot's ideas for reserving natural lands in the Boston Metropolitan Park System contributed to a developing theme in open space planning in and around American cities, seen subsequently in the forest preserves established around Chicago beginning in 1903, and also in the 1901 planning proposal for Washington, D.C.

The plan for Washington's metropolitan network was created by the 1901 McMillan Commission. That plan is best known as a triumph of City Beautiful ideas in city planning, and signified the importance of those ideas in open space planning for cities. As has been noted, urban planning had to a great degree been conceptualized by Olmsted and Vaux, and was guided and shaped by the system of parks and parkways they promoted for cities. This was supplanted at the end of the nineteenth century by the Beaux Arts monumentalism of the City Beautiful Movement, developed through the partnership of Frederick Law Olmsted with Daniel Burnham in their plan for the World's Columbian Exposition, held in 1893 in Chicago. While influenced by Olmsted, the ideas of the City Beautiful were based primarily on the Beaux Arts design ideas of Daniel Burnham. This new movement replaced the Olmestedian vision of intimacy with nature with an emphasis on structure and design; nature became subjugated by neo-classical structure. Open space was more important as an architectural element rather than as a vision of

nature. Yet the Olmsted vision of nature in the city remained strong, even in the McMillan Commission plan, where linear parks following the courses of streams lead to nature reserves on the outskirts of the community, and parkways were planned to connect with Mt. Vernon and the Great Falls of the Potomac (Chadwick 1966, 214).

By the beginning of the twentieth century, conflicting attitudes towards cities were reflected by different approaches in city planning and open space planning, and conflicting interpretations of the purpose for Boston's ring of metropolitan parks serves as evidence of this discord. Although these parks appear in form to be a ring of parkland forming a western boundary to Boston's expansion, Eliot's intention was not to separate city from country, but to provide access to the pleasure of rural open space for urban inhabitants. This reflected an attitude that open space was an amenity for urban life, and was, in turn, a reflection of one viewpoint of cities—that they were centers of enlightenment, civilization and enjoyable living. Olmsted held this same view, and he saw the provision of open space as part of the civilizing effect of cities (Girouard 1985, 355).

Another interpretation of the ring of parks developing around Boston is that it served as a boundary to thwart urban expansion. Over the course of the nineteenth century, British and American attitudes toward urban life had increasingly viewed the city as something to get away from, and that a life set amidst the bucolic settings of farmland and wild lands was preferable to one spent in densely packed urban centers. Suburban neighborhoods of low-density residential development appeared around American cities, fostered by quick and inexpensive public transportation links to central cities. Eventually, a reaction set in against the sprawl of the rapidly growing cities with their suburbs, and planning tools were sought to control this rampant growth. Open space was seen as one tool for controlling the sprawling blight of cities, and the

concept of greenbelts, where urban development is banished and countryside preserved, began to appear in England during the late 1890s. The "country belts" of Ebenezer Howard were some of the earliest versions of these open space brakes upon urban expansion. The rapidly expanding urban areas would be prevented from despoiling the countryside by creating a belt of conserved land around the cities, beyond which garden cities would be built as satellite cities in country settings.

The greenbelt concept became an important part of twentieth-century British open space planning. In America the concept did not become strongly established, though it did influence notions of regional open space that have emerged in the latter half of the twentieth century, especially how urban and suburban zones relate to surrounding rural areas. The influence of the greenbelt concept can be seen in regional planning that uses a policy of urban growth boundaries. Pioneered by the state planning program established in Oregon during the 1970s, this is a planning policy for arresting suburban sprawl around metropolitan areas by establishing a boundary beyond which urban development is controlled. The greenbelt concept has also influenced the greenway movement, especially in the development of greenway networks that create open space belts around urban regions (as in the San Francisco Bay area and around Boston), and, in landscape planning approaches for natural systems in the environment, to be discussed later.

Instead of adopting the British greenbelt concept, America embraced suburban expansion throughout the twentieth century. There was a strong cultural preference for freestanding residences, each on its own plot of land. This spatial preference first found form in the streetcar and commuter railway suburbs that appeared in the latter half of the nineteenth century, and later on a massive scale with the suburban expansion made possible by personal automobiles in the

twentieth century. Suburbs pushed ever outward into the rural hinterlands surrounding American cities. In response to popular use of the automobile and the expanded spatial scale of development, open space planning produced design schemes and programs of ever-increasing proportion.

One result of this larger scale and popularity of the automobile was the transformation of Olmsted's linear parkway idea into landscape highways that also were christened "parkways". The Bronx River Parkway, begun in 1912, set the model for this development, and was soon imitated throughout the country. Parkways became a key features in the grand open space networks that were developed around some cities, with New York City's system the most elaborate. Begun in the 1920s, and created under the direction of Robert Moses, metropolitan New York City acquired a far-flung network of parks, recreation areas and nature reserves connected to each other and to urban neighborhoods by over one hundred miles of parkways (Rogers 2001, 426). Many of the individual units of the New York park system were built in the tradition of monumentalism that began with the City Beautiful Movement, but the overall thrust of development expanded upon the Olmstedian tradition of an open space system of interconnected parks. In this way the tradition of metropolitan park ideas established by Olmsted were brought into the automobile age, though on a vastly broader scale.

As cities grew larger, the boundaries created by different government jurisdictions became barriers to ideas of planning open space on a regional basis. The achievements of New York City overseen by Robert Moses were made possible by government agreements that spanned jurisdictions not easily bridged with city planning in America. Moses had been given broad powers by both the city and the state of New York in planning and implementing public work projects

Yet the growing environmental awareness of the 1960s and 1970s stimulated regional planning that included a systems perspective that looked beyond political boundaries to plan open space environments. During the last decades of the twentieth century, in the face of boundless suburbanization that continued to fragment vast areas of rural America, emerging ideas in landscape ecology found expression in the creation of broader open space networks that were intended to protect environmental function. These emerging ideas could be seen in the development of greenways and in landscape planning proposals that addressed goals of sustainability in community planning.

This review of traditional open space planning on a regional scale shows the background history of the decision-making process for planning open space in today's communities. It goes beyond the parks movement that began in the 1800s, and has an emphasis upon the growth over time of park planning for open space systems—a significant feature of American open space planning. In the latter half of the twentieth century, new ideas that built upon these concepts emerged, providing new perspectives on how communities could plan space. One of these new ideas to emerge became the greenway movement.

Greenways

An open space planning feature that has grown in importance in the American landscape is the greenway. The name greenway combines the words greenbelt and parkway (Little 1990, 4), which gives a clue to the essential elements of greenways. In 1987 they were highlighted in the report produced by the President's Commission on Americans Outdoors as "corridors of private and public recreation lands and waters, to provide people with access to open spaces close to where they live, and to link together the rural and urban spaces in the American landscape" (President's Commission 1987, 142). The emphasis is on their linear form as

corridors, and as links, often in a network (Little 1990, 4; Ahern 2002, 2). The word began to appear in use beginning in the late 1950s and 1960s, although it was not until the President's Commission on Americans Outdoors that it entered into common usage.

In looking at the origins of greenways, greenbelts do form linear preserves in the sense that they encircle cities. Benton MacKaye's promotion of a form of greenbelts on a grander scale (what he came to call levees) expanded the notion of greenbelts into regional bands of open space meant to hold back urban development from rural areas. Greenbelts and the broader idea of levees suggest open space in the form of a corridor. Parkways, of course, express the linear form of a road set in a planned landscape. As previously noted, Frederick Law Olmsted's designs of landscaped road connections in 1860s Oakland, California, Brooklyn, New York and elsewhere, are credited as the origins of what came to be a popular form of landscaped highway development in twentieth century American. Greenways incorporate elements of these earlier concepts and introduce several new functions as corridors.

That greenways serve different functions can lead to confusion, since the term greenway has actually been applied to landscape corridors that often have different purposes. Charles Little, who wrote the first book devoted exclusively to Greenways as a unique phenomenon, sorted out these differences and categorized greenways under five headings based upon the function they serve:

1. Urban riverside greenways.
2. Recreational greenways.
3. Ecologically significant natural corridors.
4. Scenic and historic routes.
5. Comprehensive greenway systems or networks (Little 1990, 4).

He notes that greenways often support several functions: routes for hiking, running or biking; resource protection; protection or linkage of cultural resources; links in a park network; or

corridors providing habitat for plants and animals. A few examples of this diversity include the linear national parkways such as the Blue Ridge Parkway and the Natchez Trace Parkway, rail-to-trail conversions of abandoned railway beds into biking and walking trails, broad corridors for protecting river environments as in the Willamette Greenway in Oregon and the Hudson River Greenway in New York, and even the linear elements of Frederick Law Olmsted's Emerald Necklace in Boston.

The different functions built into a greenway may not always be compatible. For example, heavily trafficked bike or walking paths in habitat corridors may have a detrimental effect on wildlife. In other instances, the paving of trails for use by bicyclists and joggers may increase water runoff and adversely impact corridors set aside as streamside buffers. Quite often, though, many uses can share a greenway corridor, and this fact results in an explanation why greenways are so popular: many different uses result in a diverse base of support from the many different people who take an interest in greenways.

The possibilities offered for recreation and open space amenities are the most visible benefits of greenways for communities. However, greenways offer much more for small but growing communities like Madison. To understand how, it is important to look at the parallel development of the field of landscape ecology and the growing popularity of greenways. The possibilities offered by greenways as part of a network has inspired landscape ecologists, landscape architects and land use planners to develop models using greenways as the building blocks of community and regional open space networks. This is, in essence, a continuation of the concept developed by Olmsted for open space networks, a concept that has been an ongoing theme in open space planning in America.

Landscape Planning

Frederick Law Olmsted's design for the Back Bay Fens and Muddy River in Boston's Emerald Necklace is an early example of landscape planning in America. Landscape planning was defined at the beginning of this chapter as a macro approach to landscapes that considers physical, biological, and cultural resources. It is concerned not just with human activities and their processes, but also process in natural systems (Ahern 2002, 12; Marsh 2005, 3). At the Back Bay Fens, Olmsted designed alterations for the combined purposes of flood prevention, and scenic and recreational amenity (Ahern 2002, 122-3). His design coupled practicality and environmental function with the aesthetics of the Romantic Movement vision of nature and the natural environment as important human values. These values were translated through Olmsted's work and by subsequent designers to form a tradition that values the natural environment, and provides a foundation for modern landscape planning (Marsh 2005, 8). This tradition found expression in the park systems that became common features in American cities. Eventually, in the latter half of the twentieth century, a growing concern for the environment in the post-World War II decades set the stage for new developments in environmental studies and planning that built upon those earlier traditions in open space planning.

This growing environmental concern had underpinnings not only in the Romantic Movement's view of nature, but also in the scientific understanding gained from the public health movement of the role of the environment, in new perspectives on the importance of wilderness coming from the conservation movement, and also in the reaction to burgeoning urban and industrial growth that developed during the environmental movement (Marsh 2005, 8-9). In addition, the growing awareness from scientific inquiry into evolution and ecology

developed in post-World War II America resulted in a viewpoint of nature as "a complicated and integrated system of interdependent processes and components" (Meffe et al. 1997, 11-13).

Some landscape architects developed an awareness of environmental function and process and began to adopt new ideas from these many sources in their approaches to land planning. A breakthrough example was the work Phil Lewis conducted with his 1964 study of open space for the State of Wisconsin. In it he analyzed natural resources and cultural resources to produce a conservation blueprint that described corridors where there were concentrations of overlap among different ecological functions. Ian McHarg's 1969 *Design with Nature* formalized the new perspective even further, "and raised international awareness of the need for an ecological basis for planning" (Ahern 2002, 124). This awareness of the importance of ecology for understanding landscape has grown in recent decades and has been the subject of much research (Forman and Godron 1986; Labaree 1992; Flink and Searns 1993; Ahern 2002; Marsh 2005; Hellmund and Smith 2006).

The emerging field of landscape ecology has accompanied this growing awareness. Landscape ecology was defined as a field of study beginning in the 1960s and developed a focus upon landscape structure, function within landscape structure, and change over time in landscapes (Forman and Godron 1986, 31). Landscapes are defined as heterogeneous land areas that are composed of interacting ecosystems, and can be dominated by natural or human systems. Basic principles of landscape ecology seek to understand landscape structure, how living organisms exist in patterns of patches and corridors, to grasp the overall structure in the form of matrix and network, and to look beyond structure to the dynamics that exist with life forms in landscapes. In addition, the element of human interaction with landscape structure and dynamics is key in combining and understanding ecology and landscape design. "Importantly, landscape

ecology includes the effects and needs of people in its study of ecological phenomena" (Thorne 1993, 23).

One challenge for landscape planning is to incorporate into the planning process the ideas that come from landscape ecology for the analysis of habitat planning and management, especially in rural and suburban landscapes (Marsh 2005, 378). A result has been a dialogue between landscape ecologists and landscape planners, from which a consensus has emerged "that some form of ecological infrastructure is necessary to achieve a sustainable landscape condition with respect to both abiotic and biotic resources" (Ahern 2002, 39). Greenways developed as an open space planning phenomenon at roughly the same time that landscape ecology and landscape planning emerged as disciplines. The function that greenways offered as linkages in a network inspired some to develop planning models based upon greenways (Flink and Searns 1993; Ahern 2002; Hellmund and Smith 2006). One of the basic premises of these models is to provide a planning structure that reduces landscape fragmentation, considered to be the one of the greatest threats to system function. Landscape fragmentation is especially serious in rapidly growing areas where the usual scenario is one of fragmentation, land degradation, sprawl and uncontrolled change in land use (Ahern 2002, 50).

Greenways figure prominently in these planning approaches because of their ability to create strong networks. The linear form of greenways is also easily adapted to common, linear ecological features, such as ridgelines and waterways, that have been recognized to have high concentrations of ecological features and patterns (Flink and Searns 1993, 101; Ahern 2002, 3; Hellmund and Smith 2006, 16). By focusing upon these corridors where there is a great amount of ecological function and energy flow, greenway planning provides an efficient method of protecting resources with the least amount of land (Ahern 2002, 127).

Green infrastructure (also referred to in Europe as ecological networks) is another approach that applies ideas of landscape ecology to landscape planning. The emphasis is not just on corridors as with greenway planning, but on a system of hubs, links and sites:

> *Hubs* anchor green infrastructure networks and provide space for native plants and animal communities, as well as an origin or destination for wildlife, people, and ecological processes moving through the system.
>
> *Links* are the connections that tie the system together and act as conduits for wildlife and offer opportunities for outdoor recreation.
>
> *Sites* are smaller than hubs and may not be attached to larger, interconnected community and regional conservation systems (Benedict and McMahon 2006, 13-4).

Each element of a green infrastructure will contribute to the ecological and social values of the system, and, as an interconnected green space network, is managed for both the natural resource values and benefits conferred upon a human population (Benedict and McMahon 2006, 3).

Green infrastructure planning for communities offers the potential of creating a framework of open space that can be used as a guide for future growth and future land development. It can guide land conservation decisions that accommodate population growth while protecting and preserving community assets and natural resources (Benedict and McMahon 2006, 3). The potential that such planning offers for rural communities is significant since they still have much undeveloped land and can concentrate on conserving land with the highest concentration of ecological function while planning for economic development in areas that are identified to play less of a role in those functions. To a great degree, this is the approach used by Ian McHarg for planning The Woodlands, a new community developed in the 1970s in Texas, and which will be discussed in greater detail in Chapter 4. It is interesting to note that concepts of landscape planning already are anticipated in the planning programs of many American communities. For example, the Morgan County, Georgia, 2004 comprehensive land

use plan includes references to linkages, especially between the conserved lands in conservation subdivisions, and in proposals for greenway corridors along streams (Northeast Georgia 2004, 137, 139, 140).

The landscape planning models recently developed do not yet have a track record for implementation here in America. The groundbreaking work of Phil Lewis in Wisconsin and Ian McHarg with The Woodlands set the stage for subsequent regional landscape planning with greenway systems in Maryland and Florida. On a community level, Jack Ahern's "Framework Method for Landscape Ecological Planning," applied as a landscape planning approach for Orange, Massachusetts, offers another example for communities, and will be explored in Chapter 3. The tradition of planning open space as a network, dating back to the ground-breaking work of Frederick Law Olmsted, continues to evolve and produce promising models of open space planning that apply new ideas of landscape ecology and sustainability.

Historic Preservation and Open Space Planning

Much as landscape planning applications are very recent, applications of open space planning based upon developments in historic preservation are relatively new planning traditions, only developed in recent decades. Historic preservation perspectives on open space planning have particular importance for many small communities in the rural hinterlands of America. Like Madison, these communities have well-developed cultural landscapes that reflect the historic development of their communities. The villages and towns set in rural areas often have a physical appearance that preserves many of the historic features of an earlier era. As pointed out in Chapter 1, rural towns in America spent much of the twentieth century in an economic doldrums that suppressed growth, and often left intact a heritage of historic buildings in a rural setting. The landscape setting of these communities is often one of the most powerful features of

their historic integrity. William Murtagh has observed the special relationship of buildings and adjoining landscapes and has stated, "preservation of both natural and fabricated elements, along with the aspects of their critical interrelationship, is essential in such an environment" (Murtagh 1990, 135). This relationship between the "natural and fabricated" has been the subject of historic preservation from its earliest years as a movement in the mid-1800s, and continues to be the topic of an evolving approach to open space planning that incorporates historic preservation principles.

Buildings were the prime focus of the first historic preservation efforts. However, one of the pivotal early efforts of this movement was the preservation of George Washington's home by the Mt. Vernon Ladies Association, which began in the 1850s. While the physical structure of the house was the focus of their efforts, over time the outbuildings, graveyard, gardens, grounds and farms on the estate became important features in their preservation efforts. Eventually, even the viewshed, which included the bluffs across the Potomac from Mt. Vernon, were recognized as important features contributing to the character of the historic property and were saved from development.

Recognition of the important contribution made by landscape context as an element of the overall historic character in a place can also be seen at Williamsburg, Virginia. In 1926, the Colonial Williamsburg Foundation began work in the community of Williamsburg with the goal of presenting its interpretation of what the colonial capital of Virginia once looked like in the year 1776. John D. Rockefeller, the prime backer of the Colonial Williamsburg Foundation, recognized that, not only were many of the historic buildings in the old Virginia state capital extant, but that the surroundings were unencumbered by modern intrusions (Yetter 1988, 54-5). Context mattered in defining the character of the community, and to maintain the relationship

between historic structures and open space, the foundation bought the land around the historic village, both to preserve a sense of the rural surroundings that existed in 1776 and to act as a buffer between the historic community and the modern developments of ongoing growth in the surrounding community.

This need to preserve the context of the community also is evident in the preservation efforts at Amana, Iowa. There, preservation policies focused on the physical fabric of the villages within the Amana community, but failed to preserve the open spaces in between. Conventional zoning ordinances did not sufficiently address the issue of open space and its contextual relationship with the historic fabric of the villages. Modern infill development allowed intrusions that have altered the character of the historic landscape settings of the villages. This has created a jarring effect of modern infill next to nineteenth century villages once surrounded by fields (Alanen 2000, 118-119).

In Chapter 1, the experience of the village of Waterford, Virginia, was introduced as an example of a historic rural community whose valued historic character is defined by the relationship between its open space and physical structures. Since Waterford's designation as a National Historic Landmark in 1970, the prime guardian of its historic integrity, the Waterford Foundation, has developed a planning approach for protecting the open space within the landmark boundaries. The majority of that property is privately owned, thus this planning approach is structured to work with the existing culture of private property rights regulated by local government zoning and historic preservation ordinances. The Waterford Foundation's goal is not to own all the land, but to allow limited development away from critical viewsheds, and to purchase development rights from property owners, or if necessary, to buy threatened property. It depends on the ability of the foundation to receive funding for those purchases and also the

willingness of Waterford citizens to accept the constraints of the ordinances and foundation goals (Brabec 1993, iv).

The Waterford Foundation's approach, as noted, is to limit but not prohibit development in and around Waterford. The foundation has defended this stance by acknowledging the ongoing debate within the planning and preservation communities over the extent that new development should be allowed in historic districts.

> On one hand, a community by definition grows and changes, and to arbitrarily stop that change is superficial. On the other hand, altering the buildings and landscape of a community removes the opportunity to directly experience history (Brabec 1993, 6).

In contrast to Waterford, Mount Vernon and Williamsburg have set goals of stopping change. They have done this by controlling the land in the historic precincts through direct ownership to control change. Amana and Waterford exist as historic districts where change is allowed, but with contrasting results. The proactive management strategy of the private Waterford Foundation fills a void as watchdog, ombudsman and negotiator of change that appears to be missing in Amana. The results are that Waterford retains the vital relationship between the land and the village, while that relationship has eroded in Amana.

The lessons gained from the contrasting experiences of Amana and Waterford in protecting landscape context, along with lessons learned at Williamsburg, Mt. Vernon and countless other historic preservation sites, have contributed over time to a cumulative knowledge about the relationship between landscape setting and the physical objects of historic preservation efforts. An outgrowth of this awareness of connection between landscape and historic resources in the historic preservation movement has led to the recognition of cultural landscapes (Slaiby and Mitchell 2003, 8) that deserve study and protection. The National Park Service has adopted standards for assessing and protecting cultural landscapes in the past two decades. It defines

cultural landscapes as “a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values” (Birnbaum and Peters 1996, 4), and it has published standards for assessing and protecting them. Cultural landscape assessments provide another tool in the growing tradition of planning open space in ways that protect the historic character of place.

For small communities like Madison that value their historic character, the traditions developed for assessing and protecting cultural resources can help guide decision making for open space in their townscapes. In these communities, both the open space component and the built historic resources should be considered. Lessons can be learned from metropolitan Atlanta where the historic communities of Decatur, Roswell, and Lawrenceville, once small rural county seats, have each experienced infill development that has introduced modern elements while severing the relationship between land and community. They still have historic structures remaining from the nineteen century; however, even though the historic objects—the buildings—are preserved through historic preservation ordinances, their context is now lost. Examples of communities that have worked to preserve the historic relationship between land and community serve as models of a growing ethic for preserving that relationship in small communities faced with development pressures.

Conservancy Movement and Open Space Planning

The final part of this survey of traditions in planning open space will look at the recent developments related to the conservancy movement in America. Open space planning traditionally has been seen as a function of government. However, there is also a long tradition in America of private individuals and organizations assuming the open space planning role.

Private groups have been instrumental in the development of greenways, and land trusts have proven to be important in land conservation. These private groups usually step in when the political environment may not be conducive for governments to effectively protect open space. There also may be an obstacle, either legal or fiscal, preventing government from acquiring land for open space conservation. The last two decades of the twentieth century saw great growth in the number of private sector land trusts and open space advocacy groups. These developed in reaction to a conservative backlash against the funding of conservation programs that began during the 1980s under the Reagan administration (Brewer 2003, 38), and also in response to a strengthening of the property rights movement. The intent of these private conservation groups is, as Richard Brewer described it, "to save the land the old-fashioned way" (Brewer 2003, 1). By working within the realm of private property law in America, the conservancy movement, consisting of individuals and private conservation groups, takes advantage of the many tools available for owning rights to property.

Even though there may be community consensus on the value of open space, strong cultural values for limited government and the right of individuals to control property development rights provide incentives to find creative solutions for preserving open space. In some instances, this has lead to government proposals for open space that anticipate land acquisition not from government, but via land trusts, private/public relationships, or land ownership methods that do not involve outright, fee-simple ownership of land by government (Northeast Georgia 2004, 252; Lose and Associates 2001, 7.1). For example, some open space planning initiatives may involve a private trust acquiring, either through purchase or gift, all rights to property for conservation. Simply put, the goal of these different approaches is to protect open space by controlling development through some form of ownership.

Another tool for working the old-fashioned way of controlling development through ownership is the easement. Conservation and preservation easements are two examples of this ownership tool used to control and protect valued land or building resources from unwanted change. Easements protect property from change by transferring control of development rights to the easement holder. Easements can be retained by the individual or an organization, or can be held jointly with a government entity. They can also be transferred, by sale or donation, from the private holder to government.

The growth in the popularity of conservation easements for protecting open space influenced the development of the concept of conservation subdivisions, which emerged as an open space preservation approach in the latter decades of the twentieth century. This planning concept, vociferously championed by Randall Arendt in his *Conservation Design for Subdivisions* (Arendt 1996), can be built into a community's zoning ordinance and subdivision regulations (to be reviewed in Chapter 3). It works by creating incentives for developers to concentrate development while simultaneously setting aside lands valued by the community for conservation. The focus is upon working with the development process to conserve open space without spending public dollars to buy land. This is achieved by allowing a developer to concentrate his development (normally spread out in a typical subdivision), and sometimes to have more units per acre. Both of these changes end up saving the developer costs and increases profits. In exchange for shifting development away from valued open space in the subdivision, the developer establishes a conservation easement on the remaining, undeveloped portion of the subdivision. The result is compact development concentrated in areas with less conservation value in exchange for easements to protect open space deemed valuable by the community.

Another tool is for local governments to develop procedures for transferring the right to develop property by allowing the purchase of development rights (PDR) and the transfer of development rights (TDR). Property ownership comes with certain rights, such as the right to use the property, to lease it, mortgage it or sell it. As part of the right to use the property, owners have the right to develop it. This right can be bought and sold. When it is sold, a restriction in the form of an easement is placed on the deed to the property that gives notice that the property may no longer be developed. Thus, the right to develop may be purchased or transferred under the rules of government programs aimed at reducing development in some areas while concentrating it elsewhere (Pruetz 1997, 3-7). Without getting into the mechanics of how these various ownership transfer mechanisms function, the implication is that an open space planning policy can rely not just upon government action, but also upon partnership programs between government and private groups, or may be spearheaded entirely by a private organization. A prime example of this process is the aforementioned example of Waterford, Virginia. There, the Waterford Foundation monitors the property within the boundaries of the National Historic Landmark and uses funds gained through grants and donation to control ownership of the development rights of threatened properties. It is but one of many examples of the alternatives to government as sole agent for open space planning and protection.

Conclusion

The alternative approaches to open space planning coming out of the conservancy movement are just one layer in the cultural traditions that planners of open space have to draw upon. These many layers are the result of the aggregate wealth of knowledge and experience built up from the many different approaches to open space planning reviewed in the preceding sections. Out of the early beginnings of planning and developing park and recreation areas came

a recognition that open space for the general public was an elemental part of communities tied to their health, safety and welfare. Eventually, the scale of parks and conserved space grew to match the growing scale and complexities of a rapidly urbanizing society. The result was increasing complexity in approaches to open space that built upon the original elementary ideas of public parks and recreation areas. These approaches incorporated new ideas of aesthetics, function and, eventually, environmental protection, with a broad intention of providing societal benefits through open space planning. The result has been a continually changing tradition in open space planning that offers small communities many directions from which to choose when faced with open space planning decisions.

Rural communities like Madison participate in varying degrees with these aforementioned developments in planning their open spaces. As will later be discussed, Madisonians have incorporated into their townscape some of the ideas from this tradition of open space, shared with the greater culture. But, as was earlier noted, open space planning in small, rural communities usually takes a back seat to other forms of planning, (most often for economic promotion). However, located at the exurban edge of an expanding metropolitan area, a small rural community must make policy decisions quickly before opportunities in land planning disappear. Thus, this review of opportunities from our traditions in open space planning offers these communities the context with which to ground their decision-making. The next chapter builds upon this context by exploring precedents for planning, to provide additional helpful insights for these towns in their planning opportunities.

CHAPTER 3

PRECEDENT FOR PLANNING: PROCESS AND TOOLS

Open space planning has a long and sophisticated history, as seen in the previous chapter on context. Accompanying this tradition has been the development of a process for planning, along with methods that act as tools for planning open space. This chapter will examine planning process and methods in order to understand the precedents for planning which exurban communities like Madison may follow in their open space planning.

The first of these planning precedents to be examined is the general planning process that exists in American communities. Planning process outlines the approach that planning methodology follows to accomplish the problem solving goals of planning. Important in this process is how planning begins in communities. Thus, this chapter looks at how community planning, (including community open space planning), can be initiated. This is followed by a review of the structure commonly found in municipal planning process that has developed out of the tradition of urban planning in America. An important feature of this structure includes the appointment of a planning commission that directs planning policy. The commission also can prepare plans for a community, as exemplified in the comprehensive plan.

The planning that many communities eventually pursue goes beyond traditional urban planning, and this thesis anticipates that Madison and similar communities need to plan not just for development but also for natural resource protection, and will thus participate in the broader process of landscape planning. As elaborated in Chapter 2, landscape planning is a macro planning approach, incorporating the activities of urban planning with geography, landscape

architecture and geomorphology; it is concerned with landscape features, processes and systems (Marsh 2005, 3). A study of how process in landscape planning can fit into the overall umbrella of the municipal planning structure will be explored, to provide insights into how traditional municipal planning can incorporate the macro approach of landscape planning.

A significant aspect of landscape planning methodology is its comprehensive approach to survey and analysis. These methods will be reviewed along with other survey and analysis methods that inform decision makers and designers in the planning process. Methods for evaluating community resources and needs for park and recreation facilities, natural resource conservation, and open space related to historic resources will all be discussed, as will the survey and analysis approach used in municipal planning methods, such as the comprehensive plan.

The overriding goal of these discussions of planning process and tools is to illustrate how an exurban community like Madison can methodically develop an approach to planning for open space conservation as part of its community land use planning strategy. When it comes to the open space planning process, communities do not need to reinvent the wheel. Precedent for planning action exists, and suggests how communities may approach the question of how to create an open space plan as part of their overall planning process.

Introduction to Planning Process for Communities

The "how to get it done?" part of open space planning can be answered by reviewing several avenues heading towards the goal of an open space plan. These routes inevitably utilize the planning process, which is summarized in *The Small Town Planning Handbook*:

> Planning is an organized way of finding out a community's needs and then setting goals and objectives for future development in the community. Planning is a way of aiming for effective and efficient change that will make a community a better place to live. Above all, planning is a step-by-step process that can be used by small communities as well as large ones (Daniels, Keller and Lapping 1995, 9).

For large and small communities the question of "how to get it done?" essentially becomes a question of how to translate into action the desire for open space planning that is shared by community members.

A generalized diagram from *The Small Town Planning Handbook* portrays the planning process (Figure 3.01). This diagram describes the planning process in an abstracted linear form as a problem solving process, illustrating the formalized planning process that local governments employ. The initial activity described, "the decision to plan and commit resources," is instigated by individuals, groups, or local government and is focused primarily on finding out more about community issues and problems. An organized effort at problem identification ensues, aided by

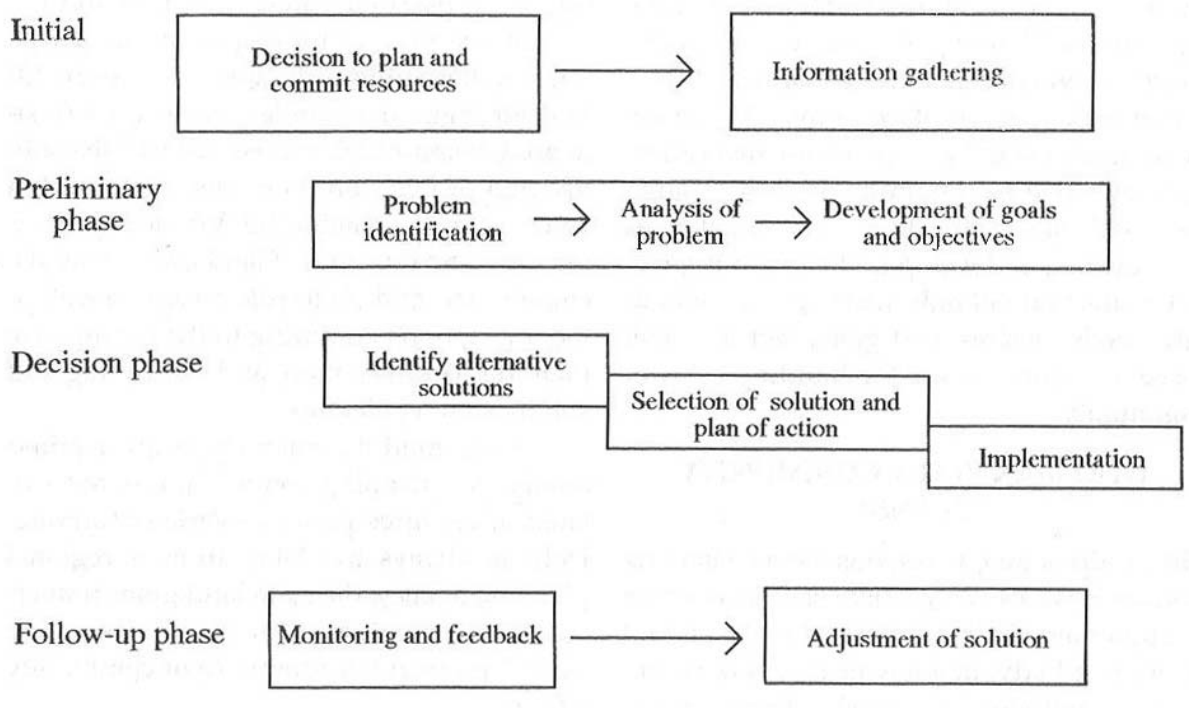


Figure 3.01. The planning process. Source: (Daniels, Keller and Lapping 1995, 10).

analysis, out of which goals and objectives are developed. The next phase involves developing alternative solutions, deciding which of those to follow, developing a plan of action, and implementing the solution. Finally there is a follow-up phase where the implemented plan is monitored for feedback; such feedback can then be considered for adjustments to the solution (Daniels, Keller and Lapping 1995, 11). This represents the typical process found in municipal planning process that will be discussed, and the process followed by the three community examples illustrated in Chapter 4.

Helping to guide and inform the process along the way are members of diverse professions: city planning, landscape architecture, environmental planning and engineering. In addition, specialists in the fields of ecology, biology, geography, sociology, economics, and other disciplines relating to the social and environmental issues raised by the planning program may help at various points in the process.

The public is another player in the planning process whose participation is vital for successful planning. In fact, most research on open space planning repeatedly emphasizes that public support and involvement is essential for success (Little 1990, 193; Flink and Searns 1993, 17-18; Dahl and Molnar 2003, 18; Hellmund and Smith, 2006; 218). Planning should encourage community participation in order to build a consensus on local needs and desires, and to realize a vested interest by community members in the outcome of the planning process (Daniels, Keller and Lapping 1995, 6). Ways of involving the public include forums, surveys, public hearings, and workshops. Planners should identify and contact community leaders and involve them in the planning process. A planning process that engages the public creates an interested constituency, making the public a stakeholder in the planning outcome (Daniels, Keller and Lapping 1995, 20).

The members of the public who participate, the professionals who assist in planning, and the individuals who spearhead planning are all actors involved in the planning process. William Marsh provides one useful summary of the relationships among these different actors and their activities within the planning process (see Figure 3.02). He describes three generalized classes of planning activities: decision-making, technical and landscape design.

> *Decision–making planning* involves building the methods and means for arriving at planning decisions, formulating plans, and then providing the direction necessary for carrying out decisions;
>
> *Technical planning* involves various processes and services that are used in support of both decision-making and design activities;
>
> *Landscape design* entails the laying out on paper or the computer screen the configuration of the uses, features, and facilities that are to be built, changed, or preserved by virtue of the decision maker's directives (Marsh 2005, 13).

He emphasizes the interrelationships among the three activities; no one realm of activity can proceed without the support from each of the other realms in the planning process. Marsh's intention is to illustrate the planning process that leads to landscape planning solutions, but his summary of the interrelationships between planning activities depicts the general process that is followed in land use planning of all types and levels of complexity.

Marsh's diagram of relationships in modern planning, coupled with *The Small Town Planning Handbook*'s outline of the planning process, provide a framework for understanding the planning solutions available to small communities. As already noted, the most common land use planning solutions are produced under the aegis of government, but there are also non-government planning mechanisms available. The choice of tools will depend on what entity, government or private body, is doing the planning. A government with the political mandate for land use planning will most likely use the traditional tools of land use planning. Sometimes, though, a grass roots organization will find that it may be necessary to proceed with a planning

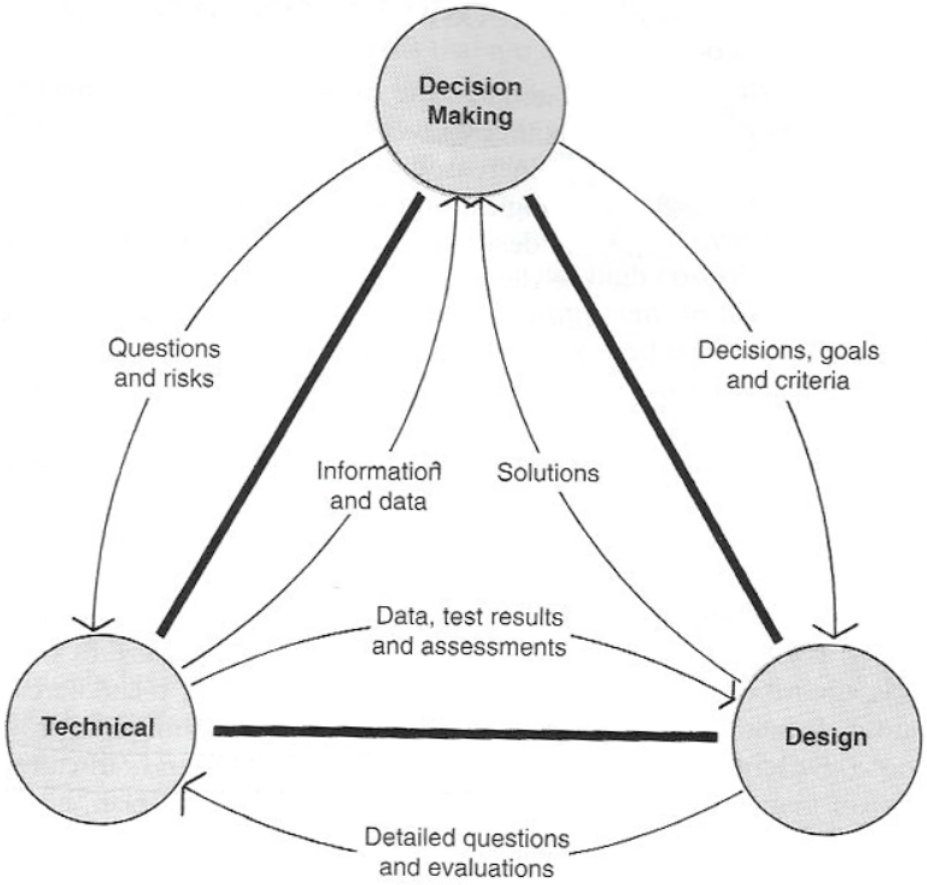


Figure 3.02. Relationship among the technical, decision-making, and design realms of modern planning. Source: (Marsh 2005, 13).

process outside or in tandem with the government process. Regardless of how planning is conceived and directed, the general planning process and realms of interrelated activities will be similar to the diagrams and process discussed above.

Initiators of Open Space Planning

In the general planning process reviewed above and illustrated in Figure 3.01, there is an initial stage where the decision to plan is made. This decision can be instigated by individuals, groups, corporations and governments, any of whom may spearhead planning. Although

governments usually spearhead the majority of planning activities in a community, some localities still do not have the government planning apparatus in place that is provided by planning ordinances. Partly for that reason or because of some other extenuating factor, planning may originate and be carried out by a person or entity within the private sector. For example, greenway projects in many communities were instigated and planned by individuals and associations (Flink and Searns 1993, 1), and corporations have planned entire communities, such as The Woodlands, (which will be portrayed in Chapter 4). As will be seen, the push to plan can originate from a variety of sources.

One additional example a of non-government entity following the planning process to create open space plans can be seen in the Greenprint process developed by the the non-profit organization, the Trust for Public Land. It uses the Greenprint process to facilitate green space planning by providing a structure and professional support for the planning process. This open space planning approach acts as a bridge between a conservation/open space advocacy group, the public, and government. Essential to the Greenprint planning process are public forums where open space advocates can engage with members of the community. For Paulding County, Georgia, (an exurban county experiencing rapid population growth), the results of a Greenprint plan provided the impetus for county residents to conserve over 7,000 acres of forest and streams, purchased with funds supplied by a voter approved bond referendum in 2006 (Trust for Public Land, 2004). A Greenprint plan also has been prepared for Morgan County, Georgia (where Madison is located), in 2003-2004. This Greenprint process fits neatly into the information gathering and problem identification steps of the planning process, and contributed to the planning studies conducted for the 2004 Morgan County Joint Comprehensive Plan. In fact, many of the goals and objectives for natural resources in that joint comprehensive plan

came directly from the final Greenprint report for Morgan County. As will be shown in the Madison case study in Chapters 7 and 8, these goals and recommendations provide valuable input for planning open space in Madison.

In addition to organizations that can help private groups plan for open space, there are examples of public/private partnerships that have been created to develop open space plans for communities. They can be vested with authority by the municipal government and act as a bridge between private advocacy groups and government. The Trustees for Reservations in Massachusetts, mentioned in Chapter 2, are an early example of a public/private partnership created for open space planning and conservation. Development authorities are the most common examples of this partnership, but park and open space authorities also have a history of planning and assembling land for open space initiatives.

Open space planning also can be instigated as a response to state and federal programs that have been used to encourage open space planning. The federal government offers grants to communities to plan and acquire open space through the Land and Water Conservation Fund (LWCF). Before states can administer funds through the LWCF, they are required to develop a Statewide Comprehensive Outdoor Recreation Plan, or SCORP (Ga. Dept. of Natural Resources, 1993). Madison was a recipient of three LWCF grants during the 1970s. State open space initiatives also may exist to provide planning assistance or funding, an example being the State of Georgia's Land Conservation Program. It offers grants, low interest loans, and tax incentives for permanent conservation of land by cities and counties in the state (Ga. Dept. of Natural Resources, n.d.)

Yet, even though state and federal programs can influence planning, and non-government groups and individuals can spearhead open space planning, most community planning is

performed by local governments. For that reason, an understanding of the planning process used by cities, towns and counties will be useful to all who wish to plan open space. The municipal planning approach followed by local communities offers several routes and means that can lead to the general goal of open space preservation. Traditional municipal planning provides a structure for responding to community concerns through elected officials and public meetings, uses planning tools to construct a framework that identifies and codifies citizens' priorities, and explores various funding options. This structure for planning translates the generalized planning process reviewed above into a formula for community problem solving through planning.

Municipal Planning Structure

Communities in America share a tradition in formalized land use planning that has a developed structure and process. While there is variation from state to state on the laws that enable local communities to plan, the most common approach for creating a municipal planning structure begins with the appointment of a planning commission to direct community planning efforts. The planning commission acts as the representative of the elected government officials who ultimately are responsible for all government land use policy and planning. The commission is usually empowered by local government to conduct the different activities outlined in Figure 3.01. General areas of interest that are addressed by a planning commission in the planning process are in some way tied to the health, safety and welfare concerns of the community. Some details of the process will vary by jurisdiction, and the coordination of planning standards and goals vary from state to state, but in general, land use regulation involves a major plan (most commonly called the comprehensive plan, master plan or general plan), zoning and subdivision legislation (Flink and Searns 1993, 106). Planning studies also can be initiated by a planning commission for specific topics, either within the process of the

comprehensive plan, or as stand alone studies to better understand a specific issue or topic of interest in a community (such as open space planning). A closer look at these four elements—comprehensive plan, zoning ordinance, subdivision legislation, and planning study—will follow, in order to provide insights into municipal planning methodology and how it can be applied to open space planning.

Comprehensive Plan

The comprehensive plan is one of the most important tools available for municipal governments wanting to plan their open space; in Figure 3.01 it encompasses many of the activities in the first, second and third phases. The comprehensive planning process used in the state of Oregon illustrates how this process works. In that state, each city and county is mandated to create a comprehensive plan, which serves as the controlling land use document. It is generally made up of three elements. The first of these is an inventory that typically assesses existing land uses, natural resources, natural hazards, recreational facilities, transportation facilities, economics, housing stock, undeveloped land, and public infrastructure. The second element consists of goal and policy statements that provide guidance in land use policy decisions for a set time frame, (in general between ten and twenty years; in Oregon's case twenty years.) Once set, the planning goals become the driving force behind the planning process (Marsh 2005, 13). The third element of the comprehensive plan produces a map illustrating the desired arrangement of land uses for the planning jurisdiction (Oregon Department of Land Conservation and Development, 2007).

The comprehensive plan tends to be exhaustive in scope, addressing a community's social, economic, demographic, educational, and recreational needs. In the planning process, help is sought from planning professionals to gather public input in order to create a vision for

the community. From this input, planning goals are set, and recommendations are made about how to meet those goals. These recommendations will include changes to policy that can become codified in the ordinances of the community, such as changes to ordinances for zoning, tree planting and protection, stream buffers, wetlands protection, historic preservation, architectural design, and subdivision practices.

Zoning Ordinance

From the comprehensive plan, the land use goals and objectives and the maps of current and future land are taken to create two important implementation tools that will put the land use section of a plan into action. Those two tools are the zoning ordinance and the subdivision ordinance (Daniels, Keller and Lapping 1995, 119). For day-to-day planning, the zoning ordinance is the most important tool, and it is part of implementation in the "Decision phase" of Figure 3.01. It works in conjunction with the zoning map developed from the comprehensive plan map (in some states, the comprehensive plan map and zoning map may be the same document).

The zoning ordinance is divided into several parts. One section deals with land uses and has descriptions of what land uses may occur in each zone. A section on development standards outlines rules pertaining to subjects such as yard setbacks, lot sizes, height restrictions, parking requirements, natural resource protection or landscape requirements. Another section on procedures outlines the essential rules that define how the zoning ordinance operates. In addition, special rules can be applied using overlay zones that are superimposed over existing zones or districts to add specific regulations to attain the goals for that zone. Examples of overlay districts are river corridors and historic districts.

Subdivision Ordinance

The third land use regulation is the subdivision ordinance, also part of the implementation phase in the planning process. The purpose of the subdivision ordinance is to provide a guide for the partitioning of land parcels. Standards for providing infrastructure are in the subdivision ordinance. These include standards for sewerage, street development, and water delivery systems. Also included in the subdivision ordinance are rules for surveying property, procedures for approving development actions, and design standards.

Planning Studies

Within the format of a comprehensive plan, there is, as mentioned above, a need to assess the factors that influence land use planning decisions in a community. This assessment takes place through various planning studies conducted at the behest of a planning commission (Daniels, Keller and Lapping, 12). In the comprehensive plan, such studies will inform planners, designers and decision-makers in setting goals and the creation of policy statements to direct the creation of the resulting, final plan.

In addition to its contribution to a comprehensive plan, a planning study can also be commissioned as a stand-alone process. Initiation of a planning study can result from a recommendation developed in a comprehensive plan (as will be seen in Chapter 4, with the example of the *Suwanee, Georgia, Recreation and Open Space Needs Assessment),* or, a planning commission can commission one as an independent study. These stand-alone studies will examine a particular topic that is a concern for a community and develop an assessment that includes a recommended planning solution.

The stand-alone planning study will follow the basic format used for completing the comprehensive plan: public input is sought, professional help guides the process, goals are

formulated with a list of implementation strategies and recommendations, and a map or master plan is produced that summarizes the plan. In the case of Suwanee, a master plan was produced in conjunction with the policy statements, and this master plan was incorporated into the overall land use policies of the community (Lose and Associates 2001, 1.2).

The implementation recommendations that come out of an open space planning study will suggest changes to ordinances along with policy directives to achieve the open space and recreational goals of the community. These directives usually include very detailed implementation strategies that will prioritize the plan's recommendations, offer cost estimates for the actions recommended, and take a look at the funding options. In regards to funding, (always a crucial aspect in carrying out any plan), an implementation recommendation for an open space plan may describe creative strategies for finding funds from a variety of sources. This can be especially important for today's financially strapped communities, which must increasingly rely on the land use regulatory system and the development of impact fees for implementation of their open space and recreation plans (Mertes and Hall 1996, 12). Such recommendations are just one part of the overall strategy that can result from a planning study for open space. Overall, the planning study process, focusing as it does on a single issue by following the structure of the planning process, offers great potential for understanding and planning for a specific issue. Thus, for communities wishing to plan their open space needs, the planning study offers an important approach for making sure that open space considerations are included in the overall community planning strategy.

One thing that this thesis will advocate is that, because of (1) issues of sustainability, (2) a desire to protect the open space contribution to cultural resources, and (3) a need for adequate park and recreation and facilities, open space planning should be comprehensive in its scope. An

open space planning study that addresses these issues may be sufficient for some communities, and an example of this will appear in the review of the experience of Suwanne, Georgia in Chapter 4. However, the macro scale of planning open space points towards a need to engage with ideas that have emerged in landscape planning. It is important to find ways to incorporate landscape planning process and methods into the structure of municipal planning. To this end, a review of the landscape planning process will follow.

Landscape Planning Process

Landscape planning, with its macro approach to the interrelationships between biotic, abiotic and cultural process in landscapes provides especially useful approaches to issues of sustainability and protection of habitat and natural systems within small communities. William Marsh states that the mission of landscape planning is to "help guide development toward environmentally responsive landscape planning and design schemes that avoid mismatches between land uses and environment" (Marsh 2005, 2). Landscape planning has focused on examining process in landscapes, and has worked to create models and tools that guide people to make land use choices that are compatible with living systems. To this end, landscape planners work to create models of design process that coordinate landscape planning activities, much the same way city planning has developed models of the municipal planning process.

One useful approach to understanding process in landscape planning is to look at one such landscape planning model. Jack Ahern, a landscape architecture professor at the University of Massachusetts in Amherst, has created "A Framework Method for Landscape Ecological Planning" (Figure 3.03) (Ahern 2002, 20-27), which provides a good overview of ideas underlying the landscape planning process. Developed out of his research into landscape

planning theory from the latter decades of the twentieth century, he combines essential attributes of ecological planning with landscape planning.

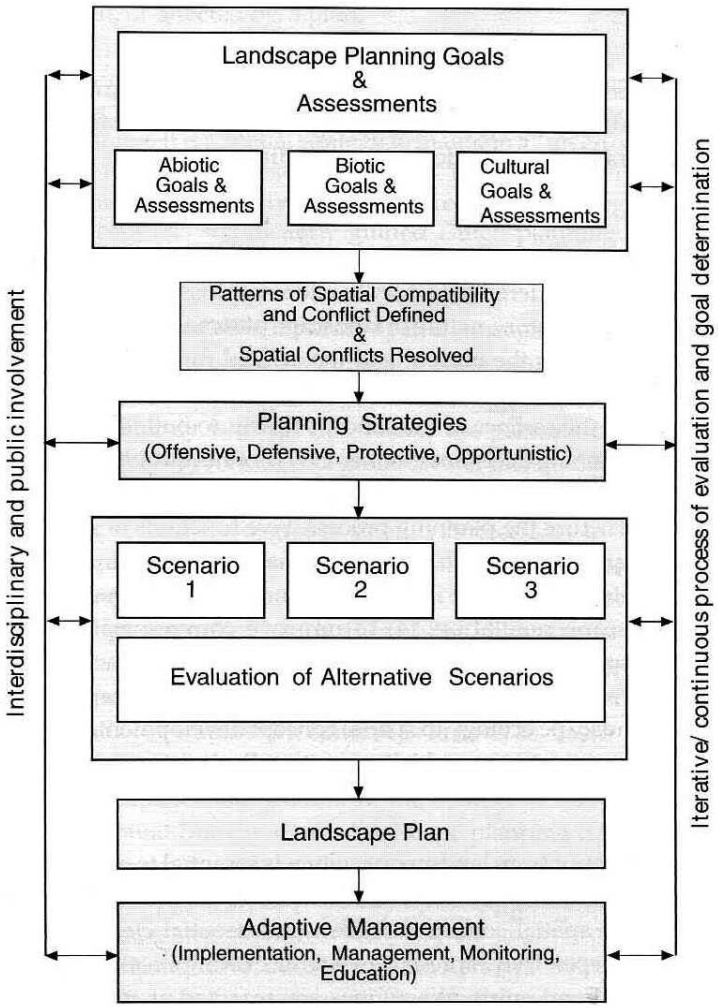


Figure 3.03. A Framework Method for Landscape Ecological Planning
Source: (Ahern 2002, 21).

Though constructed to read as a linear process, Ahern insists, "it is intended to be nonlinear, cyclical, and iterative, and it may be initiated at any stage" (Ahern 2002, 20).

Regardless of this flexibility in form, it is easiest to start with the top step and work down to explore each stage of this planning process. That first step contains the familiar planning process activities of formulating planning goals from the results of directed discovery. There are three broad categories of resources to be investigated: abiotic, biotic and cultural. The overriding mission is to determine sustainable landscape planning goals that correlate with the public will, the economic climate and the existing landscape conditions. At every stage it is envisioned to be a participatory process embracing experts from a variety of disciplines and also the public stakeholders.

Areas of spatial conflict and compatibility among the different goals and assessments are defined through a process of synthesis (a challenging process that will be discussed in more detail in the section on technical tools for survey and analysis). Out of this synthesis, resolution is proposed in the form of new spatial concept designs. Next, Ahern analyzes what type of planning strategy approach is best. This is a reflection of the directed action inherent in landscape planning, where crafted plan and policy act upon trends and forces, shaping and changing landscapes. Four strategies are described: protective, defensive, offensive and opportunistic. These strategies are used to help formulate scenarios of future possibilities from the spatial concepts, including the means to their realization. A process of evaluation, again featuring expert and stakeholder participation, results in modification of the scenarios to produce a landscape plan. Finally, implementation triggers a response of adaptive management, where feedback from monitoring can lead to responses for adaptation through another round of the planning process (Ahern 2002, 20-27).

The landscape planning process is in many ways similar to the municipal planning process. Each process emphasizes the importance of defining goals that are grounded in an

understanding of community issues. This understanding is in turn based upon the results of studies during a discovery phase, where factors at work in a community or landscape are researched and analyzed. Goals must be interpreted into objectives, which provide guidance in the creation of solutions. Lastly, there is implementation and management, which includes monitoring for feedback to refine the solution.

Landscape planning differs in an emphasis on understanding and evaluation. Social and natural processes were not fairly represented in planning processes that traditionally emphasized economic value as the paramount consideration. Planners recognized this shortcoming as knowledge increased with findings on process and systems from biology and ecology. Conflict can emerge when planners attempt to reconcile process in (traditionally undervalued) living systems with land use objectives grounded in a system of economic determinism. By incorporating consideration of social and natural processes into the planning process, landscape planning has broadened the ability of the planning process to create holistic solutions for community landscapes.

Integrating landscape planning process with municipal planning is an important goal for communities that wish to incorporate a comprehensive approach to open space planning into their overall land use plan. This can be done by incorporating the methods and approaches, found in the different steps of the landscape planning process, into the corresponding steps of the municipal planning process and its primary planning tool, the comprehensive plan. Landscape planning also can make important contributions to the technical realm in the municipal planning process, especially with its survey and analysis methods.

As already seen in the diagrams for different planning process and also in the discussion of the comprehensive plan, survey and analysis is an important part of the planning process.

Landscape planning has developed survey and analysis methods that look at understanding systems and process in landscapes. There are also specialized approaches to survey and analysis for park and recreation needs of communities, and for understanding cultural resources, (and, important for this thesis, open space contributing to historic resources). These approaches to survey and analysis offer great potential for understanding the open space needs of exurban communities such as Madison and will be the focus of the next section.

Survey and Analysis in the Planning Process

As already noted, the emphasis that different planning process models and methods place on research and analysis points to the important role that survey and analysis has within the technical realm of planning. Survey and analysis is especially important during the information gathering and analysis steps that inform decision makers who are faced with setting goals and objectives. A review of the technical information communities need so that they may effectively plan open space will, thus, be presented.

First in this review will be a presentation of the types of information to gather and the methods used in the planning studies of the municipal planning process. This will be followed by a closer look at the tools available for planning park and recreation areas, which are important segments of the open space needs of growing communities like Madison. Next, a review of the survey and analysis methods of landscape planning will look at how these methods fit into municipal planning approaches. Landscape planning offers methods for integrating natural and social processes into the overall planning process, and an example from each process, the natural and the social, will be examined. As an example of an approach to a natural process issue, a closer look will be taken at survey and analysis for planning green infrastructure in a community. The survey and analysis approach to a social process will be presented with a review of methods

used in examining and understanding how open space contributes to historic resources in a community. The understanding of how these two open space issues fit into open space planning for communities such as Madison is greatly aided by the survey and analysis methods of landscape planning. Taken together, the technical approaches to survey and analysis provide guidance to designers and decision makers in the planning process.

Survey and Analysis in the Municipal Planning Process

Since the municipal planning process is the most common route taken for community planning, and additionally, since the planning study element of that process offers a potentially important tool for planning open space, it is important to understand the significant role that survey and analysis has in planning study process. As shown in the diagram of the Planning Process (Figure 3.01), information gathering is an important part of the initial step of the planning process, and it engages the technical realm portrayed by Marsh's diagram of the different realms of modern planning. One suggested approach to collecting information for planning studies comes from *The Small Town Planning Book*'s outline of three steps to follow in conducting studies for a comprehensive plan: (1) investigate history, general geography, location, and natural environment to create a community profile; (2) conduct general studies of population, the economic base, housing, land use and transportation; (3) perform community-based studies of human resources, facilities, public needs, and community restoration (Daniels, Keller and Lapping 1995, 12). This outline is shown in Figure 3.04, along with additional details on many of the specific items that communities may want to include in their survey and analysis.

The goal of these planning studies, whether they are part of the comprehensive plan or stand-alone studies of specific community concerns, is to create a complete picture of the current status of conditions in a community, and to identify problems that need to be addressed through

Planning Studies for Comprehensive Plans

Step One: Community Profile
- --History
- --General geography and location
- --Natural environment
  - Watersheds
  - Groundwater recharge
  - Wetlands
  - River Corridors
  - Floodplains
  - Soil types
  - Steep slopes
  - Prime Agricultural Soils
  - Plant and Animal Habitats, including animal migration routes
  - Endangered Species
  - Animal nesting grounds
  - Fish spawning grounds
  - Major Recreational Areas
  - Scenic Views and Sites
  - Tree Cover and plant communities
  - Mineral and aggregate deposits
  - Topography, including slope, aspect and elevation
  - Unique physical features
  - Climate, including microclimates
- --Cultural Resources
  - Historic resources
    - Properties listed on the National Register of Historic Places
    - Districts listed on the National Register of Historic Places
  - Other historic, archaeological and cultural sites

Step Two: General studies
- --Population
  - Total Population
  - Population Growth over time
  - Projected population of community
  - Number of Households
  - Household Size
  - Age Distribution
  - Projected age distribution
  - Ethnic Composition of community
  - Educational attainment
  - Per capita income
  - Analysis of cultural diversity in a community

Figure 3.04 Planning Studies For Comprehensive Plans

--Economic base
- Business and industry
  - Export base businesses by size and type
  - Secondary base businesses by size and type
  - Earnings by sector
- Personal income of the local population
  - Total Income
  - Income by type
- Labor force
  - Number of workers and expected increase or decline
  - Employment by economic sector
  - Employment by occupations
  - Labor force participation
  - Unemployment rate
  - Education
  - Average wages per occupation
- Accumulated wealth
  - Value of real estate (property tax base)
  - Bank deposits
- Community finances
  - Community budget
  - Property tax rate per $1,000 assessed value
  - Special assessment districts (sewer and water), if any
  - Outstanding debts—bonds or loans
  - Percent of bonding authority in use

--Housing
- Housing types
- Age and condition
- Owner and renter characteristics
- Housing costs
- Occupancy rates by housing type
- Future housing trends and needs

--Land Use
- Inventory of existing land use
- Future land use

Step Three: Community-based studies

--Community human resources
- Medical personnel
- Education personnel
- Law enforcement personnel
- Emergency response personnel (fire and ambulance)

Figure 3.04 Planning Studies For Comprehensive Plans (cont'd.)

--Community facilities and public needs
- Public health facilities
- Public mental health facilities
- Nursing home facilities
- Medical facilities
- Law Enforcement facilities
- Emergency response facilities
- Education facilities
- Library facilities
- Water supply facilities
- Wastewater treatment facilities
- Parks and recreation facilities
- Transportation
  - Roads and highways
  - Bridges
  - Guardrails
  - Roadway signage
  - Signalization
  - Sidewalks
  - Railroad service
  - Bike routes
  - Railroad service
  - Public transportation service
  - Airport
  - Port facilities

--Community restoration
- Natural environment (see above)
- Cultural resources (see above)

Figure 3.04 Planning Studies For Comprehensive Plans (cont'd.)
Source: (Daniel, Keller and Lapping 1995 and Northeast Georgia 2004)

planning. The data from the studies is presented in a variety of forms, such as tables, written descriptions or maps, and accompanied by analysis. Feedback from this technical research will inform decision makers of important issues and problems and help them formulate goals and

objectives that will, in turn, drive the planning process. As already mentioned, the comprehensive plan will often summarize the findings from these planning studies, and will list the goals and objectives that address problems found under each study topic. A stand-alone planning study will follow a similar pattern of summary and listing of goals and objectives.

The land use planning study in the comprehensive plan is particularly important in the planning process since it is where the community presents its vision for the future (Daniels, Keller and Lapping 1995, 102). A straightforward inventory and description of existing land use patterns is usually required. But to create a desired future land use map, designers and decision makers need to consult population projections, housing needs, the economic base, research community facilities, and incorporate the goals and objectives defined from studies of those topics. Figure 3.05 lists many of the environmental features that will need to be incorporated into the land use study results. Designers and decision makers will need to integrate information from these studies in the land use vision that is then translated into the future land use map.

Survey and Analysis for Park and Recreation Facilities

Another planning study that merits a closer look, especially in communities planning open space, is the community resources and public facilities study. In it will usually be found a section devoted to the study of parks and recreation facilities (Daniels, Keller and Lapping 1995, 120). As part of community infrastructure, park and recreation facilities will be inventoried and analyzed to see if a community is adequately served by these facilities. A longstanding method for assessing park and recreation needs in a community is to use the standards created by the National Parks and Recreation Association (NRPA). NRPA standards have been developed for application in communities throughout the United States, with the caveat that all standards need to be adjusted to reflect local needs. The standards address such subjects as the acceptable

Environmental Features to Be Shown on Land Use Maps

Natural Environmental Features

1. Floodplains, streams, greenbelts.
2. Aquifer recharge areas.
3. Soils.
4. Slopes.
5. Vegetation (tree cover, prairie, etc.).

Man-Made Environmental Features

1. Water system.
2. Sanitary sewer system
3. Transportation system.
5. Commercial land use.
6. Industrial land use.
7. Residential land use.
8. Vacant developable land.
9. Agricultural land.
10. Forest land
11. Parks and recreation areas.
12. Historic sites.
13. Schools and school district boundaries.
14. Landfills.
15. Public buildings and land.
16. Government restricted areas.

Figure 3.05 Environmental Features to Be Shown on Land Use Maps
Source: (Daniels, Keller and Lapping 1995, 109).

minimum for provision of facilities, land requirements for parks and recreation areas and facilities, and the spatial relationship of park and open space systems.

According to NRPA, four park types in particular are critical for a community park system: (1) Mini Park, (2) Neighborhood Park, (3) Community Park, and (4) Regional Park. Additional park types have also been defined by NRPA. Figure 3.06 summarizes the essential criteria recommended by NRPA for selecting parks and recreation areas. For each park type,

Summary of essential criteria for selecting parks and recreation areas.

Mini-Park
1. Terrain suitable for intense development of play areas.
2. Service Area of up to ¼ mile radius
3. Optimum size of up to 1 acre, with minimum size based upon a ration of 0.25 acres to 4. 0.5 acres per 1,000 people served.
5. Location within a Neighborhood
6. Close proximity to housing with limited open space (i.e. apartment complexes, townhouse development or housing for the elderly)

Neighborhood Park/Playground
1. Terrain suitable for intense development for recreational activities such as field games, court games, crafts, playground apparatus area, skating, picnicking, wading pools, etc.
2. Service area of between ¼ to ½ -mile radius to serve a population up to 5,000.
3. Optimum size of 15 acres or more, with minimum size based upon a ration of 1.0-2.0 acres per 1,000 people served.
4. Geographically centered in its service area.
5. Easily accessible with safe walking and bike access.
6. May be developed in conjunction with school recreation facilities.

Community Park
1. Terrain suitable for intense development for recreational facilities such as athletic complexes, large swimming pools.
2. Terrain may be an area of natural quality for outdoor recreation such as walking, viewing, sitting, picnicking. This may be in combination with (1) depending upon the site and community need. Water bodies may be included.
3. Service are of several neighborhood, or 1 to 2 mile radius.
4. Optimum size of 25 acres or more, with minimum size based upon a ratio of 5.0-8.0 acres per 1,000 people served.
5. Easily accessible to neighborhoods served.

Regional/Metropolitan Park
1. Terrain or area with natural or ornamental quality for outdoor recreation such as picnicking, boating, fishing, swimming, camping and trail uses. Play areas may also be included.
2. Contiguous or encompassing natural resources.
3. Service are of several communities that are within a one hour drive.
4. Optimum size of 200 acres or more, with a minimum size based upon a ration of 5.0-10.0 acres per 1,000 people served.

Figure 3.06 Summary of essential criteria for selecting parks and recreation areas.

Regional Park Reserve

1. Terrain or area of natural quality for nature-oriented outdoor recreation, such a viewing and studying nature, wildlife habitat, conservation, swimming, picnicking, hiking, fishing, boating, camping, and trail uses. Play areas may also be included. Terrain adaptable to goal of 80% of the land being reserved for conservation and natural resource management, with less than 20% used for recreation development.
2. Service area of several communities within a one-hour drive.
3. Optimum size of 1,000 or more acres with sufficient acreage to encompass the resource(s) to be preserved and managed.
4. Desirable site characteristics of diverse or unique natural resources, such as lakes, streams, marshes, flora, fauna, topography.

Figure 3.06 Summary of essential criteria for selecting parks and recreation areas (cont'd.)
Source: (Lancaster 1993, 56-57).

NRPA has described the uses that are appropriate, a description of the area to be served, the desirable size of the park unit, a recommended number of acres per 1,000 people, and a description of desirable site characteristics. NRPA also provides guidance on park and recreation area development issues, and provides research to help communities justify their need for parks and open space (Lancaster 1983, 11).

Another method offered by NRPA is a systems approach that gets away from standardized formulas for determining community recreation needs, and instead "places importance on locally determined values, needs and expectations" (Mertes 1996, p. 12). NRPA developed this new approach, in part, as a response to a need to accommodate different cultures and a desire to involve citizens in the planning process (Williams and Dyke 1997, 17). The intent of this newer approach is to translate the open space needs of a community into a framework that maps out how to meet those identified needs. With the systems approach, NRPA first suggests that park planners identify "customers" (the open space and park users), and then

involve them in the planning process. Feedback between planners and "customers" is important in order to create an on-going assessment of open space and recreation needs. These needs are translated into a "level of service" that expresses the total demand of the users (Mertes and Hall 1996, 60), and directs the planning process, which continuously adjusts to plan, develop and maintain facilities that meet the needs of the users (see Figure 3.07). The new approach also sees park and recreation facility planning as one component of the greater planning process in a community. While the newer, NRPA systems approach is far more responsive to local needs, it has been criticized as being cumbersome in its application (Williams and Dyke 1997, 18). The result has been the continued use of the traditional NRPA formulas as references for community plans. Examples of the use of NRPA guidelines in planning will appear later.

The systems approach indicates a survey and analysis approach that tries to understand process. Originally, NRPA guidelines offered excellent guidelines along the lines of engineering standards for active recreation facilities in much the same way guidelines were developed for other infrastructure facilities such as fire stations, libraries or sewage treatment plants. A growing understanding of process in systems helped usher in the systems approach that NRPA developed as an alternative to its guidelines. The increase in complexity in the systems approach mirrors the struggle to comprehend the complexity behind process. This complexity results from the attempts to coordinate the many open space relationships and differing goals for active recreation facilities, passive recreation areas, and lands for conservation, in order to create open space networks on a community scale. When communities decide to address the broad issues that exist in such comprehensive open space networks, the survey and analysis tools of landscape planning become particularly useful, as they are fine-tuned to survey and analyze dynamic process in natural and cultural systems.

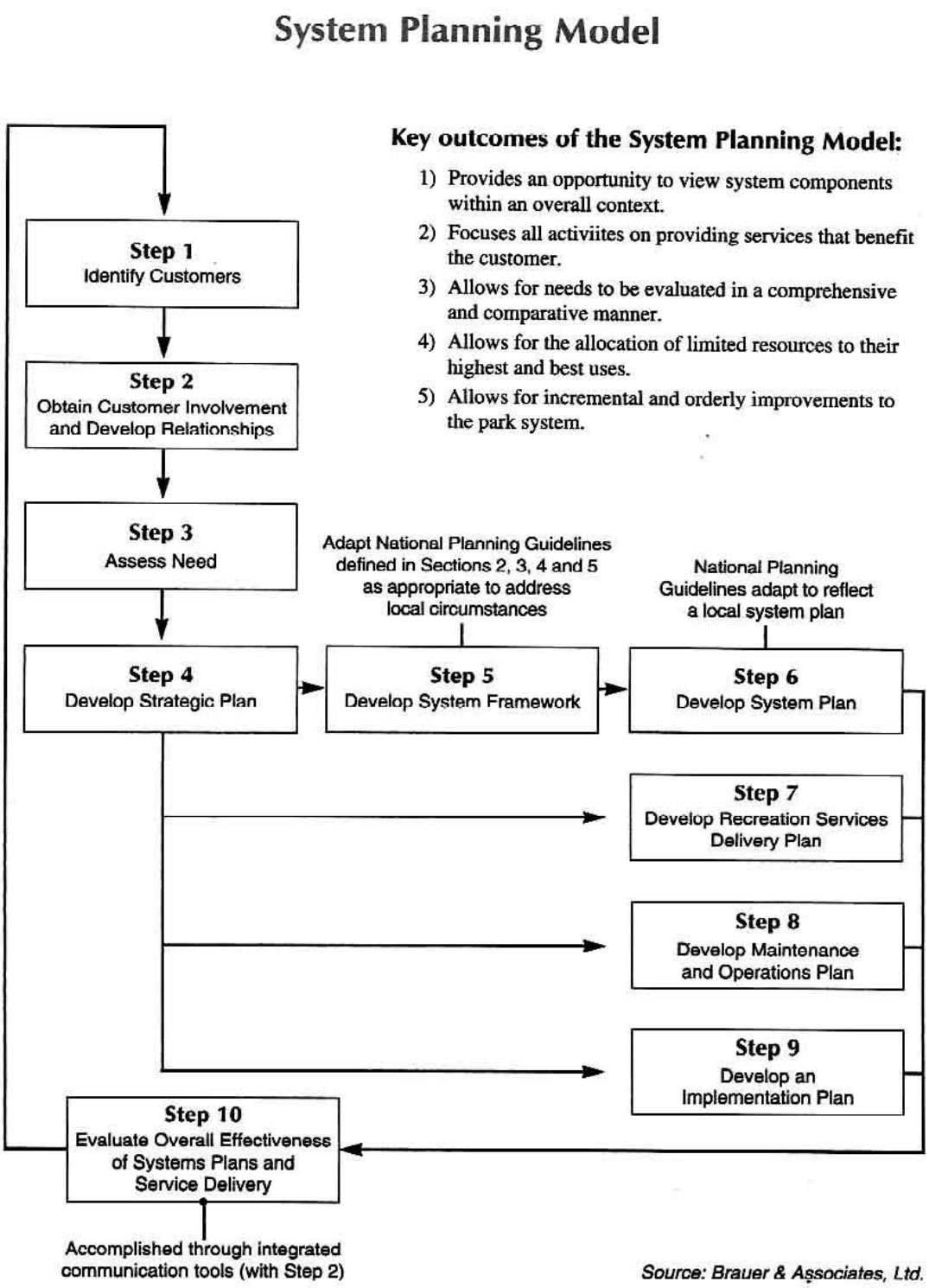


Figure 3.07. National Recreation and Planning Association System Planning Model. Source: (Mertes 1996, 17).

Survey and Analysis Using Landscape Planning Methods

Where do the landscape planning survey and analysis tools fit in to the planning process? As pointed out in the models for both municipal planning and landscape planning, information gathering is especially important at the beginning of the planning process, where they assist in understanding important issues in a community. Study and evaluation never ends in either process, and is strongly emphasized as part of the ongoing, interactive process in landscape planning (Hellmund 1993, 151; Ahern 2002, 21). However, it is in preliminary phases of planning that survey and analysis is especially helpful for focusing upon problems and defining planning goals. It is at this stage that the inventory and analysis methods of landscape planning contribute most strongly to the planning process.

An important example of survey and analysis in landscape planning comes from the work of Ian McHarg. When he stated in *Design with Nature that* "nature is process and value, exhibiting both opportunities and limitation of human use," (McHarg 1969, 105) he was attempting to distill the essence of his process for inventory and analysis. McHarg viewed different resources as ecological factors whose processes had value. Each factor was appropriately grouped in one of three categories: biotic, abiotic or cultural. For example, vegetation is classed as a biotic factor. Using knowledge gained from the exploratory phase where initial problems and issues in a landscape are revealed, specific factors of importance are extracted from each of the broader topics. Under vegetation, it may be important to understand where existing tree canopy is located. A survey will reveal the tree canopy locations and these can be mapped. Next, to better understand process, the different ages of the forest canopy will be ranked, using a three value scale: mature, young, and none. The forest canopy data is mapped

using these values. All of the biotic, abiotic and cultural factors that have bearing upon land use in the study area are analyzed and mapped in a similar way.

Next, McHarg's method categorizes the land uses in the study area, examples being conservation, passive recreation, active recreation, residential, and commercial/industrial. His method then assesses how relevant each of the ecological factors is for each of the land uses. For example, tree canopy can be deemed to be very relevant in conservation areas and passive recreation areas, somewhat relevant in residential areas and active recreation areas, and least relevant in commercial/residential areas. A somewhat complex process of superimposing the maps of ecological factors that are salient to each land use produces a composite map that indicates the level of suitability for each land use, from most suitable to least suitable. A final layering that superimposes the values from the land use maps produces, via manipulation and editing, a summary map that shows which land uses or combination of land uses are most suitable for every site in a study area (McHarg 1969, 103-115). A summary of McHarg's method for survey and analysis is offered in Figure 3.08.

McHarg's method of survey and analysis produces land use suitability maps to guide decision-making in the land use planning. Some wariness has been expressed that the maps can be used to restrict design decisions if the designs are strictly tied to the mapping results in a deterministic way (Turner 1996, 61). The maps have also been criticized for their emphasis on topological, and thus, vertical relationships in landscapes when the layering process popularized by McHarg is applied. Complementing the topological process is a chorological approach, which is useful in describing the horizontal relationships of dynamic processes such as living organisms, metapopulation dynamics, hydrological dynamics or human transportation. While landscape planning has not adequately integrated the chorological perspective adequately into

A Summary of the McHarg Method for Survey and Analysis

Purpose: Analyze ecological factors that are relevant to proposed land uses, with the goal of describing levels of suitability for those land uses.

Step One: Select Major Physical and Biological Processes that operate in the study area.
Step Two: Compile and map basic data for each process.
Step Three: Interpret and reconstitute the basic data into factors that influence land use, assessing each factor with a value system, and map those values.
Step Four: Select which of the factors are relevant for each proposed land use.
Step Five: Rank the importance each of the relevant factors has for each proposed land use.
Step Six: Map each factor in tones of gray that express the gradations in values.
Step Seven: Superimpose these maps, one on top of the other, in the order of their relevance to a specific land use, to compile a composite map that shows the areas most to least intrinsically suitable for conservation.
Step Eight: Combine value maps of compatible land use types by merging the maps, one on top of the other, to produce a composite map of compatible land uses (for example, combine maps of active recreation and passive recreation for one recreation map; one example is to create three summary maps for conservation, recreation and urbanization).
Step Nine: Using a preemptive method, combine the summary maps created in Step Eight. The result is a map of values showing the most suitable land use for all sites in the study area.

Figure 3.08. A Summary of the McHarg Method for Survey and Analysis. Source. (McHarg 1969, 103-115).

analysis models, these process need to be considered in the landscape planning process (Ahern 2002, 16). Still, the landscape planning survey and analysis method popularized by McHarg and advanced through the application of new technologies such as GIS mapping offers valuable tools for planners to base their designs and decision-making. The single topic maps offer excellent descriptions of process, and the suitability maps for specific land uses provide valuable guides for decision-making.

One challenge in the landscape planning survey and analysis process is the interpretation of data to produce a meaningful description of process to guide the decision-making and design

portions of the design process. Marsh notes, “no calculus has been invented that satisfactorily facilitates such a difficult integration—a dilemma faced in all planning problems” (Marsh 2005, 20). McHarg tackled this issue by assigning values to his selected resources to create single topic maps, then creating composite layer maps of those values to indicate suitability for land uses. The process requires a fair amount of knowledge about process, and often requires a qualitative, not quantitative procedure to determine relative values for different factors.

Ahern also has a point in his landscape planning model (Figure 3.03) where he must reconcile the compatibilities and conflict that are revealed in the assessments of the abiotic, biotic and cultural resources. For this task he uses a Net Usable Land Area Process (N.U.L.A.), (see Figure 3.09). Often used to assess the build-out point in developments or communities, Ahern offers the N.U.L.A. process as a simple, eliminative process that focuses subsequent design and decision-making phases of the planning process on the areas available for development, while at the same time removing from the planning picture areas where land use competition or conflict may exist. The N.U.L.A. process begins by eliminating lands that are already developed, protected or regulated. Next, the land areas with critical community resources are eliminated (examples may include recharge zones of aquifers, prime agricultural soils, endangered species habitat). Hazard sites (such as those with steep slopes, floodplains, or poorly drained soils) are also eliminated. What remains is the land available for potential development, providing a guide for creating different land use scenarios in a community (Ahern 2002, 30-2). This becomes a guide much like McHarg’s composite land use suitability maps, in that it sorts through the different land use possibilities present in the greater landscape using suitability derived from an understand of natural and cultural processes.

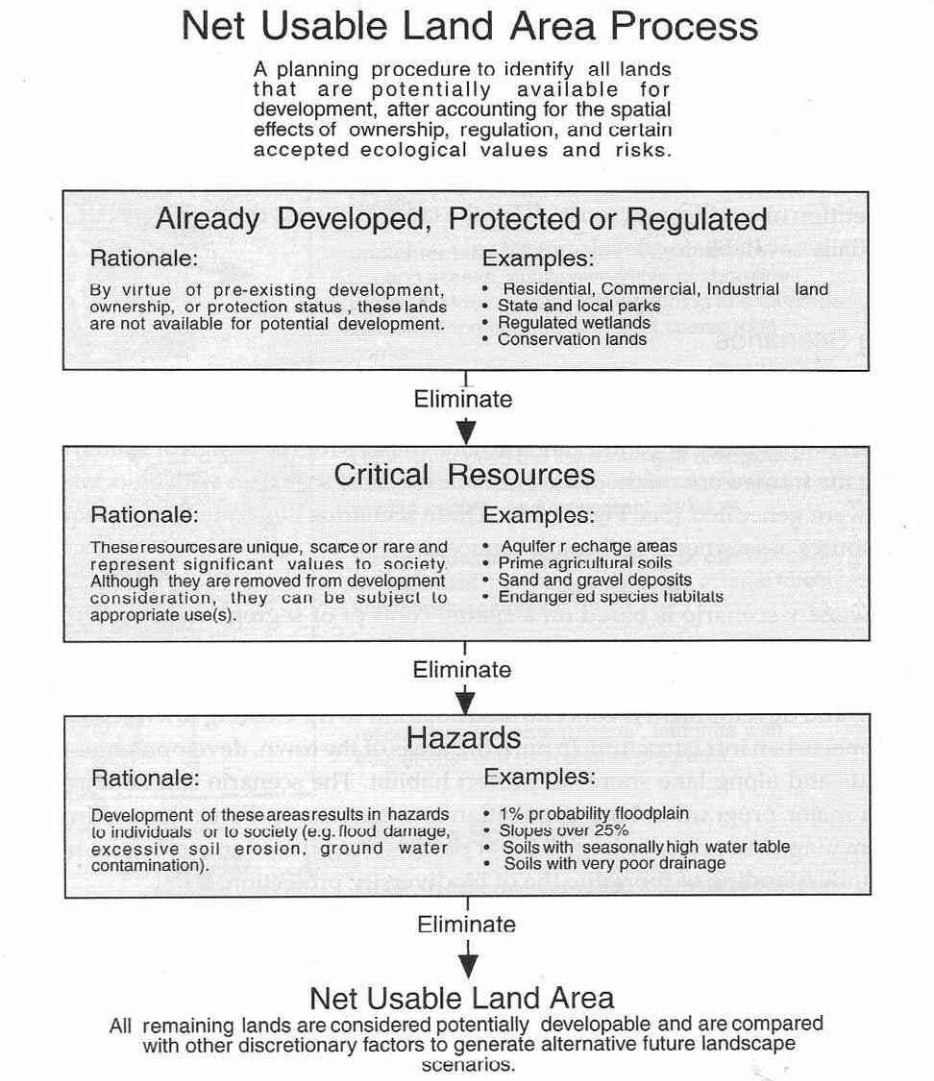


Figure 3.09. Aherns Net Usable Land Area Process. Source: (Ahern 2002, 31).

One comment that Ahern makes in his description of the N.U.L.A. process is a defense for eliminating critical resources from the developable lands. When the decision to protect community resources is based on consensus built from community input, it becomes a defensible planning objective, because the ultimate decision-maker in the landscape planning process ends

up being the public (Ahern 2002, 31-2). Similarly, when McHarg's analysis would show that two uses would both be perfectly suitable for a site but might be in conflict with each other, he saw society as the final arbiter (McHarg 1969, 104), pointing once again to the importance of community input in the setting of planning process goals. This is echoed in the example of Allen Stovall's landscape planning study of the Sautee and Nacoochee Valleys of Georgia, where his rationalization for assigning different weights to the cultural, physical and biotic resource maps rested upon survey work where the desires of the local people were expressed (Stovall 1982, 93). Clearly, these examples reinforce the idea that landscape planning models work when informed not just by survey and analysis, but also by clear goals and objectives that reflect community values.

Ever since McHarg, through the publication of *Design With Nature,* catapulted his method for survey and analysis into the forefront of landscape planning methodology, landscape planning has been embraced as an essential part of planning. McHarg's own work in *Design With Nature* is still relevant as a guide for understanding land use suitability when planning open space. Others have applied landscape planning principles in their own approaches to open space planning, and provide additional examples for communities like Madison to follow. A Georgia example is Allan Stovall's previously mentioned *The Sautee and Nacoochee Valleys: A Preservation Study.* In it, he applied landscape planning principles for research, inventory and analysis, to examine what he classified as cultural, physical and biotic resources (Stovall 1982, 33). More recently, Randall Arendt, trained in the field of city planning, has developed a methodology for land development focused upon the use of conservation subdivisions. His intention has been to preserve open space and rural character by evaluating undeveloped land for its "Primary Conservation Areas" and "Secondary Conservation Areas," which then act as guides

for where land should be conserved or developed. His evaluation approach is founded in landscape planning ideas, and he classifies resources as natural, cultural, and historic (Arendt 1996, 6). He includes under "Primary Conservation Areas" such factors as wetlands that should not be built in, water bodies, floodplains, and steep slopes, while "Secondary Conservation Areas" include factors such as woodlands, upland buffers around wetlands and water bodies, prime farmland, natural meadows, critical wildlife habitat, and sites of historic, cultural, or archaeological significance (Arendt 1996, 7). While the focus of Arendt's work has been on sub-dividable parcels of land for development, it illustrates, as does the work of McHarg, Stovall, Ahern, and others, how landscape planning methodology may be applied to a variety of open space conservation approaches.

The overarching goal proposed by this thesis to communities such as Madison is that they conduct open space planning that considers facilities for parks and recreation, the protection of open space that contributes to important character in the community, and that also supports sustainability. In addition to the survey and analysis methods reviewed for park and recreation facilities, the survey and analysis of open space for sustainability and, in the case of Madison, protection of open space that contributes to the historic resources of the community are both particularly helpful. The methods developed for landscape planning survey and analysis are particularly useful for both planning goals and should be part of the evaluative process in comprehensive studies that develop future land use plans for these communities. These methods also add powerful insights if used in an open space planning assessment, and are explored in the next two sections.

Survey and analysis for green infrastructure

In regards to open space planning that promotes sustainability, an emphasis on survey and analysis for green infrastructure is especially important. In Chapter 2, green infrastructure planning was introduced as a way to plan for both natural systems and development, but in a pattern that creates a conservation framework to support sustainability in natural systems. The result is a conservation strategy that uses a system of hubs, links and sites (Benedict and McMahon 2006, 37). Since green infrastructure encompasses a macro scale of planning, the landscape planning process is an appropriate model to follow for planning green infrastructure in a community.

As in most landscape planning approaches (and planning process, in general), the survey and analysis for green infrastructure is guided by goals and objectives developed by initial investigations in the community. Each green infrastructure project is unique and will have goals for different outcomes. In addition to the goals, it is important to understand the attributes of the different communities that make up a green infrastructure. These communities will include the biotic, abiotic and cultural processes previously reviewed in landscape planning survey and analysis. From an understanding of these attributes, factors specific to the green infrastructure planning outcomes can be selected for survey and analysis. For example, if a green infrastructure will focus on hydrological systems, the criteria will need to be selected for the specific processes involved with those systems. If the green infrastructure goals are to protect rural open space, then a different set of criteria will need to be used. Examples of criteria commonly used in the evaluation process of conservation areas for green infrastructure appear in Figure 3.10. For survey and analysis, the biotic, abiotic and cultural factors to be investigated

must be selected, and, are in turn dependent on the characteristics of the processes at play in the study areas.

Criteria for determining conservation values in Green Infrastructure

Size-Areal extent; bigger is better.
Diversity-Variety is better.
Naturalness-Less modification is better.
Representation-Natural communities that are not well represented in existing protected areas should be priorities.
Rarity-Sites that contain rare elements are better.
Fragility-Fragile communities are more valuable and deserving of protection.
Typicality-Maintaining good examples of common species is important.
Recorded history: Sites with verifiable track records are preferred.
Landscape Position: Context and connectivity is important.
Potential Value: Where potential for restoration exists, there is increased value.
Intrinsic appeal: Related to social preference for certain species.

Figure 3.10. Criteria for determining conservation values in green infrastructure. Source: (Benedict and MacMahon 2006, 120 (Compiled from Derek A. Ratcliff, *A Nature Conservation Review*, Cambridge, UK: Cambridge University Press, 1977; and Tony Kendle and Stephen Forbes, *Urban Nature Conservation*, London: Spon, 1997)).

These different factors are researched and the results usually mapped. Evaluation follows, using a landscape planning method like the one developed by McHarg. Suitability for human use, conservation use or coexistence of both human and conservation uses is then evaluated and must be reconciled. The results help designers and decision-makers identify the landscape elements most suited for the green infrastructure framework (see Figure 3.11 for a summary of criteria for determining conservation values in green infrastructure). This process is essentially a classic landscape planning survey and analysis, with the added emphasis upon potential green infrastructure network elements of hubs, links and sites.

Summary of steps in survey and analysis for green infrastructure

Preliminary Steps

One: Develop clear goals and objectives that represent desired outcomes.
Two: Define the attributes of the ecological communities that the goals and objectives target.

Survey and Analysis Steps

Three: List factors that have a bearing on process in the targeted ecological systems.
Four: Research and analyze data for each factor using environmental planning survey and analysis methods.
Five: Produce data results that reconcile the research and create planning guides that indicate the suitability for different activities in the study area.
Six: From data results identify elements of the green infrastructure-the hubs, links and sites.

Figure 3.11. Summary of steps in survey and analysis for green infrastructure. Source: (Benedict and McMahon 2006, 113-123).

Survey and Analysis for Open Space Related to Historic Resources

Open space that defines character also can be surveyed and analyzed using landscape planning methods. One particular resource that this thesis will look at is the open space that contributes character to a community. In the case study of Madison that will follow, particular attention will be paid to the open space in and around the designated historic district. The pattern of action for research, inventory and description that are applied in studies of other resources also can be used for open space that contributes to historic character. The criteria to use in guiding the selection and evaluation during this process can be derived from the standards and guidelines developed for historic properties by the National Park Service, and from examples where these have been applied.

Identifying the historic resources is the first step in this process. The National Register of Historic Places outlines the type of resources to consider, and the steps for identifying and evaluating the resources. Three key concepts are used by the National Register of Historic Places to determine if a property qualifies for listing: historic significance, historic integrity, and historic context. Historic significance is the importance of a property to the history, architecture, archeology, engineering, or culture of a community, State, or the nation. It is defined by the area of history in which the property made important contributions and also by the time period when those contributions were made (National Register 1997, 3). Historic Context goes beyond period of time to describe a historical theme which the historic property may share a connection, thus linking historic properties to important historic trends. Historic integrity is concerned with the authenticity of the historic identity of the property. Physical evidence of historic characteristics of the property is important, and is the sum of seven qualities: location, design, setting, materials, workmanship, feeling and association (National Register 1997, 3-4). Historic significance, context and integrity are the basic measures used in the many surveys already made by communities of their historic properties, and can help guide in the evaluation of properties which have yet to be surveyed.

The five property and resource types that are classified by the National Register of Historic Properties—building, site, structure, object and district—will have site and setting components that need to be considered in setting their boundaries. Boundaries for historic resources are tied to historic significance, integrity and the physical setting (Seifert et al. 1997, 2). The boundaries should be carefully selected to encompass but not exceed all lands that contribute to the significance of the property. Land buffering historic properties should not be included if that land does not contribute to significance. If land that was formerly part of the

area of significance no longer retains integrity because of development or physical change, it should be excluded (National Register 1997, 56). Boundaries for large sites such as rural properties or historic districts have additional guidelines for their settings. For example, a rural property may have boundaries that encompass fields, forests, open range or other large acreage tracts if these are historically associated with the historic property and convey the property's historic setting.

Boundaries are important in understanding impacts that neighboring land use activities can have on historic properties. Section 106 of the National Historic Preservation Act of 1966, as amended, describes how Federal agencies must take into consideration areas of potential effect when their actions may impact historic properties. The spatial extent of the potential area of effect is measured by the effects of not just physical disturbance of the actions, but also indirect effects, such as visual, audible, and atmospheric changes, which affect the character and setting of the historic property (Seifert 1997, 1). Visibility, sound and atmosphere are criteria intrinsically related to the integrity of the historic property, and are associated with site and setting.

Site and setting are important concepts for evaluating open space for historic resources and are two characteristics used in evaluating integrity in National Park Service guidelines for the treatment of historic properties. Site is concerned with the immediate surroundings of historic resources. The extent of the site is usually tied to the limits of the designed features of the site or the legally defined parcel of land. Setting is the larger area of the environment that surrounds the historic property (Weeks and Grimmer 1995, 13). Character for a district is tied to its setting and the relationships between different elements such as setbacks, fence patterns, views, trees and other landscape features.

There are four treatments of historic properties that are defined by the Secretary of the Interior—preservation, rehabilitation, restoration and reconstruction—and the National Park Service provides recommended and not recommended measures for each guideline under each treatment. These are based on their impact upon the significance and integrity of the resources. Under the guideline categories of site and setting, contextual features are considered and include roads, streets, paths, benches, arbors, gardens, yards, vegetation, adjacent open space (such as fields, parks, commons or woodlands), and important views or visual relationships (Weeks and Grimmer 1995, 13). National Park Service guidelines emphasize the value in retaining open space relationships and their contribution to the integrity of historic properties; any alterations that are visually incompatible or that destroy historic relationships with the setting, or remove landscape features that define the historic character of the setting are not recommended (Weeks and Grimmer 1995, 54, 108). Connectivity and linkage is key, with visibility the most important criteria for measuring the relationships between historic buildings and their sites and settings.

Visibility was the paramount criteria used in the preparation of guidelines in the land conservation strategy plan of the Waterford, Virginia, National Historic Landmark. The plan's mission is to protect the historical relationship between the village and its rural setting (Brabec and Naber 1992, 3). Visual qualities were identified as directly related to the Landmark's significance, and were used to map "viewsheds", defined as areas that are visible from particular viewing points or from a series of viewing points in the village or from along the roads (Brabec and Naber 1992, 54). These viewsheds were mapped and ranked as critical or significant (see Figure 3.12). The results helped planners make decisions on which tracts of open space need protection and which could be developed so that the integrity of the historic resources would be protected (Brabec and Naber 1992, 54-55). Visibility was also the main criteria used by Stovall

in his *The Sautee and Nacooche Valleys: A Preservation Study*. As in the Waterford viewsheds, visibility from key points was observed, but was evaluated as to whether the views fell into foreground, middle ground or background zones. The study areas could then be mapped and

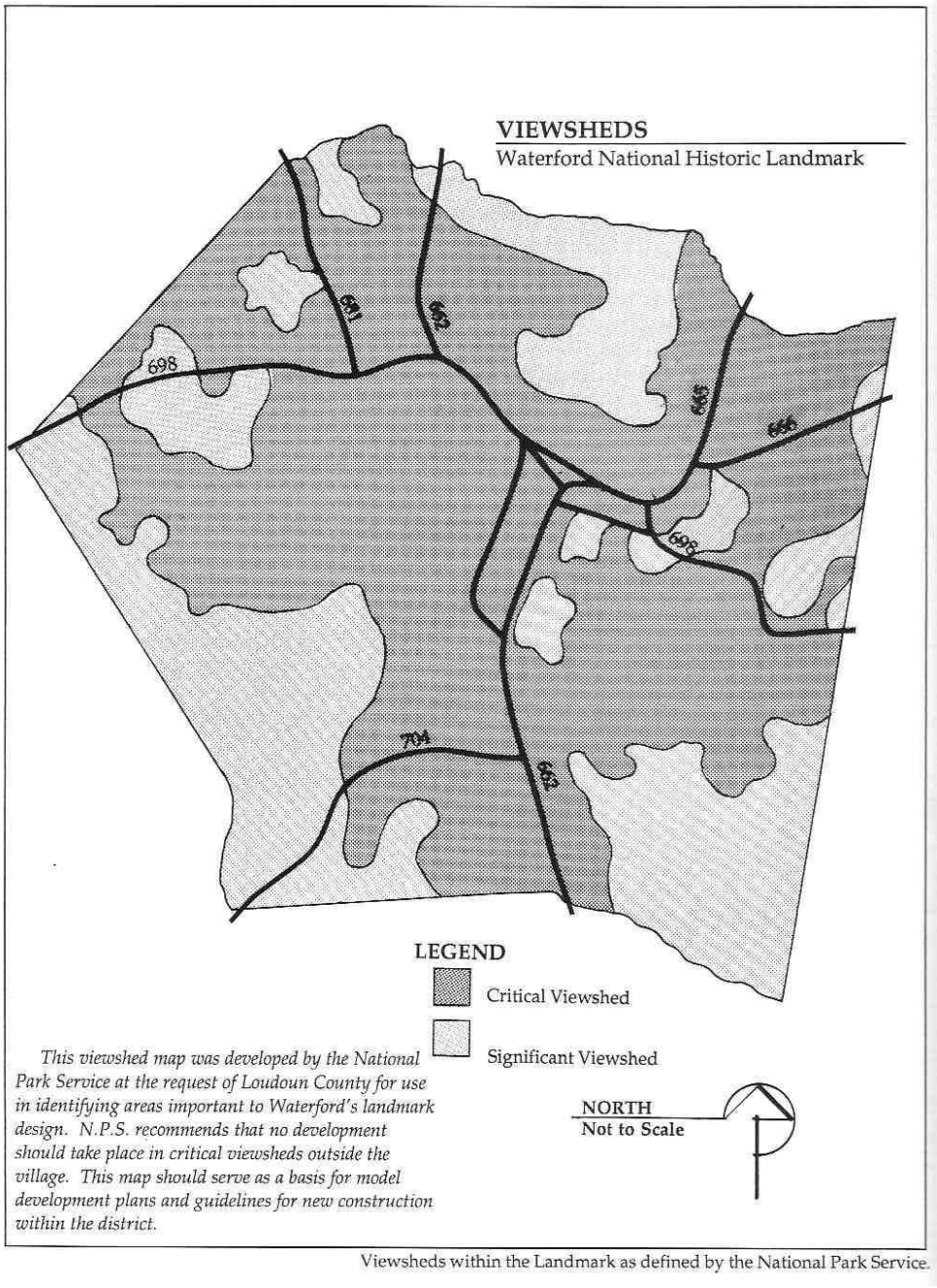


Figure 3.12. Waterford, Virginia. Viewsheds.
Map credit: National Park Service. Source: (Brabec and Naber, 1992, 26).

rated for visual vulnerability from highest to lowest vulnerability (Stovall 1982, 54-8). The methods for evaluating landscapes based on their visual relationship to historic properties offer important contributions to survey and analysis for open space linked to historic resources.

Another survey and analysis approach developed by the National Park Service for understanding landscapes of historic properties is the cultural landscape report. The cultural landscape concept is based upon the premise that every historic property has a landscape component that is integral to the significance of the historic resource (Birnbaum 1994, np). A cultural landscape is defined as "a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values" (Birnbaum and Peters 1996, 4). The cultural landscape report will include research on the history and integrity of a landscape, and includes sections on history, significance and treatment of a cultural landscape. The results of a cultural landscape report can be especially useful for communities planning open space needs where historic resources include landscapes as major components of significance and where resource integrity is high.

A cultural landscape report and the other National Park Service and National Register guidelines for historic properties collectively offer the tools for understanding process in historic landscape space. The results of studies on the landscapes associated with historic properties all focus upon historic significance, integrity and key elements of site and setting, and a summary of the criteria derived from these studies appears in Figure 3.13. The study results will guide decisions on how to survey and evaluate this open space in ways that can be integrated with other surveys of the cultural resources in a community by using landscape planning survey and analysis methods such McHarg's. In this way, the process inherent in the relationship between

Summary of criteria to consider in survey and analysis of open space that contributes to historic character

Using National Register guidelines, establish:
Historic Significance
Historic Context

Using National Register guidelines, analyze **Historic Integrity** by considering seven qualities:
Location
Design
Setting
Material
Workmanship
Felling
Association

In the **Setting**, understand the importance of:
Visibility
Sound
Atmosphere
Spatial Connection/Linkage

Figure 3.13. Summary of criteria to consider in survey and analysis of open space that contributes to historic character.

landscape space and historic resources can be measured and considered in the design and decision making phases of open space planning.

Conclusion

The goal of this review of planning process and the tools available to guide planners in the study of planning issues has been to show that precedents for taking action exist when communities want to tackle open space planning issues. The municipal planning process that has developed out of the field of city planning is already familiar to many communities, and provides a strong model to follow when planning open space. It offers a methodical framework for

information gathering, analysis, and the generation of solutions to the diverse and complex issues that face communities of all sizes. It also offers an outline for how to approach planning for individuals, groups, corporations or associations who get involved in open space planning but are independent of government.

The scale of planning that is proposed for the communities that are the focus of this study is at the macro level, encompassing not just facilities for parks and recreation areas, but also open space networks that will have a strong impact on the overall community development patterns. For this reason, most open space planning should be incorporated as a major component of the comprehensive land use plan of a community. The major tenet of landscape planning, that conservation and development need to be planned together, points to the use of landscape planning process to reach community goals that promote the retention of open space for parks and recreation, protection of cultural resources and the support of sustainability.

To clearly understand the problems and issues of a community, the planning process always emphasizes dialogue between planners and the public. That dialogue, coupled with information gleaned from survey and analysis will inform decision makers to formulate clear goals, which will in turn, drive the planning process. Ongoing dialogue is also a key feature of all parts of the planning process, such as between the many phases of planning and also between the decision-making, technical and design realms of activities that make up the planning process.

Special attention in this review of precedents has been paid to the technical realm of planning, to gain a greater understanding of the precedents in survey and analysis and its role in the planning process. The particular emphasis on landscape planning survey and analysis and the specific topics of survey and analysis for parks and recreation, green infrastructure and historic sites points to the importance these will have in the ensuing case study on Madison.

However, before proceeding to the case study, three examples of communities who have applied planning to their open space are offered. Many elements in the precedents of planning process just reviewed will be evident. Even though the planning process seems so straightforward, there are many different directions that can be taken, and each community's experience in open space planning offers insights into the possibilities available to a community interested in planning open space.

CHAPTER 4

PRECEDENT IN ACTION: THREE COMMUNITY EXAMPLES OF OPEN SPACE PLANNING.

The tradition of open space planning is well established, and tools are available for the creation of plans and their implementation. Usually it just takes a groundswell of public support to instigate the planning process. The impetus for that groundswell can come from various sources, but in exurban communities, it often wells up when rampant development descends upon a community, providing a jolt that energizes citizens into action. Countless examples of this scenario have been reenacted across America as suburban sprawl spreads into the rural hinterlands of cities. The three examples that follow provide examples of how communities can plan open space in the face of rapid development.

Roswell, Georgia

Roswell, Georgia, is a good example of a rural, exurban community that has been swallowed up by the suburban expansion of the late twentieth century. Its history parallels that of Madison in many ways since it was also a prosperous village during the "King Cotton" era. Roswell's historic core contains nineteenth century commercial structures and residences centered on a town square much like Madison's. In 1960 both towns had roughly the same population--just fewer than 3,000 people (Ross, Dobell and Cobb, 1961). But Roswell started to change rapidly during the 1960s, its population growing by 82% in ten years. In response to this rapid population growth, the town began to plan seriously for its future. This included its first action plan for recreation in 1969. By the time the fifth update to the recreation master plan was

made in 2001, the population had passed the 80,000 mark (Population Division 2006).

The *Roswell Comprehensive System-Wide Recreation Master Plan* relies heavily on its own variation of the National Recreation and Park Association Guidelines to determine the town's park and recreation needs. The variation was made by getting input from citizens, and analyzing statistics on usage of existing facilities, population forecasts, and user demand for increased passive recreation (Robert G. Betz, 2001). The Roswell open space system is oriented strongly toward meeting the active recreation needs of the community, hence the tradition of a rational approach to parks and open space dominates. The city has made a heavy investment in a physical plant for recreation in the form of recreation centers and facilities for sports activities. In addition, a network of walking paths is an important feature of Roswell's master plan. The path network is not described as a greenway network, although the plan proposes a tie-in with the neighboring community of Alpharetta's greenway system, and a riverside path will connect with three units of the Chattahoochee River National Recreation Area.

Since Roswell was once on the exurban fringe but is now an inner suburb, it offers insights into community planning that has dealt with rapid metropolitan growth. The 2001 update happily states that Roswell had in place enough dedicated open space to exceed the amount needed per citizen according to its own standards. It is telling, however, that 2001 was the first time this situation had occurred since 1969, when the first assessment was made, and that Roswell has been continuously playing a game of catch-up to provide open space for the community. Unfortunately, the prediction was that by 2005 the city would be behind again as it struggled to keep up with population growth in satisfying community open space needs.

In Roswell, open space was not planned as a network or in a coordinated fashion. The goal has been to meet recreation needs, which it has done successfully. But Roswell's planning

process overlooked the importance of the relationship between open space and town character, a key argument made for open space planning by this thesis, and an argument echoed in *The Small Town Planning Handbook* when it observed that "a town's natural environment and buildings determine the town's appearance and image as a place to live, work, or visit" (Daniels, Keller and Lapping 1995, 143). Development in Roswell has not been balanced by a coordinated protection of open space identified as contributing to town character. The historic core has lost its rural character and is now dominated by a scale and feeling that is suburban in nature, with a great amount of infill development. This loss of character points to the importance of goal setting in a community, and the fact that Roswell, for whatever reason, did not make land conservation a priority in its planning process.

This changed in the year 2000, when the town defined a new goal in its comprehensive plan for the protection of 20% of the total land area as dedicated greenspace, a goal that was repeated in the most recent comprehensive plan (Weitz 2005, 153). The 20% goal appeared during the same time frame in which Georgia created a statewide greenspace program with a goal of also dedicating 20 percent of open space throughout the state as greenspace, and was not motivated by a specific goal to preserve character. Initially, state funding was appropriated to help communities in metropolitan counties purchase land for open space, but subsequent political changes and economic difficulties slashed the funding and altered the state program. In Roswell, the 20% greenspace goal has not yet been coordinated with the open space planning for recreation, and no strategy is outlined in the 2005 comprehensive plan for achieving that goal. This may be because Roswell is approaching build-out of its available open space, and to accomplish the 20% Greenspace Goal will take time and involve a process that "will be piecemeal, time consuming, community sensitive, and expensive" (Fulton County 2000, 45).

One lesson from Roswell for communities on the verge of population expansion is that open space can quickly became scarce and expensive. The current Roswell update emphatically states: "The need to acquire land well in advance of development cannot be overemphasized" (Robert G. Betz 2001, 51). In 2001 the average cost of land in the city was estimated to be $100,000 an acre and it was projected that the city needed to purchase a minimum of 123 acres by 2010 just to meet its minimum open space needs. Such is the plight of a town over-washed by suburban growth.

Suwanee, Georgia

Suwanee is another Atlanta metropolitan community that has experienced the transformation from rural, to exurban, and ultimately, to suburban community. It is located 28 miles northeast of downtown Atlanta, significantly further out than Roswell. While the 1960s witnessed the takeoff stage in Roswell's population growth, Suwanee did not see rapid growth until the 1990s. From 2,412 people in 1990, it grew to 8,725 by the year 2000 (Lose and Associates 2001, ES.1). By 2005, the U.S. Census Bureau estimated it to have 12,553 inhabitants (Population Division 2006). Perhaps because a tradition for land use planning has begun to develop in Georgia, Suwanee's comprehensive planning process began to recognize the need for more active open space planning at an earlier stage than did Roswell. The Suwanee *Town Master Plan* of 2000, responding to citizen input, set a goal of protecting 27 percent of the city's land area as open space, and recommended a next step: a comprehensive study of open space in the community. The result was the *Suwanee, Georgia, Recreation and Open Space Needs Assessment* (Lose and Associates 2001).

Suwanee traditionally had been a small crossroads community. In 1960 it still had only 541 people (Ross, Dobell and Cobb 1961, 578), and the community character was defined by its

rural setting. By 2001, thirty percent of the land in the community was still undeveloped open space. Although it had over 9,000 residents when the 2001 study was conducted, rural character was still important enough to citizens of Suwanee that they made open space preservation the first goal of that study. Additionally, the provision for recreational outlets and an assessment of recreation programs and activities available to Suwanee citizens were listed as goals.

With open space rapidly disappearing to development, there was a tone of urgency in the 2001 report. Recommendations fell under three categories: recreation, open space and greenways. For recreation, the recommendations relied heavily on the National Recreation and Park Association guidelines for community parks. Open Space recommendations reflected the community desire to retain rural character as much as possible, with an emphasis on increasing landscape strips along major roads, protecting remnants of historic farms, and balancing land for recreation needs with forested land. Subsequently, the city adopted two ordinances recommended by the study that affect open space: (1) a stream buffer ordinance with 75 foot buffers measured from the top of the bank on both sides of streams with watersheds greater than 20 acres; (2) a wetlands protection ordinance that regulates land uses in wetlands.

The study gave particular emphasis to greenways as an open space asset. Although the report did not use landscape ecology methods for open space planning, it did stress protection of the natural environment and the importance of greenways as a network in an open space system. The study went on to recommend greenways as an important open space feature, with the third of five goals listed for greenways being natural resource preservation and enhancement. The emphasis on environmental function for greenways is evidence of the growing awareness developing in communities of the ecological implications connected to open space protection. In addition, recreational use also was listed as an important ingredient in the goals for greenways.

The report made a separate recommendation for a separate "Comprehensive Greenways and Bicycle Master Plan" which has since been completed.

Since the adoption of the *Recreation and Open Space Needs Assessment* by the Suwanee city government in 2001, the grassroots support that was tapped by the assessment report remained energized and spurred voters to pass a bond referendum which funded the recommended open space acquisitions. The efforts made by Suwanee in planning its open space were recognized by the Georgia Municipal Association and Georgia Trend Magazine with their Trendsetter Award (Gwinnett Forum, 2007), evidence of the success the town has had with its experience in open space planning.

The Woodlands, Texas

The experience of The Woodlands is especially useful as an example of town planning that uses an ecological/environmental approach. Although it is a privately created new town, it nonetheless offers insights into the open space planning possibilities for existing small communities, especially with its experience using landscape planning methods in an ecological study to determine how development should proceed. Researchers in recent years often have looked to The Woodlands as an example of planning that emphasizes an environmental approach (Spirn 1984, 163-6; Smith 1993, 196-202; Swann 2006), especially since Ian McHarg, through his firm Wallace, McHarg, Roberts and Todd, was involved in the landscape planning.

Located 27 miles north of downtown Houston, The Woodlands originally was planned as a new community by a private corporation following guidelines created by the Department of Housing and Urban Development (HUD) through the Urban Growth and New Community Development Act of 1970. This allowed the developer, George Mitchell, to receive federal financing for his project (Morgan and King 1987, 9). The HUD program was created by

Congress as a response to the decline of urban centers during the 1960s and the rising tide of suburban sprawl. It was meant to "provide an alternative to disorderly urban growth, helping preserve or enhance desirable aspects of the natural and urban environment or so improving general and economic conditions in established communities as to help reverse migration from existing cities or rural area" (Morgan and King 1987, 9).

Development goals for The Woodlands called for housing affordable to different household incomes and also for a culturally diverse population. The project encompassed nearly 17,000 acres and was projected to have a population of 150,000 at the end of a twenty-year development plan (Forsyth 2005, 180). The relationship between the developer and HUD began in 1971 and lasted until the Reagan administration terminated the HUD program and severed the relationship with The Woodlands in 1982.

For open space planning, The Woodlands was a benchmark in the way McHarg's sophisticated system of environmental analysis was applied to a town development project. His method involved conducting an inventory of the physical and natural environment and then interpreting that inventory to understand the limitations on development and determine the landscape tolerance of human intrusion. This was followed by an evaluation of the proposed land-use program to gauge its impact on the landscape, with a final analysis that would match landscape tolerance to land-use needs. This created a guide for development (Morgan and King 1987, 34).

McHarg developed from this analysis process seven goals for land-use programs of the proposed new town:

1. Minimum disruption of the surface and subsurface hydrological regimen;
2. Preservation of the woodland environment;
3. Establishment of a natural drainage system in floodplains, swales, ponds, and on recharge soils;

4. Preservation of vegetation noted for species diversity, high quality, stability, and uniqueness;
5. Provision of wildlife habitats and movement corridors, so that wildlife now living on the site may remain;
6. Minimization of development cost;
7. Avoidance of hazards to life or health (Morgan and King 1987, 34-35).

McHarg's environmental study and proposal resulted in twenty-three percent of the community maintained as open space. A goal of limiting the increase of water runoff to no more than ten percent after development was attained. The emphasis on respecting the natural hydrologic system was particularly successful, with an effort made to limit impermeable surfaces. Early experiments with porous pavement were conducted, and instead of curb and gutter systems, vegetated swales were used for runoff. These carried runoff to retention ponds for filtering and infiltration of runoff into the aquifer. Forest removal was restricted and an emphasis placed on planting programs that used native plant species. Alternate transportation forms were encouraged by the construction of an extensive network of foot and bicycle paths.

Today, The Woodlands continues to grow, although with some changes. By 2000, over 55,000 people lived in the development. The original goal was for 150,000 residents, but that relied upon a housing mix that has since been abandoned. Now the population size is expected to be 125,000 (Swann 2006).

There have been some changes to McHarg's original proposals. Criticism that the system of swales used in the drainage network produced large mosquito breeding pools of water has resulted in a return to the traditional curb and gutter form of runoff removal. There also has been a relaxation on the restriction against planting exotic species. In answer to critics that too much of the environment was impacted by development, McHarg's response was that the project was not a forest preserve, but a new town (Morgan and King 1987, 143), and that the goal was to create a model that balances development with ecological process. After more than thirty years

of trying to follow that model, other communities faced with population growth have many lessons to learn from The Woodlands.

Conclusion

The examples of Roswell, Suwanee and The Woodlands provide insights into the open space planning process used by communities at the edge of metropolitan areas. Their experiences in the planning process illustrate the ongoing feedback and adaptation between decision-making, technical planning and design that is found in modern planning and summarized by Marsh. The two Georgia municipalities are examples of communities using the government planning tools discussed under the preceding review of the planning process: participants in their planning process included those who spearheaded planning efforts; professionals providing technical skills in planning and design; members of the public providing input in public meetings and through elected officials; goals being developed to drive planning policy; the use of such planning tools such as comprehensive plans, zoning ordinances, and open space plans to achieve those policy goals. The Woodlands example illustrates the planning process undertaken by a private entity, but still following the general process outlined by Marsh, with the main difference between the local government planning process and the corporate planning process being in the decision-making realm.

This thesis set out to provide a context for small communities to make planning decisions, and to show precedents for planning open space. Five premises were provided as a foundation for developing an argument in favor of a public policy of open space planning in rural communities at the edges of rapidly growing metropolitan areas. The first of these premises is supported by the three community examples and their open space planning experiences which show the value in planning to identify open space needs and goals, and to institute those goals

through the planning process. The premise that valued character of a community defined by open space can be protected through open space planning is particularly important in the examples of The Woodlands and Suwanee. In The Woodlands, character from the forest of the community became an important aesthetic element (Forsyth 2005, 186), while Suwanee was determined to preserve its rural character through open space planning. As for principles of sustainability argued in the five premises, only The Woodlands displayed a strong effort in attempting to create elements of sustainability in its open space plan's emphasis on preserving the hydrologic cycle of the new community. Suwanee's attempt to create greenway corridors reflects developing ideas of sustainability, while Roswell did not participate in the evolving development of ideas in sustainability. As for the premise that diverse communities can be engaged by open space planning, some evidence for this can be seen in The Woodlands and Suwanee in the way they promoted the importance of open space networks as links in their communities. For example, Suwanee has a goal of connecting neighborhoods with greenway corridors and trails, and of developing a community town park for festivals and community gatherings (an echo of the historic idea of a town commons). From the beginning, the development plan of The Woodlands incorporated an integrated network of open space and connecting corridors, intended to link diverse neighborhoods together. Lastly, the premise that open space planning should be made a priority before land for open space disappears is born out by the example of Roswell, where high land prices now make conservation of open space a difficult task. Suwanee's desire to preserve 27% of its open space was feasible because it was at an earlier stage of development, and The Woodland's open space plan was in place before development began. The experience of each of these communities is important in illustrating

how opportunities for planning open space diminish as communities grow and development occurs.

These brief references to how the experiences in open space planning in Roswell, Suwanee and The Woodlands allude to the five premises which guide the course of taken by this thesis. These examples of precedent are meant to bolster those premises, as well as provide examples of planning for small communities. Taken together with the context of the tradition in our culture for open space planning provided in Chapter 2 and the precedent of tools for planning and examples of small communities and their open space planning experiences, it adds up as evidence for other small communities to base their open space planning policy decisions. But before completing this review of context and precedent for open space planning, an examination of some of the ethical issues touched on by open space policy decisions is important, and will follow in Chapter 5.

CHAPTER 5

ETHICAL DIMENSIONS IN OPEN SPACE PLANNING

So far, this thesis has laid the groundwork for decision-making in small communities that are interested in planning their open space. By acknowledging the political nature of policy planning, this thesis addressed premises that support open space planning in small communities where such planning has traditionally not been a major component of the overall planning process. The goal of reviewing open space planning history and its recent trends has been to provide a context for decision-making in the planning process. The last two chapters on precedents offers information on the tools available for planning and examples of communities where those tools have been applied.

Before proceeding into the actual goal of this thesis—a design proposal for open space in Madison, Georgia—there needs to be a recognition that the design process results in making policy choices which can impact communities in positive and negative ways. Public policy engages political, cultural, environmental, social and economic issues.

The five premises presented in Chapter 1 each represent in some form one of these issues. The first premise, an exhortation to plan, touches upon the political, while the second, urging preservation of open space that defines character, is essentially tied to a cultural issue. The desire to plan for sustainability in the third premise focuses upon the environmental, while the promotion of an engagement of diverse cultures in the fourth premise addresses social issues. Lastly, the advocacy to plan before development reduces opportunities focuses upon economics

and scarce resources. Each of those Chapter 1 premises touched on specific issues within those broader realms, and they have special importance for small communities like Madison.

Within the economic, social, environmental, cultural and political realms of a community, more questions will arise that will need to be considered when a community plans its open space. In this chapter, several of these issues will be highlighted to help guide the decision making process.

Economic Considerations

The economic effects that open space features can have on a community have been studied extensively over the years. Particular emphasis has been given to the economic benefits of developing a park, a greenway, or recreation area, especially by promoters interested in persuading others of the virtues found in a particular form of open space development. For example, the National Park Service touts the economic benefits of such developments as having "the potential to create jobs, enhance property value, expand local businesses, attract new or relocating businesses, increase local tax revenues, decrease local government expenditures, and promote a local community" (National Park Service 1995, iii). This provides powerful arguments for open space in a society where economic determinism plays an important role.

The economic effect that open space has on adjacent property has been the focus of much study. In Chapter 2, it was noted that Regents Park and Birkenhead Park were expected to increase the value of property around their perimeters, thus paying for the park improvements. Researchers have observed how common it was for nineteenth century cities in America to plan park systems as a way to increase property values (Nichols and Crompton 2005, 322). In the twentieth century, studies of greenways often focused upon the effect these linear open space features had upon property values of the residential property they bordered. More often than not,

these studies showed that the closer a property was located to a greenway, the higher its value (Seattle Engineering Department 1987; Tarrant and Cordell 1999; Lindsey et al. 2003; Nicholls and Crompton 2005). Open space that was undeveloped correlated with higher property values than did open space developed with recreation facilities (Lindsey et al. 2003, 11), but nonetheless, the overall trend was for greenways to positively affect property values of adjacent residential property (National Park Service 1995, 1-3).

A positive change in property values results in tax revenue increases for a community. This is cited as a positive effect of open space investment and often is proposed as a way to pay for that investment (Little 1990, 185; Platt 2000, 22). The increase in tax revenues helps shift the tax burden onto those willing to pay a premium to live next to the open space. This works in communities that can attract enough consumers of high priced property adjacent to open space. But other factors may be at play as seen in the early example provided by the development of Victoria Park in London during the 1840s. It was expected that increases in property values would pay for the park, as had happened for its earlier model, Regents Park. However, Victoria Park was located in a part of London shunned by the wealthy, therefore limiting the demand for high-priced property around its perimeter (Chadwick 1966, 121). Victoria Park offered an early lesson for community planners to look at the entire market before basing projected revenues from open space improvements.

Another economic consideration is related to how open space planning manipulates the availability of scarce land resources by removing land from development, hence adding to its scarcity. If land for development is generally plentiful this may not be a major issue. However, there are examples of communities that have higher overall property values brought on by the dedication of large amounts of land as greenspace. Boulder, Colorado, is one example of a

community with a very successful open space planning strategy where property prices have risen dramatically. Even though open space planning is thought to promote concentrated development patterns (Ahern 202, 119), other factors affecting land use patterns need to be considered. In Boulder, the increase in property prices can be blamed partly on the scarcity of available land for development. But another factor is a cultural preference for low-density development that discourages high-density development, which would be more efficient in utilizing the increasingly scarce land resources (Hellmund and Smith 2006, 20). Hellmund and Smith go on to cite the ripple effect that higher home prices have in a community, leading to fewer homes for lower income individuals. This ends up forcing individuals and families to live further away in more affordable communities and increasing overall commute times of the poorer segments of a metropolitan region.

The experience of Boulder points to the importance of open space planning as one piece of the overall land use planning picture. Since land conservation removes land from the development picture, many growing communities will need to use planning tools to increase population densities in order to provide a diverse mix of affordable housing. The compensation for land preservation by increasing population density is part of the Smart Growth concept that has recently become so popular. Smart Growth promotes denser development that is more efficient in its utilization of infrastructure (such as roads, sewers, water delivery systems) and reduces travel distances since people are closer together. This results in savings for government in providing services, and for individuals in transportation costs.

Communities such as Boulder have resisted changes to their zoning that allow higher densities when land becomes scarce as a result of open space conservation programs and development. In their cases, the Smart Growth savings in infrastructure does not occur, resulting

in a greater number of car trips. Confounding the Smart Growth hypothesis are the results of research on land development in suburban Portland, Oregon, that follow the tenets of 'Smart Growth.' These results point toward no significant change in regional patterns of connectivity or any significant decrease in transportation trips in the Portland metropolitan region (Song and Knaap 2004, 223**)**, indicating there are forces influencing travel patterns other than design for denser living. The authors of this research suggest that these forces include a continued resistance to mixed land uses in residential neighborhoods—perhaps as a result of "NIMYBism" (NIMBY = not in my back yard) (Song and Knaap 2004, 221), institutional planning on a regional level that limits connections to arterial streets from neighborhoods, and the scale of modern commercial and institutional entities which draw users from the broader metropolitan area.

The mixed results of "Smart Growth" in suburban Portland indicate there are many different facets to consider with the economics of open space. Jane Jacobs, who observed patterns of development in cities, saw a relationship between the large amounts of land dedicated to open space and the sprawl of Los Angeles (Jacobs 1961, 91). She preached caution about providing open space in a community without a corresponding increase in density. When planning a community, there needs to be an awareness of the complexity of relationships between land use patterns and culture that influences economic choices.

Another economic argument consistently made by open space promoters is the benefit brought to communities by their protection of environmental resources, especially the protection of water resources when they create stream buffers and protect riparian habitats (President's Commission 1987, 146; Labaree 1992, Chapt. 1; Flink and Searns 1993, 144). Buffers that preserve vegetation will stabilize riverbanks, prevent erosion, and filter the overland runoff,

keeping excess nutrients, non-point pollution and silt out of streams. Aquifers benefit from open space protection because development is restricted, thus reducing or eliminating impermeable surfaces from development. This was one of the major arguments in Ian McHarg's environmental approach for saving 23% of the area of The Woodlands as open space. Protecting riparian zones translates into savings for the community by reducing floods, preventing damage to property by not allowing construction in flood plains, and promoting water storage and purification.

These are but a few of the economic issues to consider when conducting an open space plan. Others issues that may appear include: gentrification of neighborhoods that can be fueled by the rising land values brought on by investments in open space; the direction of economic resources in a community away from social programs or other forms of investment when funds are diverted into open space projects; the removal of land from tax rolls when it is kept out of development. This brief discussion has focused primarily on how open space development may affect the supply of developable land in a market, and also the economic influence that park development will have as an amenity for adjoining properties. Some of these issues are economic dimensions that are localized, as in the positive influence a park has on adjacent property; others have metropolitan dimensions, as in Boulder where the reduction in developable land has contributed to rising home prices, resulting in broader impacts on commuting and social structure in the community. Just how much the investment in open space infrastructure will economically impact the other levels of community life will depend on local conditions. But these economic benefits and disadvantages need to be explored by open space planners, and the ethical implications of choosing one planning strategy over another must be considered. This pattern will also be seen with each of the four broad issues that follow, and the resolution of the

ethical questions raised will ultimately bring us back to the fact that planning engages the community and its political process.

Social Considerations

Not only is there a long history of planners and promoters of open space having expectations that open space will have positive economic effects, there have also been expectations of positive social benefits. Downing and Olmsted both promoted parks as social tools that fostered virtues among people and bridged divides between classes (Young 2004, 18-19). As already mentioned in Chapter 1, Frederick Law Olmsted was astounded during his visit to the new parks in England, to see people of all classes and economic fortune co-existing in the same space without conflict, and he praised the virtues of "People's Parks". He saw open space and access to nature as positive influences on all human beings. That attitude, that there are benefits derived from this link to nature, continues to be extolled. It is accompanied by other societal virtues such as the promotion of social interaction and even the promotion of social justice and equality (Hellmund and Smith, 2006).

Still, there are social considerations that must be weighed carefully in planning open space. For example, fear of crime often is cited as one of the major reasons for not planning parks, greenways or other forms of public open space. Promoters of recreational greenways, in particular, have been sensitive to this argument against the establishment of greenways. Research conducted to measure changes in crime on established greenways show no evidence of an increase in crime (Seattle Engineering Department 1987, 3; Tracy and Morris 1998, 15; Tarrant and Cordell 1999, 22), yet the perception persists and open space advocates will need to continue their defense.

Another social issue is how greenspace can act as a bridge between communities. This has often been touted as a benefit of greenways, since they are linear routes that course through many, often diverse, neighborhoods (Hellmund and Smith 2006, 5). Chapman's research on Denver's Platte River Greenway showed how the provision of open space and recreation facilities provided new places for communities to gather and interact (Chapman 2001, 81-2) and that the greenway has "enabled more people from outside the city to gain familiarity with the neighborhoods abutting the Platte within Denver" (Chapman 2001, 69). This lends continuing support to Olmsted's observations of the mixing of peoples in Birkenhead Park in the mid-nineteenth century.

Conversely, a greenway passing through diverse neighborhoods may benefit one group but is not valued by others who nonetheless are impacted by its creation. For example, a study of greenways in Indianapolis drew conclusions that the poor and minorities are less likely to use greenway trails than the white, middle class (Lindsey, Maraj and Kuan, 2001). The same study conducted research that pointed to cultural barriers that prevented mixing between diverse populations, and found that greenspace may end up being a barrier between diverse groups because of spatial perceptions that limit interaction (Lindsey, Maraj and Kuan 2001, 344).

Thus, caution is offered to planners of open space about the limits that parks, conserved areas, greenways, or other open space elements can have in resolving social problems (Ahern 2002, 69). Jane Jacobs notes that neighborhood parks in urban areas are influenced by their neighborhoods, not the other way around (Jacobs 1961, 95). Yet, researchers find that people consistently respond to open space in positive ways based upon diverse social considerations such as aesthetics (Chapman 2001, 85), quality of life (Flink and Searns 1993, 37), psychological well being of children (Hellmund and Smith 2006, 19), and overall satisfaction of community

life (Tarrant and Cordell 1999, 23). These are but a few of the social benefits that must be balanced with possible negative outcomes when planning open space for communities.

Environmental Considerations

In Chapter 2, ideas of landscape planning were introduced by this thesis. New models for open space planning have been developed that create benefits by reducing landscape fragmentation, thus maintaining environmental function for flora and fauna. Other benefits of open space planning for the environment previously described in the discussion of landscape ecology and landscape planning in Chapter 2 include protection of habitat for plant and animal species, and protection of water resources. In addition, open space can have a positive effect as a buffer for heat island effect and air pollution (Hellmund and Smith 2006, 16). Additional benefits to humans are access to nature, both for recreation and for psychological welfare (Ahern 2002, 118).

The degree of success that open space planning has in providing these benefits depends to a great deal on the scale of important landscape function that is retained. Landscape function depends not just on the physical scale of conserved lands but also on the quality of the connectedness between parcels (Hellmund and Smith 2006, 4). Thus, the benefits gained from landscape protection depend upon the functional integrity of the environment that is protected.

One dilemma faced by communities planning open space in rural areas is that their planning efforts need to produce actual benefits and not contribute to environmental degradation. Suburban growth typically develops in the pattern described by William E. Odum as a "tyranny of small decisions," that produces the fragmented suburban landscapes where human development dominates. The benefits of a landscape planning framework is that open space conservation is coordinated so that there is at least some form of environmental network to

provide a greater level of environmental function than exists in the omnipresent fragmented suburban landscapes.

As already mentioned, greater population density is often seen as the planning compensator for open space conservation. Taken to the extreme is the argument offered by David Owen when he wrote in the October 17, 2004 *New Yorker* that "New York is the greenest community in the United States, and one of the greenest cities in the world." Yet, New York, the most densely settled city in America, is the antithesis of what many think a green community should be, and certainly is not what people think of when they imagine the positive environmental impact of greenspace. Jane Jacobs voiced Owen's perspective earlier and for similar reasons:

> The air and open land paradox, and it is obviously not a temporary paradox, is this: in modern cities generous scatters of open space promote air pollution instead of combating it. This was an effect Ebenezer Howard could hardly have foreseen. But foresight is no longer required; only hindsight (Jacobs 1961, 91).

Both Owen and Jacobs are extolling the environmental benefits of concentrating human development and the importance of reducing dependence upon the automobile. Jacobs, in particular, was concerned that open space, which breaks up spatial patterns of cities, actually contributes to sprawl.

The issues brought up by Jacobs and Owen point to the need for broad scale open space planning to be part of the total land use planning process. To address the concern that open space preservation may promote sprawl, planners attempt to balance open space conservation with new planning ideas such as the previously mentioned Smart Growth and also New Urbanism, a city planning principle that new development should encourage mixed use neighborhood development based upon nineteenth century pedestrian-oriented urban models (Rogers 2001, 477).

Models of landscape planning grapple with the issue of balancing conservation and natural resource protection with the ongoing development needs of human populations (Thorne 1993, 23; Ahern 2002, 30; Benedict and McMahon 2006, 2), and have been adjusting for advances in research in ecology and biology. There is a history in this search for balance between nature and humans in planning models that shows an evolution in the incorporation of a growing environmental awareness. In the 1960s, Ian McHarg reacted strongly to models for making land use decisions based solely on economic need:

> Economic determinism as an imperfect evaluation of the biophysical world is only one of the consequences of our inheritance. An even more serious deficiency is the attitude towards nature and man which developed from the same source and of which our economic model is only one manifestation (McHarg 1969, 25).

From this attitude McHarg expanded upon the science-based methodology for analyzing landscapes based on the suitability of their environmental resources for conservation or development. Inspired by McHarg and others, the modern field of landscape planning has continued to develop, influenced by evolving research and ideas in landscape ecology and land use planning. Recent landscape planning models continue to reflect the struggle to integrate considerations for human needs into the landscape planning process, often in recognition of the need to gain political and economic support in human-dominated landscapes, and as acknowledgement that development is an entrenched cultural reality (Ahern 2002, 30-31).

An example of this dilemma of finding balance between conservation and development in planning is the fact that in open space networks where corridors are used to connect patches in a matrix there is an increase in "edge effect," where plants and animals that favor edge conditions will dominate (Flink and Searns 1993, 131; Hellmund and Smith 2006, 9). Edge effect develops at the boundary between two environments. When that boundary is between a human development and natural environment, the transition can be abrupt and harmful to the interior

habitats. Edge conditions often favor invasive, non-native species that aggressively take over (Thorne 1993, 33). It is especially important to consider edge effect in the determination of the widths of corridors in an environmental network. Goals for development may make corridors so narrow that the edge conditions may dominate the corridor and reduce its usefulness for some species. Trade-offs may have to be made in order to preserve some environmental protection while sacrificing other elements of the environment to accommodate human needs. One criticism of The Woodlands in its landscape planning has been the lack of concern paid to maintaining adequate corridors for wildlife even though there has been excellent protection of the hydrologic cycle (Forsyth 2005, 203). As already pointed out in Chapter 3, McHarg responded to criticisms of the impact that development had on the environment at The Woodlands by arguing that the goal was to create a town, not a forest preserve. Finding the right balance between development and conservation remains a thorny question in landscape planning.

Another situation where conflict arises between goals for protecting the environment and consideration for people is when multiple goals are attached to open space. For example, a study in Indianapolis looked at a greenway development that had both recreation and ecosystem benefits as goals. The study found that a conflict emerged when developers of the greenway wanted to attract more stakeholders by increasing the recreation facilities. The development of recreation facilities ended up degrading the ecosystem benefits by introducing human activities and structures into natural habitat areas (Lindsey 2003, 178). The decision was premised on a need to gain constituent support for the greenway by providing access to more people, but at a cost that compromised the integrity of the ecosystem.

The trade-off of political support for reduced ecological integrity in Indianapolis' greenways and the diminishment of wildlife corridors for development in the open space plan of

The Woodlands are both examples which point to the struggle people have in making choices when it comes to balancing development and open space conservation. This thesis has adopted the premise that the land use planning process should be guided by principles of sustainability. But, as seen in the preceding examples, there is a clear conflict of interest that arises when human beings use arguments of economic determinism to frame their planning decisions. Oftentimes the benefits to humans for saving environmental habitats must be rationalized in economic terms, such as the example of protecting the hydrologic system of The Woodlands, in order to protect water resources for human consumption and prevent flooding of human developments. If there is no economic gain from saving the environment, planning decisions are repeatedly made that compromise the functioning of natural systems in favor of human development. But, as research in environmental sciences raised awareness of both the value of functioning environments and the impact our development decisions have on the environment, new models for guiding land use planning decisions that incorporate landscape planning principles have developed in the latter half of the twentieth century. These try to utilize planning approaches that incorporate new ways of valuing the physical, biological and social systems in landscapes, as championed by McHarg and others. However, as seen with observations of Jacobs and Owen regarding the benefits of density, and the mixed results of models that apply ideas of density in Smart Growth, there is no one formula that will provide the perfect balance.

There continue to be arguments over the best approach to guide human development and protect natural resources and habitat for plant and animal communities. Given the premise that open space planning should incorporate ideas of sustainability, communities need to consider the ramifications of their open space plan decisions, understand the costs of compromises, and investigate ways to have compensatory trade-offs that will mitigate the costs of compromise.

Hard planning choices will have to be made, based upon education of what the potential impacts of development decisions will be. The overall big picture should still aim for planning in sustainable ways, where there are real and fair trades in the trade-offs that will be made in the planning process.

Cultural Considerations

Just as with the previous considerations of environmental dimensions and the earlier considerations of economic and social dimensions in open space planning, the ramifications of planning choices will also depend upon cultural dimensions that must be considered. Open space planning, as it was argued in Chapter 1, should conserve open space that defines community character. The premise that open space defines important character in a community is grounded in cultural ideas strongly held by many communities, and is an example of the importance cultural beliefs can have in the planning process. The examples of Waterford (from Chapters 1 and 2), where open space contributed to historic character, and Suwanee (from Chapter 4), where open space was valued for its contribution to the communities' rural character, are both examples that support this premise. Their example points to the concept that cultural ideas and customs of a society are important planning considerations and should be included to legitimize open space plans (Ahern 2002, 69).

One concept that influences issues in open space planning is the communally held attitude and perception of shared open space. The review of context in Chapter 2 touched on this concept of the way that perception of open space, including what was considered to be public versus private space, has changed over time. For example, the Romantic Movement's aesthetic perception of nature was influential in changing the American viewpoint on nature from negative to positive. It was also shown that there has been an evolution in shared ideas about access to

public space, and a growth over time in the importance of public open space in our culture. Connected to this are community studies that show how community satisfaction and quality of life can be positively influenced by access to outdoor recreational activities and open space (Tarrant and Cordell 1999, 23). An awareness of the strength with which a community holds such views of communal open space should be considered during the planning process for open space.

Seemingly at odds with this culturally strong communal valuation of open space is the persisting cultural tradition that places great value on individual private property rights. This tradition holds that control of property should remain with the owner of that property. Historically, the complexities of ecological function and land stewardship have not always been understood or supported by many individual landowners. The result has often been land uses that are at odds with goals of environmental protection (Flink and Searns 1993, 101).

Open space planning will sometimes require the cooperation of private property owners or the government regulation of private property to achieve conservation goals. Support for government regulation of private property developed over the course of much of the twentieth century. But in the last two decades of that century, a counter reaction set in that saw growing support for private property rights. Evidence of this reaction was seen in Oregon's 2004 approval of an initiative mandating reimbursement of property owners for any loss in property values brought on by government regulation of their property (Sullivan 2005, 3). The state that had been a leader in open space planning was shaken by this backlash against regulation of the strongly treasured cultural tradition of individual property rights.

Another important cultural consideration in planning open space is how participation in public space differs among different ethnic groups, economic classes of people, between genders

and age groups. Planning that involves any form of spatial arrangement of land uses will have to consider these factors. In her observation of rates of participation by different ethnic groups in the South Platte Greenway in Denver, Ginette Chapman hypothesized that there may be different cultural viewpoints of nature that influence appreciation in nature, and thus participation in open space the conserves nature (Chapman 1999, 88-9).

The cultural dimension of race is strongly expressed in the United States. Spatial segregation by race is common in American communities, and planning that involves any form of spatial arrangement of land uses will have to consider this factor. Racial segregation of residential neighborhoods is evident in Madison (Northeast Georgia 2004, 47) and is a typical pattern found in rural communities in its region. As noted earlier, social goals of uniting diverse members of communities in Indianapolis were thwarted by cultural differences between groups of people, and there were concerns expressed that greenspace may become a spatial barrier between communities, not a connecter (Lindsey, Maraj and Kuan 2001, 333). This points to the need to consider how space will be perceived and used by different groups of people.

Differences in income levels have also been noted as factors influencing people's participation in use of open space. Ironically, there is a commonly held belief that people with low incomes would benefit from an increase in park and recreation facilities, yet studies have shown that those groups use recreation facilities less than other sectors of the population (Lindsey et al. 2001, 333-4). Chapman notes that low levels of participation in recreation by people with low-incomes may be dependent on limited leisure time and disposable income (Chapman 1999, 89). Once again, communities planning open space need to be aware of this potential cultural influence in open space planning.

In all, the behavior and social attitudes that constitute the culture of a community are ingredients that need to be incorporated into the planning process of communities. This thesis has emphasized the cultural connection of open space to community character because the subjects of this thesis, small rural communities, usually have a cultural identity rooted in their open space environments. But perception of space, and the participation in public and private space is complex and strongly tied to many other cultural dimensions. There may be a strong urge to plan open space for communal benefit that runs contrary to an equally strong urge to not regulate private property. In addition, different segments of a community defined by ethnic identity, class, gender or age, will approach participation in open space from different cultural perspectives. Compromises will undoubtedly need to be made to gain broad community support for open space plans that serve diverse, cultural communities. This points to the need for the open space planning process to take into account the cultural conceptions and perceptions of the people participating in the planned open space, and anticipates the political dimensions that will need to be considered to engage and sort through not only cultural dimensions, but also the, economic, social and environmental dimensions that will be encountered during the planning process.

Conclusion: Political Considerations and the Resolution of Ethical Questions

The preceding review of economic, social, environmental, and cultural considerations illustrates some of the complex issues that arise in any planning process. When this thesis acknowledged in Chapter 1 that "Planning is Politics!" the point being made was that open space planning will engage people at all levels in communities tackling open space policy issues, and will become intertwined with the community political process. Webster's defines political process as "the process of the formulation and administration of public policy usually by

interaction between social groups and political institutions or between political leadership and public opinion" (Webster's 1993, 1755). While this thesis is no substitute for a political science analysis of the planning process, it does suggest to communities the importance of understanding political issues that will be triggered by that "interaction between social groups and political institutions" during the open space planning process. A critical point is that there must be "interaction," a point that was stressed in Chapter 3 in the review of the planning process, and alluded to during the discussions of the four preceding sections of this chapter.

Unfortunately, there is evidence that this interaction between community groups is often limited in its scope. The planning process does not always connect with the marginalized in a community and can instead be "a project-driven effort that legitimizes and assists the reorganization of the environment for the benefit of developers" (Tauxe 1995, np). In addition there is research that shows minorities and the poor have not participated in either the environmental movement or the earlier conservation movement, both of which have influenced open space planning during the last few decades. Instead these movements have been dominated by white and middle-class segments of the population (Chapman 2001, 10). As seen in the previous sections, the benefits of open space conservation are many. The potential is there for those benefits to be shared by all segments of a community. However, the issue remains that those left out of the planning process may not claim those benefits, and the long-term success of an open space plan may suffer. The importance of community participation is summarized in the *Small Town Planning Handbook:*

> Do plan to encourage community participation. The aim of community participation is to build a consensus on local needs and desires. Planning should help draw people into policymaking through public hearings with public officials. And the more that people take part in the planning process, the more they will feel that the final plan is their plan (Daniels, Keller and Lapping, 1995, 6).

Community participation is especially important when decisions made by planning professionals, community leaders, and even the populace at large, take on an ethical dimension.

Ethics can broadly be defined as the moral correctness of specified conduct, or a set of morals for a person, a group, a profession, etc. Since people are involved in the creation and maintenance of greenways, the actions of individuals made in the planning process involve choices that have moral implications. There are benefits for some individuals, benign effects for others, and negative impacts upon other people.

For instance, in the discussion on economics, the example where investment in greenspace results in higher property values brings benefits to some individuals and to the community tax roll but may result in a process of gentrification that displaces poorer people. Additionally, ethical implications are raised by the broader regulation of open space through easements and ordinances when this infringes on private property rights of individuals. The monetary investment in open space conservation creates a dilemma when it diverts funding from other needy projects. These are but a few of the ethical choices in economics that will face open space planners and community members in the planning process.

In the realm of cultural dimensions of open space planning, ethical issues of social and environmental justice will surface. These will also be more readily resolved by improved access to the community planning process. The traditional planning process has consistently recognized the concerns and issues of traditional elites rather than those of poor and minorities (Chapman 2001, 10). In open space planning, awareness developed towards the end of the twentieth century of the efficacy of this approach (Little 1990, 32). When a greater concern for social justice develops, planning can draw the disaffected into the process, creating more equitable

distribution of the benefits of open space, and even leading to greater participation in the overall political process (Chapman 2001, 80-1).

Ethical questions in environmental considerations of open space planning will also need to garner the input of citizens and the informed opinions of experts. Over time, the education of people through research in ecology and biology has resulted in a growing awareness of how natural systems work and the impact humans have on the ever-diminishing natural world. Ethical choices about development based upon economic self-interest must be weighed against the environmental degradation that we now understand will result. The models of landscape planning that developed in the last decades of the twentieth century incorporate new approaches that work to integrate into the planning process the growing awareness of the interconnection between development impacts and environmental systems. Continued education of members of a community must be an important component of any planning process, to elevate the valuation of natural resources normally discounted by the system of economic determinism that dominates our culture. The emphasis on education will help insure that the democratic political process will include environmental issues in the planning process.

Cultural dimensions such as the issue of community rights versus private property rights also create ethical dilemmas for those planning open space. Regulation and control of land as part of community planning goals will trigger questions of how much regulation should there be and what form should it take. As seen in the discussion of cultural considerations, these questions will be tied to a community's cultural perception of space, as well as questions of communal versus private property rights. In order to make open space planning work, a consensus in the community will have to be present to resolve those issues, and as pointed out earlier, a successful open space plan will depend upon participating community members who

feel they have a vested interest in the planning process outcome. This brings the focus back full circle to the fact that "planning is politics", and to the political process that engages diverse members of the community.

This examination of ethical dimensions highlights the importance of public participation in the political process of planning in order to hear and understand diverse viewpoints, work towards consensus in formulating planning policy and outcomes, and to create ownership among a broad constituency in that policy and it outcome. Given the importance that open space planning can have in the long-term development of a community, great consideration must be given to the choices made in formulating the goals and objectives of any open space plan. The goal of presenting a perspective on the economic, social, environmental, cultural and political considerations of open space planning has been to broaden the foundation of knowledge gained earlier from the discussions of context and precedent in open space planning. Taken together, the context, precedent and ethical dimensions in open space planning provide a framework for guiding the direction of public policy in small communities planning open space, and set the stage for designing an open space plan for Madison, Georgia.

CHAPTER 6

CASE STUDY OF MADISON PART ONE: COMMUNITY IN CONTEXT

So far, this thesis has explored through research the issues of open space planning that are relevant to small exurban communities faced with rapid population growth. Broad lessons have been learned from each of the topics reviewed in the previous chapters. From "Establishing a Context in the Traditions in Open Space Planning" comes the lesson for these communities that there is a rich history in our culture for nurturing our relationship with outdoor space. While many small communities have only participated in those traditions in small ways, they may draw upon them as they plan their communities in preparation for rapid population growth. To assist in this planning, there are tools for planning open space that are widely available and processes that are well developed. The exploration of these in "Precedent for Planning" points toward the broad lesson that a comprehensive planning approach using principles of landscape planning in the municipal planning process provides a framework to successfully guide small communities towards suitable choices that will meet community goals, which, for this case study, includes goals for protecting open space. How planning tools have been applied and the results of planning actions form the cornerstone of the lesson found in "Precedent in Action." The three communities shown each planned at different stages of their growth and used different planning approaches, the lesson being that the sooner a community develops a comprehensive approach to planning its open space, the richer the rewards for that community. Lastly, in "Ethical Dimensions in Open Space Planning," the challenges faced by community planning points to the lesson that an engaged community, with a diverse representation of community members, is

necessary for a successful open space plan. Only when the input and values of community members are incorporated into the goals that drive the planning process will an open space plan find success.

These lessons will help guide this case study of open space planning for Madison. The study will have three parts, each in its own chapter. Part one looks at how Madison fits into the context of open space planning traditions. A profile of the community will provide an introduction to the community, followed by a review of the experience Madison has had in its relationship with open space.

The second part will apply precedent to the case study of Madison. Madison's planning experience will be reviewed. Next, goals to guide this planning study will be summarized. This will be followed by inventories of the abiotic, biotic and cultural resources of the community. Then, an analysis of the suitability of existing open space for four different uses will be explored. These four uses are: (1) historic resources, (2) park and recreation areas, (3) habitat conservation, and (4) urban development.

The survey and analysis for suitability will be followed by the third part of the case study, where a design for a scenario of conserved open space will be developed. This design scenario will be guided by the goals in the design process, and informed by the results of the survey and analysis of the community resources. The design scenario for open space in Madison will summarize the suggested approach of this case study. Lastly, an implementation strategy will be offered. The overall goal of this study is to provide a planning guide via example for communities that find themselves in similar situations like Madison—faced with imminent population growth and a desire to protect open space resources before they disappear.

Community Profile of Madison

Before drawing connections between Madison and the elements of context that were outlined in Chapter 2, a profile of the community will be introduced to set the stage for the case study of Madison. The town's pattern of settlement and development has parallels in the experiences of many rural settlements across the country. As was typical, settlement history began with an early boom period when the community was carved out of the wilderness. This was followed by a long period of general prosperity based upon an agricultural economy during the nineteenth and early twentieth centuries. After World War I, a decline in its fortunes ensued, as the agricultural economy restructured with greater efficiencies in the agricultural economy that drove down agricultural commodity prices, while at the same time the national economy was increasingly dominated by manufacturing located in distant urban centers. Rural communities like Madison usually settled into a period of low or no growth. However, if they fell into the orbit of an expanding suburban sphere growing outward from cities across the country, their development histories quickly became enmeshed with those of their metropolitan neighbors.

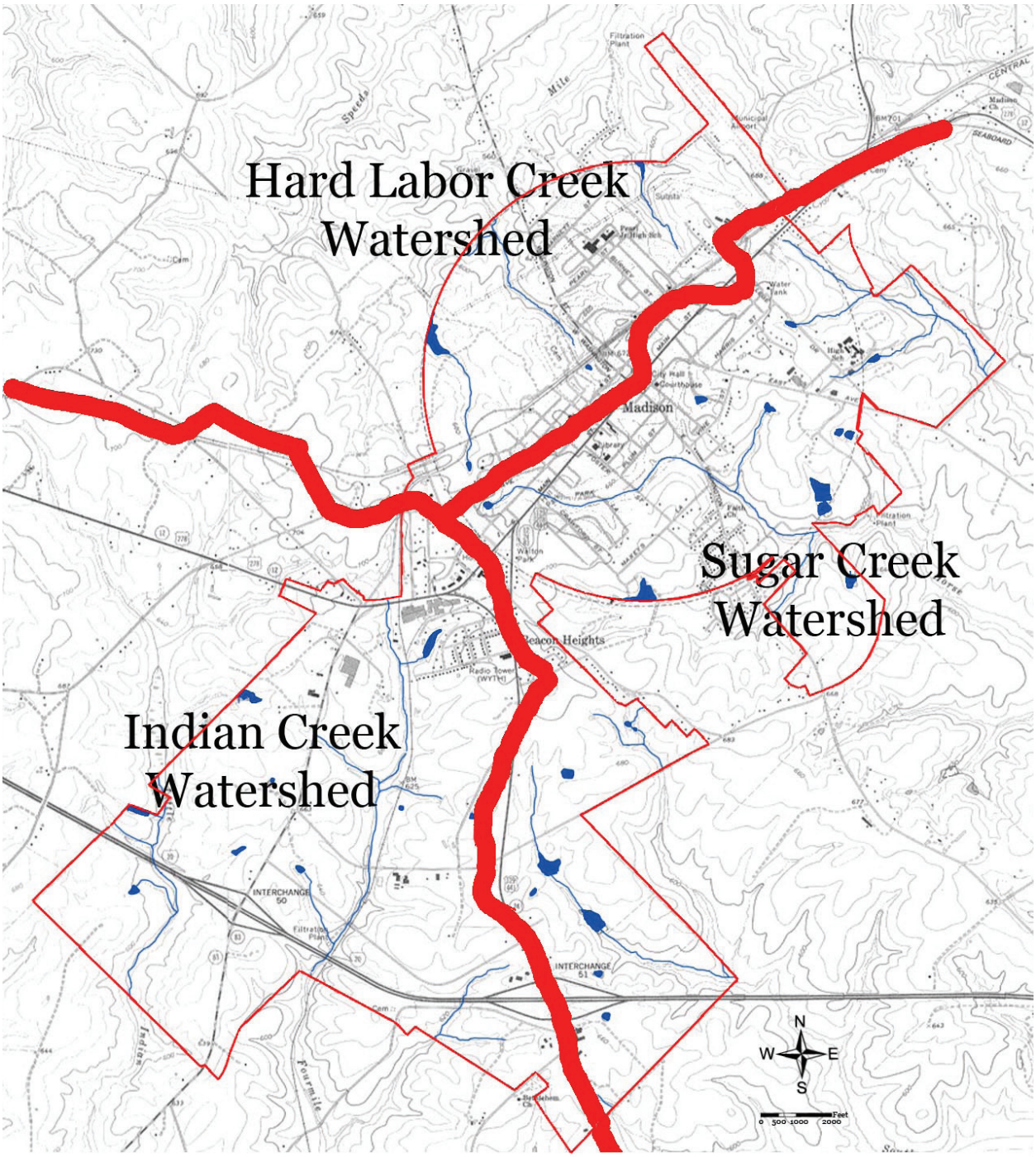
A closer look at the details of Madison's development history offers useful background information for its open space planning. First, a look at the physical setting of the community finds that it is located in northeast Georgia, in a portion of the Piedmont region of the American Southeast. Madison's topography is dominated by an ancient plain of weathered igneous and metamorphic rock that has eroded into a gently rolling landscape with no great extremes in elevation. It lies at approximately 700 feet above sea level, and is located 250 miles from the coast and 85 miles from the north Georgia mountains. Its climate is dominated by a warm, temperate subtropical zone, with hot humid summers, and occasional spells of below freezing weather in the winter (Hodler and Schretter, 1986, 44). The rainfall pattern shows a summer

peak and autumn minimum, but historically has been adequate enough throughout the seasons to nurture a vegetative community dominated by an Oak-Pine forest association (Natureserve 2007), part of the vast forest which covered the eastern United States before European settlement began.

American settlement of the forest wilderness in and around Madison began in the first few years of the nineteenth century. By 1807, a county was created to provide government for the growing settlements. Two years later, a site was selected for the seat of local government and christened Madison. This town site was chosen for its central location in the surrounding county, and because of an advantageous situation atop a ridge adjacent to several perennially flowing springs (see Figure 6.01). This ridge is actually the divide between three major water basins of the county (USDA 1963, 1), and the three major ridges that meet at this spot are defining features in the community. Roads, and later, railroads, followed the high ground of the ridges. They also influenced the spatial arrangement of the community, as will be noted later.

After it's founding, Madison quickly became the local county hub of commerce, government and education for the agricultural hinterland of Morgan County. The surrounding woodland was transformed into a landscape of farms, with degraded fragments of the previous woodland remaining as vestiges. By 1849, there were 1,200 inhabitants in the community (White 1849, 434). The town's population grew gradually, ebbing and declining along with the fortunes of the surrounding agricultural economy. Ultimately, the population peaked in the late 1910's at around 2,400 inhabitants (Reynolds 1919, 197).

This peak was quickly followed by a collapse in the local economy, brought on by two events. First, a depression in agricultural commodity prices set in after the boom years associated with World War I. Secondly, the boll weevil, an exotic insect pest, moved into the



The divides between Madison's three major watersheds

(USGS 1985, alterations by the author, October 2007)

Figure 6.01 The divides between Madison's three major watersheds
(USGS 1985, alterations by auther, October 2007)

region and decimated cotton crops, breaking the agricultural backbone of the local economy (Holmes 1977, 263). The farm economy dominated by cotton monoculture went into sharp decline, leading to farm abandonment and a 38% reduction in the county's population by 1930. Ultimately, by the time the population stabilized, the county only had half its peak population (Forstall 1995).

Paralleling the dramatic drop in population was a remarkable change in Morgan County's rural landscape. During the peak of agriculture, the surrounding county was 90% in farms. But by the late twentieth century, it was well over 50% forest again, albeit a degraded one split between early succession forest and commercially planted tree farms of Loblolly and Shortleaf pines (USDA 1963, 73). From 1920 to the 1970s, Madison endured economic hardships, alleviated some by the development of small manufacturing facilities. The town's population had declined in tandem with the county's population drop in the 1920s, but slowly rebounded with the shift to manufacturing, until, by 1970, its population was nearly 2,900.

The 1970s saw a reversal in the pattern of decline and stagnation for the county. This coincided with the completion of Interstate 20, which provided a fast link to Atlanta, sixty miles away to the west. By 2006, Madison's population had reached 3,877, a 32% increased since 1970 (Population Division 2007c), and the surrounding county had increased by 80% (Population Division 2007b). Just to the west of Morgan County, along the Interstate 20 link to Atlanta, lie two metropolitan Atlanta counties: Walton, the forty-seventh fastest growing county in the nation, and Newton, the eleventh fastest, (with Walton growing by 18,701 people, or 30.8% and Newton 29,450 people, or 47.5% between 2000 and 2006) (Population Division 2007a). This growth is an ominous sign of what is in store for Madison in the coming years.

Accompanying such growth is a tremendous loss of green space. Alarming figures exist on the rate that open space is paved over in metro Atlanta (estimated at 55 acres per day) (Kramer, 2006) (see Figure 6.02). The specter of unbridled development coming to rural Morgan County is not just speculation; it represents a natural progression in a very real pattern of growth marching ever outwards from the Atlanta metropolitan area. Today, Madison and environs still retain an appearance as a rural community with plenty of open space. Madison has spent most of its nearly two hundred years of existence as a village intimately connected with the woodlands and farmlands of its surrounding landscape. The town's population density is low, at around 450 people per square mile, and surrounding Morgan County has only 50 people per square mile. As recently as 2004, 39.8% of Madison's land use was listed as agriculture and 13.7% was "vacant/undeveloped," while parks/recreational/conservation represented 0.5% of city land (Northeast Georgia 2004, 266), open spaces which all contribute to the rural character of the community.

These open spaces are intertwined with the built environment to create a cultural landscape reflective of local and regional attitudes toward the local topography. For Georgia Piedmont settlements, ridge tops have historically been preferred sites, and the three-forked ridge separating the watersheds of Hard Labor, Sugar, and Indian Creeks was the most desirable landscape element for residences, businesses, and institutions; the further from the spine of the ridge, the less desirable the land for settlement. Bottomlands of creeks that eroded into the land adjoining the ridge were avoided for settlement because of a lack of breezes in the stultifying hot and muggy summers of Georgia.

This pattern dictated by high and low ground has been a major ingredient in the historic settlement pattern of the community. Cultural perception of topography has been translated into

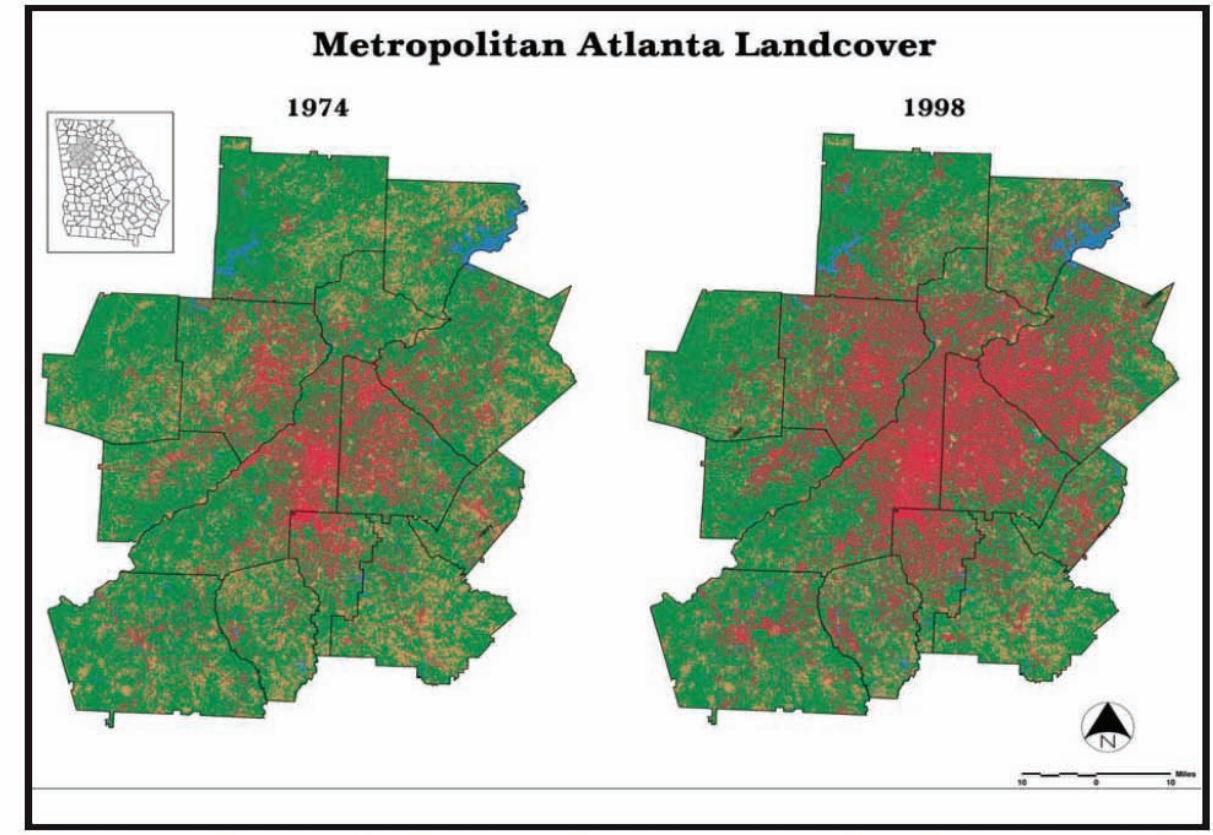


Figure 6.02. Loss of greenspace and increase in urbanization in the metropolitan Atlanta area. (Advisory Council 2004, 14)

spatial patterns, reflecting the ethnic and class divisions of the community. A significant element of the local culture is that ethnically, Madison is evenly split between descendants of Europeans (whites) and descendants of enslaved Africans (blacks), an ethnic balance that has persisted for at least the last fifty years (U.S. Bureau 1961, Population Division, 2000). As a reflection of the value placed on different parts of the topography, a settlement pattern mirroring the pecking order in the community developed, (especially evident in the historic spatial pattern that developed before common usage of the automobile). The main ridge, as already noted, was the most valued for residences, and was occupied by the white elite. Down slope and paralleling this residential spine were middle and lower class white neighborhoods. In creek hollows that opened up off the ridge were African-American enclaves, while across the railroad tracks and on a ridge perpendicular to the main ridge was a separate and distinct African-American neighborhood, with its own arrangement of wealthier citizens on the highest ground and poorer folk in the lowlands.

Spatial segregation is still strong in residential areas even as integration has advanced in the public arena. Economic power and political power is still mostly in white hands, but has been evolving toward greater inclusiveness since the civil rights reforms of the 1960s. While private ground may remain segregated, (as seen in residential space, religious space and social space), public space has become integrated, and continues to promise to be 'common ground' where the two groups can meet with each other.

Madison in the Context of the Traditions in Open Space

Madison has developed over the past two hundred years amidst the backdrop of traditions in open space planning that were discussed in Chapter 2. To varying degrees, Madison has participated in these traditions. Examples of its participation in parks and recreation

development, regional open space planning, greenways, landscape planning ideas, historic preservation and the more recent conservancy movement are evident in the patterns of open space development in the community. These developments and the traditions they are tied to will provide a contextual background for making decisions in this open space case study.

In regards to the tradition in parks and recreation spaces, perception of open space has been strongly influenced by the relationships between the town and its rural surroundings. Throughout its history as a rural community, open space has always been plentiful, although almost entirely privately owned. The drive to bring *rus in urb* that typified Nineteenth century Park planning in cities mattered little to Madison, situated as it was in a rustic environment with very little urban development. Nineteenth century Madison had some open space developments that mirrored national trends. For example, at its inception, the town had a public square and also a town common and mustering ground. The square still exist, its center occupied today by a post office, and the open space off limits to the public. Unfortunately, the large open space that was the town common (originally 50 acres) was whittled away for cemeteries, churches and academies, until finally the remnant tract was sold off for residential development in 1838 (Simpson 1989, np). This ended the town's first venture into providing public open space.

While demand for public open space does not appear to have been very strong in the nineteenth century, there is evidence from newspaper accounts of a desire among Madisonians to recreate in natural settings. This desire was met by individuals who, being influenced by the tradition of pleasure gardens, opened their private landscapes to members of the public. One early reference to Madison's own pleasure gardens appeared in the April 12, 1842 edition of the local newspaper, the *Southern Miscellany*. This news item described the grounds of Snow Hill, home of local notable, Lancelot Johnston: "a beautiful flower garden—most tastefully

arranged—and always open for public promenading by its liberal owner." Forty-two years later, a new pleasure garden is described in the June 6, 1884 *Madisonian:* "C.B. Atkinson is fixing a track around Silver Lakes for the walking match. It is the prettiest spot that could have been selected, and when completed, it will be the best arranged road for a walking match, in the State." Silver Lake continued as a destination for picnics and walks around the lake and amidst gardens up through the early 1900s (Hitchcock, Hart and Harrell, 1997).

The pleasure gardens were all private ventures open to the public. As for public parks and recreation areas, the city had to wait until 1916, when a prominent Madisonian donated land and money for a public park and swimming pool (albeit, only for the benefit of the white community) (Simpson 1989, np). The 1970s saw further development of recreation facilities, with sports grounds and a gym near the school. The development of parks and facilities was also aided by federal funds from the Land and Water Conservation Fund (Land and Water, 2007). These funds were applied to create facilities near the schools and also for a park and second swimming pool in a traditionally African-American neighborhood.

Development of the park and recreation facilities in neighborhoods and near the schools was connected to the greater traditions in park and recreation area planning in American culture. The related regional planning tradition which coordinated these public open spaces into some sort of regional network was never considered by the city of Madison since it has historically been a small community. However, the influence of regional open space planning can be seen in the development of two examples of regional open space for public usage that are located near Madison. The first of these is Hard Labor Creek State Park. With 5,805 acres, it is the largest state park in the state and is located seven miles west of Madison. It was developed during the depression years of the 1930s under a federal National Park Service initiative employing Civilian

Conservation Corps labor. The original mission of the park was to act as a recreation demonstration area, but it was also a land restoration and conservation project that reclaimed heavily eroded cotton farms. Eventually transferred to the state, it is now managed for both conservation and recreation.

The second example of regional planning for public open space is the Oconee National Forest. Its creation also began as a 1930s depression era project, again using the Civilian Conservation Corps, but working this time with the Soil Conservation Service to stabilize heavily eroded cotton fields. In 1959, 115,354 acres of these conserved lands were placed in the two units of the newly formed Oconee National Forest. One unit lies nine miles to the east of Madison, while the second unit is thirteen miles to the south. Each unit consists of a mosaic of disjointed parcels of publicly owned lands that are managed using the multiple use strategy of the forest service. In addition, wildlife management in the Oconee National Forest is managed in conjunction with other federal and state agencies that control adjoining public lands. The national forest units and state park are open space parcels that have relevance to open space planning on a regional level. They also offer potential as pieces in a larger open space matrix that could be planned as part of a green infrastructure network.

Another open space network feature that is part of the open space tradition reviewed in Chapter 2 is the greenway. Two examples, one tangible the other conjectural, show the influence exerted by the greenway movement on open space planning in and around Madison. The first is small, but provides a concrete example for the community of these linear open space corridors. It is a park with a broad path that parallels a creek, connecting the downtown commercial district with the historic cemeteries of town. The creek rises from the historic spring historically connected to the decision that led to the choice of the site for Madison as county seat. The

second example of greenways in Madison's open space planning can be seen in the influence greenways had on the design of the future land use map in the last Morgan County/Madison joint comprehensive plan. Out of a Greenprint planning process sponsored by the Trust for Public Lands in 2004, several greenway routes were identified for Morgan County. One of these passes along the northwest perimeter of Madison. Input from the Greenprint was considered in the comprehensive plan, and resulted in the incorporation of greenway development into several of the objectives and policies of the comprehensive plan (Northeast Georgia 2004, 135). No actual greenway has yet been planned or built, but the greenway thought process has been introduced into the planning process.

In addition to the ideas from the greenway movement, the broader planning ideas from landscape planning have also found a place in the joint Morgan County/Madison comprehensive plan. Many of these ideas were also introduced to the community thought the Greenprint planning process, and found expression in natural resource objective and policy statements. This was summarized by a policy statement that directed the county to "utilize the completed Greenprint Plan as a guide for a countywide environmental protection program, in the development of the county's land use plan, and as a factor in environmental impact analysis" (Northeast Georgia 2004, 135). As was seen with the proposal for a greenway, landscape planning ideas have yet to be incorporated into the future land use plans of the county and city, but the foundation for that planning does exist.

In contrast to its landscape planning efforts, the city of Madison has progressed much further with protection of its historic resources. The town is known regionally for its historic structures, and the community has gone to great lengths to protect those resources. In 1974, the Madison Historic District was listed on the National Register of Historic Places. A historic

preservation ordinance was passed fifteen years later and a district designated under that ordinance in order to protect the historic resources of the National Register Historic District. Elements of the landscape in the district were included among the three sites listed as "contributing resources" under the category of significance when the district was registered with the National Register of Historic Places. These landscape elements include the cemetery, Hill Park, and "landscaping" (described as the town square area, street trees, boxwood gardens and pecan groves) (City of Madison 1989, 21). In the description of significance in the National Register application form, significance in the district is tied to open space: "The Madison Historic District is significant in terms of landscape architecture; due to its significant open and landscape spaces and the overall landscape character that defines the district" (City of Madison 1989, 17).

Even with a historic preservation ordinance, the open space of the district is not adequately protected. Some infill of open space brought on by the construction of new homes and commercial structures (called "non-contributing resources" by the National Register) has occurred, mainly along the periphery of the designated historic district. One effort to limit subdivision of land in the district has been to zone much of the district as "R1 Large Lot" and "R Estate" (City of Madison 2007, 33). These residential zoning categories have higher minimum lot sizes (1.5 acres for Estate, and .75 acres for Large Lot) than is used for most parts of the city. However, this falls short of protecting many of the largest open spaces of the historic district. The rapid increase in land values during the past decade will put greater pressure on landowners to subdivide large lots for development, creating more infill of non-contributing resources, an issue this thesis will address later in the case study.

The last topic in this look at where Madison fits into the picture of the historic context of open space planning takes a look at the conservancy movement's influence on open space planning in the community. The influence of this movement can be seen in the gradual use of tools for conservation set-asides in at least three subdivisions in the city, and the use of a conservation easement to prevent development on one land tract in the historic district. The 2004 joint comprehensive plan anticipates the use of even more conservancy movement tools in its policy statements that promote county and city governments to "incentivize the use of innovative tools such as Conservation Subdivisions, Conservation Easements, Purchasable Development Rights and Transferable Development Rights (TDRSs), to the extent possible under State law" (Northeast Georgia 2004, 135 and 305). These tools have not yet been put in place by local governments, even though the future land use map describes areas of development where density increases are anticipated through the use of some of these tools. TDRs in particular, are strongly emphasized, with sending areas identified in the Agriculture/Forestry and Estate Residential zones of the comprehensive plan's future land use map, while the receiving areas are the Mixed-Use Residential/Commercial zones (Northeast Georgia 2004, 280). As with the proposed ideas for greenways and the landscape planning approaches described under the comprehensive plan, community planners and decision-makers have recognized the conservancy movement approach, but its potential has yet to be realized.

The profile of Madison and the review of its traditions in open space show an evolving relationship between the community and its landscape. Once isolated and a rural backwater, it had limited development of formal open spaces. But by the beginning of the twenty-first century, as the influence of urban life exerts itself, it is participating in more formalized activities

to protect open space. The growing emphasis on open space in planning programs of the county will be explored in greater detail in the next chapter.

CHAPTER 7

CASE STUDY OF MADISON PART TWO: PRECEDENT APPLIED

While the first chapter in this case study of Madison introduced a profile of the community and explored Madison's place within the context of open space planning traditions, this next chapter will follow the planning process, conduct an inventory of resources for the study, and then undertake an analysis of resources to look at the suitability of lands for open space conservation in Madison. The area of this study will be limited to all lands within the corporate limits of the city of Madison. The study will build upon the precedents in planning from earlier chapters, following the framework for planning that was explored in the discussions of municipal and landscape planning process in Chapter 3. First of all, though, the planning process that presently exists in Madison will be reviewed, to anchor this study in the existing community planning process.

The Planning Process in Madison

As seen in the chapter on planning precedent, the process and tools for planning are at hand to realize an open space plan for Madison. The town has had experience with the municipal planning process and its tools for a little over 30 years. The planning process is, indeed, very active in Madison and has produced many positive results. There is a zoning ordinance, a set of subdivision regulations, and also ordinances regulating design and development in the commercial corridors leading into the city and the designated historic district. In addition, there are ordinances with city-appointed commissions watching over the cemeteries and downtown development. Recently, in 2004, the city participated in a joint comprehensive

planning process with the county and three other county municipalities. Currently, the city is developing new tools for managing growth, such as a transportation plan, an impact fee ordinance, and will be looking at updating the future land use map developed from the 2004 joint comprehensive plan. These planning activities are indicators of the potential that exists for comprehensively planning the community's open space.

Goals for Open Space Planning in Madison

As emphasized in Chapter 3, critical elements of the planning process that will ultimately drive the planning process are goals. In Madison, a perceived desire for more comprehensive open space planning can be seen in the statements found in the goals and objectives of the 2004 *Morgan County, Georgia and City of Bostwick, Town of Buckhead, City of Madison and city of Rutledge: Joint Comprehensive Plan 2025*, produced by the Northeast Georgia Regional Development Center. Community input was a major deciding factor in the development of these goals, and was strongly present during the Greenprint process that preceded that comprehensive plan. The goals and objectives from the Greenprint plan form the core of the Natural Resource goals and objectives of the joint comprehensive plan. Here are excerpts from the comprehensive plan of those goals and objectives:

> Greenspace and open space goals and policies,
> Goal 1.0. Permanently preserve open space and green space throughout Morgan County in order to maintain a sense of rural character, provide passive recreational opportunities, preserve environmental quality, and encourage farming, livestock raising, dairying, forestry, and other agricultural activities that are environmentally compatible (Northeast Georgia 2004, 135);
> Objective 1.0 Meet or exceed State of Georgia Greenspace goals by permanently protecting more than 20% of the county's land area in farmland, forests, natural areas or parks. As fiscally feasible, greenspaces should be publicly owned or have public access (Northeast Georgia 2004, 135);
> Objective 2.0 Protect important visual corridors and gateways of and to the county and its cities (Northeast Georgia 2004, 136);
> Objective 3.0 Link important greenspaces in the county (Northeast Georgia 2004, 137);

Objective 4.0 Support the continued existence of a viable agricultural and forestry sector in the county (Northeast Georgia 2004, 138);
Objective 5.0 Identify and pursue funding sources for the protection of green and open space, viewscapes, and gateways (Northeast Georgia 2004, 138);
Objective 8.0 Work to protect and as appropriate increase the level of tree cover in Morgan County (Northeast Georgia 2004, 139).

Water Resource goals and policies,
Goal 1.0 Manage and protect Morgan County's water resources in order to meet the current and future needs of the county's residents, economy, and natural environment (Northeast Georgia 2004, 139);
Objective 1.0 Ensure that the supply of water is adequate to meet the county's needs (Northeast Georgia 2004, 139);
Objective 2.0 Protect the quality of the county's water resources (Northeast Georgia 2004, 139);
Objective 3.0 Protect property and structures from the effects of flooding (Northeast Georgia 2004, 139);
Objective 4.0 Protect those water-dependent habitats that are critical for the survival of fish and wildlife (Northeast Georgia 2004, 139);
Objective 5.0 Work with the state to protect the water rights of county property owners so that they are not incentivized to develop their land more quickly in order to protect its value (Northeast Georgia 2004, 139).

Wildlife/Habitat goals and policies,
Goal 1.0 Manage and protect Morgan County's wildlife resources and habitats to the benefit of the county's residents, economy, and environment (Northeast Georgia 2004, 139);
Objective 1.0 Protect endangered, threatened, and at-risk species (Northeast Georgia 2004, 140);
Objective 2.0 Support wildlife enhancement incentive programs, easements, and sanctuaries (Northeast Georgia 2004, 140);
Objective 3.0 Identify and protect important wildlife corridors (see greenways section in Green/Open Space goals and policies) (Northeast Georgia 2004, 140);
Objective 4.0 Identify and develop programs for the control of exotic, nuisance, or invasive species, of wildlife and plants (Northeast Georgia 2004, 140);
Objective 5.0 Explore the advisability of each city and other Morgan County communities becoming bird sanctuaries (Madison already has this designation) (Northeast Georgia 2004, 140).

Historic Resources Needs and Goals,
Goal 1.0 Ensure the protection of Morgan County's significant historic resources in order to :

> -maintain the visual character and sense of place unique to the county and its cities
> -preserve and architectural and rural legacy for future generations, and
> -reap the economic benefits of heritage preservation (Northeast Georgia 2004, 160).

> Housing Goals and Policies,
> Goal 4.0 Permanently preserve open space and green space throughout Morgan County in order to maintain a sense of rural character, provide passive recreational opportunities and preserve environmental quality (Northeast Georgia 2004, 249);
> Objective 4.1 Provide for a passive recreation park or greenspace within a five minute walk of every home in a city or town and within a five minute drive of every home in other areas of the County (Northeast Georgia 2004, 251).

> Land Use Goals and Policies,
> Goal 1.0 Promote orderly and high-quality growth and development based on physical, social, and economic needs; environmental and historic protection considerations; and the ability of the tax base and public facilities/services to support such growth and development (Northeast Georgia 2004, 296);
> Goal 5.0 Permanently preserve open space and green space throughout Morgan County in order to maintain a sense of rural character, provide passive recreational opportunities, preserve environmental quality, and encourage farming, livestock raising, dairying, forestry, and other agricultural activities that are environmentally compatible (Northeast Georgia 2004, 304).

On the whole, these goals provide guidance for the direction that an open space plan should take. These goals also mesh well with five goals for Madison that can be synthesized from the five premises introduced at the outset of this thesis: (1) Engage the planning process to create an open space plan; (2) Protect open space that contributes to the character of its historic district; (3) Use principles of sustainability to guide decision making in the planning process; (4) Engage the diverse elements of the community in the open space planning process; (5) Conserve open space before it disappears. These five goals, taken together with the community derived goals and objectives spelled out in the joint comprehensive plan, point towards a planning approach that will integrate open space planning into the overall planning strategy for the communities of

Morgan County. This points to an engagement of not only the municipal planning process, but also landscape planning process.

While this case study is no substitute for a city of Madison open space plan, it does anticipate the planning process that will be employed by such a plan. Within that process, survey and analysis of the resources of Madison will contribute a significant element. This study will next proceed with a survey and analysis of Madison's resources. It will begin with an inventory of the resources pertinent to planning open space in Madison.

Inventory of Abiotic Resources

Out of the planning processes discussed in Chapter 3 was an introduction to the landscape planning approach for survey and analysis. The first step in the survey approach is to investigate the abiotic, biotic and cultural resources of the study area. The abiotic resources of the community usually considered by a landscape planning study are climate, geology, soils, and components of the hydrologic system. Climate is important in order to understand prevailing wind patterns and unique weather phenomenon that may influence planning choices in a community. For example, if Madison had strong point-source air pollution sites, the prevailing wind pattern might be significant. However, there is not a strong association between climate and the open space planning issues in the Madison case. This is also true of geology and soils. As mentioned in the profile of Madison, the topography is the result of erosion acting upon weathered igneous and metamorphic rock. While there are dramatic variations in the composition of this underlying rock stratum elsewhere in the region, within Madison the granite, gneiss and schist rocks do not offer any remarkable variation that would affect the planning choices in this study. If there were stronger associations with such physiographic features such as rock outcroppings (an important feature in other parts of the Piedmont region), or patterns

influencing the development of strongly contrasting soil types (which, in turn, end up influencing habitat), then geology would need to be inventoried.

As for soils, the dominant types are strongly acidic, clay soils that erode at fairly even rates (USDA 1963, 66-75). In the Madison study area, the most dramatic difference exists between the soils of the uplands and the bottomlands, with the latter being heavier and not as well drained. These bottomland soils correlate well with the flood plains found in Madison (a map of which will later be seen). Some communities will need to look at soils for their inventory. This is important, for example, if farmland preservation is a factor, or if soil types correlate strongly with different habitat communities. While farmland preservation is important in the surrounding county, this study looks at the city of Madison where community planning goals have eliminated farming as a future land use within the city limits. Also at issue in other parts of the county are the locations of unique, mafic soil types that support special plant communities. However, these soil types do not exist in the Madison case study area. One aspect of these soils that is important is their erosion characteristic. While very few slopes are greater than fifteen percent, these areas of steep slopes will have a bearing on some of the suitability studies that will follow. A breakdown of slope grades in Madison appears in Figure 7.01.

Besides soil, geology and climate, the features that make up the hydrologic system of a community need to be gauged to understand their influence on planning decisions. These features include watercourses such as streams, creeks and rivers, the recharge zones of aquifers, flood plains, and any bodies of water such as ponds and streams. In Madison, the three watersheds that were introduced in the community profile, are fed by streams that rise near the top of the broad divides separating these watersheds and occupied by the city of Madison. Precedent for ranking streams in these three watersheds is found in the example of Suwanee,

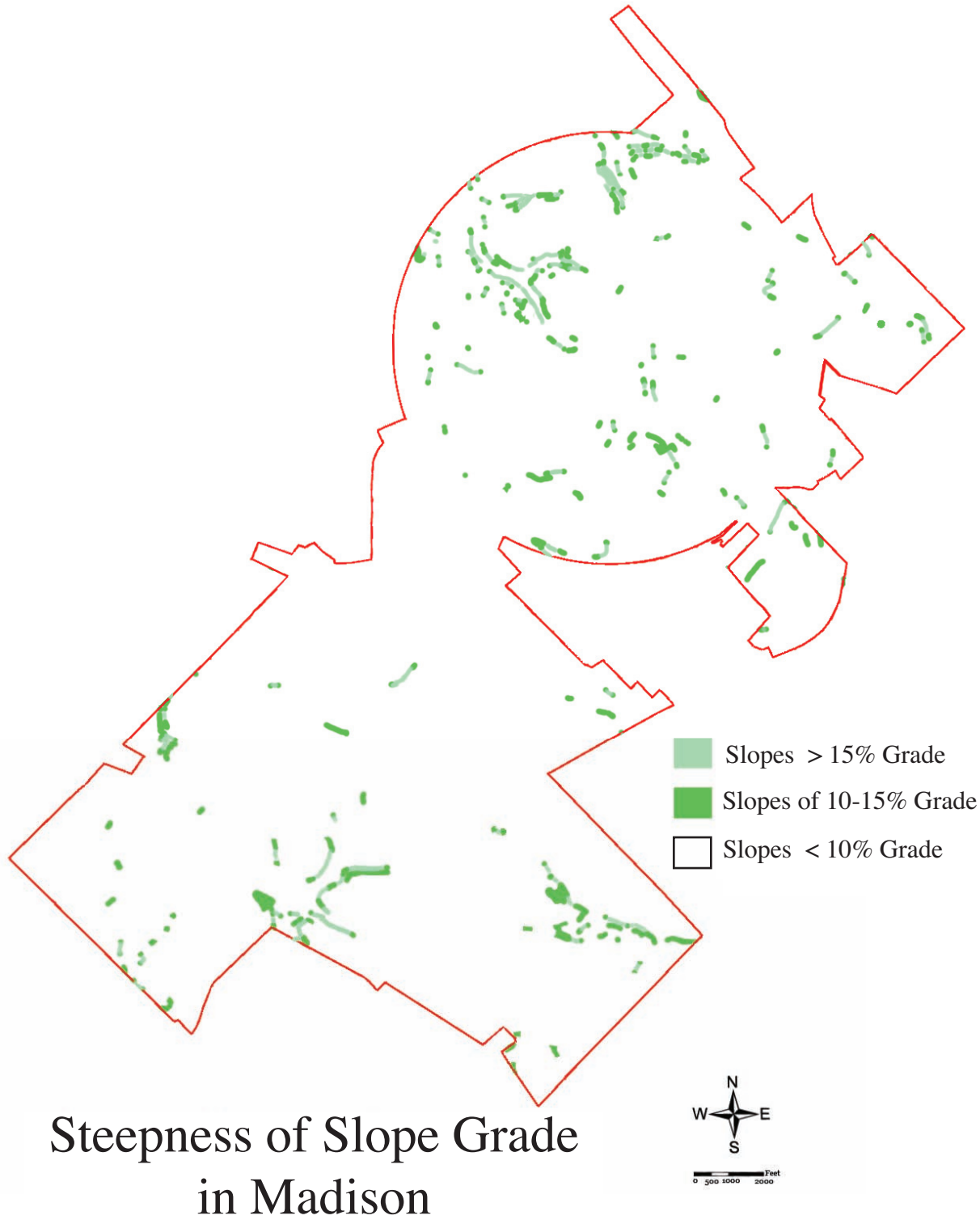


Figure 7.01 Steepness of Slope Grade in Madison
(Base map (Madison GIS 2007), Slope information (USGS 1985))

Georgia and its stream buffer protection ordinance. It defines two classes of streams. The first includes all perennial streams that have been mapped by the U.S. Geological Survey (USGS) and are found on the most recent 7.5-minute quadrangle maps that the agency has produced for the study area. The second class of streams are those other streams that do not appear on the USGS maps but which have a watershed of 20 acres or more and where the flow of water has "wrested the vegetation" (City of Suwanee 2005, 1-2). These two stream categories appear on the map in Figure 7.02, along with the locations of lakes and ponds in the city (all of them created by damming streams).

Also appearing on that same Hydrology map (Figure 7.02) is a portion of the ground recharge zone that underlies the north edge of the community. As for many communities, a recharge zone is an asset because it feeds aquifers, which are sources of water for individuals and communities. In the case of Madison, this recharge zone feeds an aquifer that supplies home wells north of the city and also contributes to the flow of Hard Labor Creek, a source of water for the city of Madison water supply system.

The last hydrology features mapped are the flood hazard zones. These represent the maximum area that will be inundated by the flood that has a 1% probability of occurring in any given year. Knowing their locations is important not just to avoid human land use conflicts with flood events, but also because they are a significant part of any stream system and represent important zones for water resources and plant and animal habitat. While dry most of the time, they serve important functions and symbolize the need to assess and understand the entire hydrologic system. This understanding, developed in tandem with the understanding of the other abiotic natural of the study area provide insights into the benefits these resources contribute to the communities and also how they influence the function of natural process in biotic resources.

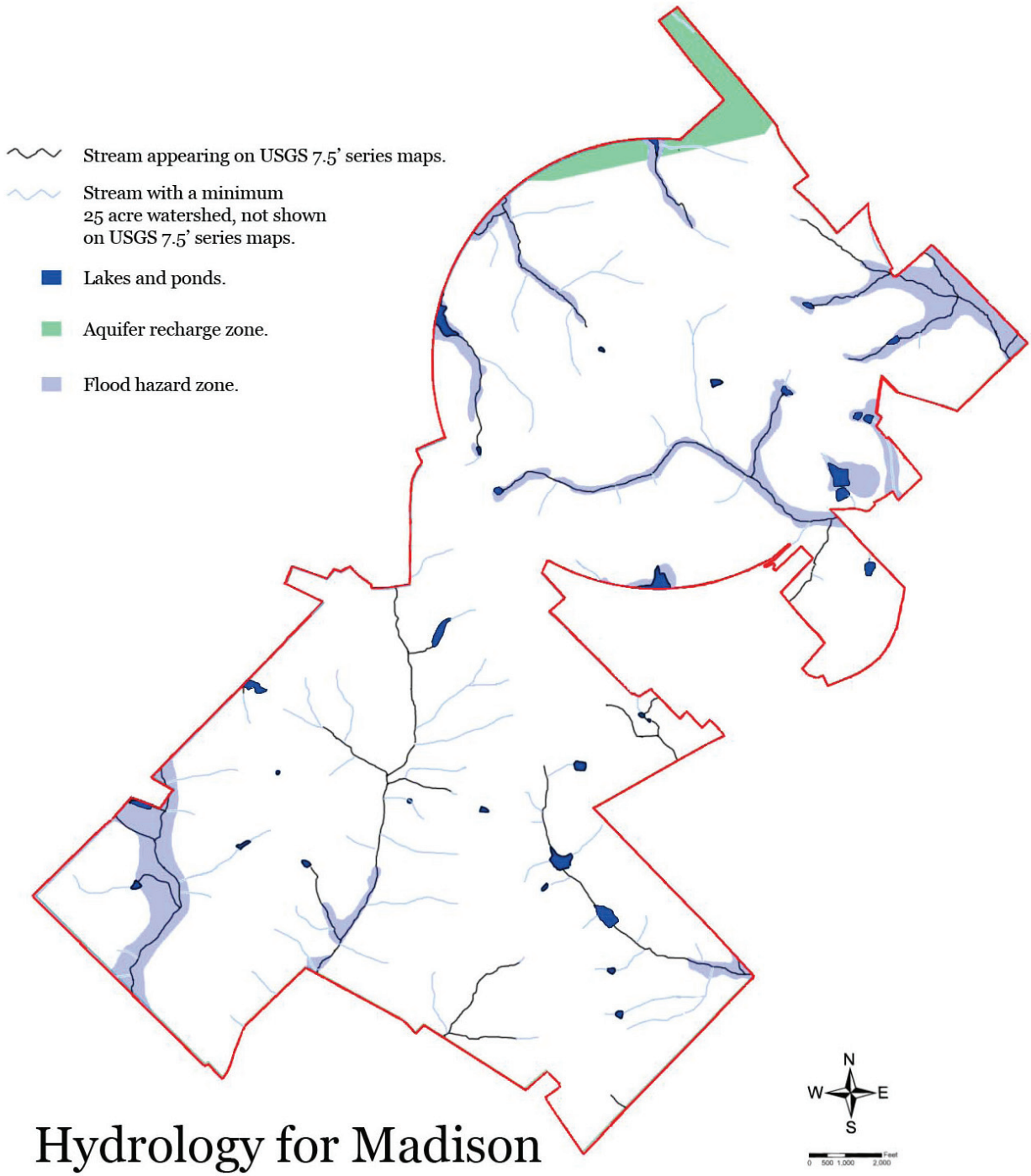


Figure 7.02 Hydrology for Madison
(Base map: (Madison GIS 2007, USDI 1972), alterations by author 2007)

Inventory of Biotic Resources

The biotic resources that will be examined most closely in Madison are the vegetation resources, and most importantly, forest habitats. The oak-pine forest association that dominated the Madison eco-region formed the habitat umbrella for the great diversity of plant and animal species that historically inhabited the Georgia piedmont. In Madison, the pre-development forest appears to have been a matrix of three generalized associations, dependent on different moisture regimes. These moisture regimes were most often influenced by slope steepness, slope aspect, and their proximity to different elements of the hydrologic system. Oaks were dominant, but often shared that dominance with pines in the drier, upslope terrain. In more mesic zones, especially the lower parts of north facing slopes, a richer mix of deciduous trees would develop, often indicated by the presence of beech trees. Coursing through this mosaic of oak dominated forests was a forest community dominated by trees that thrived in the moist conditions of streamside locations and bottomlands (NatureServe 2007, 11-15, 29-31). The gently rolling topography created gently changing conditions that resulted in a forest of subtly modulated diversity. This forest matrix provided habitat for a complex community of animal species, which, together with the plant communities, created a rich and diverse ecosystem.

This forest-dominated ecosystem in and around Madison was swept away by human settlement and the development of agriculture in the nineteenth and early twentieth century. The shift away from agriculture and self-sufficiency food production in the latter twentieth century resulted in an abandonment of cultivated fields and garden plots. The regenerated forest that has occupied these abandoned lands is a fragmented mix of forest at various stages of plant succession. Most forest tracts are on private land and are often managed for economic gain. This results in periodic disturbance from logging activity within or nearby each tract. In

addition, this resurgent forest is fragmented, separated by large tracts of land that are still cultivated, or by human settlement. (see Figure 7.03)

Forests are the primary biotic resource to assess in Madison. Figure 7.04 shows the results of a survey of the different forms of vegetation that dominate in the study area. Due to the dominance of disturbance in the landscape, the three broad categories of forest type that were present in the historic forest of Madison cannot be mapped. The closest to that historic pattern can be found in the streamside and riparian forests that have grown up along many of the streams in the community. They are most often dominated by deciduous tree species, but, in contrast to the mature historic forests, many of them have pine trees as their dominant species at this early stage of plant succession. This difference in streamside woodlands is noted. Away from streams and upslope are areas occupied by tracts of forest with mixed species that again may be dominated by deciduous species or by pines. Pine plantations, mostly of loblolly pine are also common in Madison, and are noted. Pecan groves, another form of tree monoculture, are still present in scattered locations. The last forest category, the urban forest, is one that tries to characterize the fragmented pattern of trees that has developed in the older neighborhoods of Madison. Many of these trees are over one hundred years old, and there is some diversity, though, on the whole, this urban forest can only be characterized as a highly disturbed and fragmented forest for habitat purposes. The last four categories surveyed are non-forest types: actively farmed fields; pastures and hay fields; recently abandoned or timbered land; and other open areas (such as cemeteries and the area around the airport). The survey, while not scientific, is meant to offer a general guide in understanding the changing vegetation patterns in the landscape of Madison.

Figure 7.03 Aerial view of Madison (GoogleEarth 2007)

Figure 7.04 Vegetation pattern in Madison
(Base map: (Madison GIS 2007), alterations by author 2007)

Besides information on plant communities, another important element of the biotic resources is research on wildlife in the study area. One common survey technique is to consult with the state agency that manages natural resources to find locations in a study area that might be habitat for endangered species. The results from that inquiry in the 2004 joint comprehensive plan that Madison participated in showed no such species in the Madison case study area (Northeast Georgia 2004, 126). Another approach would be to define indicator species of the optimum habitat, define their habitat needs and survey for those resources. A broader approach is to define habitat systems and associated ecosystems rather than selected species (Marsh 2005, 390). The key point in whichever approach is taken is to reach an understanding of the habitat needs for wildlife in the study area. It is also important to emphasize that scientists trained in fields of wildlife biology or ecology should be consulted for an in-depth study of the wildlife component in a planning study.

In the case of Madison, it is beyond the scope of this study to do an in-depth wildlife study for the community. However, the results from a wildlife study for the nearby Oconee National Forest provide some insights into important factors to consider for wildlife resources in Madison. The dominant theme that runs through descriptions of habitat needs for the eleven management indicator species for the Oconee National Forest is the importance of a mature forest, with large stands of deciduous trees and of pines, in addition to mixed stands of both tree types (Chattahoochee-Oconee 2003, 21-28). The areal scale is important, emphasized in another piedmont habitat study that described the minimum size tract for a functioning mixed oak-pin forest should be at least five hundred acres for outlying patches and core areas of at least 16,000 acres (North Carolina 2005, 159).

With this information on piedmont forest habitats in mind, the emphasis for Madison should be on evaluating forests that can add to the long-term development and protection of habitat for wildlife. Tracts of woods in Madison that have developed significant maturity and complexity are shown in Figure 7.05. Classification is based upon a visual survey with two broad categories for trees that have tall (over 50 feet) canopies. The older and better-developed forest is in the category labeled "high quality". It has a well-developed tree canopy and a more open sub-canopy, with trees that are visibly among the larger trees in the community. The second category, labeled "medium quality," has a closed canopy of tall trees but of noticeably narrower girth and a more congested sub-canopy than the "high quality" forest, indicating a younger forest. This subjective survey serves mainly to display the relative pattern of existing older examples of forest succession found in the study area. It must be kept in mind that these forest tracts are, at the most, only about sixty to eighty years old, and nowhere come close to matching the quality of the historic forest that existed before American settlement of the area. Coupled with the survey of existing vegetation, it offers basic insights into the biotic resources present in the Madison study area.

Inventory of Cultural Resources

In addition to the biotic and abiotic resources, data from the cultural resources will contribute information about human patterns of activity in a landscape. For this open space planning study, land uses that need to be observed include the general existing pattern of developed and undeveloped land in the community and also the existing dedicated open spaces (see Figure 7.06). Due to the importance in Madison of its historic resources, a survey of those is provided (see Figure 7.07). These historic resources are the built structures that were surveyed as the contributing resources dating from the period of significance described in Madison's

Figure 7.05 Important forest tracts in Madison.
(Base map: (Madison GIS 2007), additions by the author 2007)

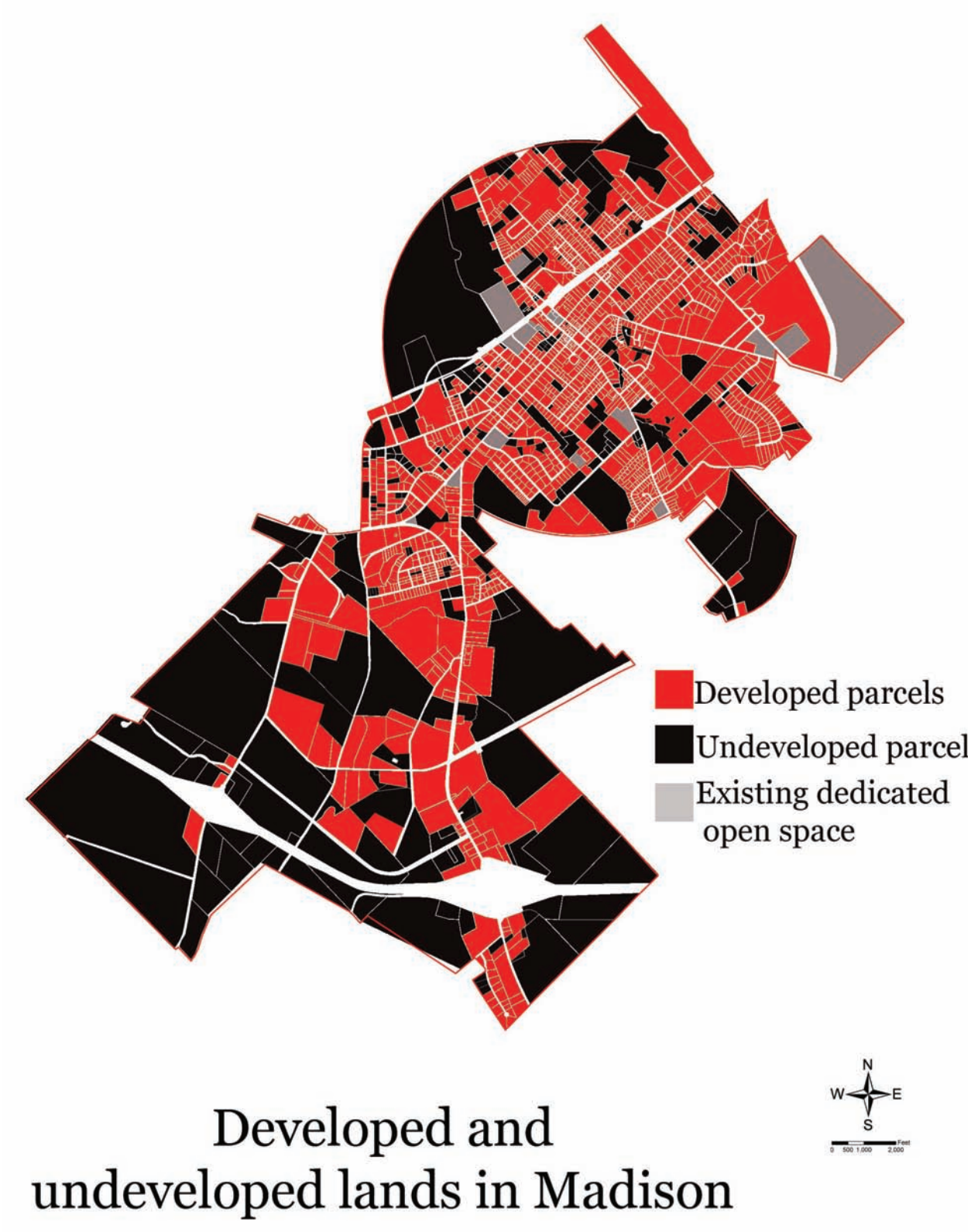


Figure 7.06 Developed and undeveloped lands in Madison
(Base Map: (Madison GIS 2007), additions by author 2007)

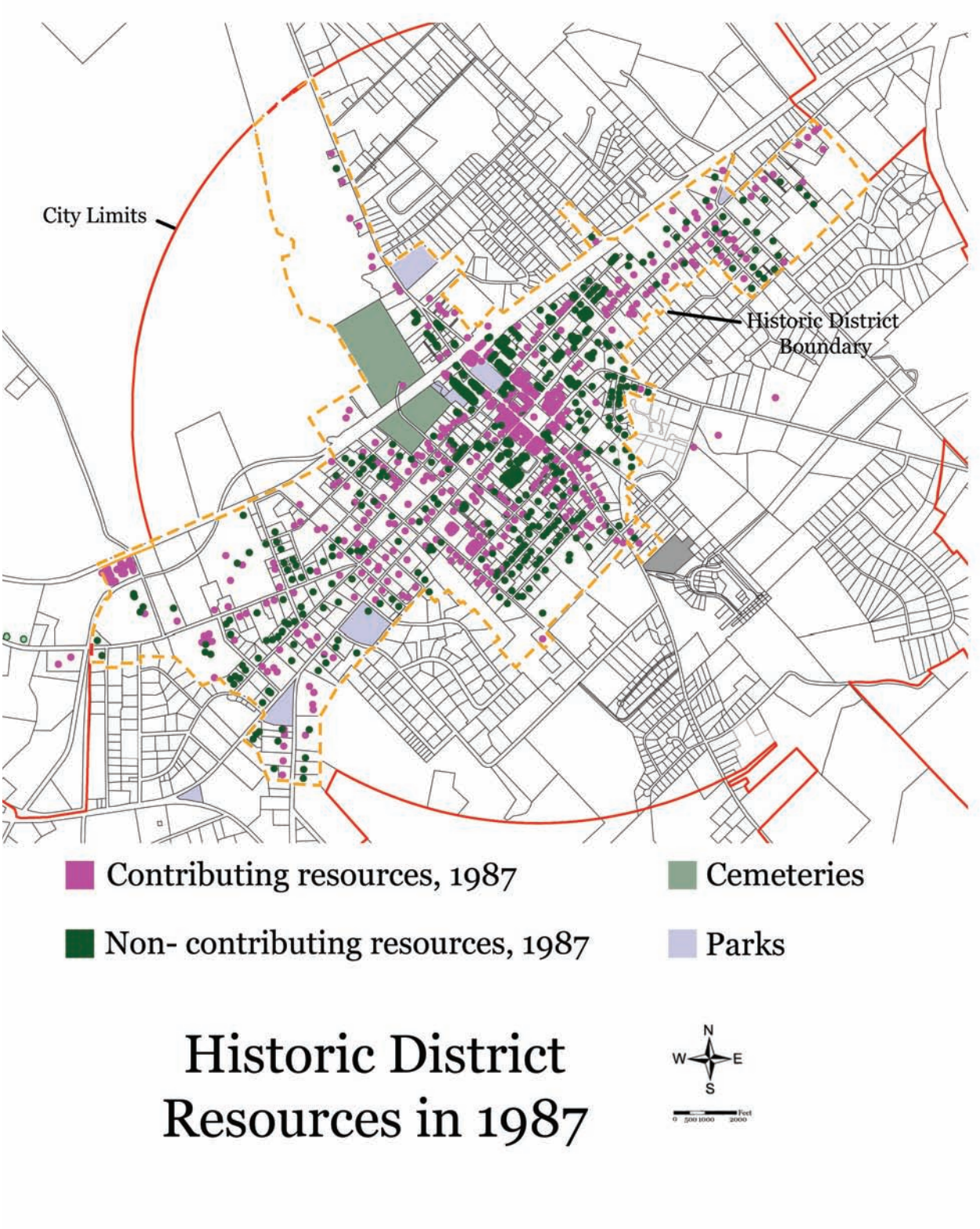
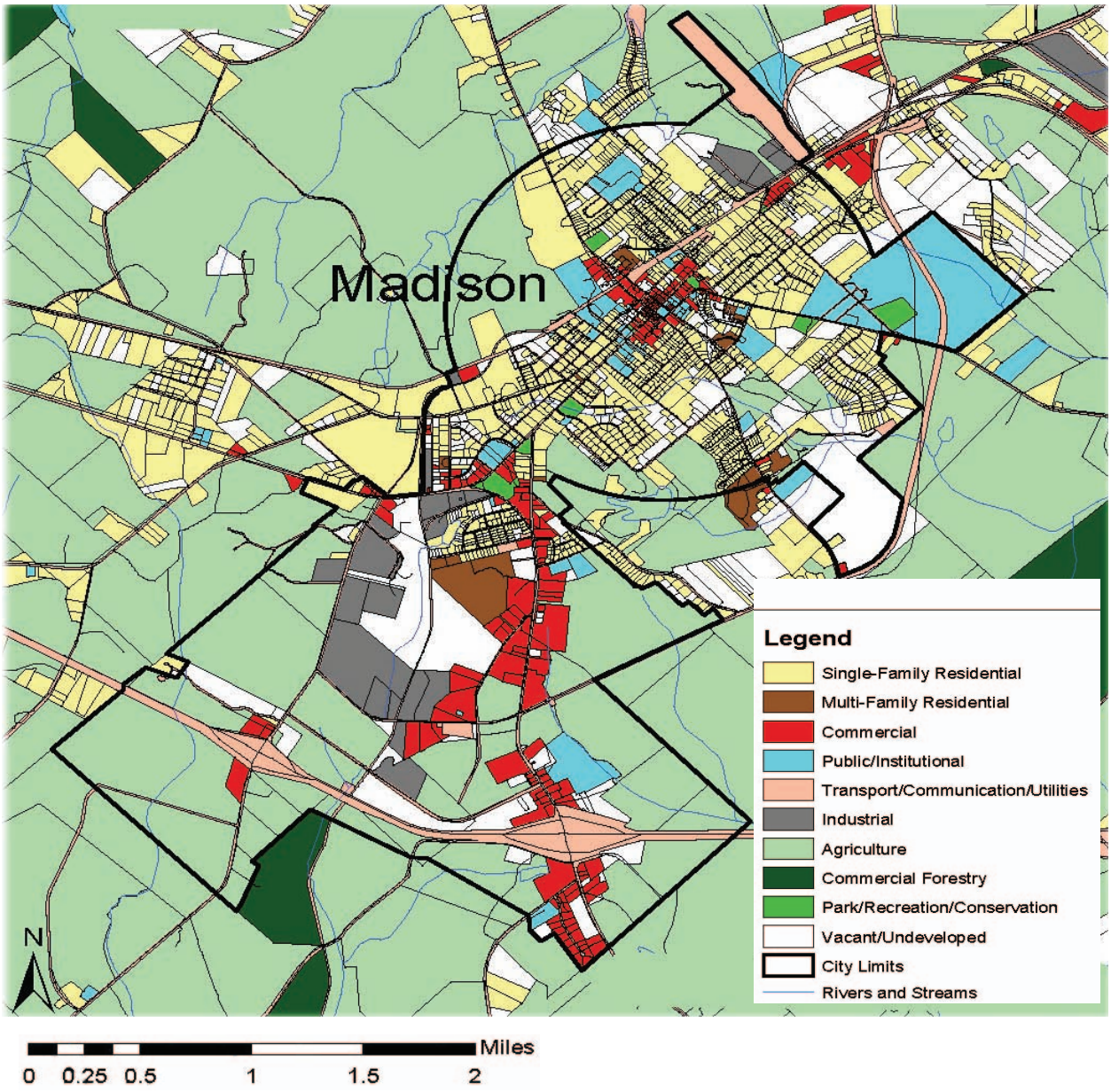


Figure 7.07 Historic District Resources in 1987.
(Base map: (Madison GIS 2007), additions by the author 2007)

application to register its historic district with the National Register for Historic Properties. The open space related to these structures and that is also tied to the Madison register district's significance will also be considered, and will be included as part of the analysis of open space for open space in the historic district.

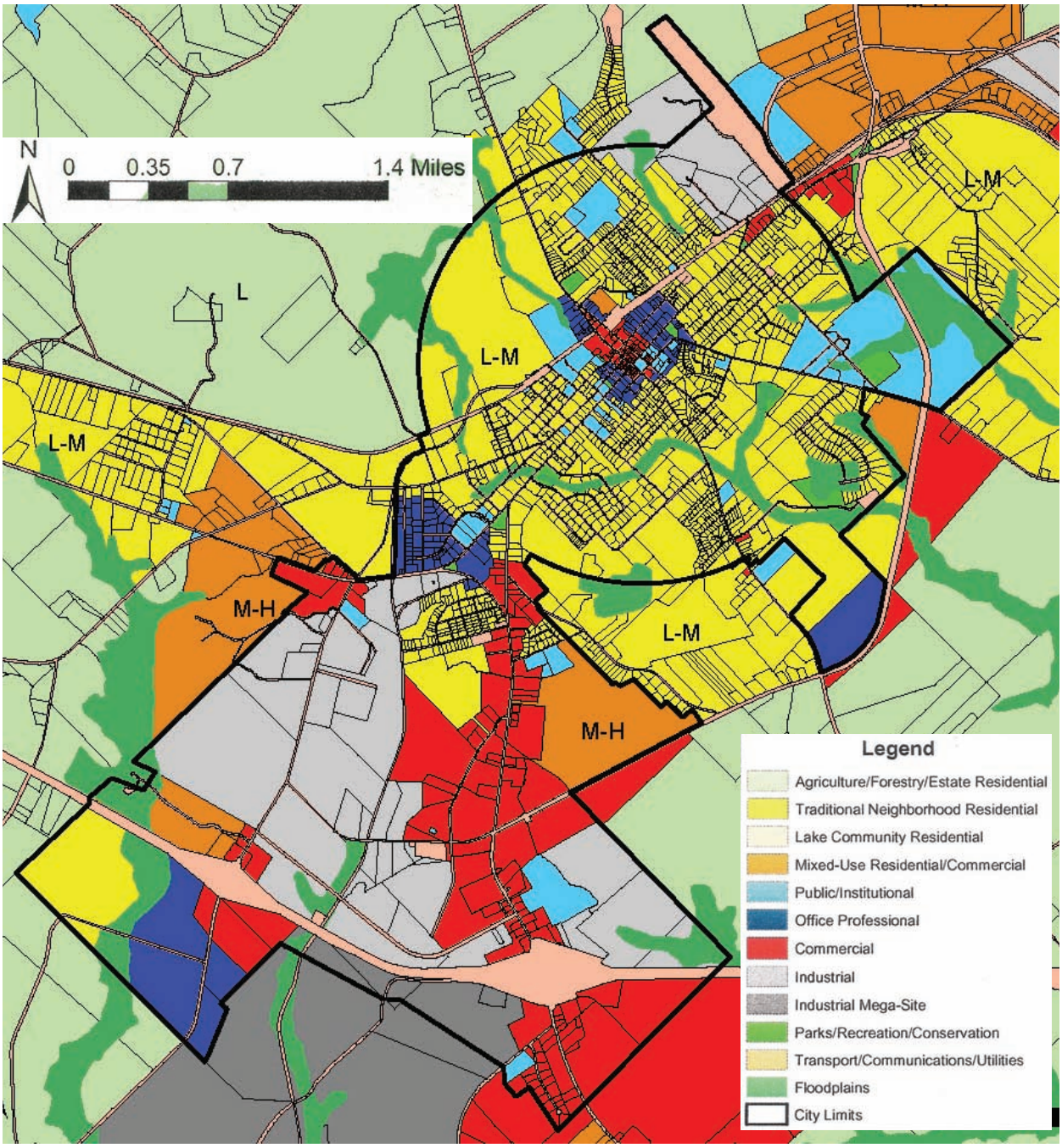
These two survey items—development status of land and the location of the historic resources—are the basic cultural elements needed in Madison' open space planning study since they provide insights into where the open space is, and the locations of the valued historic resources whose character is impacted by changes in open space. In addition, maps that provide information on the present and future land use in the community are presented. The first map is the existing land use map from the 2004 comprehensive plan (Figure 7.08). Also from the 2004 comprehensive plan is the future land use map for Madison (Figure 7.09). It represents in map form a translation of the goals and objectives of the 2004 joint comprehensive plan, and it quite literally maps out those goals and objectives in the landscape. The land use map provides further insights into the direction the community sees for itself. Inspired by that map is the land use zoning map (Figure 7.10), which regulates the land uses according to the goals and objectives established by the future land use map and comprehensive plan. A final map related to land development that is included in this inventory is a map of large parcels in the city (Figure 7.11). The spatial pattern of landholdings can influence conservation decisions so it will be useful later on in the process.

The raw data from these inventories of abiotic, biotic and cultural resources are, as McHarg put it, "of little use until they are interpreted and evaluated" (1969, 105). The next step is to extract from that data factors that may be used to assess the suitability of different land uses. The land uses identified for this open space study are open space contributing to the character of



Existing land use map for Madison
from the 2004 comprehensive plan

Figure 7.08 Existing land use map for Madison from the 2004 comprehensive plan
Map produced by Robert and Company (Northeast Georgia 2004, 267).



Future land use map for Madison
from the 2004 comprehensive plan

Figure 7.09 Future land use map for Madison from the 2004 comprehensive plan
Map produced by Robert and Company (Northeast Georgia 2004, 293).

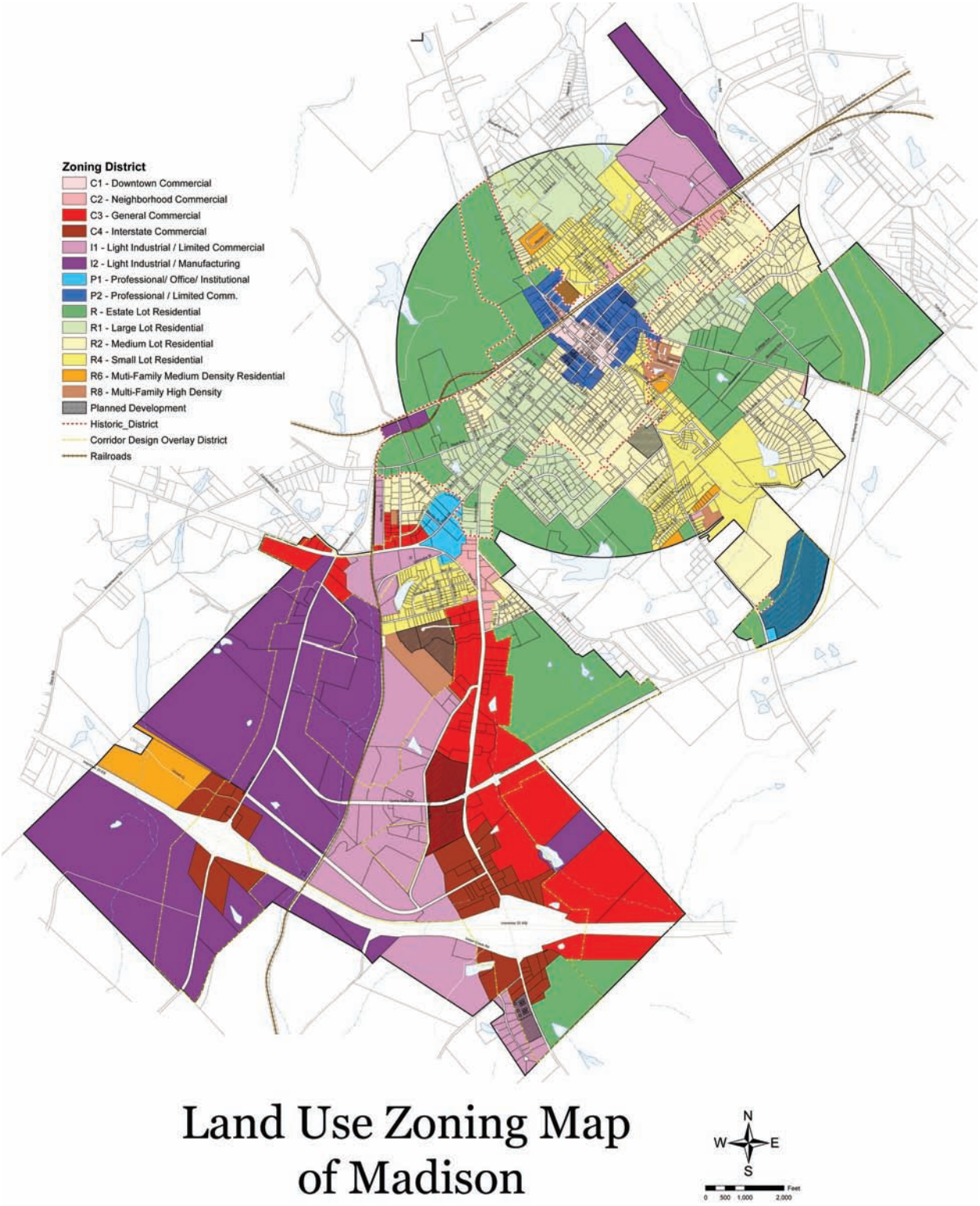


Figure 7.10 Land use zoning map of Madison
(City of Madison 2007)

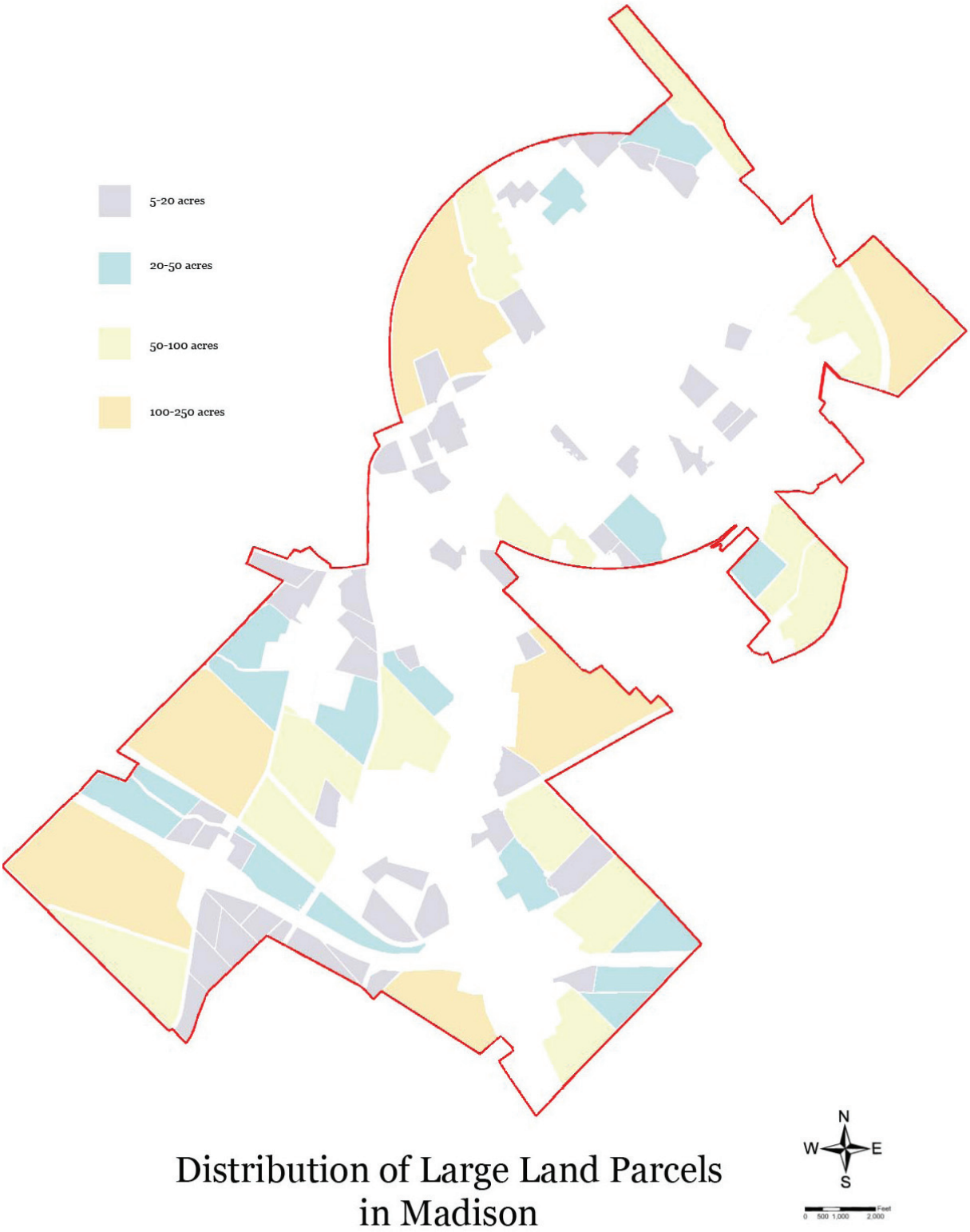


Figure 7.11 Distribution of large land parcels in Madison
(Base map: (Madison GIS 2007), data (Robert & Co 2003)

the historic district, (2) open space for parks and recreation areas, (3) open space for conservation. In addition, suitability of sites for urban development will be investigated for the undeveloped portions of Madison.

Suitability Study for Open Space to Protect Historic Resources

The 2004 joint comprehensive plan stressed the importance of continued protection of historic and cultural resources of the community that help "define a character that is widely recognized and attracts significant tourism activity" (Northeast Georgia 2004, 292). As noted earlier, an important part of the historic district that was noted as contributing to significance in the National Register of Historic Places application consists of various landscape elements. The application also described the importance of open space as a defining element in the overall character of the district. Therefore, because of its stated significance and contribution to the overall character of the National Register of Historic Places historic district, all remaining open space in the district should be treated with the same protection as the built resources. In regards to open space in the historic district, this thesis will therefore focus on the threatened resource of open space within the designated historic district.

Since the adoption in 1987 by the city of Madison of its historic preservation ordinance and the creation of a commission to regulate design changes, there has been a significant infill of new structures. This is apparent when these additions are mapped with the contributing resources (those structures dating from the period of significance for the district), (see Figure 7.12). These new structures are residences, dependencies of residences (such as garages, guest houses and sheds), new government buildings, new church buildings, museums, and commercial structures (see Figure 7.13). They were built following the design guidelines for the district.

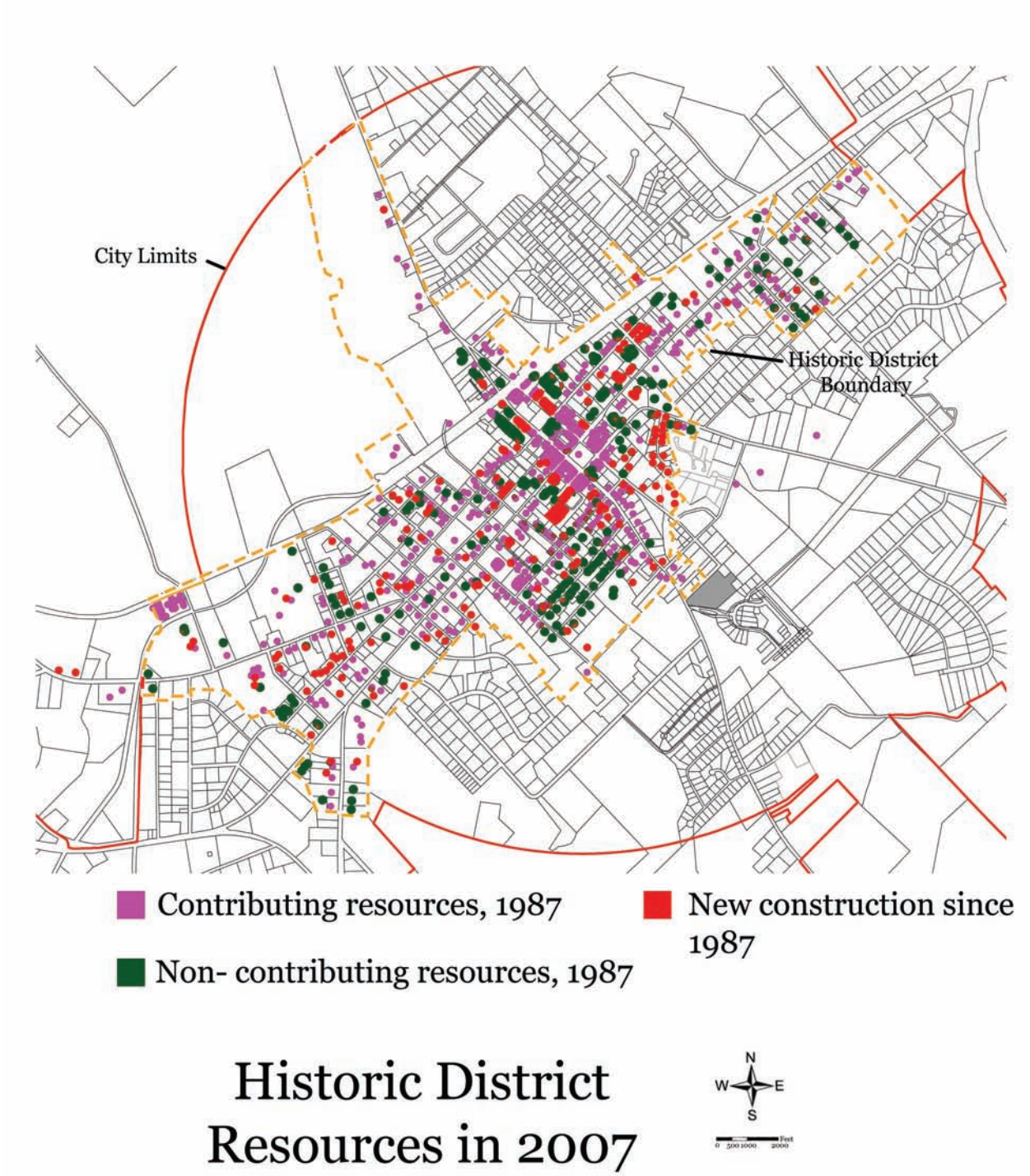


Figure 7.12 Historic District Resources in 2007
(Base map: (Madison GIS 2007), additions by author)

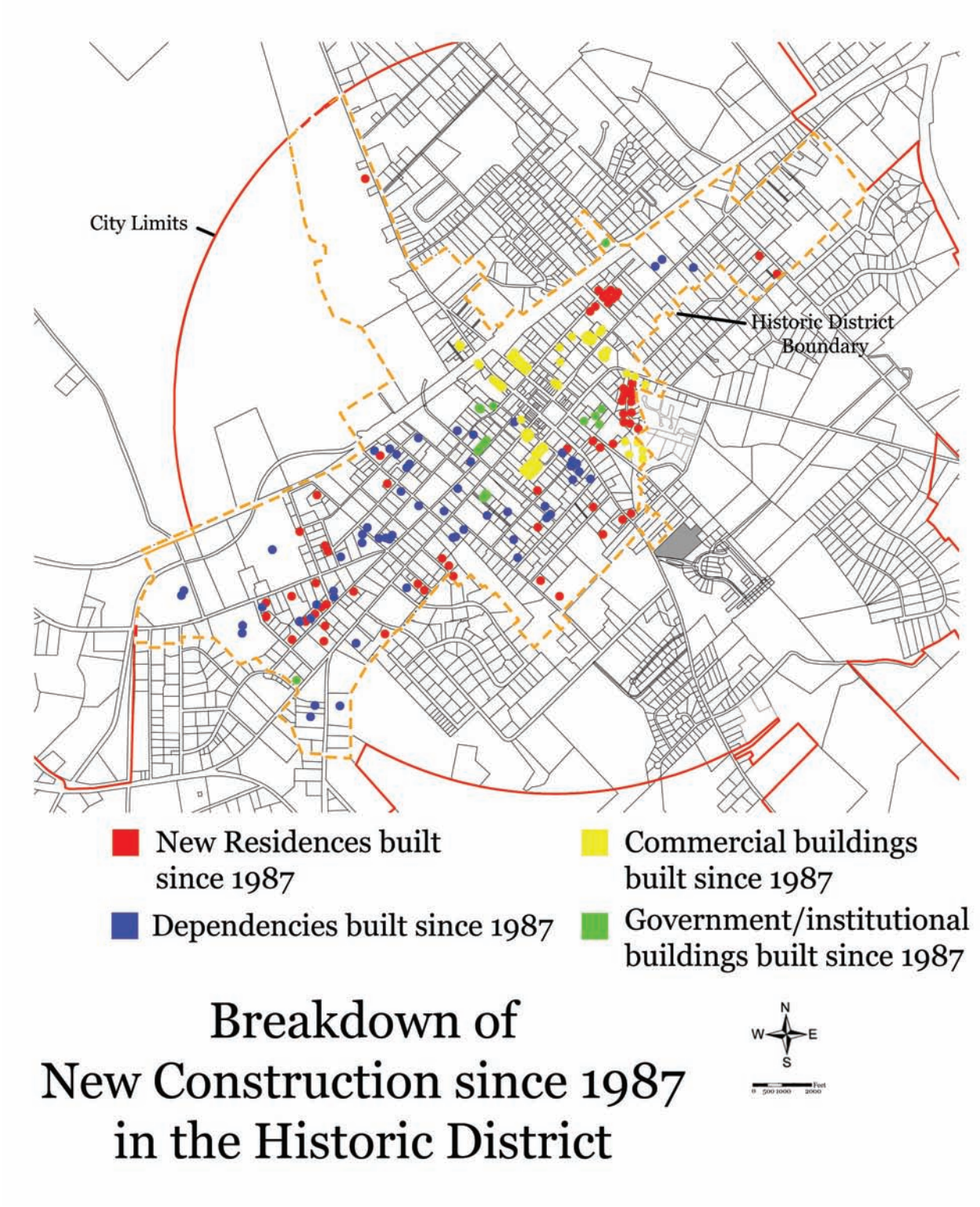


Figure 7.13 Breakdown of new construction since 1987 in the Historic District (Base map: (Madison GIS 2007), additions by author)

This infill indicates that the community has not fully protected the contributing resource of open space. Clearly, the character of the historic district is changing as infill reduces that open space and, by National Register of Historic Places definition, results in the alteration of significant resources, thus reducing the integrity of the overall district. In addition, the potential for greater change is a real threat to the remaining open space. Many of the larger parcels in the district are eligible for subdivision under the current zoning ordinance and subdivision regulations. There are also a significant number of lots that are vacant and are potential building sites (Figure 7.14). The concern of this thesis is that so much infill of new, non-contributing resources will ultimately occur that the district will loose its historic integrity.

To prevent that from happening, this thesis proposes the conservation of all remaining open space in the district to protect the integrity of the overall district significance. This open space should include the vacant legal lots and the open space on the large parcels that may be subdivided. One possible exception is that the community may wish to decide that legal lots presently vacant, but which during the period of significance had structures standing on them, may be built upon.

In addition, a buffer to protect the district from visual intrusions of modern development should be considered. Even though the peripheries of the northern and eastern quadrants of the district have development abutting them, outside the southern and western quadrants there is still a significant amount of open space that contributes to the original rural character of the district (see Figure 7.15). These spaces are not in the National Register of Historic Places district and do not officially contribute to significance. However, like at Waterford, Virginia they are within the viewsheds of district parcels, and modern development on these peripheral parcels will alter the character of the district.

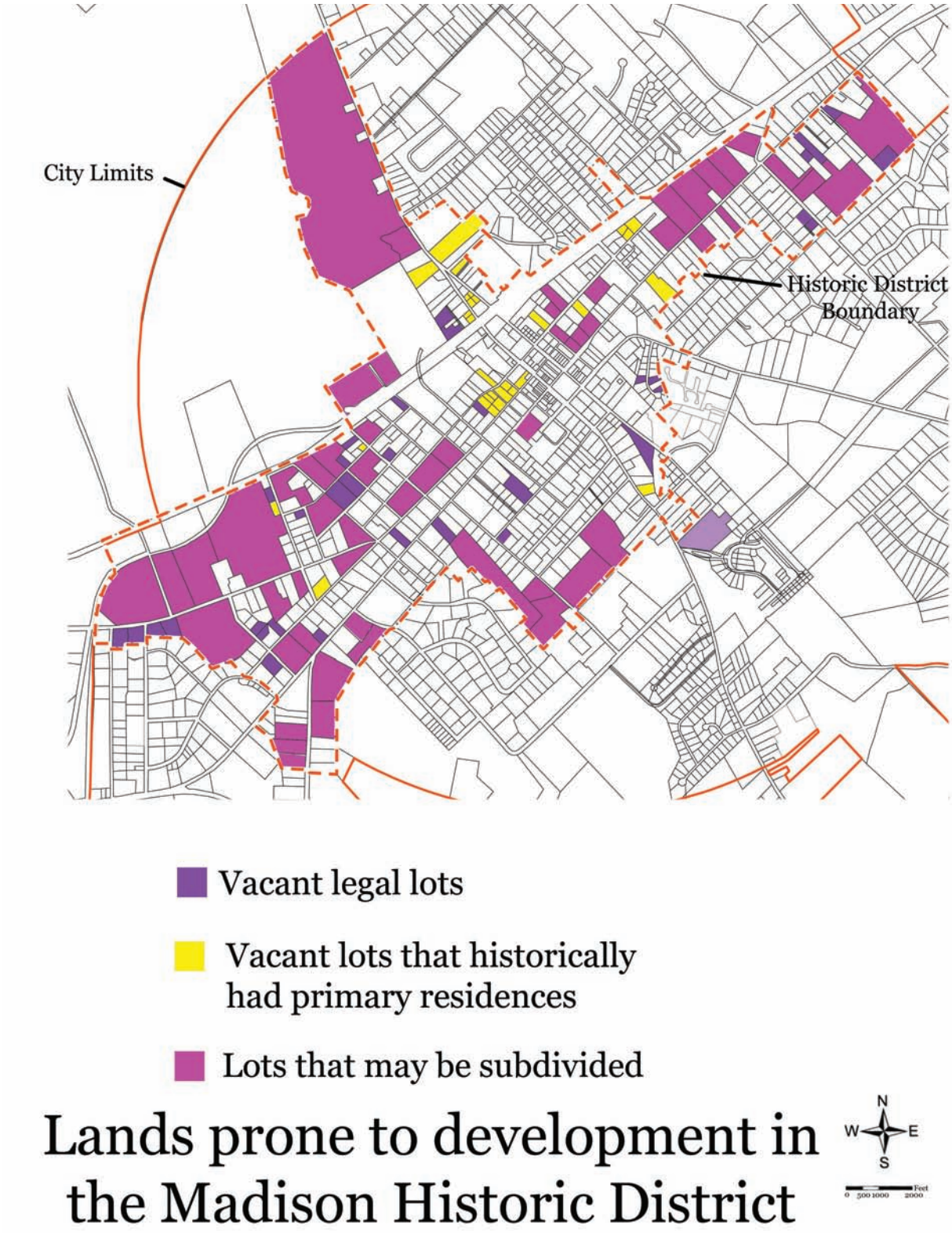


Figure 7.14 Lands prone to development in the Madison Historic District
(Base Map: (Madison GIS 2007), alterations by author 2007)

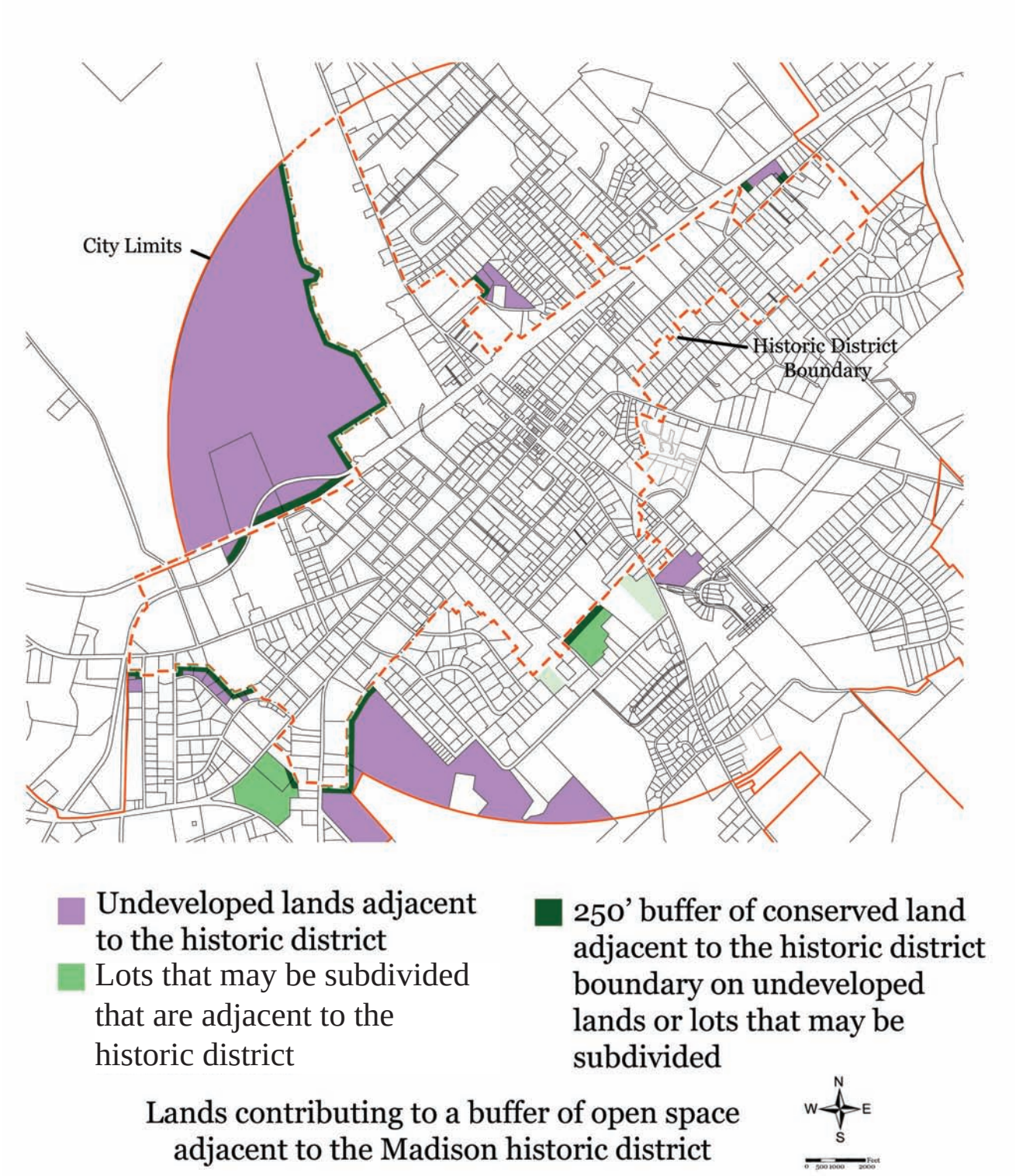


Figure 7.15 Lands contributing to a buffer of open space adjacent to the Madison Historic District
(Base map: (Madison GIS 2007), alterations by author 2007)

This thesis recommends that a buffer of 250 feet be created on the open lands abutting the district periphery as shown on Figure 7.15. The width of this buffer is based upon a desire that it be adequately opaque to views from the district into these adjoining lands, especially in the winter when foliage is missing from deciduous plants. It assumes that the community would want to have a low level of management for this buffer, leaving it in a natural state. The width of the buffer can be narrowed depending on the management program, as long as the goal of that program is to create an opaque buffer of foliage separating the district from the future developments on the properties adjoining the historic district.

A summary of the open space conservation lands in and around the historic district is shown in Figure 7.16. It includes the vacant legal lots, lots that may be subdivided (both shown in Figure 7.14), cemeteries, parks and lands already conserved (shown in Figure 7.06). Excluded are the legal lots that once had structures on them during the time period of significance (also shown in Figure 7.14). In addition, the 250' buffer is shown where applicable.

In all, these conserved lands and buffer represent an attempt to preserve the significant open space that contributes to the character of Madison's designated historic district. Since the open space within the district has already been designated as having significance and contributing to character, the conservation of these lands is, as already pointed out, vital to protect the integrity of the overall historic district. With this in mind, the open space that is shown mapped on Figure 7.16 can be interpreted as having the highest suitability for conservation due to its contribution to the historic resources of the community. These lands will be included later as part of the community-wide comprehensive land conservation program proposed in this case study.

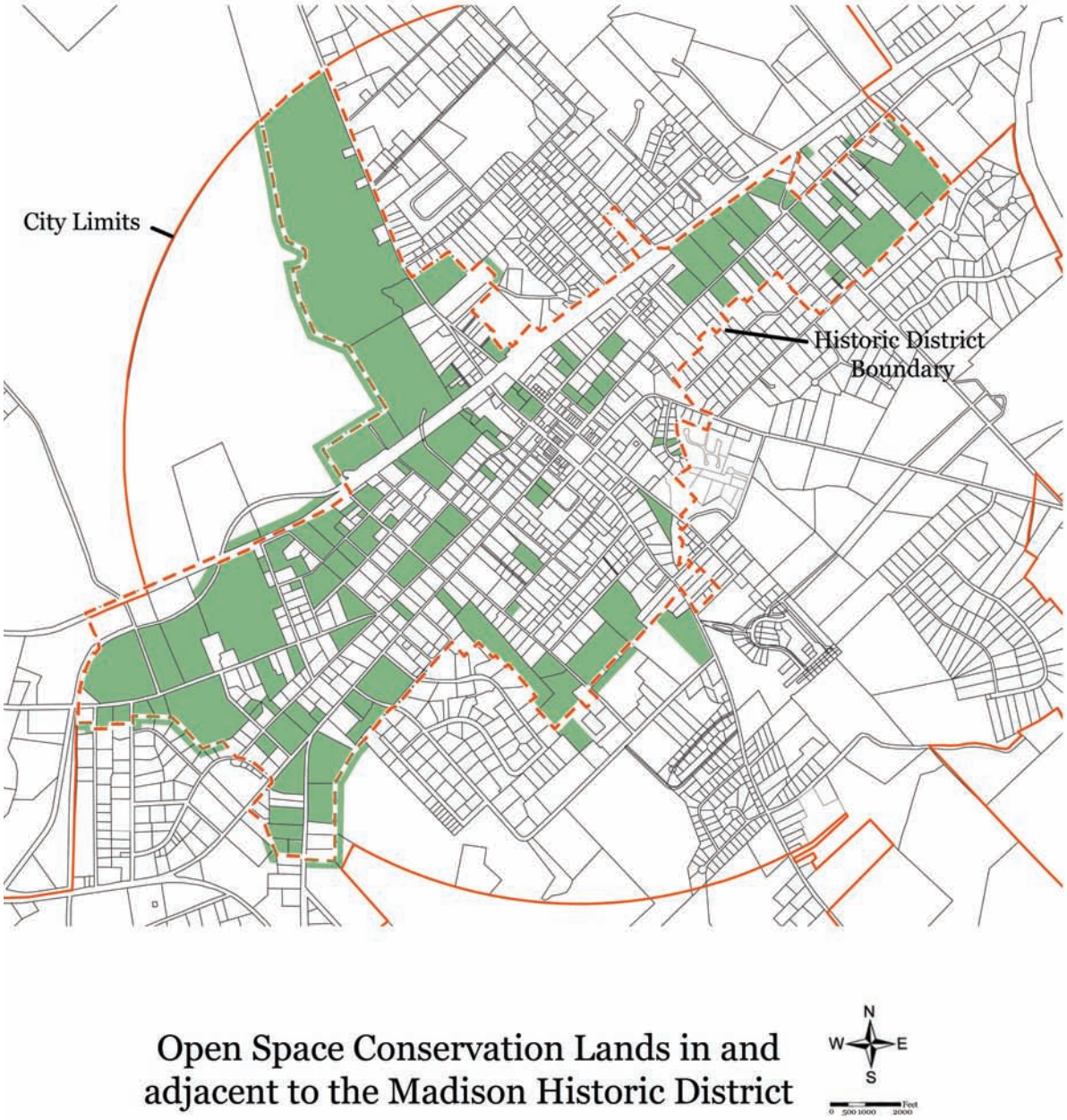


Figure 7.16 Open space conservation lands in and adjacent to the Madison Historic District (Base map: (Madison GIS 2007), alterations by author 2007)

Suitability Study of Sites for Park and Recreation Areas

The comprehensive plan prepared for Madison and Morgan County in 2004 had some very clear goals for parks and recreation areas in the city. These focused primarily on making sure that the city met the National Recreation and Park Association (NRPA) guidelines for parks in the community. The 2004 plan noted that the community was adequately served with recreation facilities, though underserved by the amount of total park acreage provided (Northeast Georgia 2004, 201-205). Open space goals include a desire to provide a passive recreation park or green space within a five-minute walk for every home in the city (Northeast Georgia 2004, 251). This was based upon the NRPA recommendation for Neighborhood Parks (see Figure 3.06 for a description of each park type). To evaluate the park and recreation needs of the city, this thesis concentrates on defining the needs in Madison for Neighborhood Parks and Community Parks. This follows the precedent set by Madison's use of NRPA guidelines, and also by their use in the Suwanee and Roswell examples.

To measure the open space needs of the community, an inventory of the publicly owned community recreation areas, parks and dedicated green space was taken and the results mapped (see Figure 7.17). It shows the location of all the public open space in Madison. Three of these facilities, Hill Park, Wellington Park and Washington Park, qualify as Neighborhood Parks. Heritage Park serves as both a Community Park and a Neighborhood Park. The service areas that are defined from the NRPA guidelines are shown on the map with the parks. The service area radius for the Neighborhood Parks is set at ½-mile (the standard used by the city of Suwanee, and similar to the five minute walk proscribed by the goals set for Madison), while a two-mile radius is used for the Community Park service area radius.

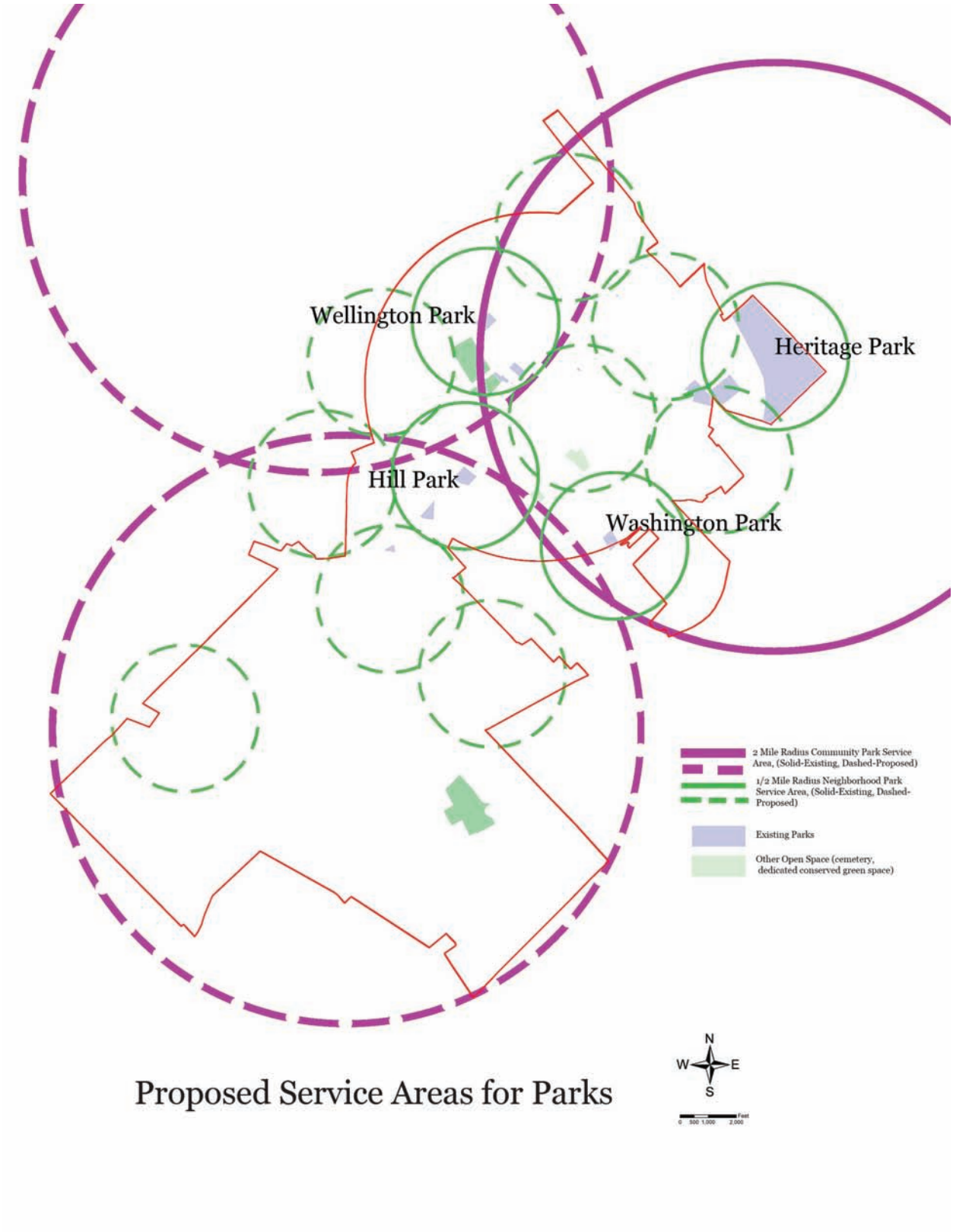
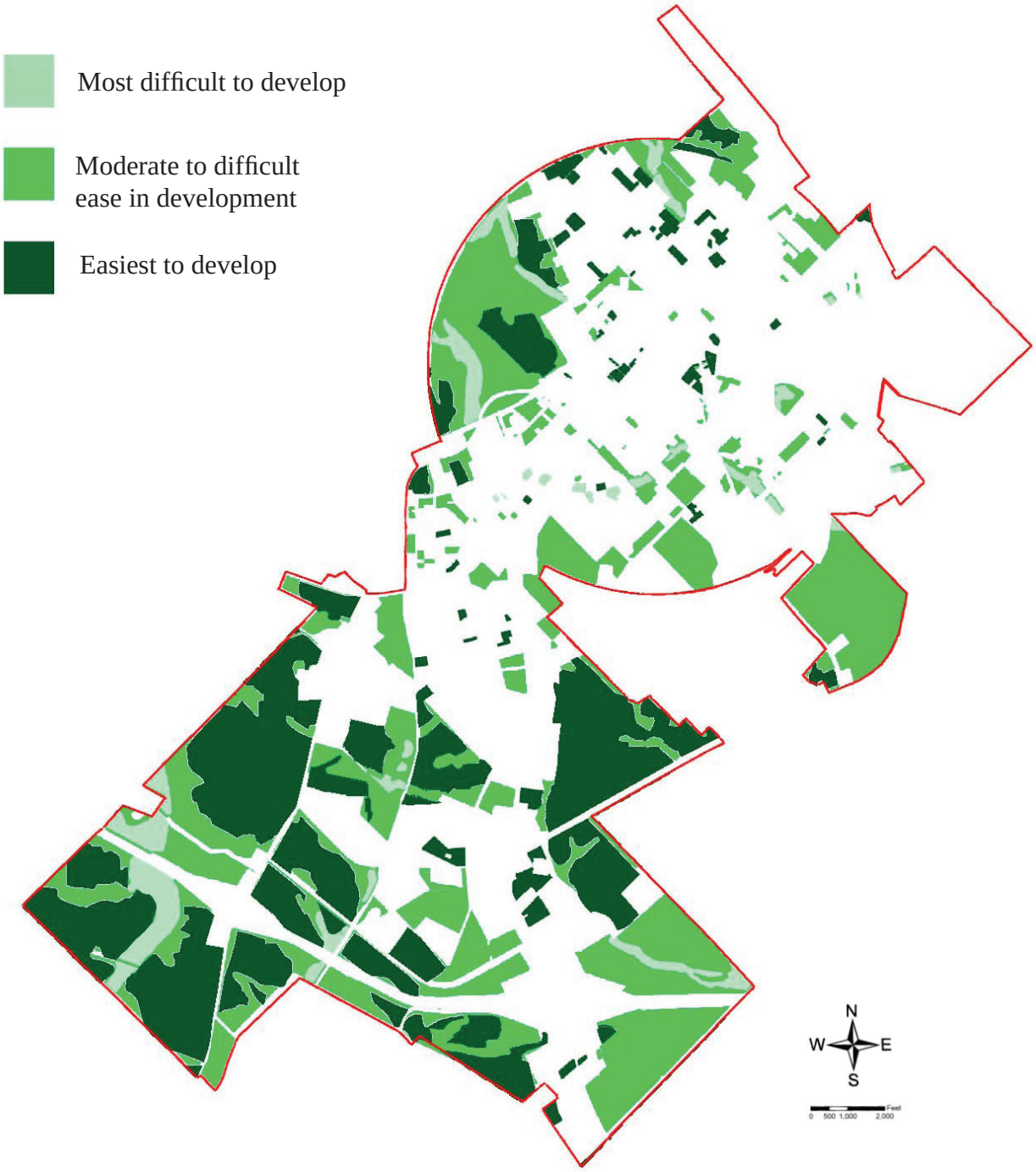


Figure 7.17 Proposed service areas for parks
(Base map: (Madison GIS 2007), alterations by author 2007)

While the existing parks adequately serve the community today, the future land use map (Figure 7.09) shows undeveloped areas that are not presently served. In addition, there are some existing neighborhoods that are not within the existing Neighborhood Park service areas, and large portions of the city are outside the existing Community Park service area. To address these shortcomings, potential service areas for new neighborhood and community parks are also described in Figure 7.17. The circles representing these potential service areas are drawn to encompass existing residential neighborhoods of the city (shown on the existing land use map, Figure 7.08) that are outside the service areas of existing parks. There are also new park service areas mapped for parts of the city that are currently not residential, but are projected in the future land use plan (Figure 7.09) to develop as residential neighborhoods. A suitability study for potential sites will help guide the decision making process for choosing the future park sites within the proposed service areas for new parks.

This suitability study will follow the landscape planning survey and analysis methods reviewed in Chapter 3. As in the McHargian survey and analysis that was previously shown, several different factors will be rated to understand their compatibility with the desired land use, in this case, the development of park and recreation areas. A rating system of three levels will be used to indicate high, moderate and low compatibility for each of the factors.

To understand what factors to use in this study, it is important to comprehend the site characteristics that are best suited for active recreation facilities such as Neighborhood Parks and Community Parks. In general, these sites need to be, (1) easily developable for facilities, and (2) near the center of their respective service areas. One measure of ease of development for vacant land is offered in Figure 7.18. This shows the difficulty for developing land based upon the amount of vegetation present. Land that is clear of vegetation is rated as easiest to develop,



Ease of development for land undeveloped in Madison based on amount of vegetation cover

Figure 7.18 Ease of development for land undeveloped in Madison based on amount of vegetation cover (Base map: (Madison GIS 2007), alterations by author 2007)

while heavily forested land is considered to be most difficult to develop, and rated lowest. Ease of development along with vulnerability to erosion are factors in the decision to rate the steepest slopes (grades greater than 15%) as least suitable for the development of park and recreation areas, while moderate slopes (grades of between 10%-15%) will be considered to have moderate suitability (see Figure 7.19).

Additional levels of compatibility will be derived from the service area maps. A positive correlation for suitability will be assigned to land that is closer to the center of a proposed park service area, while land further from the center receives a lower suitability rating. This method of rating land within service areas is applied to the projected Neighborhood Park and Community Park service areas shown in Figure 7.17. The results of this ranking of sites within service areas based on distance from the area centers appears in Figures 7.20 and 7.21.

Some factors that are considered will simply be subtracted from the results because they represent sites where no park or recreation area should be developed. For example, this study eliminates from consideration for park and recreation sites any parcels of land already developed (Figure 7.06) because of the cost involved in acquiring developed land. Areas within flood plains (Figure 7.22) and stream buffers (Figure 7.23) will also be deleted from consideration for park and recreation area sites since they represent resources that need protection in the community.

The final process for creating the park and recreation area land suitability map once again looks to the precedent found in the landscape planning methods epitomized by Ian McHarg's work. The first step is to combine the four maps of factors that show a range of compatibility: (1) ease of development based on vegetation (Figure 7.18), (2) Neighborhood park zones (Figure 7.20), (3) Community park zones (Figure 7.21), and (4) slopes (Figure 7.19). Translucent

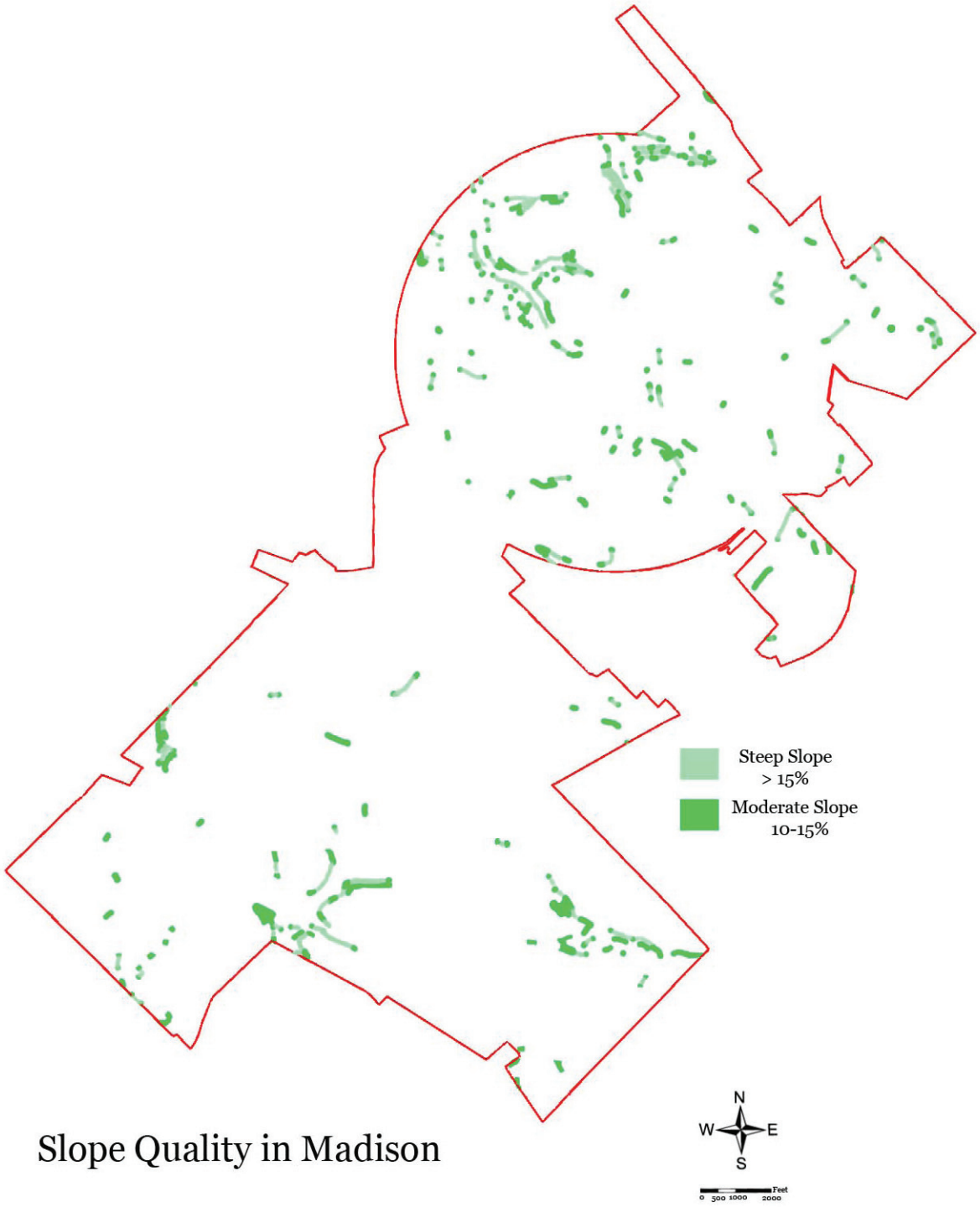


Figure 7.19 Slope quality in Madison
(Base map: (Madison GIS 2007, USDI 1972), alterations by auther in 2007)

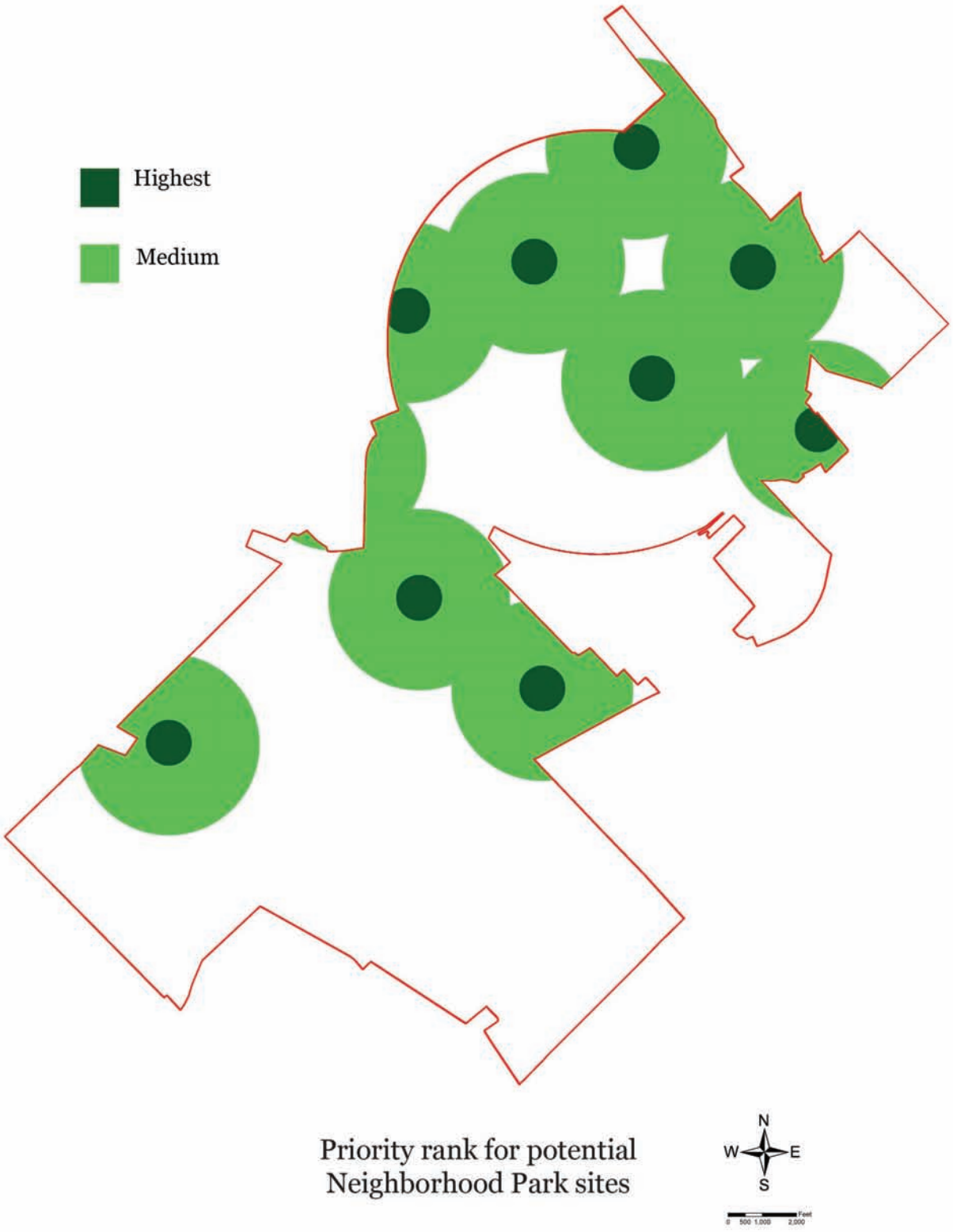


Figure 7.20 (Base map: (Madison GIS 2007), Alterations by author 2007)

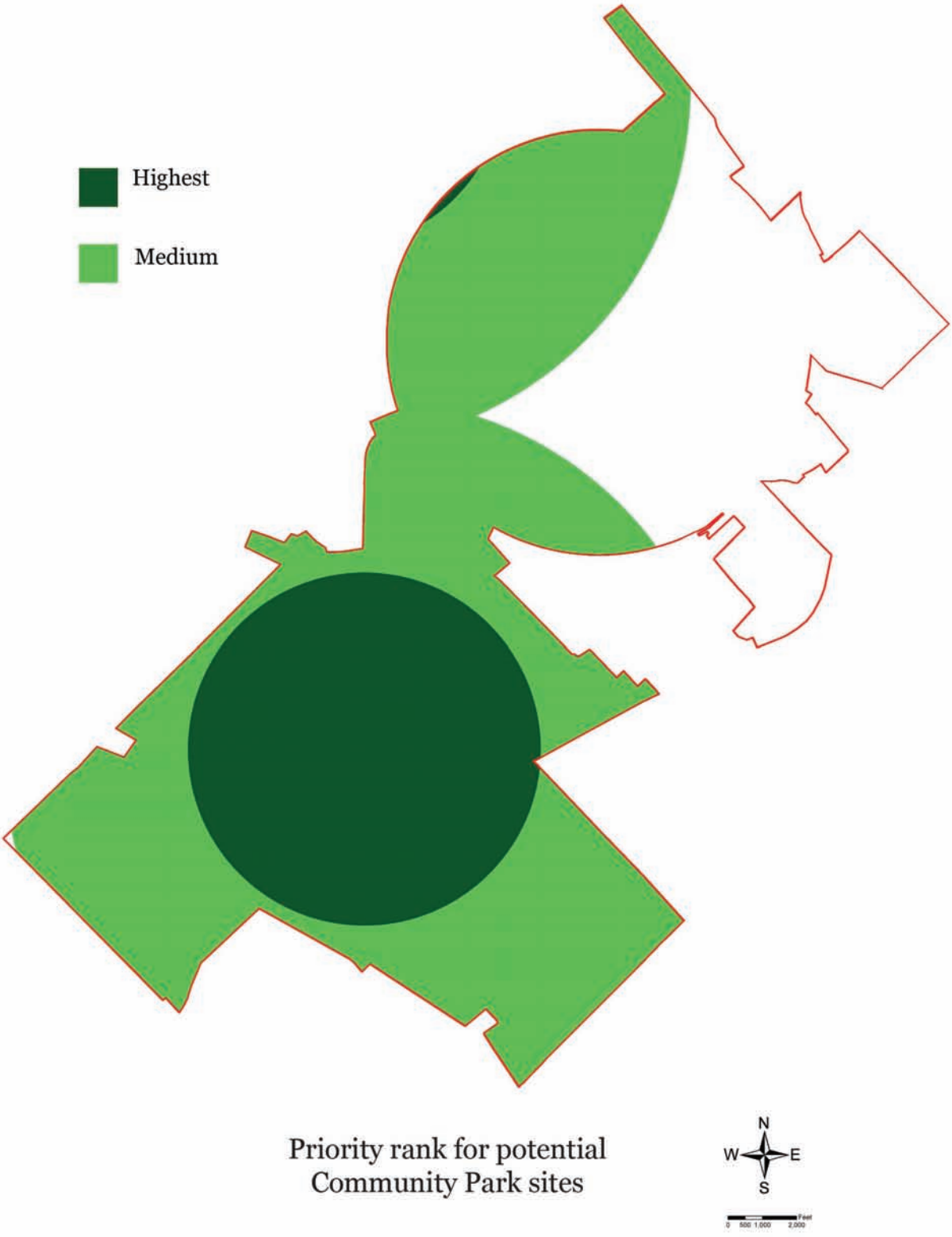


Figure 7.21 Priority rank for potential Community Park sites
(Base map: (Madison GIS 2007), alterations by author 2007)

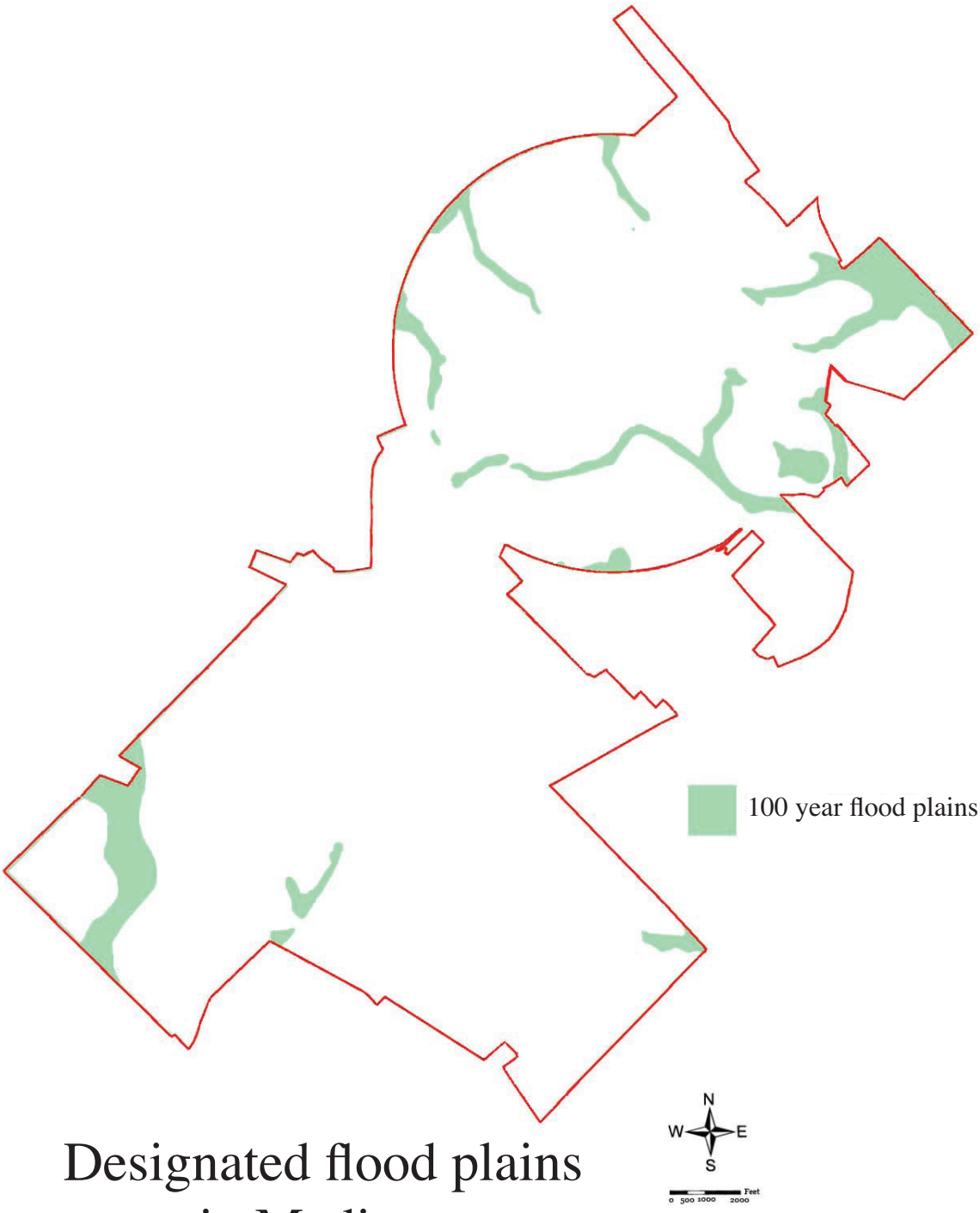


Figure 7.22 Designated flood plains in Madison
(Base map: (Madison GIS 2007), alterations by author 2007)

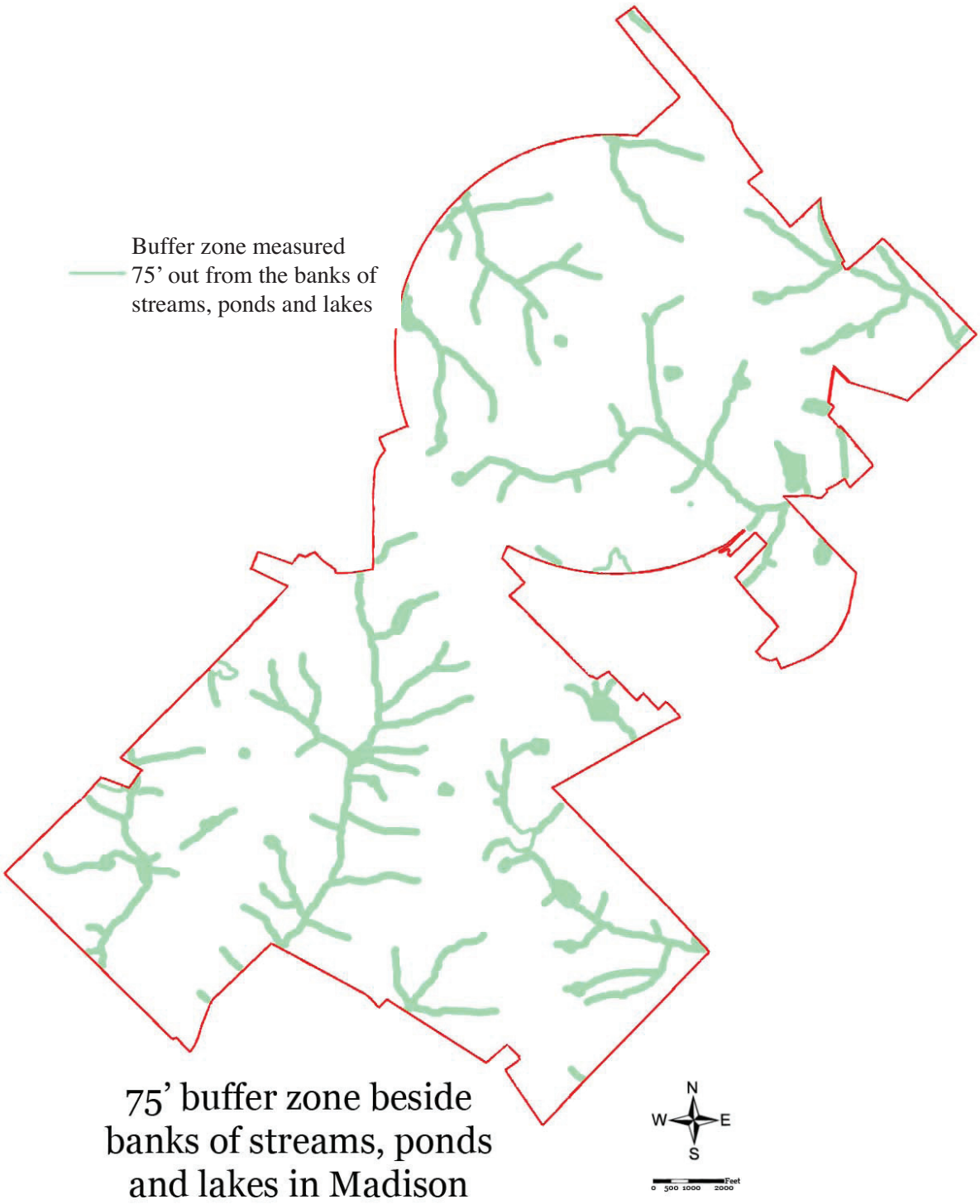


Figure 7.23 75’ buffer zone beside banks of streams, ponds and lakes in Madison (Base map: (Madison GIS 2007), alterations by author 2007)

images of these four maps are layered one on top of each other, then merged together to produce a map of their combined values. Subtracted from this map are the flood plains and stream buffers (Figures 7.22 and 7.23). Lastly, the already developed lands are removed. The end result is a map of values showing from high to low the suitability of sites for development of park and recreation areas. The result is shown in Figure 7.24, and will be used to help guide design choices in the open space scenario towards the end of this study.

Suitability of Sites for Habitat Conservation

The process that produced the suitability maps for park and recreation area sites will also be used to find a range of sites suitable for conservation. Goals will again describe the direction to take. These will be drawn from the many goals summarized earlier that recommend such an approach, especially those with references to protection of natural habitat environmental resources, and also the thesis goal of using principles of sustainability to guide community planning decisions.

The discussion under the inventory of biotic resources has already shown where the existing forest resources of the community are located. Forests, as the primary habitat for Madison's ecosystems will be the most important resource to consider. However, the forest is a fragmented matrix of uneven elements. To counter the incomplete pattern that would result from the study based solely on such a fragmented forest, elements of the hydrologic system will also be examined for factors contributing to suitability. These factors will emphasize the importance of the streams, their buffer zones and floodplains, and aquifer recharge zones. This decision is based upon published research that has looked at which important environmental features need to be included when considering the components for creating a green infrastructure. Research has consistently shown the importance of hydrologic resources as particularly important and that

Figure 7.24 Land suitability for neighborhood and community parks
(Base map: (Madison GIS 2007), alterations by author 2007)

they offer concentrated environmental value (Flink and Searns 1993, 123, Dawson 1996, 28, Hellmund and Smith 2006, 17). Goals in the 2004 comprehensive plan echo this focus upon waterways and riparian corridors as key landscape features to protect (Northeast Georgia 2004, 136, 302). In addition to factors drawn from vegetation studies and the inventory of the hydrologic system, factors will be drawn from the inventory of undeveloped land and developed lands, to show where conservation investment would be easiest for the community.

While this analysis of Madison resources is not meant to be a substitute for a thorough study of Madison's habitats by trained biologists, botanists, and ecologists, it is meant to offer an informed estimate of suitability for this case study. Once again, a community conducting an actual planning study will need to undertake a more rigorous study by trained professionals. However, the examples shown here will provide a reasonable set of factors for the purposes of this suitability study for habitat conservation.

Maps of the factors to be considered for conservation are shown in Figures 7.25-7.32. The first map, "Forest Quality in Madison" (Figure 7.25), rates the existing forest cover based on a windshield survey and examination of aerial photographs of forest age, diversity and structure. The category "High" represents the two combined forest groups—"high quality" and "medium quality"—which appear in Figure 7.05. The "Medium" category represents the urban forest, small isolated forest patches, forested hedgerows, and linear forests that follow watercourses in fields. This forest is more fragmented and open, with a great variety of size and age in its component trees and shrubs. The category "Low" represents tracts that are in an early stage of forest succession of ten years or less, and also tracts of a monoculture of pines or pecans.

The second map, "Contiguous forest tracts" (Figure 7.26), emphasizes that the larger the forest tract, the more benefit it has as habitat since it has a greater potential to exhibit interior

Figure 7.25 Forest quality in Madison, GA
(Base map: (Madison GIS 2007), alterations by author 2007)

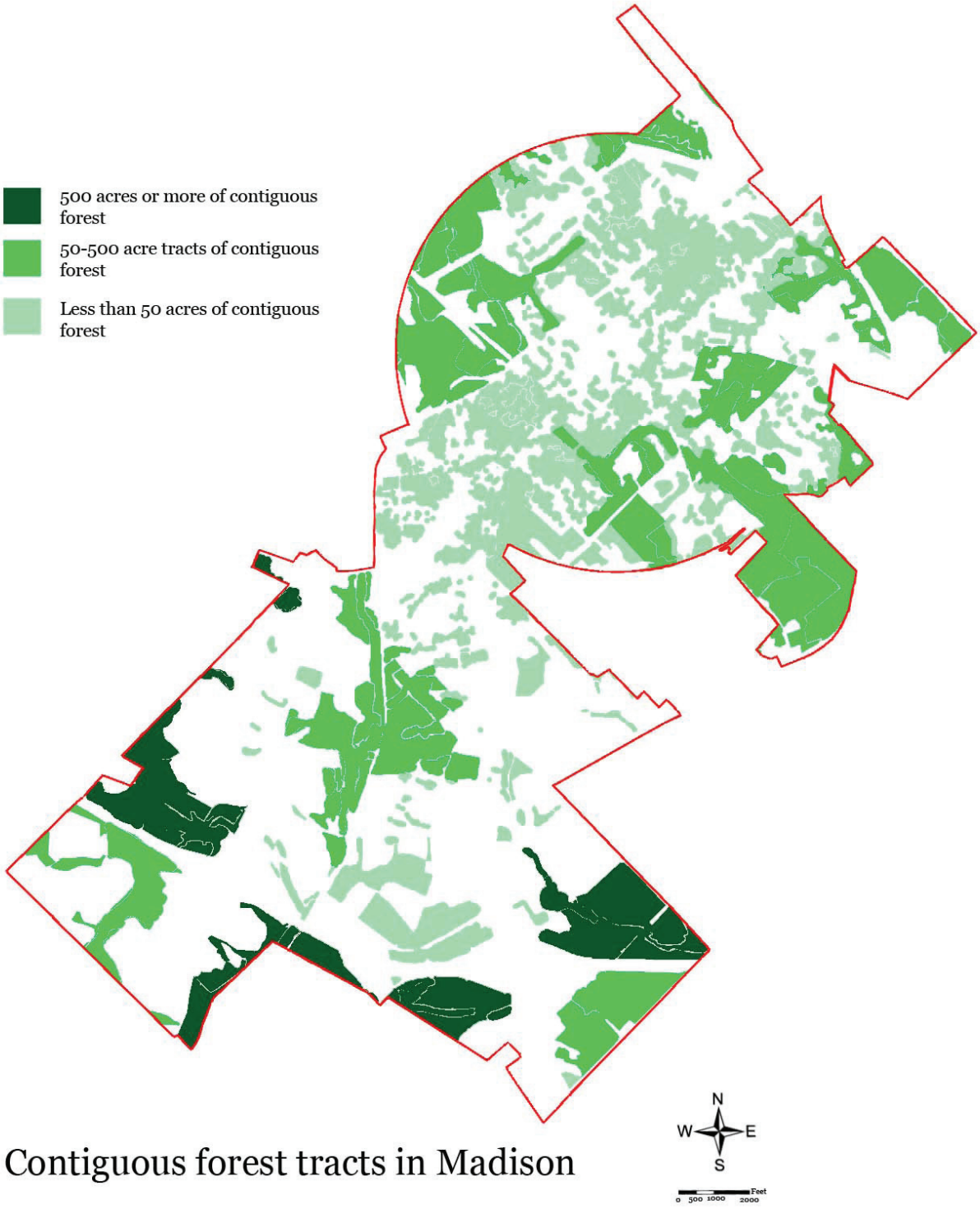


Figure 7.26 Contiguous forest tracts in Madison
(Base map: (Madison GIS 2007), alterations by author 2007)

habitat conditions. Forest size of 500 acres and larger represents the highest category, tracts that are 50 to 500 acres are the middle category, while the lowest category represents forest tracts under 50 acres. This last category represents the most fragmented portions of the forest habitat.

The map titled "Forest habitat conditions" (Figure 7.27) represents the presence of edge and interior conditions in Madison's forest habitat. There are no core forests of 16,000 acres or more in Madison (in fact, the whole town encompasses only 5,475 acres). The five hundred acre minimum for adequate habitat can only be met by considering forested lands adjacent to the city. Most of the forest tracts have centers that are less than 100 meters from the edges of the tracts (100 meters is a rough estimate for width of edge conditions based upon a discussion of minimum widths for piedmont forest habitat corridors in the North Carolina piedmont ecoregion (North Carolina 2005, 44)). The habitat map's three categories represent Madison's forest habitat with the highest rating for interior forest areas of 500 acres or more, the lowest category for edge conditions of 100 meters or less, and the middle category for tracts that have interior forest habitat greater than 100 meters from the edge but which are not part of a 500 acre or greater tract of forest.

One more map pertaining to forest quality is offered: "Slope aspect and contribution to habitat conservation in Madison" (Figure 7.28). This map actually looks at the relationship between slope aspect and forest type. North facing slopes support richer, more diverse forest communities, while drier south facing slopes have less diversity in their forest communities. Both are unique environments in the local eco-region with mesic forest communities found on the north facing slopes and pine dominated communities on the south facing slopes. The north facing slopes and south facing slopes are both given the highest rating, due to their uniqueness.

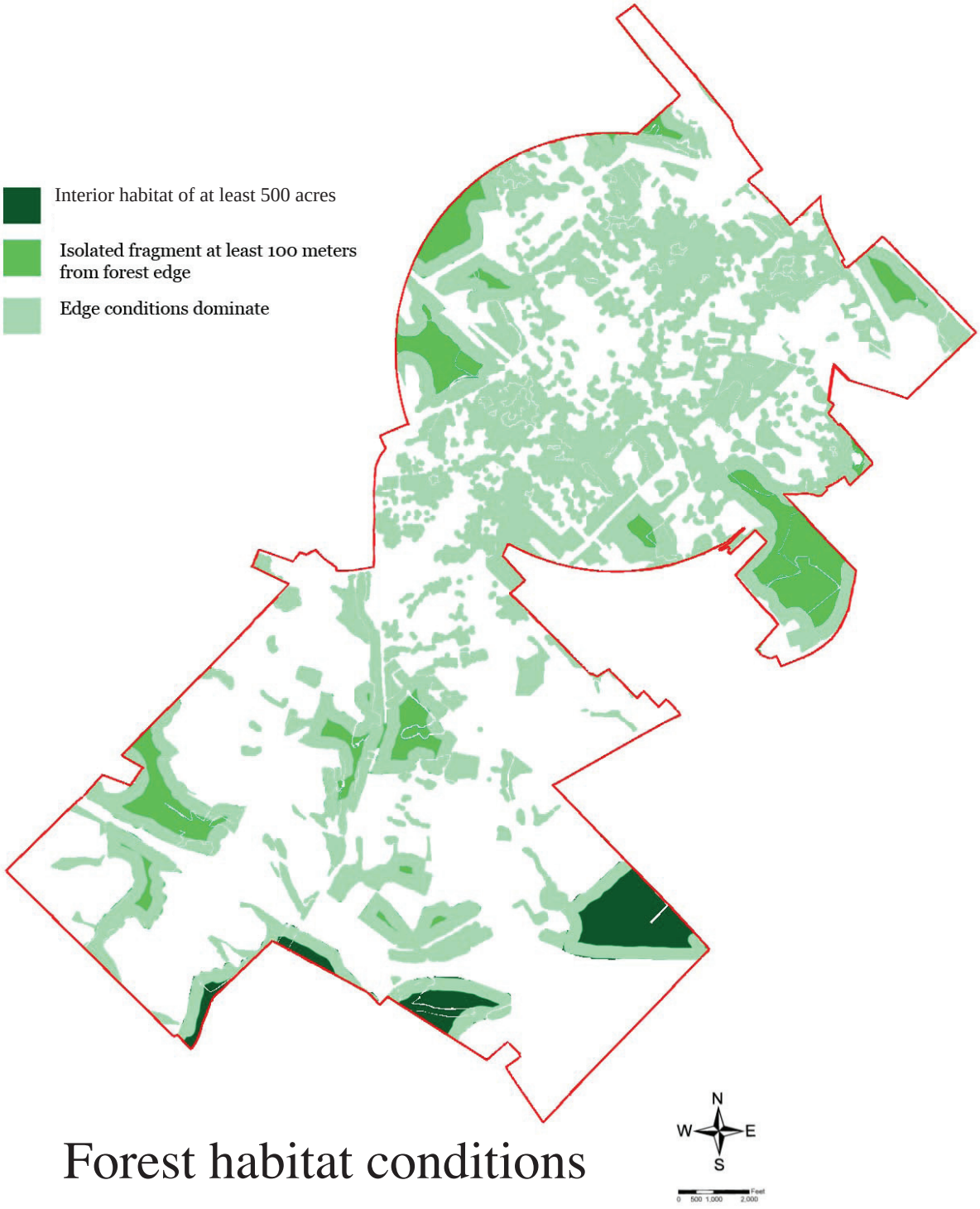


Figure 7.27 Forest habitat conditions
(Base map: (Madison GIS 2007), alterations by author 2007)

Figure 7.28 Slope aspect and contribution to conservation in Madison (Base map: (Madison GIS 2007), alterations by author 2007)

All other slopes are given a middle rating for suitability. There is no rating for unsuitable on this map.

Two maps of elements of the hydrologic systems are featured. "Designated flood hazard zones in Madison" was introduced in the analysis for parks and recreation areas and correlates strongly with streamside habitats (see Figure 7.29). Also correlating with such habitats are the areas included in the buffer zones alongside stream banks. The map "75' buffer zone beside banks of streams, ponds and lakes in Madison, rated for habitat conservation" (Figure 7.30) has two ratings: (1) for buffer zones along perennial streams and, (2) buffer zones along all other streams in the community. The higher rating is given to the perennial streams that support richer habitats, while the lower rating is for the smaller streams that drain smaller watersheds and are often dry.

The map "Compatibility of public open space with conservation" (Figure 7.31) rates the existing parks, cemeteries and conserved areas for their potential contribution to conservation. Already conserved areas are rated the highest, cemeteries are in the middle rating (they are areas of low human activity but with high edge habitat areas), and active recreation parks are rated lowest.

The map "Ease of development for land undeveloped in Madison based on amount of vegetation cover" (Figure 7.18) also appeared in the park and recreation areas analysis, and is referenced here to indicate a relationship between the cultural activity of human development and the biotic resource of vegetation. For habitat conservation, land that is easily developed will be more valuable for development, while land that is difficult to develop will be easier to conserve. Culture resources also provide the factor rated in the map "Contribution of large land parcels to conservation potential in Madison" (Figure 7.32). This map relates how the spatial

Figure 7.29 Designated flood hazard zones in Madison
(Base map: (Madison GIS 2007), alterations by author 2007)

Figure 7.30 75’ buffer zone beside banks of streams, ponds and lakes in Madison, rated for protection
(Base map: (Madison GIS 2007), alterations by author 2007)

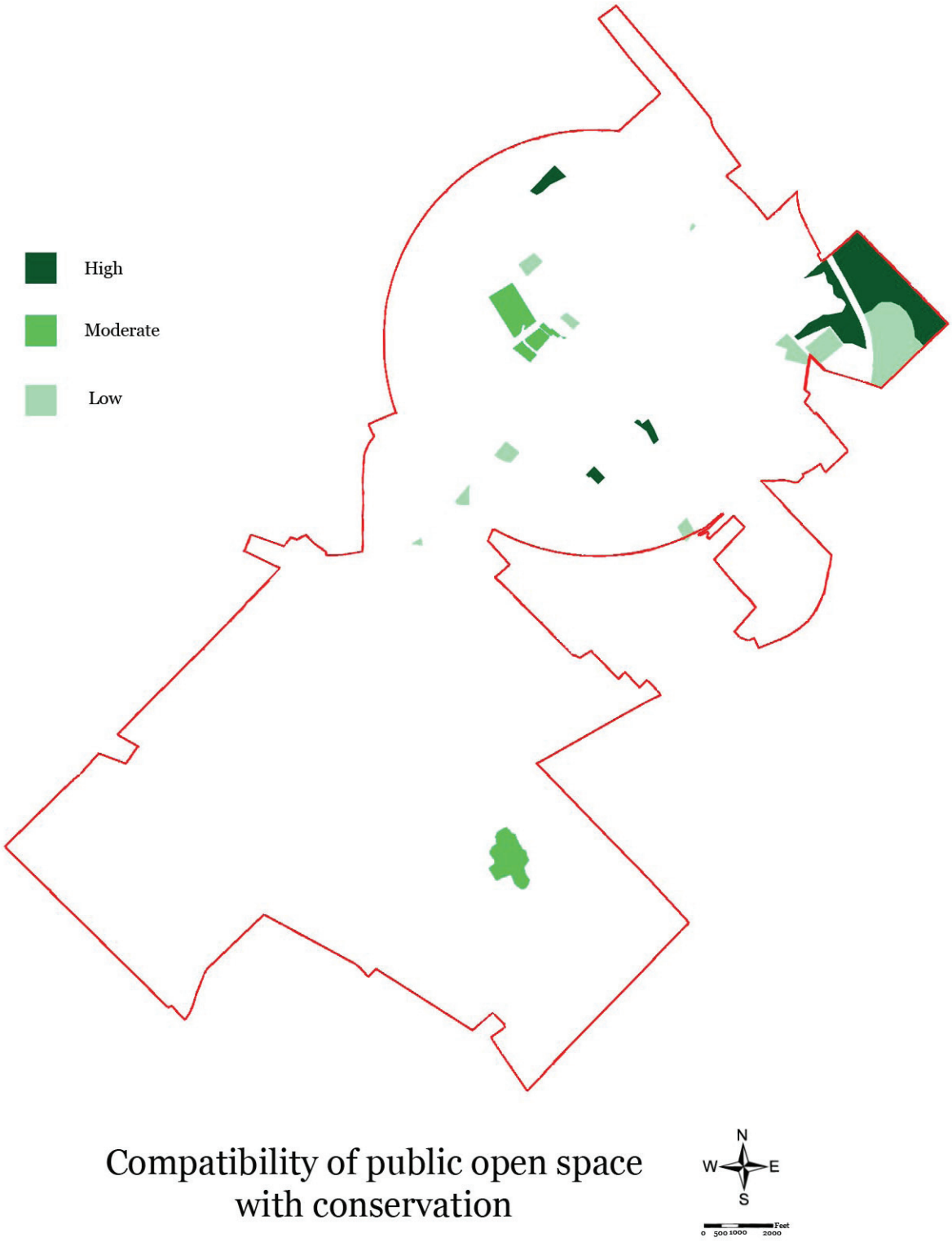


Figure 7.31 Compatibility of public open space with conservation
(Base map: (Madison GIS 2007), alterations by author 2007)

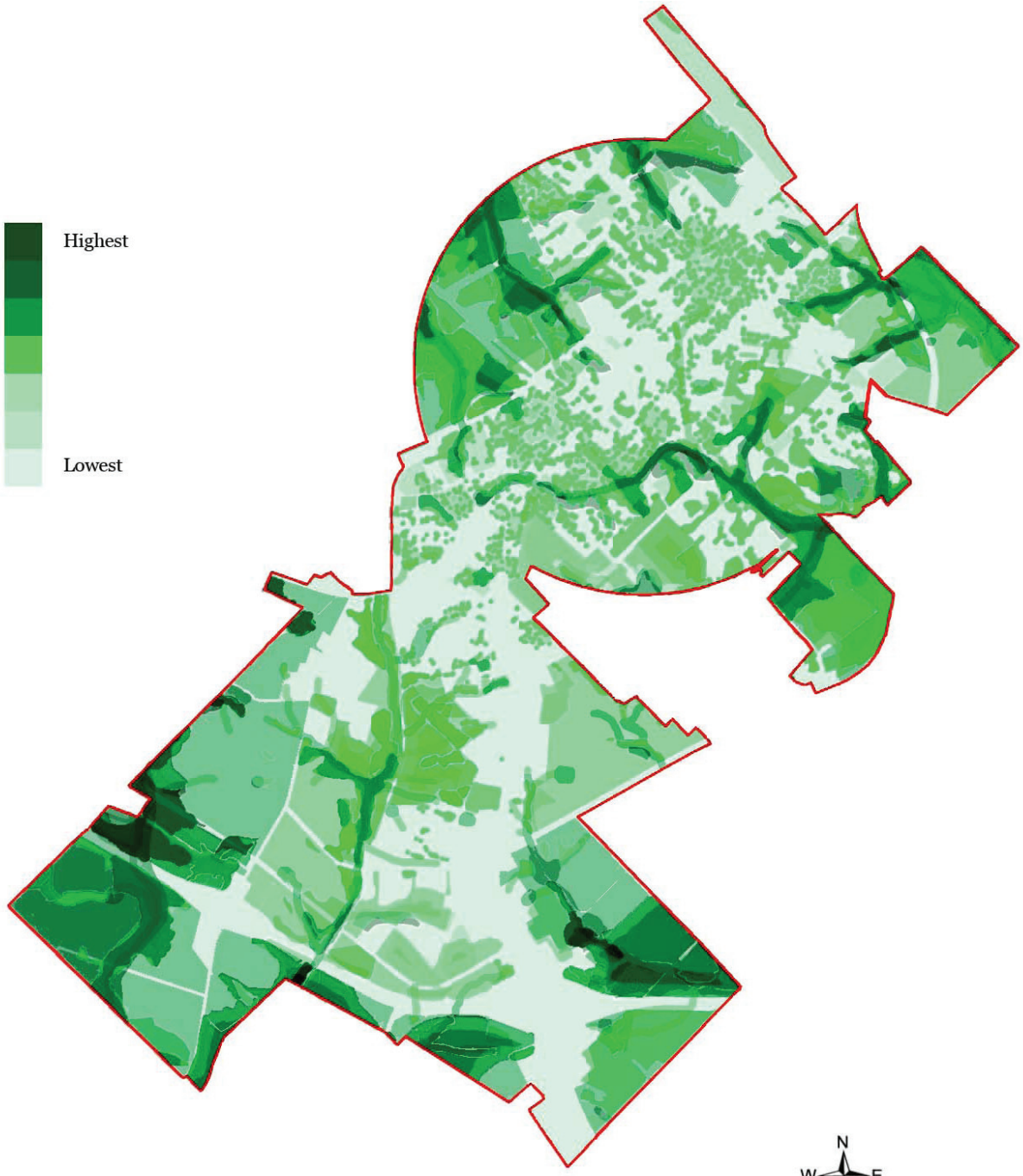
Figure 7.32 Potential contribution of large land parcels to conservation in Madison (Base map: (Madison GIS 2007), alterations by author 2007)

arrangement of parcel sizes may positively influence potential for conservation, based on observations made in the Morgan County Greenprint report that small, subdivided parcels are not as viable as the larger land parcels when it comes to preservation of greenspace and of wildlife (Robert and Co. 2003, 3).

To develop a suitability map for habitat conservation, the nine maps will be layered in the following order, from top to bottom: (1) forest quality, (2) contiguous forest tract, (3) forest habitat conditions, (4) slope aspect, (5) designated flood hazard zones, (6) 75 foot stream buffer zones, (7) compatibility of public open space with conservation, (8) ease of development for vacant land parcels, and (9) contribution of large land parcels to conservation potential in Madison. Partially translucent versions of the maps will be merged to produce a composite of the different layers, with the darker colors on the map indicating the highest suitability for habitat conservation in Madison. The result is the map in Figure 7.33, "Land suitability for habitat conservation". This map will serve as a guide for making decisions about which areas to target for habitat conservation Madison.

Suitability of Sites for Urban Development

One last suitability study that will offer insights into choices for the community will look at the suitability of sites for urban development among the presently undeveloped lands in the community. The process used to produce this result is a variation of the Net Usable Land Area model shown in Chapter 3. It begins by mapping all land parcels in the community (shown previously in Figure 7.06 as the developed and undeveloped land in Madison). Next, the factors that influence the suitability of land for development must be selected. These factors with a range of suitability are: (1) "Suitability of development in Aquifer recharge zones" (Figure 7.34), (2) "Ease of development for land undeveloped in Madison based on vegetation" (Figure 7.18),



Land suitability for habitat conservation

Figure 7.33 Land suitability for habitat conservation
(Base map: (Madison GIS 2007), alterations by author 2007)

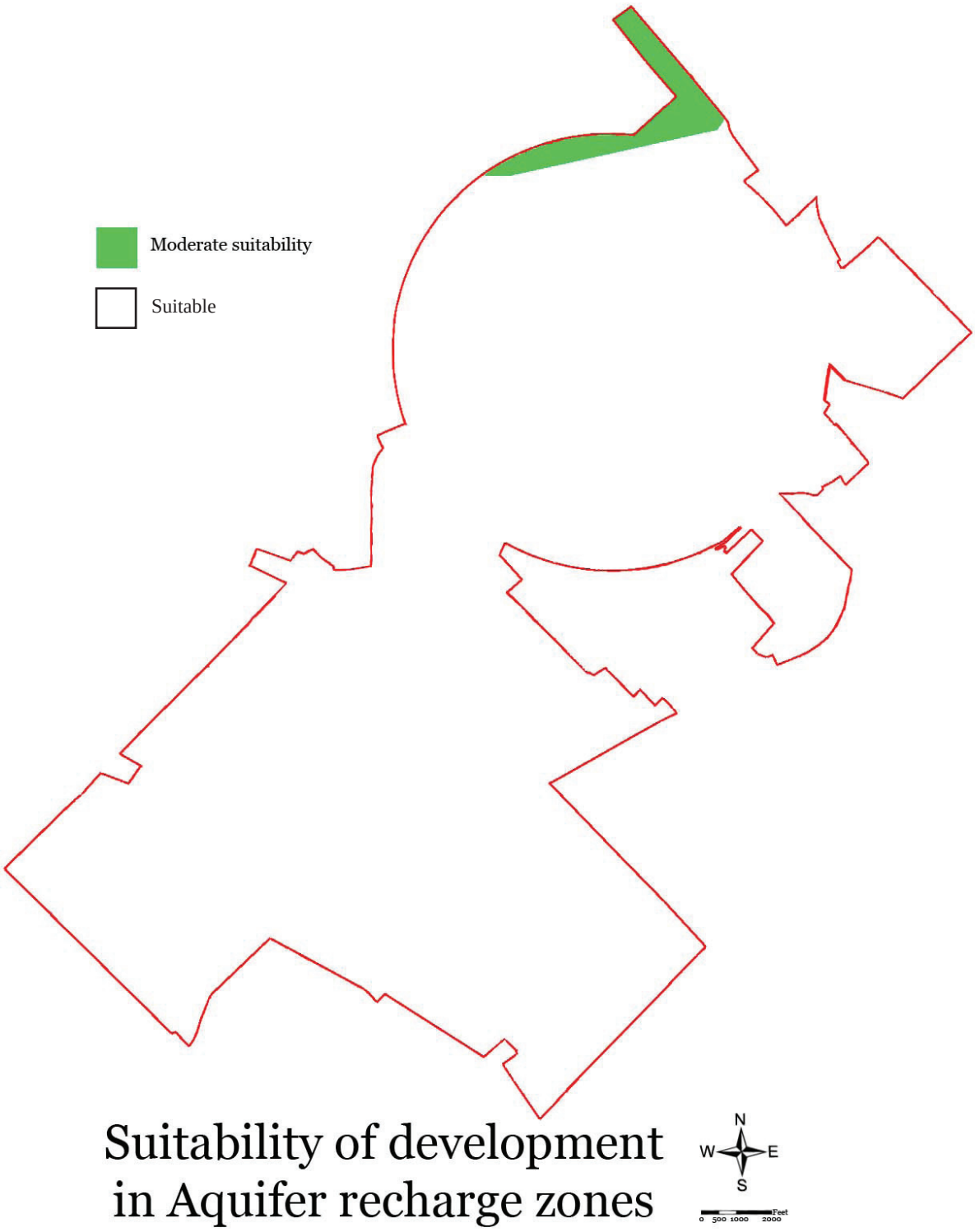


Figure 7.34 Suitability of development in aquifer recharge zones
(Base map and data: (Madison GIS 2007), alterations by author 2007)

and (3) “Slope Quality in Madison” (Figure 7.19). The maps of these factors show a ranking of compatibility with development. These maps must be merged to develop an indicator of overall suitability for development. The three maps are made semitransparent, merged, and the result merged atop the map of land parcels. The next step is to remove lands where conditions present a hazard to the community, and to also remove lands vital for community health. These are (1) the flood hazard zones (Figure 7.29) and (2) the 75’ buffer zones along stream banks (Figure 7.23). Lastly, all parcels already developed are removed from the cumulative result to show only the values for the undeveloped parcels in Madison. The resulting map (Figure 7.35) shows a range of values for the suitability of urban development at different sites in the community.

This final map can be compared to the maps of suitability of sites for parks and recreation and for habitat conservation to observe areas of conflict between the two uses. Since the suitability map for park and recreation development actually shares many of the same factors used for the urban development suitability map, a comparison of those two maps will not be explored. The more useful comparison is to look at areas of conflict between the suitability of sites for urban development and those for habitat conservation.

The process for this comparison is to convert to yellow the hue of the values found on urban development suitability map (Figure 7.36), and convert to blue the values found on the habitat conservation suitability map (Figure 7.37). The maps will be made partially translucent then merged. Areas of green that result are the areas of conflict between the two uses (see Figure 7.38). This will provide an additional guide to decision making in the land use planning process when it comes to allocating different areas to different uses based on the community goals.

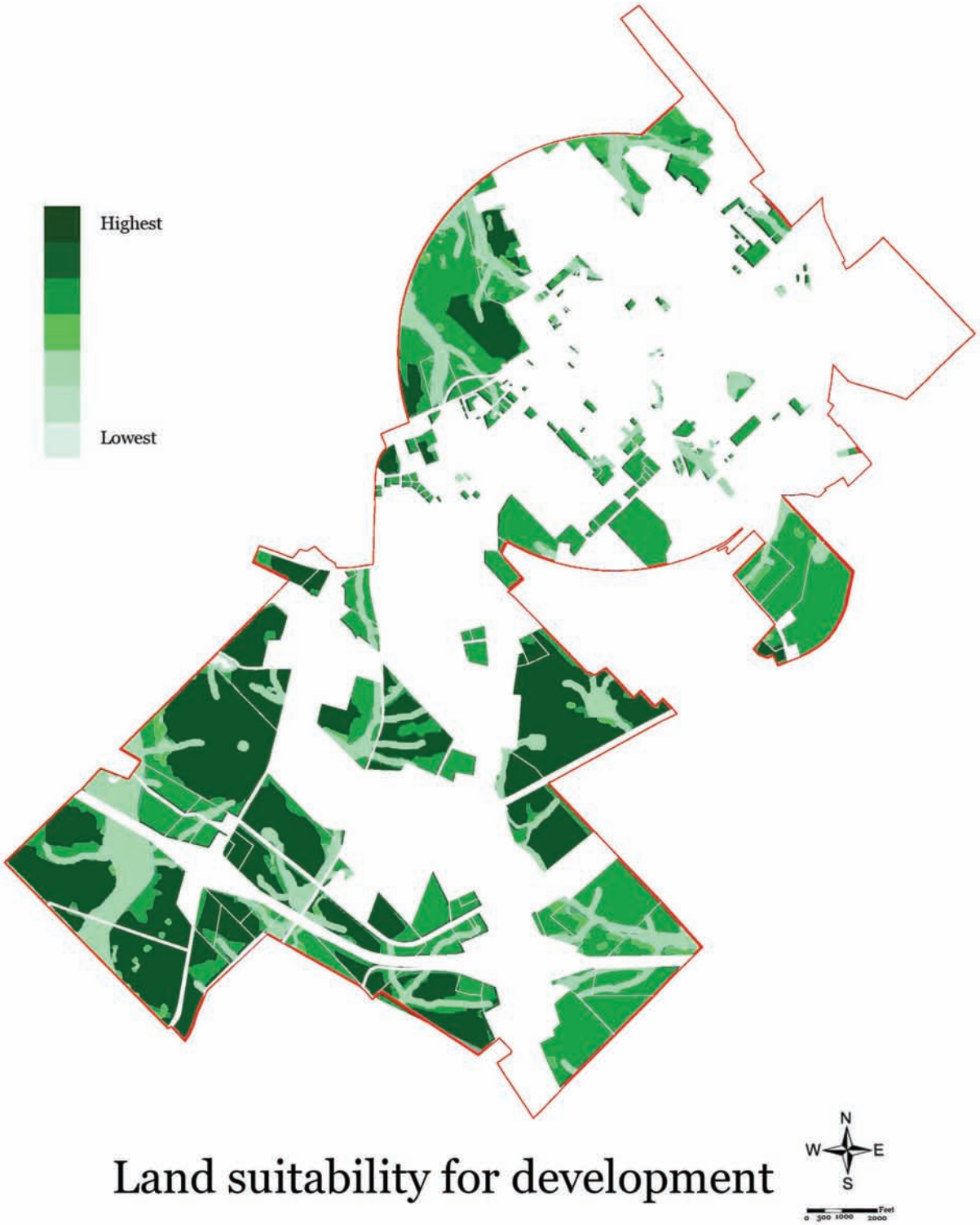


Figure 7.35 Land suitability for development
(Base map: (Madison GIS 2007), alterations by author 2007)

Figure 7.36 Urban development suitability map converted to hues of yellow.
(Map base: (Madison GIS 2007), alterations by author 2007)

Figure 7.37 Habitat conservation suitability map converted to hues of blue.
(Map base: (Madison GIS 2007), alterations by author 2007)

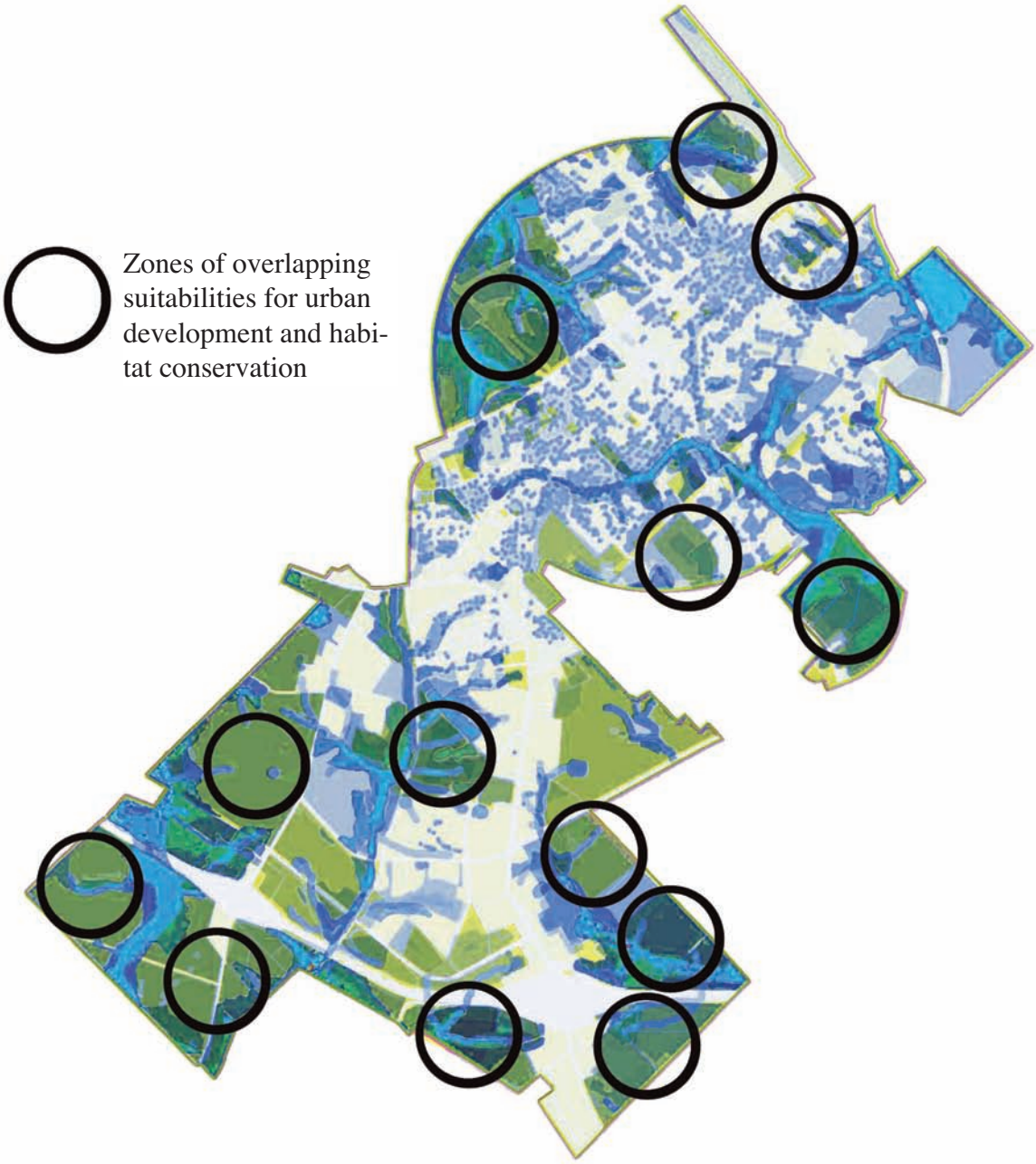


Figure 7.38 Zones of competition for resources between urban development and habitat conservation . (Base map: (Madison GIS 2007), alterations by author 2007)

CHAPTER 8

CASE STUDY OF MADISON PART THREE: DESIGN AND IMPLEMENTATION

Design Scenario for Open Space in Madison

The goal of this case study is to create a design in the form of an open space scenario for Madison. The concept of a scenario comes out of landscape planning methodology, and was built into the model for landscape planning process created by Jack Ahern that was shown in Chapter 3 (Figure 3.03). Ahern describes scenarios as especially well suited to linking goals and assumptions with the potential future spatial changes. A landscape planning scenario describes the current situation, a potential future state, and a means of implementation (Ahern 2002, 26-27). Following that model, a scenario is developed by this thesis that addresses the three open space concerns for Madison that were defined, (open space contributing to historic preservation, park and recreation areas, and habitat conservation), and suggests an approach to coordinating open space in Madison's land use plan. The result will be portrayed in plan form, and is accompanied by an implementation strategy.

In preparation for the creation of this design scenario, the survey and analysis of open space within the city of Madison was undertaken in Chapter 7. The results provide insights into which areas would best contribute to conservation efforts. The suitability map for each land use developed from those studies shows a range of values for where each particular land use is best suited in the community. However, there is not a deterministic relationship between the maps and the actual uses that will be recommended in a final landscape planning document. As explored in the planning process for landscape planning, planning decisions can be informed and

guided by such maps, but not decided by them. As pointed out in Chapter 3, the point of developing analysis methods that translate various factors into a range of values that may then be used to assess the suitability of a land use is to create a rational guide for designers and decision-makers in the planning process. But analysis interpretation depends upon a qualitative, not quantitative process and will depend to a great extent upon the perspectives and values of the decision-makers (Marsh 2005, 20).

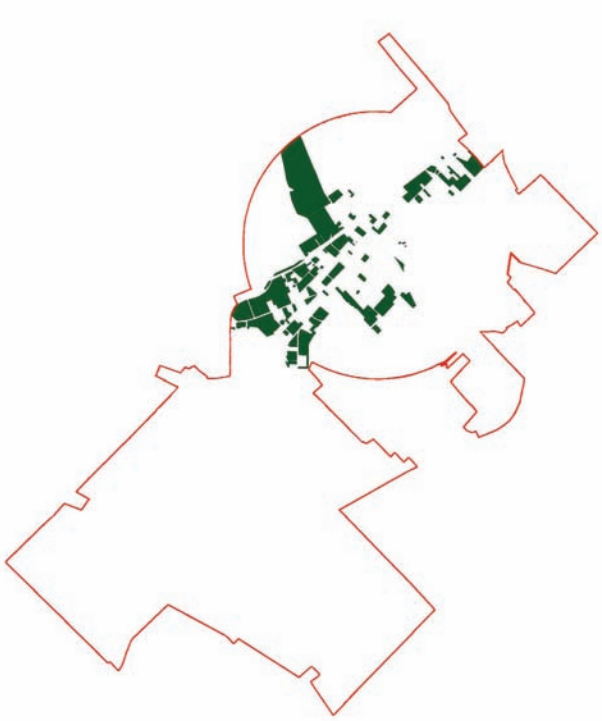
Representing that qualitative process is the design scenario for open space that will be developed in this thesis for Madison. The results of the survey and analysis, along with the goals and objectives that were defined in Chapter 7, will provide guidance for the creation of this design. The scenario will incorporate elements from each of the three open space programs—open space related to historic resources, open space for parks and recreation, and open space for habitat conservation—and will draw upon the lessons learned from the exploration of context and precedent, explored earlier in this thesis. It will also need to observe the ethical implications of the choices that will be made in the open space scenario design. Elements from the chapters on context and precedent will be discussed in the steps that describe the creation of the planning scenario design; a discussion of ethical considerations will accompany the conclusion following this case study.

One lesson learned from the Chapter 2 review of the context of planning traditions that can be revisited at this point, is how landscape design can coordinate the many different elements of landscape space into an interrelated network. This represents the fact that there are multiple levels of process that overlap between uses of open space. For example, in Madison open space for historic resources needs to be approached at the broad scale of a district, not just for an individual site. There is a need to think about the many levels of relationships between open

space and historic resources and how this space relates to the greater community. While the full breadth of those relationships gets beyond the scope of this thesis, the goal of simply conserving that space creates the potential to achieve many of those possibilities. For instance, the goal of creating passive recreation links in the form of pathways may find possibilities in the conserved open space of the historic district or in habitat conservation lands. Yet another overlap in conservation uses can be found among conserved lands in the historic district, which in many cases fulfill the conservation goals of not only historic resource protection, but also for habitat conservation. Synergies between the different goals will appear as the open space devoted to each use is defined for an open space scenario for Madison. This interplay between multiple uses will be an important feature of the Madison design scenario.

To construct the design for this open space scenario for Madison, a decision must be made as to which lands should be set aside for conservation and which lands should be available for development. From the three suitability studies for uses that contribute to Madison's open space, maps were produced that rated land suitability from highest to lowest for each of those subjects (see Figure 7.39). The map for the open space contributing to historic resources shows only parcels that are highly suitable for conservation. Those lands are all recommended for conservation since they include parcels clearly defined as contributing to the integrity of the historic district. They will form the first layer of the lands to be included in the plan for Madison's open space scenario.

The second layer will emerge by applying the results from the suitability study of sites for park and recreation areas. In order to identify potential sites for park and recreation areas, the first step is to layer the proposed park service areas atop the suitability map for park and recreation areas (see Figure 7.40). From this result, some preliminary decisions on potential sites



Land suitability for conservation
to protect historic resources

Land suitability for
habitat conservation

Land suitability for
neighborhood and community parks

Key to range of suitabily
for each land use

Highest
suitability

Lowest
suitability

Figure 7.39 Overview of land suitability maps
(Base maps: (Madison GIS 2007), alterations by author 2007)

Park service areas and land suitability for park and recreation areas

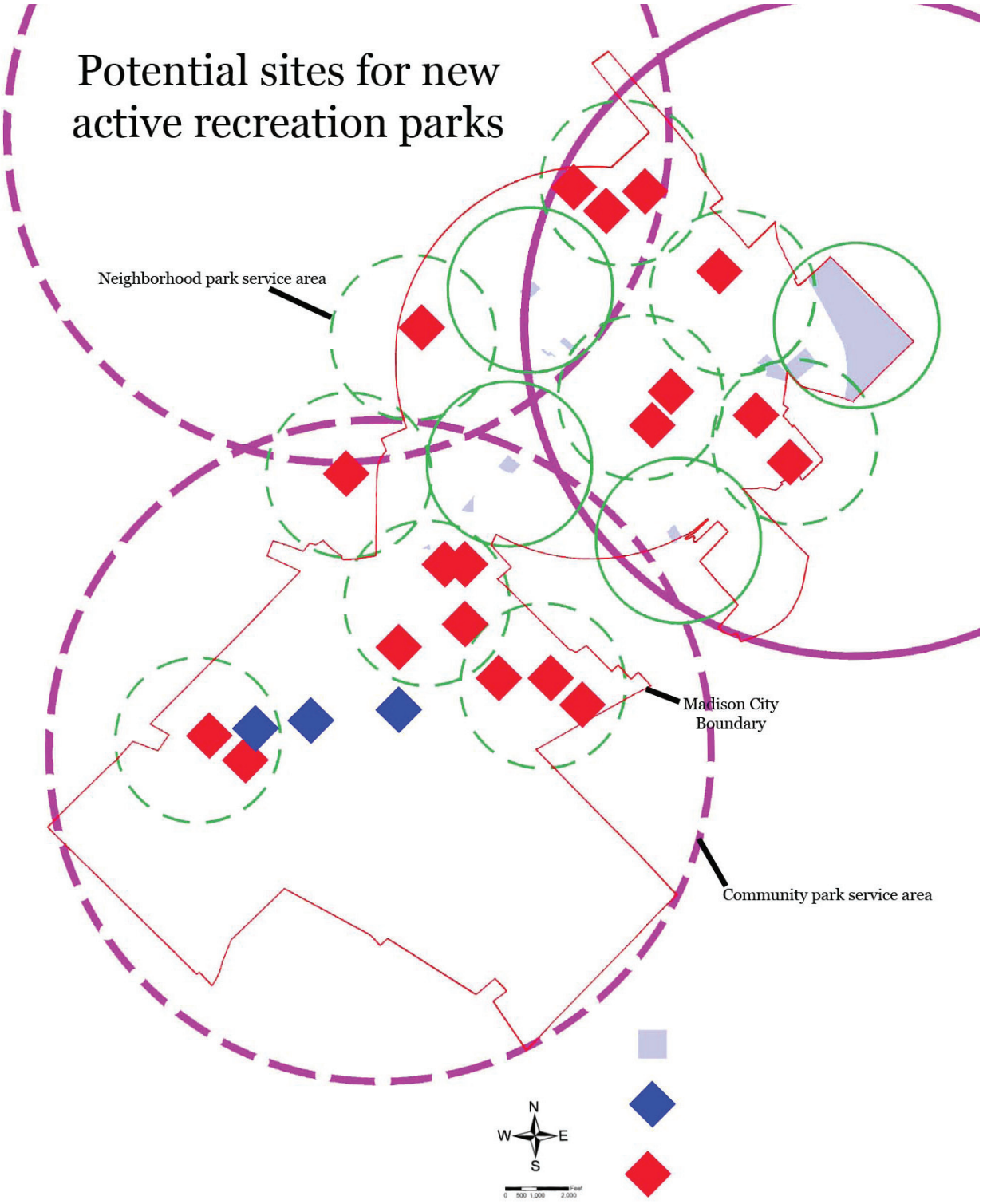
Figure 7.40 Park service areas and land suitability for park and recreation areas (Base map: (Madison GIS 2007), alterations by author 2007)

for Neighborhood and Community parks can be made (see Figure 7.41). However, if those sites are going to be coordinated as pieces of a larger open space network, some decisions need to be made about the location of the most expansive piece of the Madison open space conservation puzzle, namely the lands for habitat conservation.

The suitability map of the lands for habitat conservation (Figure 7.33) provides a guide to the lands to include. These lands represent a significant portion of the land area of Madison. The merged suitability maps for development and habitat conservation show many zones of conflict between those desired uses (see Figure 7.38). Resolution of this conflict will involve difficult choices for the community since it has goals of preserving open space and also for development. The 2004 joint comprehensive plan actually recommended that only 10% of Madison open space be saved in a strategy to concentrate development in the county around existing communities while focusing conservation efforts further out into the county.

A more rational approach, however, is to make sure that the city lands that contribute greatest to the sustainability of environmental function in the county are conserved irrespective of whether the sum of land area of these lands is greater than 10% of the total. This does not mean that development needs of the community should be ignored, only that conservation benefits should be seriously weighed as part of the overall planning picture.

To reach the goal of conserving lands vital for habitat conservation, the following path is recommended. The lands that add the most potential to a functioning habitat are the critical portions of the hydrologic system and the more robust fragments of the forest. These are represented by the lands included in the flood hazard zones (Figure 7.22), the lands in the 75' buffers alongside stream banks (Figure 7.23), and the high quality and medium quality tracts of



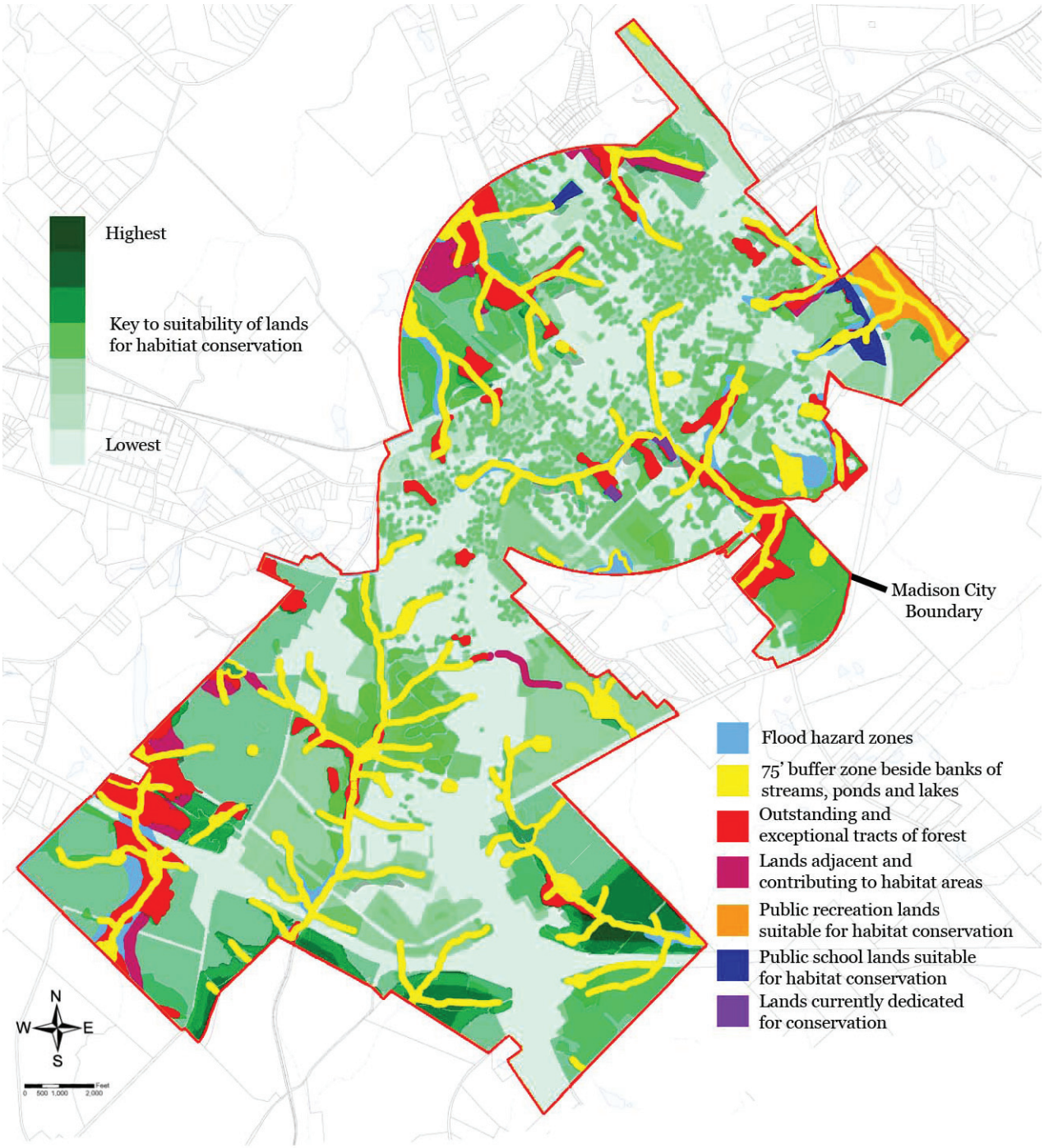
Potential sites for new active recreation parks

Figure 7.41 Potential sites for new active recreation parks
(Base map: (Madison GIS 2007), alterations by author 2007)

forest identified in Figure 7.05. These lands will serve as the core for habitat conservation efforts in Madison (see Figure 7.42).

Next, consideration must be made of Madison's relationship with the surrounding countryside, the planned conservation measures in the county, and potential linkages for conservation in the region. These relationships settle in the watersheds that fall from the Madison divide. To the north and northwest, the Hard Labor Creek watershed drains to that significant creek, with its broad flood plains. Hard Labor Creek links the large tract of land conserved in Hard Labor Creek State Park, located to the west, with one unit of the Oconee National Forest, located to the east. South and southwest of Madison lays the Indian Creek watershed, which leads southward to another unit of the Oconee National Forest and two wildlife management areas. Sugar Creek, which drains to the southeast of Madison, flows towards the booming resort developments around Lake Oconee. Figure 7.43 shows these relationships.

The potential that exists in the Hard Labor Creek and Indian Creek drainages as corridors linking to core areas for habitat was recognized when the Morgan County Greenprint identified a promising greenway route for connecting the two drainages along the northwestern border of Madison (see Figure 7.44). The potential that this greenway offers as a conservation corridor points toward the importance of conserving the lands in Madison that would contribute to the habitat in this greenway corridor. In addition to lands along the flood hazard zone of Little Indian Creek and the stream buffers leading to that creek, adjacent lands with a high suitability for habitat conservation should be considered for inclusion in a conservation plan for Madison. Figure 7.42 shows the amalgamation of the different lands for habitat conservation. Bolstering the lands available for habitat conservation are the lands recommended for conservation in and



Lands contributing to proposed habitat conservation in Madison

Figure 7.42 Lands contributing to proposed habitat conservation in Madison (Base map: (Madison GIS 2007), alterations by author 2007)

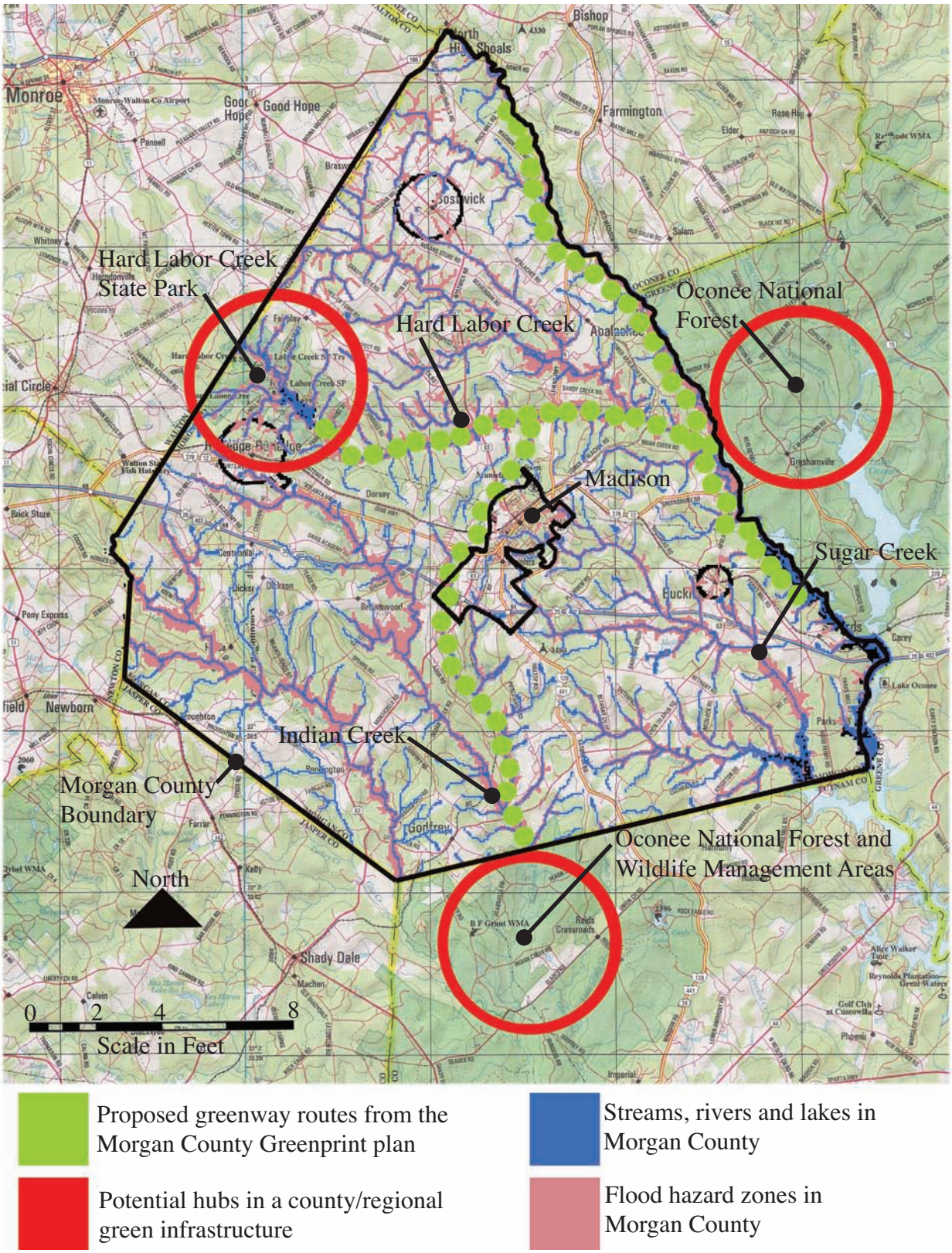


Figure 7.43 Madison in the context of its county
(Source: Georgia Atlas 1998, 27-28; Northeast Georgia 2004, 119; alterations by author 2007).

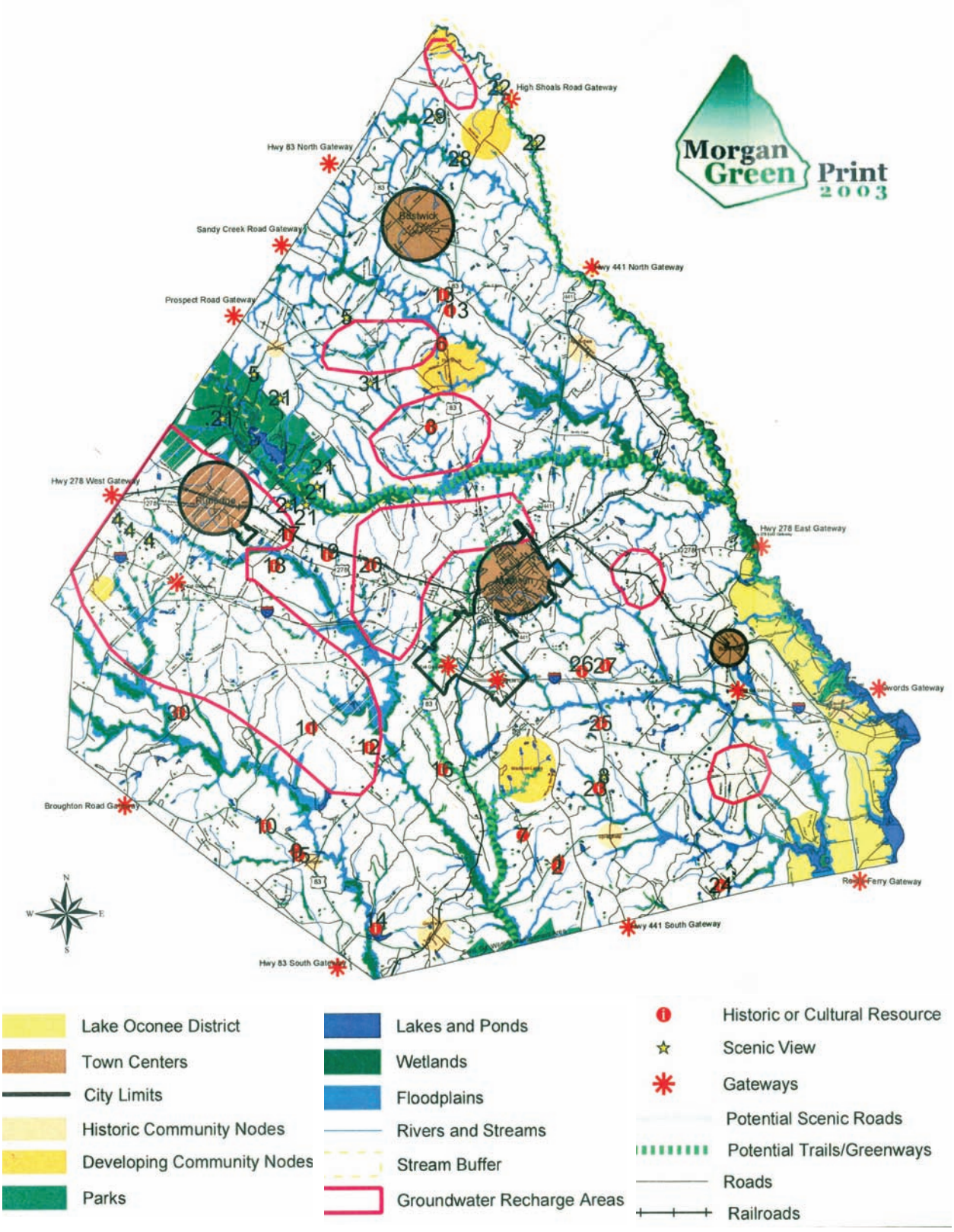
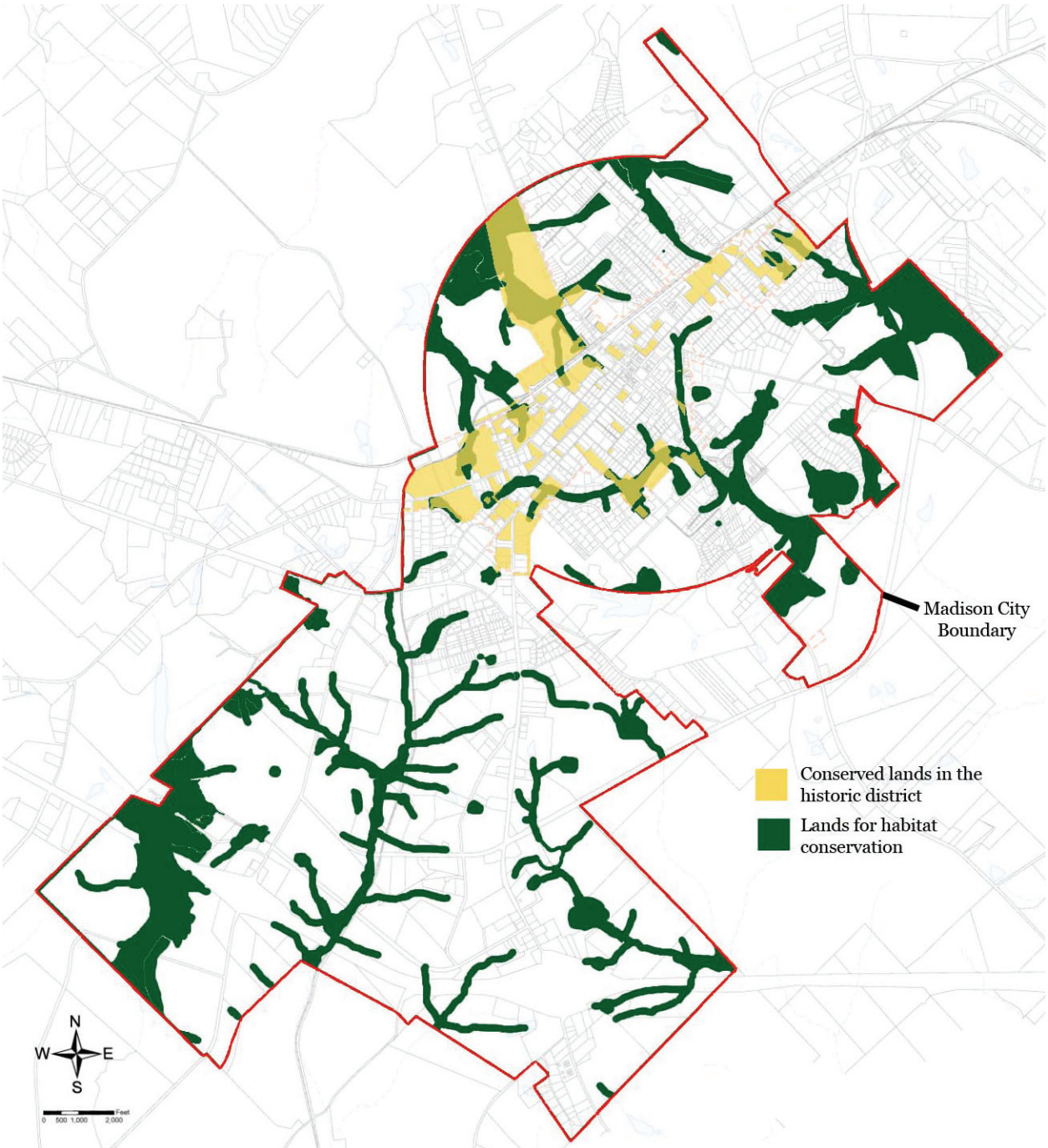


Figure 7.44 Morgan County Greenprint Map. (Robert & Co. 2003)

around the historic district (see Figure 7.45), especially those lands that are adjacent to the lands for habitat conservation.

The lands contributing to proposed habitat conservation in Madison, shown in Figure 7.42, do not include some parcels that received high ratings as suitable for habitat conservation. As already mentioned, the design must be guided not just by the suitability study, but also by community goals and objectives, and other factors. For example, some lands were not included because of community intentions expressed in the future land use map (Figure 7.09) to develop a major industrial site south of the city. The southeast corner of the city is also heavily impacted by existing development around a major Interstate 20 interchange. Once again, it must be pointed out that the 2004 comprehensive plan emphasized a planning approach that concentrates county growth in and around Madison in order to protect outlying areas in the county. This case study scenario recognizes that development must occur in Madison and that lands for habitat conservation should be high value lands that will contribute to the larger picture of conservation in the overall county. The result is a focus on protecting vital parts of the hydrologic system and a concentration on habitat conservation in corridors connected to the Hard Labor and Indian Creek watersheds, which both offer the greatest potential for contributing to a county-wide green infrastructure.

With the habitat conservation element in place, decisions can be made about the location of parcels for park and recreation areas. While active recreation areas are not highly suitable for habitat conservation, many conservation lands are suitable for some forms of passive recreation that can begin and end at park and recreation areas. By locating park and recreation areas adjacent to conserved areas, benefits from this synergy can be realized. The final recommendation for Neighborhood and Community Park sites that is made by this open space



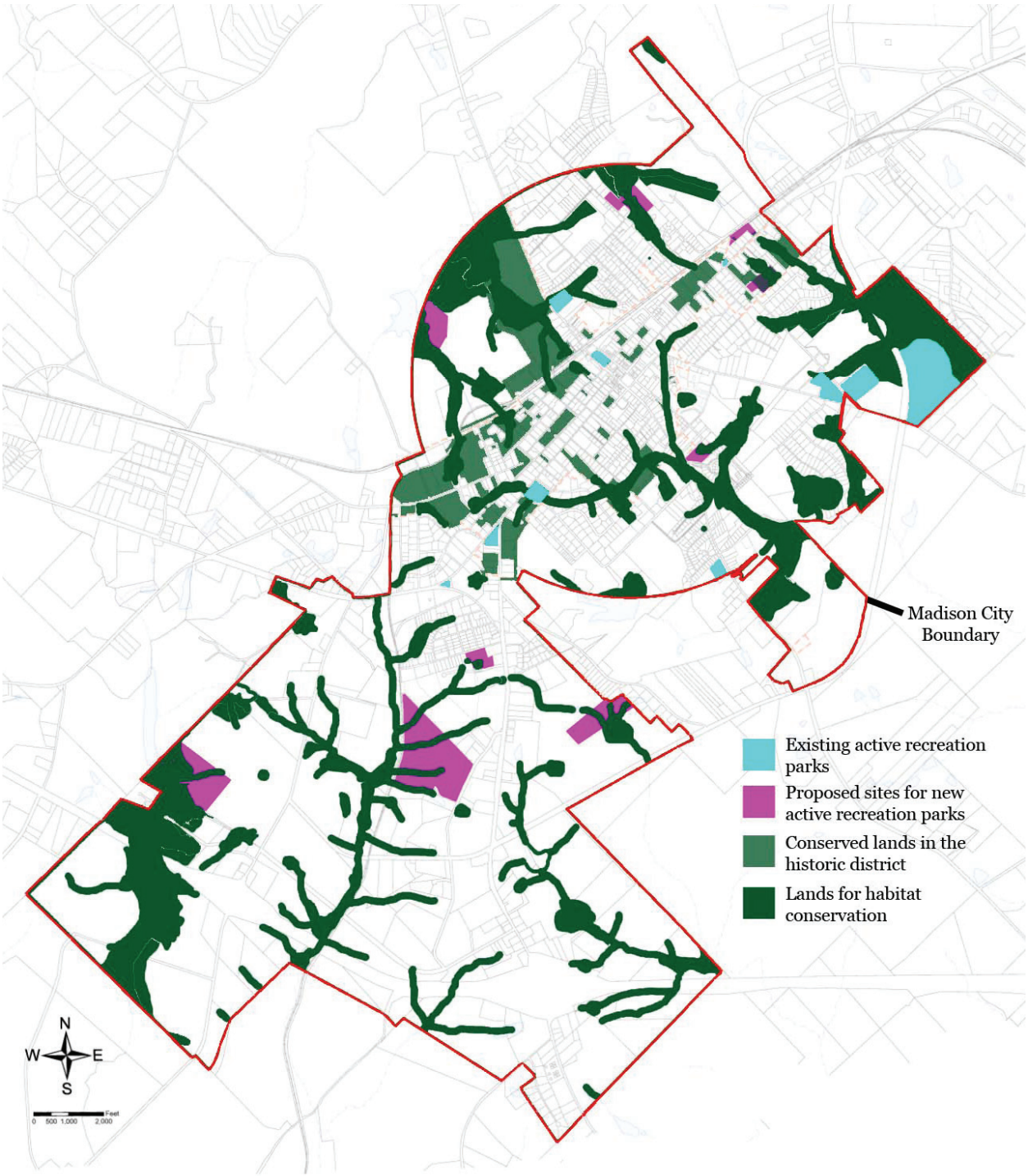
Contribution of conserved lands in the Historic District to conservation lands in Madison

Figure 7.45 Contribution of conserved lands in the Historic District to conservation lands in Madison
(Base map: (Madison GIS 2007), alterations by author 2007)

scenario is for the selection of those sites that contribute most to a potential network (see Figure 7.46). These proposed park sites must be selected with consideration of their service areas, and a comparison between the original and final proposed service areas for parks in Madison is shown in Figure 7.47. This shows that the proposed park sites provide very similar service areas to those originally proposed. It also shows that one each of the Community Park and Neighborhood Park service areas are mostly outside the city limits, and so no park site has been recommended for them. A summary map showing the lands contributing to open space in Madison is provided in Figure 7.48.

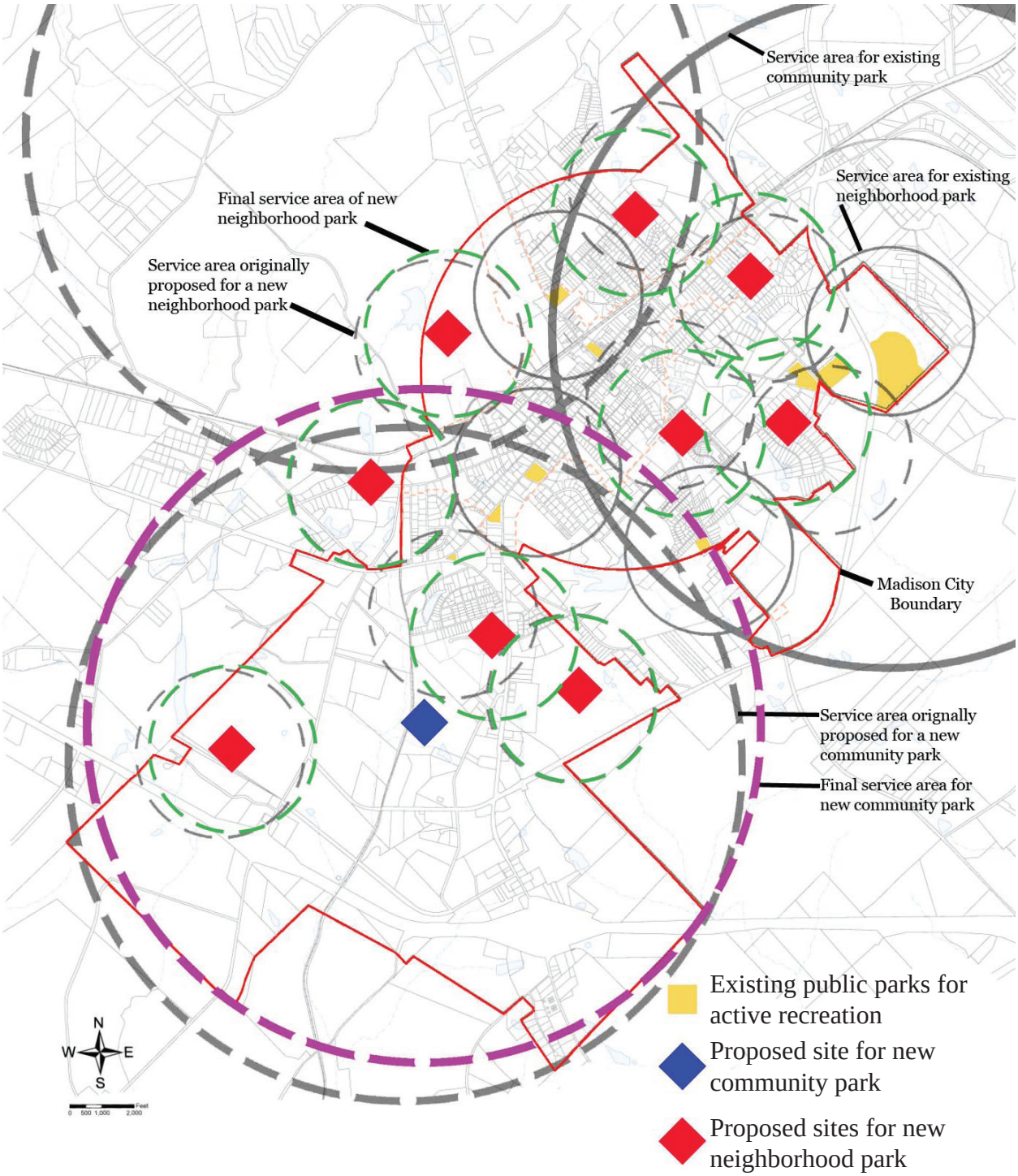
The potential for passive recreation mentioned above also points to the possibilities of linkage between different elements of the parks and conserved lands in the whole community. Ideas explored earlier in Chapter 2 under park networks and greenways suggest ways to realize this potential in the coordination of conservation and development for different open space lands. To this end, a greenway path system offers the greatest potential in providing linkage to the open spaces in Madison. Not only can these pathways be links between parks, but they can also serve as links from neighborhoods to schools and commercial or institutional facilities. Community input has already resulted in the expression of goals for greenway paths, and input can again be tapped to decide whether this network should be paved paths for biking or walking, porous paths for hiking, or a hybrid network of both paved and porous paths. By using parks, recreation areas and schools as destinations in Madison, path routes can be chosen by following some of the criteria developed from studies of greenways. For example, Charles Little, in his book *Greenways for America* offers the following as suitable locations for recreational paths:

1. parks;
2. publicly owned land;
3. railroad right-of-way;
4. quasi-public ownership of land (cemetery, golf course, landfills)



Contribution of existing and proposed new parks to conservation lands in Madison

Figure 7.46 Contribution of existing and proposed new parks to conservation lands in Madison (Base map: (Madison GIS 2007), alterations by author 2007)



Comparisons of original and final proposals of service areas for Madison parks

Figure 7.47 Comparisons of original and final proposals of service areas for Madison parks (Base map: (Madison GIS 2007), alterations by author 2007)

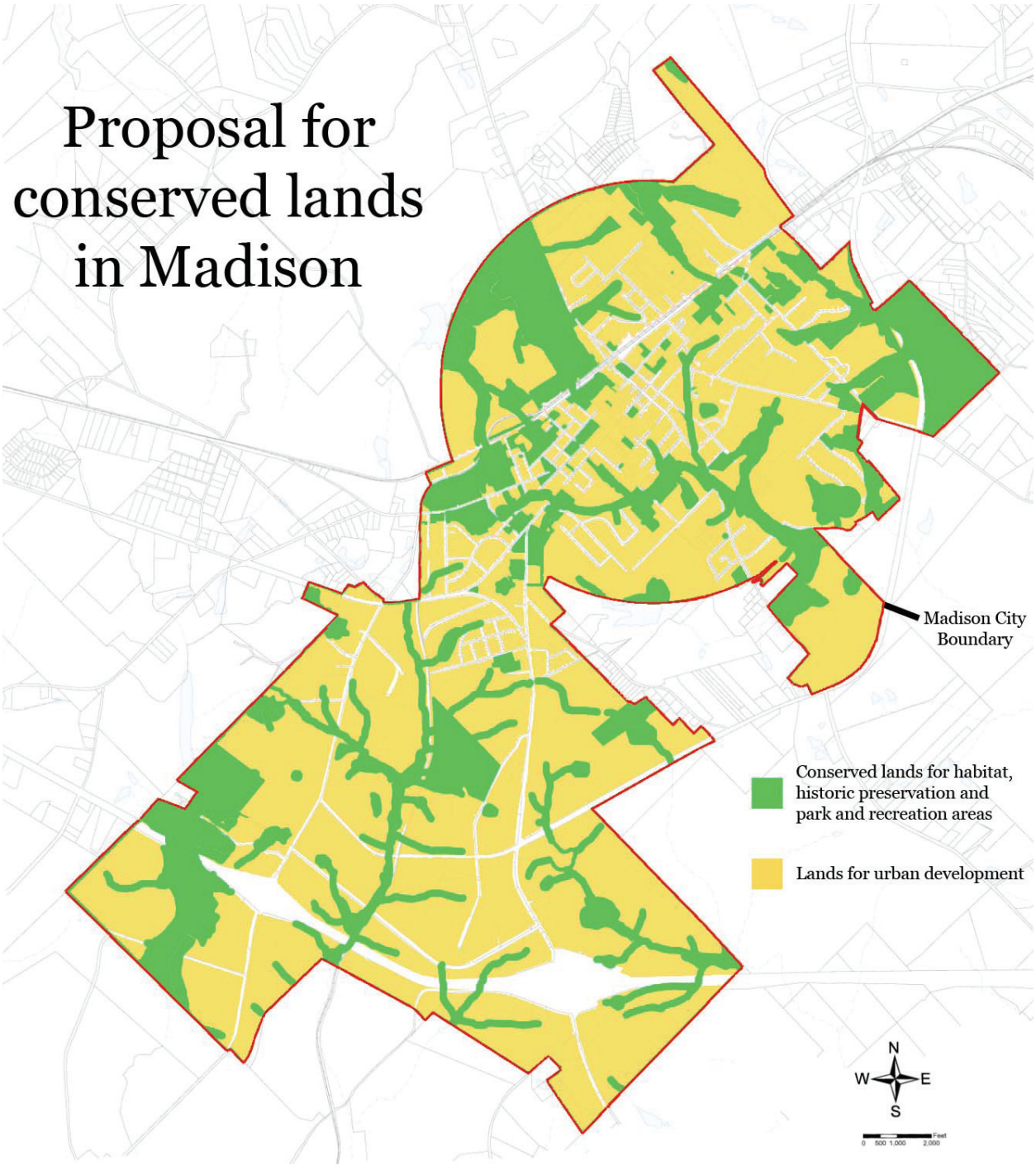


Figure 7.48 Proposal for conserved lands in Madison
(Base map: (Madison GIS 2007), alterations by author 2007)

5. land along rivers and streams;
6. land in flood plains;
7. public utility easements;
8. land set aside in conservation subdivisions (Little 1993, 192-193).

This guide to locating routes for greenways led to the suggested greenway path network proposed as part of Madison scenario for open space, and is shown along with suggested sites for new neighborhood and community parks in Figure 7.49.

The linkage provided by the greenway path network completes the network for open space that is presented in this scenario for open space in Madison. The result of this amalgam of conserved space in the historic district, park and recreation areas, conserved lands for habitat, and path network represent a synthesis of ideas from the parks movement, greenway movement, green infrastructures, and historic preservation, all coordinated using ideas inspired by metropolitan park planning and the landscape planning process (see Figure 7.50). This scenario, therefore, represents possibilities derived by applying the ideas developed out of the context of open space planning in our culture, and was created by using the processes and tools that provide precedent for planning.

This scenario provides just one of many possible outcomes to the design question posed by Madison's open space planning process. As a scenario, it offers one more tool to help decision makers synthesize and interpret the survey and analysis data by sorting through the possibilities that will match design solutions to the planning goals. It does not represent the final design; the scenario frames one approach to the possibilities that exist for conserving Madison's open spaces. It will provide feedback to all the parties in the planning process—decision-makers, designers, and technical professionals—who may in turn provide feedback responses to the survey and analysis and scenario design to continue moving the planning process toward fulfilling the goals that drive the process. Accompanying the scenario, and providing additional

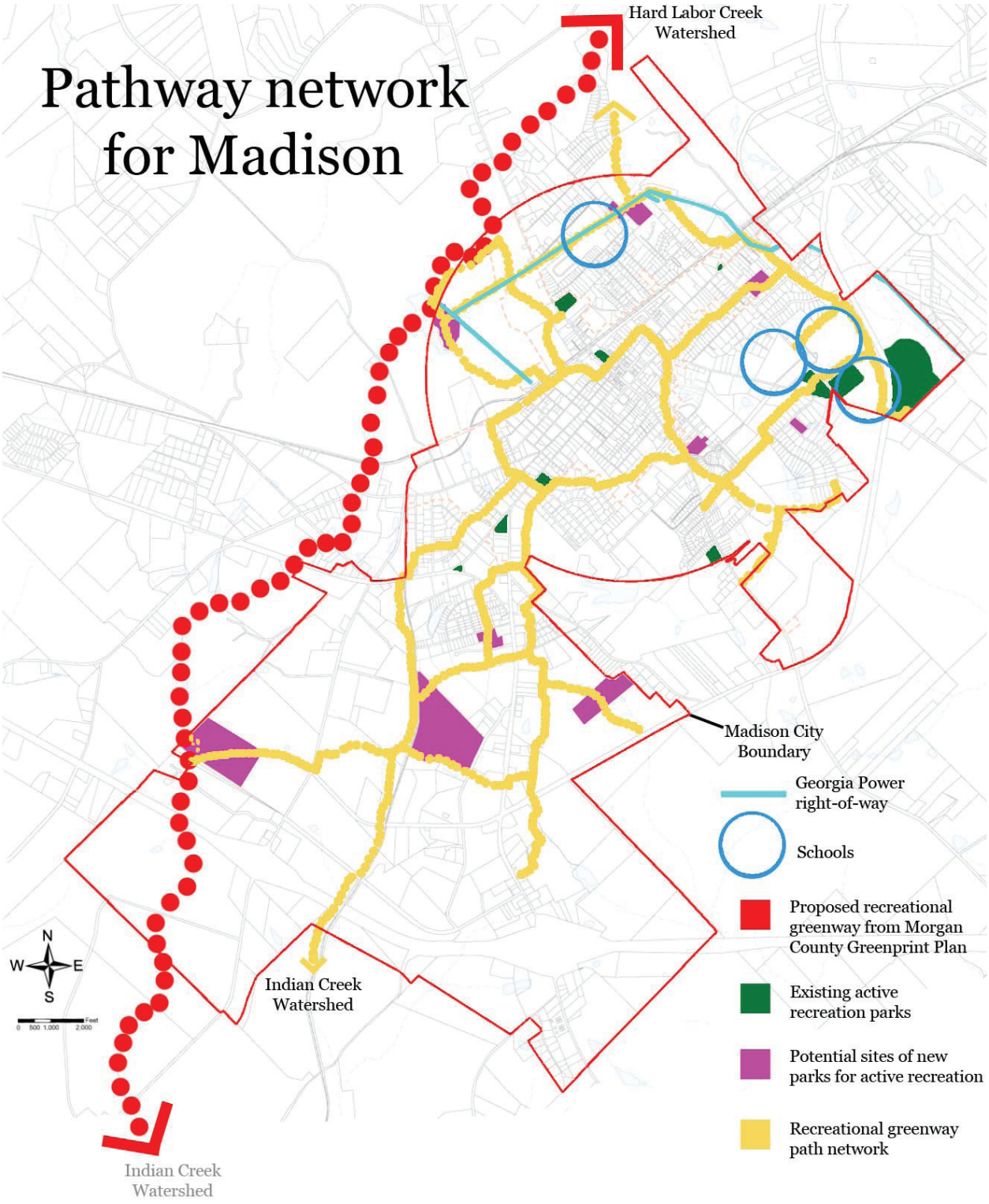


Figure 7.49 Pathway network for Madison
(Base map: (Madison GIS 2007), alterations by author 2007)

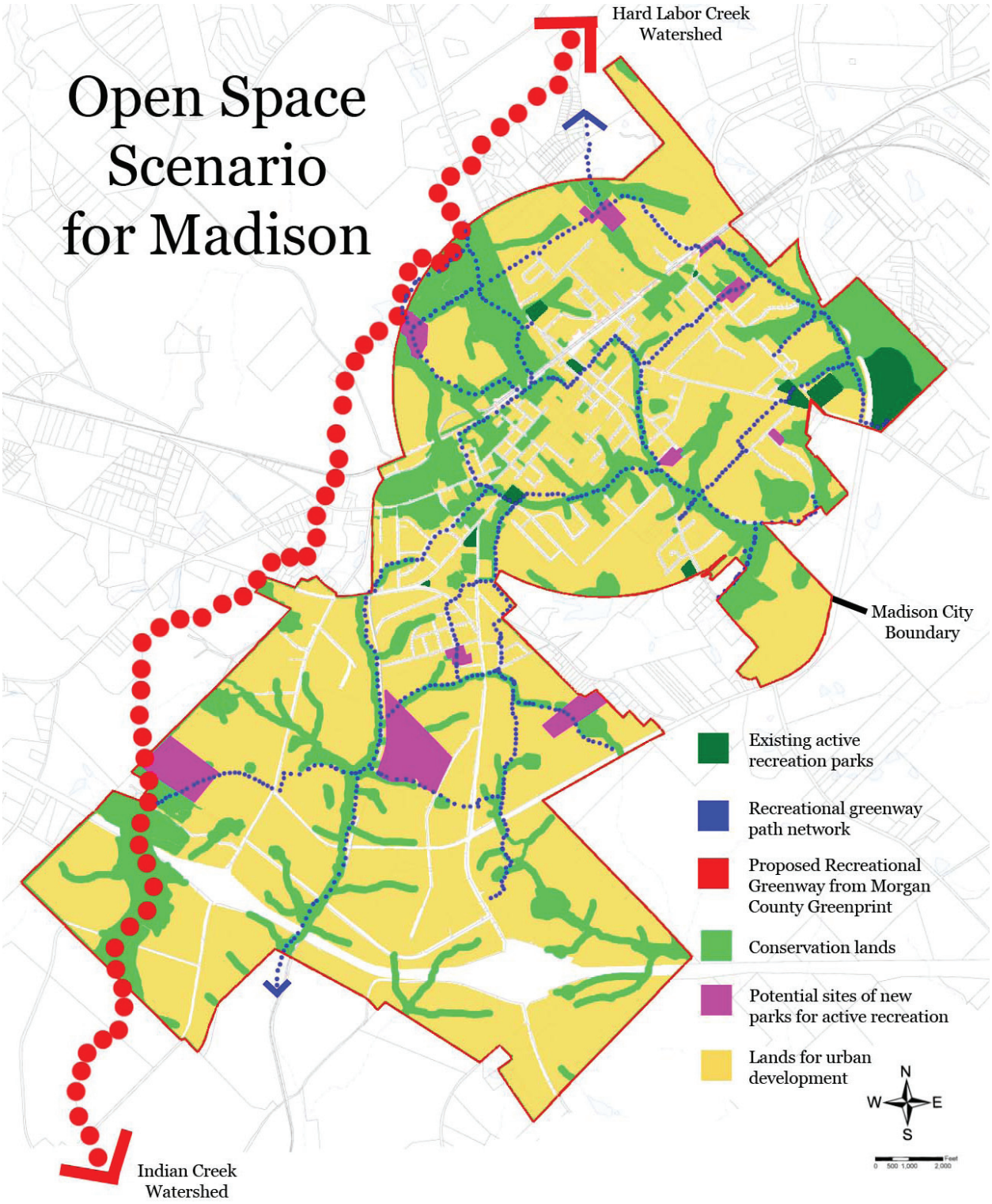


Figure 7.50 Open space scenario for Madison
(Base map: (Madison GIS 2007), alterations by author 2007)

background information for designers and decision-makers, is an implementation strategy for the ideas represented by the scenario. As seen in Chapter 3, the implementation is part of any planning process, and an ongoing understanding of how a plan will become reality is important information. An implementation strategy for this Madison open space scenario will be reviewed in the next section.

Implementation Strategy

The scenario developed by this thesis for conserving open space in Madison, consists of five coordinated elements: (1) open space in the historic district, (2) a buffer zone around parts of the historic district, (3) park and recreation areas, (4) lands conserved for habitat conservation, and (5) a path network. Implementation of any open space plan, whether it is developed from the scenario proposed by this thesis or any other design must take into consideration the mechanics of implementation. These mechanics function as part of the management approach needed to coordinate the ongoing planning, development and maintenance of any open space plan in a community.

Direction in the overall management of any community-wide plan traditionally comes from the community government, but could also come from a foundation (as in Waterford, Virgina) or a corporation (as at The Woodlands, Texas). In the case of Madison, municipal government structure already has in place a city planning department and commissions for greenspace and historic preservation. Ultimately, community groups may spearhead individual elements of the plan, such as a conservancy group for open space (the Morgan County Conservancy already exists), a historic preservation organization for protection of the open space in the historic district (three history non-profit groups also exist in the community), or a

greenway foundation that promotes development of a trail network. The efforts of these many parties will need to be coordinated, and that will most likely be the job of municipal government.

Like any open space plan, Madison's will need to develop a strategy for assembling the different pieces into a functioning system. The pattern of private and public ownership of the land in this open space network can rely on a variety of approaches to insure that the land targeted for inclusion in an open space plan will be dedicated to that purpose. It is anticipated that most of the open space lands defined within the open space network of the scenario proposed by this thesis will remain in private ownership. As already seen in Chapter 2 with the discussion on the conservancy movement, there has been a significant increase in the development and use of such land management tools as easements, and transfer of development rights. Communities use them today in order to conserve open space in partnership with private landowners. Municipal ordinances can also play a part in regulating some parts of private property to conserve open space. In many situations, outright purchase by the local government, a non-profit, or private individual will make the most sense for some pieces of the open space network. Lastly, in addition to implementing the physical elements of the plan, the implementation program presented here recommends a program of study to provide ongoing feedback. This will help guide the ongoing planning and decision-making that is part of any dynamic planning process. More details for each approach to land management and the need to have ongoing studies for feedback will be explored in the following sections.

Outright Purchase of Land

Outright purchase of land for open space is expensive and not necessarily recommended (Pruetz 1997, 68). It makes sense for certain elements such as parks and recreation areas, but most conservation areas do not need to be managed on a day to day basis like a park, and can

actually benefit from the stewardship of private individuals who want to enjoy their conserved property. Where purchase is deemed necessary, funding sources range from government programs (such as the Georgia Land Conservation Program, mentioned in Chapter 3), private foundations, and individual philanthropists. Communities may also want to raise the money through tax programs, as seen in the aforementioned examples of Suwanee, Georgia (where a bond measure was overwhelmingly passed to support its greenspace plan), and Boulder, Colorado (where a sales tax program has provided funds over the years to purchase lands for conservation (Smith 1993, 181)). For the Madison scenario, outright purchase of land for park and recreation areas will need to find funding sources, while the purchase of land for the other four pieces of the proposed scenario will need to be determined in an ongoing manner.

Open Space Regulation Through Ordinances

Applying land use regulations through ordinances will protect some of the open space. Already, the Madison zoning ordinance and land use plan attempts to limit subdivision in the historic district by requiring large minimum lot sizes for land parcels (unfortunately, as seen already, the minimum parcel size is too small to prevent a great deal of potential subdivision). There are political and legal implications to increasing those minimum lot sizes, mainly centered on the issue of, at what point does government regulation of private land result in a taking of private property (Daniels, Keller and Lapping 1995, 160)? Within acceptable bounds, maintaining as large a minimum lot size as possible for all lands designated for conservation will aid in maintaining open space.

The Madison zoning ordinance also includes rules limiting lot coverage of impervious surfaces to a total of no more than sixty percent of the total lot area on all but the downtown commercial parcels in the city (City of Madison 2007, 24). The zoning ordinance also describes

minimum setbacks from the sides of parcels. Setback limits along the sides of property creates undeveloped zones that can be incorporated into open space plans. This can be used to help create the buffer zone around the historic district and to maintain open space within parts of the historic district. The Madison zoning ordinance also is coordinated to include a Water Protection Overlay District composed of the aquifers, watersheds and wetlands (City of Madison 2007, 58). This overlay district maps the area covered by an ordinance governing development in those areas. It also regulates development of flood plains and provides for a 25 foot buffer along stream banks (which this thesis has recommended be changed to 75 feet, following the example of Suwanee, Georgia (City of Suwanee 2005)). Lacking from the zoning ordinance, and recommended for future adoption, is a provision for conservation subdivisions. It would offer yet another tool for protecting open space by working with the private sector to conserve open space in the land development process (refer to Chapter 2, under "Conservancy Movement and Open Space Planning").

Another ordinance used to coordinate protection of open space in Madison is the ordinance of subdivision regulations. It relates aspects of the zoning ordinance to the platting of land for development. The historic preservation ordinance will also be important in regulating the open spaces that contribute to significance and the integrity of the historic district. These ordinances, when taken together in a coordinated approach, offer significant opportunities for protecting buffer zones, wetlands, open space in the historic district, and important lands for conservation in parcels that may potentially be developed.

Easements

Conservation easements are an important tool for protecting private land for open space. As previously discussed in Chapter 2, easements are voluntary but legally binding encumbrances

upon property that restrict the right to develop property which remains in private hands and continues to enjoyed by the owners (with certain restrictions that are written into the easement agreement). The development rights to the property are sold or given away by a property owner, and received by a non-profit or government, which holds an easement on the property for those development rights. If given away, the development rights may qualify as a tax deduction for the property owner. In Madison, a conservation easement program would be useful for the protection of conserved lands in the historic district (where at least one conservation easement already exists), and also for lands proposed for habitat conservation.

Right-of-way easements may also be useful (Little 1990, 193; Flink and Searns 1993, 54). Most commonly used for utilities, easement agreements may also be used for the routes of paths. These paths may also piggy-back onto the rights-of-way utilized by utilities and railroads.

Transfer or Purchase of Development Rights

As already mentioned in Chapter 2, the conservancy movement has promoted the use of programs for the purchase of development rights (PDR) and transfer of development rights (TDR) to preserve open space. The goal of these programs is to secure the development rights of lands that are to be conserved. The difference is that a PDR program requires the outright purchase of development rights by a local government or private entity, while a TDR program is more involved, and involves transferring through sale the development rights in conservation zones to land owners who want denser development in other designated zones, or to a TDR bank which can hold the development rights until a buyer is found. The TDR program must be coordinated with the zoning ordinance, and requires the designation of sending areas and receiving areas for the development rights (Pruetz 1997, 3). A PDR program has the same funding issues as outright purchase programs for land. A TDR program uses the incentive of

higher density for development in receiving areas to pay for the purchase of development rights. Both programs have their merits and should be considered for conservation of land in Madison's historic district and its habitat conservation programs.

Feedback from Ongoing Studies

An important part of the planning process, as discussed in Chapter 3, is ongoing survey and analysis to provide feedback to designers and decision-makers in order that they may monitor and adjust a plan. Part of the implementation strategy of a Madison open space plan should include the involvement of researchers in the various fields of study that are connected with open space planning in order to provide that feedback. In some cases, additional planning studies, in part focused on the topics found in Figure 3.04, would contribute to additional insights into how Madison can achieve the goals of its landscape planning program. Various pieces of the planning process could be coordinated by the planning staff of the city of Madison with outside professionals, organizations with an interest in Madison's open space planning issues, and academic programs of colleges and universities in the region.

Certain aspects of the case study for Madison have already been identified as potential beneficiaries of further research. For example, planning for habitat conservation would be better served by establishing ongoing research and analysis programs with wildlife biologists and ecologists to establish measures of sustainability for habitat within the Madison ecosystem. In regards to the historic landscape of the Madison Historic District, a more in-depth survey of the historic landscapes of the community using the format developed by the National Park Service for a cultural landscape report (discussed in Chapter 3) would offer additional insights into the significance of landscape as a contributing resource. A cultural landscape report could help inform the development of a set of guidelines for protection of the landscape resource of the

district, to be used by the Madison historic preservation commission. These research possibilities represent just two of the studies that would contribute to strengthening the ongoing open space planning efforts of the community.

Planning studies related to open space in Madison point to the involvement of researchers in a diverse number of fields in addition to historic preservation, biology and ecology. These fields include real estate and development, economics, political science, sociology, landscape architecture and city planning, to name but a few. Many of these research needs are addressed in academic community outreach programs for community development. Madison could very well tap in to such programs to further its studies. Especially helpful would be multidisciplinary academic programs that address open space issues and community development.

Ongoing research can also be aided by involving non-profit organizations interested in open space planning and community development. As already seen, the Trust for Public Land offers its Greenprint planning process to communities interested in looking at open space issues. By contacting advocacy groups for historic preservation, open space, recreation and conservation, Madison can engage with community development programs offered by these organizations. In addition, the city could coordinate research and design input among these non-profit organizations, academic programs, independent professionals and city planning staff to create an ongoing study program for the implementation of Madison's open space plan. The incorporation of an ongoing program of research and study into the implementation strategy will provide important feedback to the community on its planning results and any need for adjustment in its ongoing open space planning efforts.

Conclusion of Implementation Program

The four avenues of approach for preserving open space that are presented here—outright purchase, regulation by ordinance, easements and transfer of purchase of development rights—will provide the tools needed to implement the scenario for open space presented by this thesis, or most other open space plans developed by the city of Madison. A program of ongoing studies to monitor and inform the continuing and dynamic planning process for Madison's open space should also accompany the implementation strategy.

In summary, the planning process provides the structure for identifying and setting goals for open space planning, and methods to develop plans to achieve those goals. The proposed scenario from this case study of Madison illustrates how a plan may be conceived. Knowledge of the tools for implementation may be combined with the information garnered from survey and analysis and the scenario proposal to guide decision-makers in choosing the final direction for open space planning. These decision-makers in Madison must weigh the analytical results derived from the planning process with other community goals and values, and will face ethical choices along the way to their final planning decisions. This dilemma will present challenges that will be visited in the next section reviewing the results of the case study for open space planning in Madison.

CHAPTER 9

CONCLUSION

This thesis has shown the feasibility of open space planning for a small, rural community that is faced with a future of rapid population growth. The open space planning proposal presented here has been built upon the context of the traditions in open space planning in America. Rooted in that cultural context, it employs the experience and tools found in precedents of open space planning, to illustrate how one community faced with rapid population growth can develop a strategy to preserve open space. The proposed open space scenario satisfies many of Madison's community goals and creates great possibilities in achieving a framework that guides community development, insures the protection of historic resources, promotes sustainability on a community-wide scale, and in the process engages members from diverse communities, with an end result of establishing open space conservation before available open space disappears. The results all answer to the goals rooted in the five premises set forth at the beginning of this thesis. In so doing, the plan exemplifies landscape planning as a multi-disciplinary process that draws upon understandings of both the arts and the sciences as foundations of the design process for landscape space.

How this proposal has responded to each of the five premises in favor of a planning response for Madison's open space bears closer inspection. Premise one was a call for action, to use the traditions and tools of planning to achieve community goals. It offered the simple argument that a plan will help direct the energies and aspirations of a community so that goals can be formulated and achieved. The Madison open space case study offers a planning example

for small communities, but this thesis proposal of a graduate student is no substitute for the actual planning process. That requires hard work from all sectors of the community, in a process that will engage as many community members as possible. The open space planning proposal presented here is, as already emphasized, only a suggestion of the possibilities offered by planning.

Those possibilities are particularly important in regards to answering the argument for protecting Madison's historic character through landscape planning. From its inception, the Madison Historic Preservation Ordinance was not meant to create a museum out of the Madison Historic District. Instead, the spirit that accompanied its creation in 1987 was for a living district that not only preserved the historic built environment but also allowed adaptation to the needs of modern day citizens. The proposal to conserve the remaining open lands in the district and create a buffer around portions of the district boundary should follow in that tradition even as it emphasizes a new community attitude towards the district's open space.

The choices the open space scenario presents to Madisonians, such as a change in attitude toward the open space of the historic district, will challenge them to weigh the costs and benefits of this proposed open space policy. While this thesis has offered many reasons why such a policy should be adopted, the choice remains for members of the community to decide for themselves how to proceed. This will entail making choices that point to many of the ethical dilemmas touched on in Chapter 5. For example, as with any form of conservation, the preservation of land in the historic district will require a sacrifice of resources from the community at large and the owners of the property that will be conserved. Some owners will need to be compensated for loss, and community resources that could be expended elsewhere will need to be committed to aid in this conservation program. Questions of fairness and balance

in the community will need to be addressed, since resources that could support other neighborhoods will be tied up in conservation programs for this one neighborhood. Yet, the historic district is important to the identity of the community, and acts as an amenity that draws tourists. It creates an important sense of place that is shared by the entire community and is emulated in the design of new developments in Madison. Its valued historic resources are irreplaceable, and this includes the open space, which this thesis proposes to firmly protect. This thesis' proposal for land conservation is sound in that it addresses community goals, yet it will still need to compete with other goals of the community, and the community will have to grapple with the ethical choices presented by this plan.

Ethical choices will also have to be made in the implementation of the plan for habitat conservation. While the second argument focuses on preserving the past, the focus on creating a community guided by principles of sustainability looks forward to creating an ecological framework that will guide future development in the community. The emphasis on habitat conservation goes a long way in meeting goals for sustainability and conservation. However, complexity in the dynamics of living systems makes fulfillment of sustainability goals a challenging planning goal. The proposed scenario focuses upon building a network of corridors centered on the hydrologic system. This ignores concerns that there needs to be a range of landscape elements to create healthier green networks (Hellmund and Smith, 2006, 31). In addition, while it anticipates connectivity with green infrastructure elements in the surrounding county, the scenario produced by the case study is limited to the small area bounded by the city limits. This limits its actual performance if the surrounding county does not participate in the planning process for habitat conservation. Also, green infrastructure corridors, especially narrow ones, create landscapes where "edge effects" dominate. This does not bode well if the

conservation network ends up being a network of riparian corridors dominated by plant and animal species favored by the edge effect, to the detriment of other plants and animals. An ethical conservation plan must be an effective conservation plan; otherwise it may backfire and only add to a decline in the integrity of natural systems in the community. The proposed infrastructure of conservation lands in this open space scenario will benefit from professional input of ecologists, wildlife biologists and botanists to help planners understand the living system dynamics that are present.

A tremendous amount of resources in time and money will need to be expended to create an infrastructure of open space for habitat conservation. The ethical dilemma poised by questions of choice regarding the expenditures of those resources will again surface, just as it did with conservation in the historic district (and shall be present in the implementation of other elements of the open space scenario). Should land be removed from the tax rolls? Will industrial development (and the jobs that go with it) be lost to other areas because of conservation choices of the community? Many questions like these will surface and conflicting community goals will again need to be resolved. Still, mindful of the potential shortcomings in the proposed scenario, it satisfies many community goals, lays groundwork for establishing sustainable community development, and offers the potential to connect people with their environment. In so doing, it will create a framework for planning that works to incorporate elements of the natural world into a balanced, overall development plan for Madison.

Balancing needs of both the natural and human worlds is one of the basic tenets of the discipline of landscape planning and landscape ecology (Thorne, 1993, 23). It is argued here that landscape planning, in order to succeed, must not only engage with as many members of a community as possible, but must reflect their social, political and cultural values for that success

to occur. The greatest support for an open space plan comes from its constituents. For Madison, the open space proposal of this thesis reaches out to (and through) each neighborhood of the community. It will be a physical presence in the daily lives of its potential constituents, rich and poor, white, black and Hispanic.

The proposed open space plan scenario illustrates physical connections, via a network of green infrastructure and paths. It provides a framework for planning possibilities that can engage with the diverse members of the community. Greenspace can link or divide communities, depending on the desires of those involved in the planning and management of those spaces, and the level of responsive engagement that comes from community members. The benefits of greenspace are far-reaching; it has the potential to be an asset by its effect upon property values, as an amenity, and as a link between people throughout the community; it offers possibilities for connecting with different peoples' need for recreation, desires for connection to nature, and wishes for a healthy environment. But to achieve these possibilities, a plan must be a response to the community's desire for open space; otherwise it will be an imposition that will face resistance and rejection. As emphasized throughout this thesis, community members must be part of the planning process. The goals and objectives that have driven the planning process of this case study for Madison were extracted from previous community plans, and will be stronger when the community is re-engaged again to actually plan its open space.

The final premise expounded at the opening of this thesis was based upon observations that land available for open space conservation will disappear rapidly once metropolitan growth arrives. The prospect for future Madisonians is that a diminishing amount of open space will present limited opportunities for future open space planning, possibly with little or no space left to adequately meet future needs to protect historic resources, develop parks and recreation areas,

and establish habitat conservation. The planning process illustrated in the case study and its resultant open space scenario provide an assessment of the open space opportunities available today, and one possible outcome for the community. It may not be a valid proposal for very long, given the rate of change that is occurring in Madison. But it does offer an example for communities like Madison of how to seize the moment and plan for their futures. It is my hope that the process explained in this thesis and its open space proposal for Madison will help guide it in its planning process. At the very least, this thesis establishes a starting point for small towns like Madison to set in motion a plan that will protect today's open space for future generations.

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