Morrow Mountain State Park
General Management Plan

GENERAL MANAGEMENT PLAN

FOR

MORROW MOUNTAIN STATE PARK

Department of Environment, Health, and Natural Resources

Division of Parks and Recreation

Planning and Development Section

January, 1993

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INTRODUCTION

Planning is an essential element of effective and efficient park administration and management. The North Carolina General Assembly acknowledged its importance by passing state parks system legislation that includes planning requirements.

The 1987 State Parks Act (G.S.114-44.7 through 114-44.14) stipulates that a State Parks System Plan be prepared. Such a plan was completed in December of 1988. It evaluated the statewide significance of parks, identified duplications and deficiencies in the system, described the resources of the system, proposed solutions to problems, described anticipated trends, and recommended means and methods to accommodate trends.

The State Parks Act also requires each park to have an individual general management plan. The general management plans are required to:

> *...include a statement of purpose for the park based upon its relationship to the System Plan and its classification. An analysis of the major resources and facilities on hand to achieve those purposes shall be completed along with a statement of management direction. The general management plan shall be revised as necessary to comply with the System Plan and to achieve the purpose of the [State Parks Act].*

The general management plan (GMP) is to be a comprehensive five-year plan of management for a park unit. GMP's function to:

1. describe park resources and facilities;
2. state the purpose and importance of each park unit;
3. outline interpretive themes and propose locations for informational and interpretive facilities;
4. analyze park and recreation demands and trends in the park's service area;
5. summarize the primary laws guiding park operations;
6. identify internal and external threats to park natural and cultural resources, and propose appropriate responses;
7. identify and set priorities for capital improvement needs;
8. analyze visitor services and propose efficient, effective, and appropriate means of responding to visitor needs; and
9. review park operations and identify actions to support efficient and effective park administrative procedures.

The GMP for Morrow Mountain State Park, developed with public involvement, is intended to serve these purposes.

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I. DESCRIPTION OF PARK RESOURCES AND FACILITIES

LOCATION

Morrow Mountain State Park is located in the Piedmont province of North Carolina in Stanly County. Albemarle, the county seat, is five miles west of the park via NC 740. The Yadkin and the Pee Dee rivers, different names for the same water course, form the park's eastern boundary. The river has been dammed to form Lake Tillery, which abuts the park for 5.5 miles of shoreline.

LAND BASE

The park was established in 1935 when over 1800 acres of land around and including Morrow Mountain were donated to the state. Additional acreage has subsequently been added to bring the total acreage to 4,693 as of 1992.

The park's landscape is dominated by monadnocks, low mountains composed of extrusive igneous rock and capped with rhyolite, an erosion-resistant volcanic rock. Morrow Mountain is the largest of several monadnocks in the park that represent the topography and geology of the ancient Uwharrie Mountains. The landbase contains excellent examples of five plant communities: piedmont monadnock forest, dry-mesic oak-hickory forest, mesic mixed hardwoods, piedmont/coastal plains heath bluff, and piedmont/low mountain alluvial forest.

VISITOR USE FACILITIES

Visitor use facilities at Morrow Mountain State Park are more extensive than most state parks in North Carolina and reflect the types of development that were produced by the Civilian Conservation Corps. There is a museum and a lodge that is used as the park office as well as for group meetings and interpretive exhibits. Individual and group picnic areas are available, as well as the only swimming pool located in a North Carolina state park. Fifteen miles of hiking trails wind through the park and 16 miles of bridle trails are available to serve equestrians.
Lake Tillery provides boating opportunities. A boat ramp is open to the general public for the launching of private boats. Rental canoes and row boats are also available.

A wide range of camping facilities are available. There are 106 tent and trailer campsites that are open throughout the year. Two primitive camping areas are available, a youth group tent camping area and a backpack camping area. Morrow Mountain is one of the two state parks offering cabin rentals. Six cabins are available from March through November.

HISTORY OF THE PARK AREA

Native Americans lived in the Uwharrie Mountains area for about 10,000 years prior to the arrival of European settlers. The mountains contained the raw materials necessary for making stone tools. The hard, fine-textured rhyolite found in the park was useful for making tools and points. The park protects one of the most significant prehistoric quarry sites in the southeastern United States. The park also contains prehistoric camps, villages, burial grounds, and seasonal fishing sites. Early documentation indicates the presence of the Wapona, Saura, and Catawba tribes in the general vicinity.

By the 19th century, early settlers established Tindalesville where ferry service crossing the Yadkin and Pee Dee rivers existed. Although the town was later abandoned, horticulturalist and medical doctor Francis Kron purchased a small farm in the area and expanded it to over 6000 acres before his death in 1883. Dr. Kron's homesite still exists as one of the major cultural resources at Morrow Mountain State Park.

The mountain became known as "Naked Mountain" after a hurricane stripped the mountain of its trees in 1884, giving it a bald appearance. The Kron farm was sold by the heirs and eventually became the property of J.M. Morrow, a local landowner and the man for whom Morrow Mountain was named when the park was established.

Local interest in establishing a state park at Morrow Mountain resulted in a committee being formed in 1930 to generate support for the project. The committee was largely responsible for the enactment of Chapter 213, Public-Local Laws of 1935, that led to the purchase of the first park land. The law authorized the Stanly County Board of Commissioners to issue $20,000 in bonds for the purchase of land, which was to be turned over to the state of North Carolina for development and administration. Over 1800 acres had been donated to the state by 1935 through this process.

A park master plan was developed through a cooperative program between North Carolina and the National Park Service. The effort was part of a federal program to assist states in developing and beautifying new park sites that could subsequently be operated by state governments. The master plan was completed in February, 1935 but a great deal of work under its general guidelines had already taken place.

Morrow Mountain State Park was developed initially by the Civilian Conservation Corps (CCC) and the Works Progress Administration during the late 1930's and early 1940's. Early development included a two-mile entrance road, a picnic area with a large shelter, and a swimming pool with a bathhouse. Before the CCC disbanded, it also built the "Uwharrie Lodge" (a meeting and exhibits area), rangers' residences, maintenance area, and enlarged the picnicking and parking facilities on top of Morrow Mountain.

Morrow Mountain State Park was officially dedicated on June 29, 1940, in a celebration that included an address by the governor. During the next decade, state funding paid for extensive maintenance work as well as the tent and trailer campground, a boathouse and docks, vacation cabins, and an improved maintenance and operations area.

Local interest in Dr. Kron's life and homesite sparked an effort in the early 1960's to research and restore the site. In addition to his horticultural experiments, Kron was known for his travels throughout the region providing medical care to the residents. The Kron house was restored, and his medical office and flower house were reconstructed. These buildings are used to portray the homestead as it originally appeared.

II. PARK PURPOSE STATEMENT

STATE PARKS SYSTEM MISSION STATEMENT

The North Carolina state parks system exists for the enjoyment, education, health, and inspiration of all our citizens and visitors. The mission of the state parks system is to conserve and protect representative examples of the natural beauty, ecological features, and recreation resources of statewide significance; to provide outdoor recreation opportunities in a safe and healthy environment; and to provide environmental education opportunities that promote stewardship of the state's natural heritage.

MORROW MOUNTAIN STATE PARK PURPOSE STATEMENT

Morrow Mountain State Park was established in 1935 to protect and provide public access to representative examples of the unique biologic, geologic, archaeologic, scenic, and recreation resources of the Uwharrie Mountains. The park resources and programs are intended to promote the knowledge, health, and happiness of the residents of and visitors to this region, both now and in the future. A significant portion of the park was donated to the state by local citizens, with the condition that the land be developed and used as a public park or revert back to the original owners.

The park's most significant geological resource is the monadnocks, low mountains composed of extrusive igneous rock and capped with rhyolite, an erosion-resistant volcanic rock. Morrow Mountain is the largest of several monadnocks in the park that represent the topography and geology of the ancient Uwharrie Mountains. Underlying the whole region is slate that was formed 500 million years ago when volcanic ash settled to the bottom of a shallow sea.

Representative examples of significant biological resources in the park include high quality plant communities, diverse and abundant wildlife populations, and a seasonal habitat for the endangered bald eagle. The park protects a 1400-acre registered natural area containing five plant communities: piedmont monadnock forest, dry-mesic oak-hickory forest, mesic mixed hardwoods (piedmont subtype), piedmont/coastal plains heath bluff, and piedmont/low mountain alluvial forest. The park's natural communities illustrate the dynamic nature of the forest ecosystem. The forest has been shaped by complex cycles of disturbance and regeneration resulting from natural causes, such as ice storms and wind storms, and human activities, such as farming and timbering. The park protects natural processes as well as species and communities.

Significant archaeologic resources include both prehistoric and historic features. The hard, fine-textured rhyolite found in the park was prized by Native Americans for making tools and points, and the park protects one of the most significant prehistoric quarry sites in the southeastern United States. The park also contains prehistoric camps, villages, burial grounds, and seasonal fishing sites. Significant historic resources include the site of a ferry service crossing the Yadkin and Pee Dee rivers, the homesite of horticulturalist Dr. Francis Kron, and numerous rural farmsteads, homesites, and graveyards.

The park provides opportunities to view a variety of significant scenic resources including mountain vistas, wildlife, and lake front areas. Morrow Mountain is the highest point in the park at 936 feet above sea level and 600 feet above the surrounding landscape. Lake Tillery forms the eastern boundary of the park, providing several miles of largely undeveloped lake front.

Recreational opportunities at Morrow Mountain should be compatible with the protection of the park's unique natural resources. They should promote family solidarity and provide for the education, health, and happiness of all park visitors. Interpretation and education activities featuring the park's biologic, geologic, and archaeologic resources should be emphasized. The park's existing and potential trail system provides excellent access to the natural resources and many opportunities to view wildlife.

Morrow Mountain State Park's visitor services encourage the public to use and enjoy the park. A variety of overnight accommodations and water-based activities are appropriate to satisfy visitor preferences and encourage longer visits at the park.

III. SUMMARY OF INTERPRETIVE THEMES

The 1987 State Parks Act defines the purposes of the state parks system. It establishes that:

> *The State of North Carolina offers unique archaeologic, geologic, biologic, scenic and recreational resources. These resources are part of the heritage of the people of this State. The heritage of a people should be preserved and managed by those people for their use and for the use of their visitors and descendants.*

It further provides that:

> *Park lands are to be used by the people of this State and their visitors in order to promote understanding of and pride in the natural heritage of this State.*

One of the best methods of meeting these purposes is through environmental education. The Department of Environment, Health, and Natural Resources has adopted the following definition of environmental education:

> *Environmental education is a process that increases awareness, knowledge, and understanding of natural systems -- the interdependence of living things, the impact of human activities -- and results in informed decisions, responsible behavior, and constructive action.*

Morrow Mountain State Park, with its excellent representation of geology and habitat types found throughout the Uwharrie Mountains, is well suited to environmental education.

Morrow Mountain State Park has one primary interpretive theme and several secondary themes. The primary theme is North Carolina's only volcanic mountain range.

PRIMARY INTERPRETIVE THEME

NORTH CAROLINA'S ONLY VOLCANIC MOUNTAIN RANGE

The Uwharrie Mountains are an ancient volcanic mountain range with a long history of human habitation. The rocks in the park are primarily volcanic: rhyolite, basalt, green stone, and metamorphic slate. Rhyolite underlies most of the ridges and hills. Because of this rock's hardness, it was used extensively by Native Americans for making projectile points. Rhyolite tools have been found far from the park's location, from Maine to Florida and as far west as Ohio. Basalt, a magnesium and iron-rich rock, is found in the rounded boulders scattered throughout the park.

SECONDARY INTERPRETIVE THEMES

Twelve secondary interpretive themes have been identified. They are:

Native Americans
Aquatic Ecology
Aquatic Recreation
Plant Communities
Park History
Conservation Ethics
N.C. State Parks System
Local Cultural History
Wildlife
Geologic Features
Reptiles and Amphibians
Birds

IV. DEMAND ESTIMATION

ANNUAL VISITATION TRENDS

Morrow Mountain State Park experienced stable visitation from 1980 through 1991 except for an unusual decrease in 1989. Omitting 1989, the visitation has averaged about 295,000 since 1980 and has varied only about 10 percent from this average. The steady trend reflects the park's status as an established visitor destination, with facilities that are typically used to capacity. Visitation at Morrow Mountain State Park is the seventh highest in the state parks system.

Since 1980, the highest visitation recorded was 332,837 (1980) and the lowest visitation was 229,315 (1989). The low number of visitors in 1989 represented a decrease of 37 percent from the previous year. The decrease was probably the result of a renovation project that closed the swimming pool, because the greatest decreases were recorded in the summer when the pool would normally be open (Figure 1).

MONTHLY VISITATION TRENDS

Morrow Mountain State Park's main visitor-use season extends from April until October (Figure 2). This heavy summer use is a reflection of the park's popularity as a vacation spot because of its attractive tent camping, swimming, boating, and cabin camping. Between 1988 and 1990, Morrow Mountain State Park's monthly visitation averaged over 35,000 for two summer months (June and July) and averaged between 22,000 and 30,000 during April, May, August, September, and October. March and November have averaged about 18,000 visits. The three winter months have averaged less than 11,000 visits.

POPULATION TRENDS

The population in the area served by Morrow Mountain State Park is identified as the following eight counties for this analysis: Anson, Cabarrus, Davidson, Mecklenburg, Montgomery, Rowan, Stanly, and Union. The park is located in Stanly County, and six counties are contiguous to Stanley: Anson, Cabarrus, Davidson, Montgomery, Rowan, and Union. Mecklenburg County, the state's most populated county, is less than one hour away. The total population in the region was 1,030,446 in 1990. It is estimated that during the next ten years, the population will grow by 17 percent (175,502 people) to a total of 1,205,948 in 2000.

ANNUAL VISITATION TRENDS
1980 - 1990

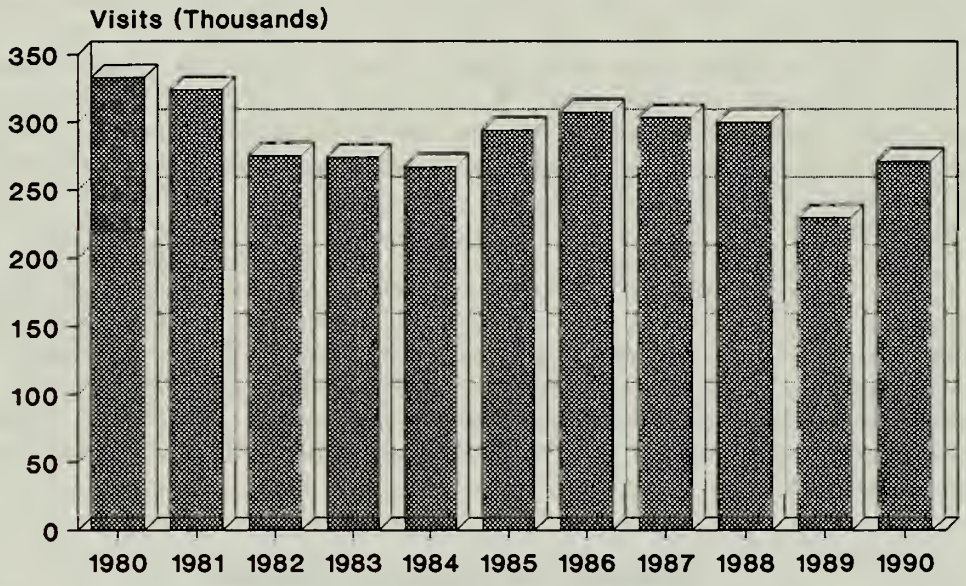


Figure 1. Morrow Mountain State Park Annual Visitation Trends 1980 - 1990

MONTHLY VISITATION

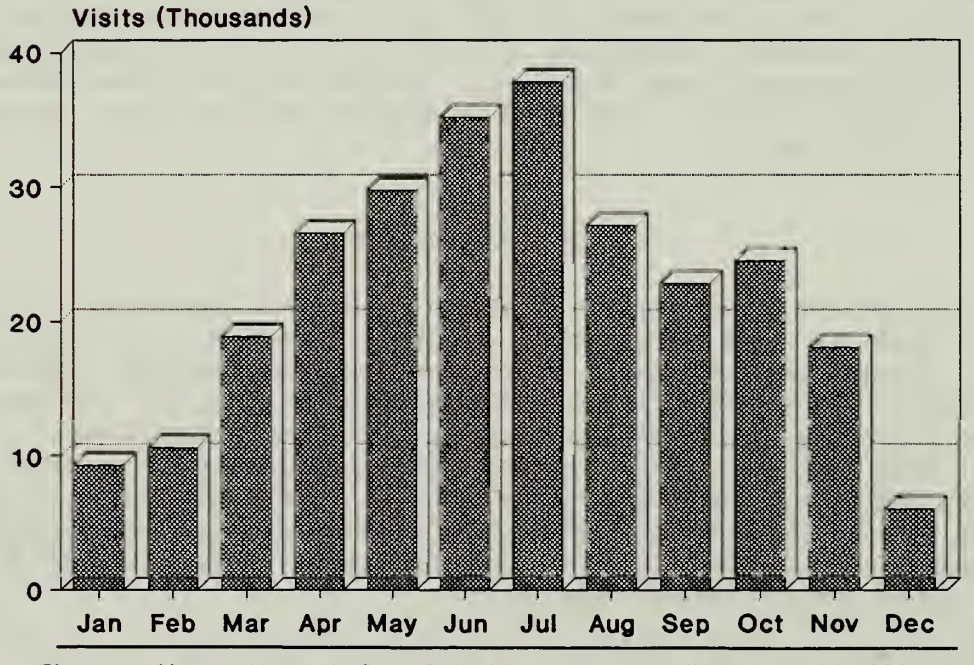


Figure 2. Morrow Mountain State Park Average Monthly Visitation 1988-1990

POPULATION TRENDS BY AGE GROUP

The increase in the region's population will be reflected in increases in nearly all age groups (Figure 3). Only the 20-29 year old age group will remain constant or decrease. Other age groups will increase for several reasons. The youngest age groups will increase as baby boomers have children after delaying families. The baby boomer generation (born 1946 through 1964) will significantly increase the 40-59 year-old age groups where the largest percentage increase will occur. Increased life expectancies are increasing the over 70 year old group.

OUTDOOR RECREATION PARTICIPATION IN NORTH CAROLINA

The five most popular outdoor recreation activities in North Carolina are walking for pleasure, driving for pleasure, viewing scenery, beach activities, and visiting historical sites. Three out of every four households participated in walking for pleasure at least once in the past 12 months (Table IV-1). In addition to the five most popular activities, over fifty percent of the households responding to a 1989 survey participated at least once in the following activities: swimming (in lakes, rivers, or oceans), visiting natural areas, picnicking, attending sports events, visiting zoos, and freshwater fishing.

The North Carolina Outdoor Recreation Participation Survey was mailed to 3,100 randomly selected residents in the spring of 1989. Forty-five percent or 1,399 people returned completed surveys. Each person receiving the survey was asked to estimate the number of times the members of his household had participated in each of 43 activities. The survey results provide insight into the current participation of North Carolinians in a wide range of outdoor recreational activities.

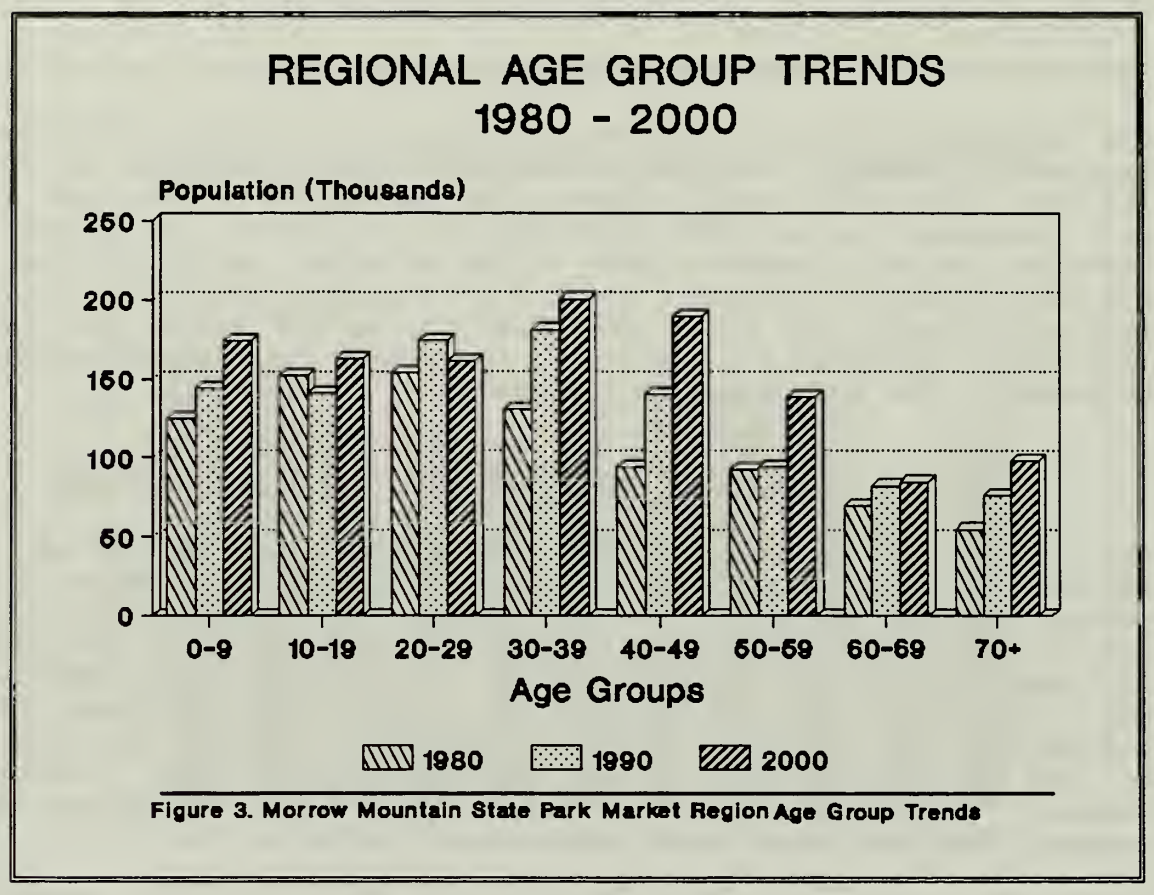


Figure 3. Morrow Mountain State Park Market Region Age Group Trends

Table IV-1. Outdoor recreation activities ranked by popularity

Rank	Activity	Percentage of Households Participating
1.	Walking for Pleasure	75%
2.	Driving for Pleasure	72
3.	Viewing Scenery	71
4.	Beach Activities	69
5.	Visiting Historical Sites	62
6.	Swimming (in Lakes, Rivers, and Oceans)	54
7.	Visiting Natural Areas	53
8.	Picnicking	52
9.	Attending Sports Events	52
10.	Visiting Zoos	51
11.	Fishing - Freshwater	50
12.	Use of Open Areas	41
13.	Swimming (in Pools)	40
14.	Fishing - Saltwater	38
15.	Attending Outdoor Cultural Events	35
16.	Bicycling for Pleasure	32
17.	Other Winter Sports	31
18.	Camping, Tent or Vehicle	29
19.	Softball and Baseball	28
20.	Hunting	28
21.	Use of Play Equipment	28
22.	Power Boating	26
23.	Trail Hiking	26
24.	Jogging or Running	24
25.	Basketball	24
26.	Nature Study	22
27.	Golf	22
28.	Target Shooting	20
29.	Water Skiing	19
30.	Camping, Primitive	14

PRIORITIES FOR PUBLIC OUTDOOR RECREATION FUNDING

The North Carolina Outdoor Recreation Survey asked residents to identify and rank their future public outdoor recreation needs. Priorities for publicly funded outdoor recreation were measured by combining the survey results on future demand and public funding priorities. Each activity received a rating of high, moderate or low for both future demand and support of public funding.

These ratings were combined to produce a score from one to nine, with one the highest priority and nine the lowest. The combined

rating is produced using a matrix that assigns a higher priority to support of public funding than to future demand for the outdoor recreation activity (Table IV-2).

Table IV-2. Scoring Matrix for Future Recreation Priorities

Future Demand	Public Support		
	High	Moderate	Low
High	1	3	6
Moderate	2	4	8
Low	5	7	9

Based on this analysis, the activities rated as the highest priorities are activities that are currently or could potentially be provided at Morrow Mountain State Park. The activities include walking for pleasure, tent or vehicle camping, picnicking, visiting natural areas, viewing scenery, trail hiking, and using open areas. (Table IV-3)

Table IV-3. Priorities for Future Outdoor Recreation Activities

Activity	Code
Walking for Pleasure	1
Camping, Tent or Vehicle	1
Picnicking	1
Beach Activities	1
Fishing - Freshwater	1
Attend Outdoor Cultural Events	1
Visiting Natural Areas	2
Use of Play Equipment	2
Visiting Zoos	2
Visiting Historical Sites	2
Bicycling for Pleasure	3
Swimming (in Pools)	3
Viewing Scenery	4
Trail Hiking	4
Use of Open Areas	4
Swimming (Lakes, Rivers, Ocean)	4

RECREATIONAL OPPORTUNITIES IN CLOSE PROXIMITY

Morrow Mountain State Park is an important recreation resource in the Piedmont because it offers a wide range of natural resource-oriented recreational facilities and opportunities in combination with an extensive natural landbase. The park offers more accommodations suitable for families than are available at nearby U.S. Forest Service sites and also provides a higher quality natural setting than do commercial campgrounds.

The U.S. Forest Service operates a 23-site campground on Badin Lake offering swimming, boating, and fishing, but does not provide showers or modern restrooms. The Uwharrie National Forest has three similar campgrounds without access to Badin Lake (East Morris Mountain - 12 campsites, West Morris Mountain - 18 campsites, and Woodrun - 8 campsites) and one hunting camp (Uwharrie Hunt Camp - 8 campsites). The National Forest also offers long distance trails that complement those at Morrow Mountain because trails exist for both hikers and equestrians.

Two local recreation departments operate large campgrounds within a one hour drive of Morrow Mountain State Park. Dan Nicholas Park, near Salisbury, has 55 campsites, swimming, boating, and fishing. Cane Creek Park in Union County offers 108 campsites, swimming, boating, and fishing.

Commercial campgrounds in close proximity to Morrow Mountain are the Norwood Campground (100 sites, boating, fishing, and a swimming pool) and the Zooland Campground (200 sites and a swimming pool). Although these areas help meet the demand for camping, the close spacing between campsites and the limited landbase provide a significantly different camping experience than that found at Morrow Mountain State Park.

No public agency-operated rental cabins are available in the region served by Morrow Mountain.

MANAGEMENT IMPLICATIONS OF DEMOGRAPHIC AND SOCIOECONOMIC TRENDS

Listed below are management implications of trends identified in the Systemwide Plan for the State Parks System relevant to Morrow Mountain State Park.

- Families constitute 60 percent of the groups visiting the state parks system, according to the 1986 Public Area Recreation Visitor Study (PARVS) survey in North Carolina. Population projections indicate that the birth rate will continue to increase through the end of the century. As these new families demand recreation and park opportunities, the system should experience increased demand for children's programs and facilities. With a growing population of children, it will be important to develop interpretative

centers and environmental education programs that instill an environmental ethic in the new generation.

- The growing elderly population has more leisure time but participates in active leisure activities less frequently than do younger age groups. Declining health is the most frequent reason cited for giving up an activity. The elderly are therefore more concerned with the safety, quality and accessibility of park facilities. Bus tours, which provide the elderly with greater mobility and opportunities for socializing, are becoming increasingly popular. State parks should be capable of accommodating bus tours and large school groups with adequate facilities and appropriate information and education programs.

- The increasing cosmopolitan and educated segment of the North Carolina population participates in outdoor recreation more frequently, usually on weekends and close to home. This pattern creates a greater demand for higher quality leisure delivery systems near population centers. College graduates participate in the following natural-resource-oriented activities at a rate double that of non-graduates: canoeing/kayaking, sailing, backpacking, day hiking, ice skating, and cross-county skiing.

- As two-wage-earner families become more common and urban lifestyles predominate, these families will have less time to plan leisure outings. A better system of disseminating information about state parks will help increase public awareness of park opportunities available and reduce public frustration in accessing park resources.

- Most, if not all, emerging social groups will expect state park units to provide more and better services, such as exhibits, brochures, decent toilets, and visitor centers.

- The state parks system should experience a continued demand for dispersed-use opportunities, opportunities that are threatened by greater visitation, encroaching development, and environmental degradation.

- The growing number of service sector jobs, which are relatively low paying, will create an economic class limited in its ability to afford private and commercial recreation opportunities. Public parks will play an important role in providing inexpensive recreation opportunities.

- Bicycling is the second fastest-growing recreational activity in the United States, and more park visitors will be bringing bicycles to the parks. State parks are logical locations for camping areas and for the tour biking routes identified by the Department of Transportation Bicycling Highways Program. Bike parking and storage facilities will make state parks more attractive.

- The influence of the environmental lobby will increase as a result of increased public attention focused on problems such as air pollution, acid rain, changing climate patterns, droughts, and accelerating development. Donations and memberships in environmental organizations have been steadily increasing and expanding the base of support for action on environmental issues. These environmental problems do not have short-term solutions and will continue to generate public concern and support for government action.

- The elderly are potentially the most influential interest group in the 21st century. Their growing numbers, education and organization as well as their voting and spending power will be dominant factors in public decisions. The expectations for park and recreation areas and facilities will be for improved quality, accessibility, and safety. Responding to these expectations and developing an elderly constituency will be advantageous.

V. SUMMARY OF LAWS GUIDING PARK MANAGEMENT

There are many federal and state statutes, state and federal executive orders, and administrative rules and policies that govern the operation of the state parks system. This chapter includes a brief discussion of the primary legal basis for the existence and operation of the state parks system. It also includes other legal issues of particular concern at Morrow Mountain State Park.

STATE LEGAL MANDATES

NORTH CAROLINA CONSTITUTION

Article XIV, Section 5 of the North Carolina Constitution sets overall policy by broadly defining the conservation and protection of natural resources and the acquisition of such resources as a proper function of government. The amendment reads in part as follows:

> *It shall be the policy of this State to conserve and protect its lands and waters for the benefit of all its citizenry, and to this end it shall be a proper function of the State of North Carolina and its political subdivision to acquire and preserve park, recreation, and scenic areas, to control and limit the pollution of our air and water, to control excessive noise, and in every other appropriate way to preserve as a part of the common heritage of this state its forests, wetlands, estuaries, beaches, historical sites, open land, and places of beauty.*

STATE PARKS ACT

The State Parks Act (G.S. 113-44.7 through 113-44.14) sets forth a mission statement for the state parks system. It states that the system functions to preserve and manage representative examples of significant biologic, geologic, scenic, archaeologic, and recreational resources, and that park lands are to be used by the people of the state and their visitors and descendants in order to promote understanding of and pride in the state's natural heritage.

The State Parks Act also calls for development and periodic revisions of a System Plan to achieve the mission and purpose of the state parks system in a reasonable, timely, and cost-efficient manner. The Act describes System Plan components and requires that public participation be a component of plan development and revisions.

The State Parks Act also calls for the classification of park

resources and development of general management plans (GMPs) for each park. GMPs are to include a statement of park purpose, an analysis of major resources and facilities, and a statement of management direction.

POWERS AND DUTIES OF THE DEPARTMENT OF ENVIRONMENT, HEALTH, AND NATURAL RESOURCES

This act authorizes the Department to make investigations of the resources of the state and to take such measures as it may deem best suited to promote the conservation and development of such resources. The Act also authorizes the Department to care for state forests and parks and other recreational areas now owned, or to be acquired by, the state. (G.S. 113-8)

STATE NATURE AND HISTORIC PRESERVE DEDICATION ACT

The General Assembly in 1973 passed the State Nature and Historic Preserve Dedication Act, to "prescribe the conditions and procedures under which properties may be specifically dedicated for the purposes enumerated by Article 14, Section 5 of the North Carolina Constitution (Conservation of Natural Resources)" (G.S. 143-260.6 to 143-260.10). A three-fifths majority of the General Assembly is required to add or remove land from a state nature and historic preserve. Morrow Mountain State Park is a component of the State Nature and Historic Preserve.

NORTH CAROLINA ENVIRONMENTAL POLICY ACT OF 1971

Recognizing the profound influence that man's activity has on the natural environment, the General Assembly passed the Environmental Policy Act "*to assure that an environment of high quality will be maintained for the health and well-being of all...*"

The Act declares that:

> *It shall be the continuing policy of the State of North Carolina to conserve and protect its natural resources and to create and maintain conditions under which man and nature can exist in productive harmony. Further, it shall be the policy of the State to seek, for all its citizens safe, healthful, productive, and aesthetically pleasing surroundings; to attain the widest possible range of beneficial uses of the environment without degradation, risk to health or safety; and to preserve the important historic and cultural elements of our common inheritance.* (G.S. 113A-3)

While there are other General Statutes that concern the state parks system and the environment, the above-described statutes, along with Article XIV, Section 5, of the North Carolina Constitution,

largely define the purposes of the state parks system and serve to guide the operation of state park system units.

DEED RESTRICTIONS

In 1937, a portion of the park was donated to the state by local citizens, with the condition that the land be developed and used as a public park or revert to the original owners. In 1941 Carolina Power and Light Company (CP&L) leased to the state park land along Lake Tillery below the 246-foot elevation line. While the lease is for 99 years, CP&L can cancel the lease on 60 days notice and flood the leased property.

FEDERAL LAWS

LAND AND WATER CONSERVATION FUND ACT OF 1965

The federal Land and Water Conservation Fund Act (PL 88-578) offers protection and places restrictions on fund-assisted outdoor recreation areas.

By virtue of receiving Land and Water Conservation Fund (LWCF) grant assistance, most of the state parks system, including all of Morrow Mountain State Park, is subject to LWCF rules and regulations. Property acquired or developed in whole or in part with LWCF assistance cannot be converted to other than public outdoor recreation use without federal approval. A conversion may only take place if approved by the secretary of the Interior, and only then if replacement property of equal fair market value and reasonably equivalent usefulness and location is made.

LWCF requirements include: programming, operating and maintaining areas in a manner that encourages public participation; maintaining the property so it appears attractive and inviting to the public; maintaining property, facilities and equipment to provide for public safety; keeping facilities, roads, trails and other improvements in reasonable repair throughout their lifetime to prevent undue deterioration and encourage public use; keeping the park and facilities open for use at reasonable hours and times; and making future development meet LWCF rules and regulations. LWCF-assisted sites are periodically inspected by state and federal inspectors to ensure compliance with LWCF requirements.

STATE POLICIES

STATE PARKS SYSTEM MISSION STATEMENT

> *The North Carolina state parks system exists for the enjoyment, education, health and inspiration of all our citizens and visitors. The mission of the state parks system is to conserve and protect representative examples of the natural beauty, ecological features and recreation resources of statewide significance; to provide outdoor recreation opportunities in a safe and healthy environment; and to provide environmental educational opportunities that promote stewardship of the state's natural heritage.*

While the mission statement itself has no legal authority, it was written to concisely express the purposes for which the system exists. These purposes are legally mandated by many sources, including the North Carolina Constitution and state statutes, some of which are highlighted in this chapter.

MORROW MOUNTAIN STATE PARK MASTER PLAN

The master plan is to serve as a guide for development and management of park resources. It includes an analysis of cultural and natural resources as well as site analysis and development recommendations.

The master plan was developed with two primary objectives in mind: preserving and protecting the park's unique natural condition and character, and establishing a recreation program that provides an opportunity for public enjoyment of the park's assets and natural condition.

The master plan still serves to guide overall park development. During the general management plan process, the existing master plan was reviewed to determine if master plan proposals are still valid or if modifications are needed. At Morrow Mountain, GMP evaluation determined that major changes to the master plan are not needed.

VI. NATURAL AND CULTURAL RESOURCE MANAGEMENT

PLANT COMMUNITIES OF MORROW MOUNTAIN STATE PARK

BASIC OAK-HICKORY FOREST

This uncommon plant community covers 100 or more acres on Biles Mountain and is dominated by Carolina shagbark hickory (Carya carolinae-septentrionalis) with a mixture of oaks and scattered shrubs. Large portions of the community are covered by boulders and grasses. A number of rare and uncommon plants are known from this community type, and at least one of these species (a rare orchid, Hexalectris spicata) is found in the park. Deer browse appears to be a major factor in maintaining the current community, but cattle grazing and/or fire may have been factors in the past.

UPLAND DEPRESSION SWAMP FOREST

This community type, characterized as seasonally to intermittently flooded or saturated, has not been previously documented in the park but exists in several locations, with each site being unique. The one on Biles Mountain may be the most unique and may qualify as an Upland Pool. Another one exists east of the old service road that runs north from the old park entrance gate (east of Biles Mountain). A third one lies just east of the head of the Sugarloaf Mountain trail. All of these areas need further study for rare plant and animal species. These community types may serve as breeding habitat for one or more rare salamanders.

PIEDMONT MONADNOCK FOREST

This community type is found on all of the significant monadnocks in the park. Chestnut oak (Quercus montana) is usually a major component of these communities with variations of other species according to microclimate. Each of the monadnocks in the park has its own unique topographic and edaphic factors, and thus each of them has its own characteristic variant of this community type. This community has a large proportion of mature trees, especially chestnut oaks over 20 inches in diameter at breast height (dbh). Chestnuts oaks are an important food source for deer, squirrels, and turkeys.

DRY OAK-HICKORY FOREST

This community type is found on the drier sites outside of the chestnut oak-dominated communities. White oak (Q. alba) is the

dominant species, with other oaks and hickories common to drier sites.

DRY-MESIC OAK-HICKORY FOREST

This community type is found on most of the hills and on the monadnocks downslope from the chestnut-oak dominated community. A mixture of oaks and hickories dominate, including species more common to mesic sites such as red oak (Q. rubra), but white oak is the most common species. On south-facing slopes, this community type may grade into Dry Oak-Hickory Forest. Increased pine components, mostly short-leaf pine (Pinus echinata), is evidence of more recent logging.

MESIC MIXED HARDWOOD FOREST -- PIEDMONT SUBTYPE

This community is probably best represented along the deep ravine on the north side of Sugarloaf Mountain. The canopy is dominated by mesophytic species such as beech (Fagus grandifolia), red oak, tulip tree (Liriodendron tulipifera), and maples. With sufficient light penetration, these areas may have very rich herb layers.

PIEDMONT/LOW MOUNTAIN ALLUVIAL FOREST

This community type is well represented in the narrow floodplain of the Pee Dee River and along Mountain Creek. Typical canopy species include river birch (Betula nigra), sycamore (Platanus occidentalis), and tulip tree.

PIEDMONT/COASTAL PLAIN HEATH BLUFF

This community type is found on steep north-facing bluffs and usually has a sparse tree cover. Mountain laurel (Kalmia latifolia) and other ericacious shrubs are dominant, with a variety of herbs. The bluff along Mountain Creek is a prime example.

DISTURBED COMMUNITIES

There are a number of disturbed communities in the park, mostly associated with old fields and logged areas. Pines (both shortleaf and loblolly) and red cedar are prominent in these areas.

NATURAL HERITAGE PROGRAM ELEMENT OCCURRENCES

PRAIRIE BIRDFOOT-TREFOIL (LOTUS HELLERI)

This species is a candidate for federal listing as endangered or threatened. The population found at Morrow Mountain is located along the old road west of the parking area at the head of the Sugarloaf Mountain Trail. Most of the plants are on the north side of the roadbed, but they extend out into the roadbed. This plant lives in open woods and along roadsides. In the past, suitable habitat may have been maintained by fire. Current mowing practices and tree removal are helping to maintain the population, but the need for prescribed burning in this and other piedmont and mountain parks should be explored.

PIEDMONT INDIGO-BUSH (AMORPHA SCHWERINII)

This plant is a candidate for state listing as a protected species. It inhabits dry forests and rocky river bluffs and is found in the northern part of the park in the vicinity of Fall Mountain. A few individuals of the Piedmont Indigo-bush are also found along Mountain Creek in the existing registered area.

REGISTERED NATURAL AREA

The southern portion of the park, surrounding Morrow Mountain, has been registered as a Natural Heritage Area. Encompassing 1400 acres, the registered area contains at least five natural community types. In general, this natural area is in excellent condition.

POTENTIAL REGISTERED NATURAL AREAS

Several additional areas within the park may be eligible for registry as Natural Heritage Areas.

1. Biles Mountain - Prime examples of two uncommon natural communities are found on this ridge: Basic Oak-Hickory Forest and a variant of Upland Depression Swamp Forest. The former is about 100 acres in size and is dominated by Carolina shagbark hickory (Carya carolinae-septrionalis). The quantity of Carolina shagbark hickories on this mountain makes it noteworthy. The community tentatively identified as Upland Depression Swamp Forest had about 0.5 acre of standing water at mid-summer and may qualify as an Upland Pool. It is dominated by willow oak (Quercus phellos) and shortbristle horned beakrush (Rhynchospora corniculata, a sedge). The site is a potential breeding habitat for one or more rare salamanders that should be surveyed during the appropriate season.

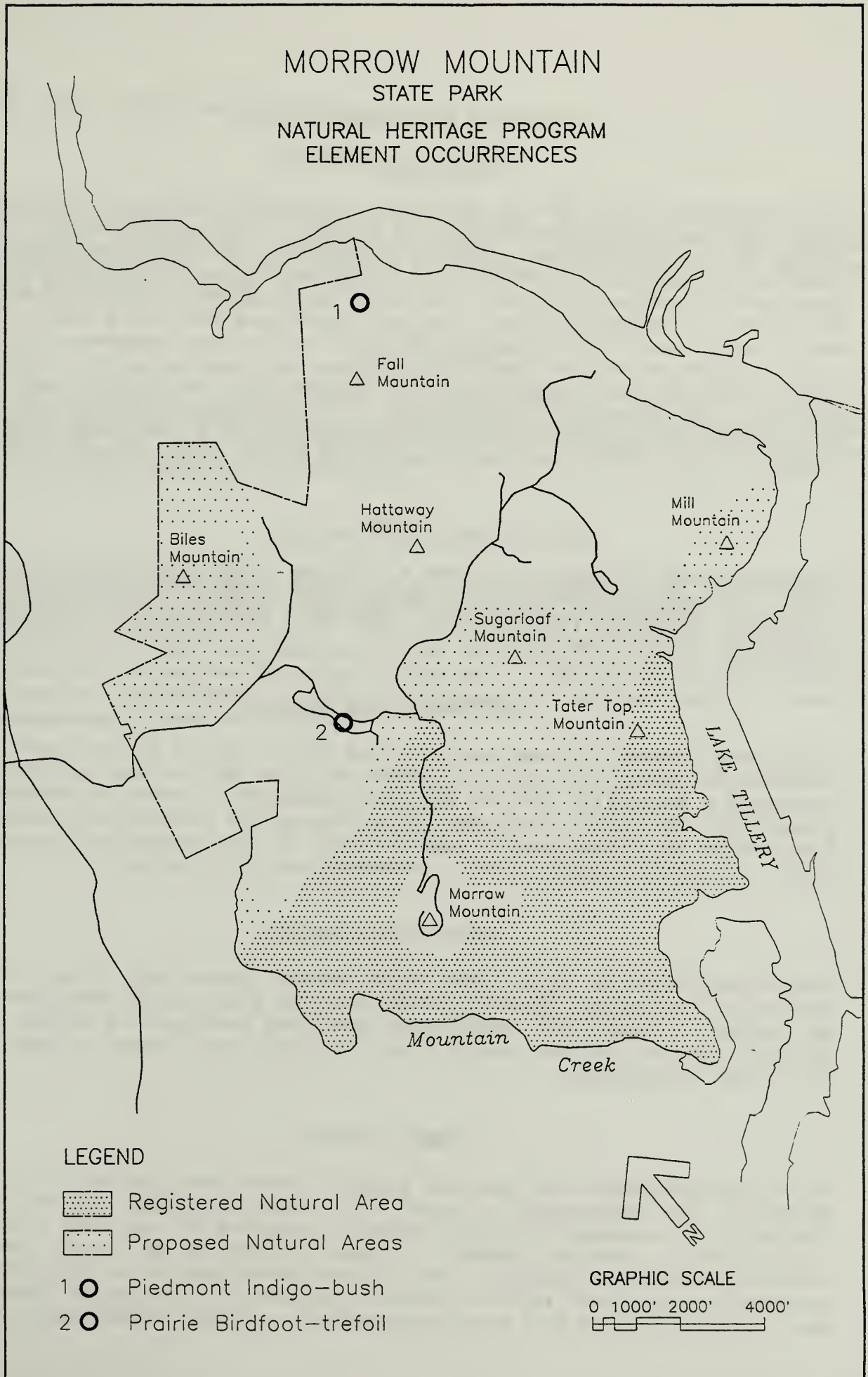
2. Mill Mountain - This area contains another variant of Piedmont Monadnock Forest with a greater diversity of oaks than many of the other monadnocks. Many of the oaks are over 20 inches in diameter at breast height (dbh). Like many of the monadnocks, Mill Mountain is too steep and unstable for development. The steepest slope is on the southeast side, providing nice vistas of the lake.

3. Tater Top Mountain - The steeper east side of this monadnock was previously included in the Registered Natural Area, but the best Piedmont Monadnock Forest is on the unregistered side. The mountain is mostly dominated by chestnut oak (Quercus montana), with many individuals over 20 inches dbh, but a nice diversity of other specimen plants are also present, including spreading bladder fern (Cystopteris protusa), downy serviceberry (Amelanchier arborea), and rusty haw (Viburnum rufidulum).

4. Sugarloaf Mountain - The lower slopes on the west and south sides show evidence of past logging, with shortleaf pine being common and only young oaks and hickories (mostly 12 inch dbh or less). This quickly grades into mature Piedmont Monadnock Forest dominated by chestnut oak (up to 29 inches dbh), with little evidence of disturbance. Mountain laurel (Kalmia latifolia) is common on the upper slopes.

5. Upland Depression Swamp Forest at the head of Sugarloaf Mountain Trail - This swamp is larger and different from the one on Biles Mountain, being almost dry when the other one had standing water. The flora reflects the difference in topographic location and hydrology, with a canopy composed of five hardwood species and a more diverse understory and herb layer.

6. Fall Mountain and Extreme North End of the Park - This area is a potential registered natural area and should be thoroughly explored at a future time. Preliminary exploration at the extreme north end of the park showed the adjoining Alcoa property to have the best populations of Piedmont indigo-bush (Amorpha shwerinii).


MORROW MOUNTAIN
STATE PARK
NATURAL HERITAGE PROGRAM
ELEMENT OCCURRENCES
1
Fall
Mountain
Hattaway
Mountain
Biles
Mountain
Mill
Mountain
Sugarloaf
Mountain
2
Tater Top
Mountain
LAKE TILLERY
Marraw
Mountain
Mountain
Creek
LEGEND
Registered Natural Area
Proposed Natural Areas
1 Piedmont Indigo-bush
2 Prairie Birdfoot-trefoil
N
GRAPHIC SCALE
0 1000' 2000' 4000'

RESOURCE MANAGEMENT ISSUES

CULTURAL RESOURCES

Morrow Mountain is one of the most significant prehistoric quarry sites in the southeastern United States. The rhyolite that caps the park's mountains was used by generations of Native Americans to make arrowheads and spearpoints. The park also contains sites of prehistoric camps, villages, burials, and seasonal fishing grounds. The site of Tindallsville, long ago abandoned but for a brief time the county seat of Montgomery County, is located somewhere in the park. Other historic features include the remains of Dr. Francis Kron's plantation, numerous rural farmsteads, two ferry landings, an inn, and several graveyards. All construction and ground-disturbing activities should be preceded by a determination of whether significant cultural resources would be affected.

DEER

High deer populations have been a problem at Morrow Mountain in the past. At present, deer in the park appear healthy and there are no signs of excessive populations. Periodic monitoring of population levels would be useful.

SOUTHERN PINE BEETLE

There are presently some active pine beetle spots in the park. In accordance with past policy, these will be left alone unless they threaten a facility area or adjacent property. Research entomologists have expressed interest in studying the effects of pheromone treatments on pine beetle populations in an otherwise untreated area. They will apply for a research activity permit.

HURRICANE DAMAGE

Hurricane Hugo of 1989 left some downed trees and other timber damage in the park. Hazard trees near the facilities have been cut or moved. Remaining trees and branches may pose a minor fire hazard, but in the two years since the hurricane, much of the fine fuel has decomposed.

SCENIC VISTAS

Existing openings that provide scenic vistas from the top of Morrow Mountain are beginning to grow in. These openings can be maintained with minimal natural resource impacts by cutting selected vegetation. Cutting should be done gradually to avoid leaving unsightly piles of debris. Soil disturbance should be minimized to prevent erosion and to avoid damage to sensitive cultural resources. Scenic vistas are not recommended on other mountains that do

not have existing openings.

EROSION

Culverts under the road on the summit of Morrow Mountain are creating significant erosion gullies. Engineering staff should evaluate whether it is feasible to correct this problem by reducing the speed and volume of runoff.

FIRE ECOLOGY

Fire ecology in the piedmont and mountains is very poorly understood, and the natural fire regime for the park is unknown. Future research on this topic would help to determine the need for prescribed burning in the park.

RESOURCE MANAGEMENT PLAN

A resource management plan for the park needs to be developed to address these issues and other resource management issues. A resource management plan should include detailed alternative actions and their implementation to address, prevent or correct the different resource threats or issues. The addition of district resource management specialists would enable park resource management plans to be done.

VII. PHYSICAL PLANT INVENTORY AND LAND ACQUISITION NEEDS

FACILITY INVENTORY AND INSPECTION PROGRAM

The buildings in state parks are needed for park operations and visitor services. These buildings and facilities are essential components of protecting the public's health and safety. They include facilities providing safe drinking water, restrooms, and electricity, as well as recreation facilities such as bathhouses, group camps, and cabins. Without proper maintenance, these facilities are, at best, a disservice to the citizens who use them, and at worst, potentially harmful.

The Facility Inventory and Inspection Program (FIIP) is a computer-based system used to track the condition, maintenance needs, and repair costs of every building in the state parks system. A principal objective of FIIP is to identify deficiencies that may affect health, fire, or life safety. Other objectives are to identify accessibility deficiencies and other significant maintenance-related deficiencies.

During a field evaluation of each facility, deficiencies are given priority ratings of critical, serious, or minor. The deficiencies are classified in nine basic categories: site (the grounds and walkways surrounding the building); exterior envelope; interior envelope; fire/life safety; handicapped accessibility; public health; heating/ventilation/air conditioning (HVAC); plumbing; and electrical.

The field evaluation begins with an inventory of all structures in the park. The results of the inventory are presented using the building name and state property numbers as identification. Next, the types of repairs and repair costs are listed for each building. Finally, the cost summary for the park is given using the nine basic categories of repairs (e.g. exterior envelope) and the three levels of deficiencies (critical, serious, and minor).

MORROW MOUNTAIN STATE PARK BUILDING INVENTORY

CODE	BUILDING NAME	IN USE
004001	Cabin	Y
004002	Cabin	Y
004003	Cabin	Y
004004	Cabin	Y
004005	Cabin	Y
004006	Cabin	Y
004007	Museum	Y
004008	Lodge	Y
004009	Transformer House	Y
004010	Transformer House	N
004011	Pit Toilet	Y
004012	Pumphouse Near Morrow Mt.	N
004013	Pumphouse (Family Campground)	N
004014	Warehouse	Y
004015	Garage	Y
004016	Residence	Y
004017	Ranger/First Aid Station	Y
004018	Bathhouse	Y
004019	Filter House	Y
004020	Pumphouse (Family Campground)	N
004021	Pumphouse Near Swimming Pool	Y
004022	Picnic Shelter	Y
004023	Barbecue Shed	Y
004024	Toilet Bldg.- Main Day Use Men's	Y
004025	Toilet Bldg.- Day Use Women's	Y
004026	Pit Toilet	Y
004027	Pit Toilet	Y
004028	Pit Toilet	Y
004029	Pit Toilet	Y
004030	Pit Toilet	Y
004031	Washhouse A	Y
004032	Washhouse B	Y
004033	Washhouse C	Y
004034	Pumphouse Near Camp A	Y
004035	Boat House	Y
004036	Kron House	Y
004037	Kron Office	Y
004038	Greenhouse	Y
004039	Information Bldg.- Stone	Y
004040	Residence	Y
004041	Residence	Y
004042	Shop	Y
004043	Storage Shed	Y
004044	Garage	Y
004045	Barn	Y
004046	Picnic Shelter	Y
004047	Pumphouse at Swimming Pool	N
004048	Pumphouse Near Morrow Mt.	Y
004049	Pumphouse at Ranger's Residence	Y

CODE	BUILDING NAME	IN USE
004050	Pumphouse (Kron House - Stone)	Y
004051	Pumphouse Near Campground B	N
004052	Toilets	Y
004053	Personnel Barracks	Y
004054	Personnel Barracks	Y
004055	Storage Shed at Res.Asset 16	Y
004056	Boats Cover	Y
004058	Pumphouse (Family Campground)	Y
004059	Firewood Sale Shed	Y

MORROW MOUNTAIN STATE PARK FACILITY REPAIR NEEDS

The facilities at Morrow Mountain are in generally good condition. Most need some relatively simple maintenance type work, however, and six buildings require work totalling over $10,000 each. In addition, a major renovation is being considered for the lodge (004-008). An investigation is underway into the degree of termite infestation and damage to this building, and the results will be a major factor in deciding whether or not renovation is feasible.

The following list identifies repair and demolition costs for buildings at the park. One building, the warehouse (004-014), is assigned both demolition and repair costs. Although it is currently in use, the warehouse is not suitable and will be demolished and replaced when funding is available. In the interim, repairs are needed to meet minimum building codes and safety standards.

Bldg#	Building Name/Need	Demolition Cost	Repair Cost
004-001	Cabin		$ 53
	Fill and repaint gouge in door jamb		
004-007	**Museum**		**$ 15,821**
	Add fire extinguisher		45
	Replace doors, roofing, repaint trim		4,100
	Provide HA parking and ramp		912
	New floor covering, paint display cases		3,189
	Add HVAC		7,500
	Site drainage		75
004-008	**Lodge**		**$ 68,451**
	Rewire building, new lights in office		31,095
	Stone paving		3,306
	Work required on floors		9,828
	Exterior doors, columns, walls, windows		3,414
	Handicapped Accessible parking, access, fountain, restrooms		12,398
	Relocate air returns, repair and refinish interior walls, ceiling		6,426
	Interior doors, trim		1,804
	Insulate pipes under building		180
004-009	**Transformer House**		**$ 409**
	Replace missing wiring		53
	Door, trim		213
	Replace missing shingles		143

Bldg#	Building Name/Need	Demolition Cost	Repair Cost
004-010	**Transformer House**		$ 60
	Lock, siding and trim		
004-012	**Pumphouse near Morrow Mountain**	$ 1,500	
004-013	**Pumphouse at Family Campground**	1,500	
004-014	**Warehouse**	10,300	$ 31,755
	Rebuild North wall and foundation wall		21,375
	Repair dock		225
	Replace roofing		9,930
	Repair interior wall		225
004-015	**Garage**		$ 8,820
	Replace roofing		8,557
	Repair windows, trim, repaint trim		263
004-016	**Residence**		$ 13,104
	Furnace, insulation		8,575
	Replace roofing		1,988
	Water heater, range vent		637
	Site drainage		1,348
	Doors, paint		556
004-017	**First Aid Station**		$ 404
	HA Ramp		
004-019	**Filter House**		$ 1,440
	Replace roofing		1,305
	Paint siding		90
	Add hose bibb		45
004-020	**Pumphouse - Family Campground**	$ 1,500	
004-021	**Pumphouse near Swimming Pool**		$ 708
	Replace roofing		525
	Paint		168
	Remount light		15
004-022	**Picnic Shelter**		$ 4,217
	HA Parking, path and table		3,902
	Tree trimming		225
	Add rafter hangers		90
004-023	**Barbeque Shed**		$ 675
	Trim trees, clean roof		
004-024	**Toilet Building - Men's at Day Use**		$ 5,511
	HA parking and path		
004-025	**Toilet Building - Women's at Day Use**		$ 5,511
	HA parking and path		
004-026	**Pit Toilet**		$ 98
	Replace seat base		23
	Reroof		75
004-027	**Pit Toilet**		$ 999
	Replace pit toilet		
004-028	**Pit Toilet**		$ 75
	Reroof		

Bldg#	Building Name/Need	Demolition Cost	Repair Cost
004-029	**Pit Toilet**		$ 143
	Replace checking and reroof		
004-030	**Pit Toilet**		$ 150
	Repair mud sill, restain building		75
	Reroof		75
004-031	**Washhouse A**		$ 3,701
	Replace bad wiring		137
	Reroof		2,700
	Faucets, hose bibb		639
	Reputty windows, repaint trim		80
	Gravel walk		45
004-032	**Washhouse B**		$ 5,129
	Reroof		2,880
	Sloan valves, piping		1,151
	Site work		1,050
	Replace fan		48
004-033	**Washhouse C**		$ 14,573
	HA parking, path, facilities		8,183
	Rebuild louvered opening, paint trim & walls		2,150
	Reroof		3,600
	Water heater		690
004-035	**Boat House**		$ 263
	Additional circuit breakers, outlets		120
	Replace door, damaged trim		143
004-036	**Kron House**		$ 6,373
	Glazing & Putty repair		305
	Repaint fireplace		1,425
	Siding		4,193
	Floor repairs		450
004-037	**Kron Office**		$ 6,839
	Replace missing shingles		1,688
	Siding		4,712
	Door, window repairs		439
004-038	**Greenhouse**		$ 5,344
	Replace felt, shingles		1,083
	Window repairs		691
	Siding		3,570
004-039	**Information Building**		$ 2,038
	HA parking, entry		1,603
	Doors		375
	Replace missing shingles		30
	Repair stone work		30
004-040	**Residence**		$ 12,158
	Upgrade electrical		1,158
	Rebuild damaged wall, floor, flooring		2,210
	Replace fixtures		3,938
	Replace roofing, flashing, add insulation		3,751
	Insulate ductwork, add storm doors		1,011
	Gravel		90

Bldg#	Building Name/Need	Demolition Cost	Repair Cost
004-041	**Residence**		$ 15,287
	Repair termite damage		1,800
	Repair floors, flooring, add insulation		5,405
	Windows, screens, trim		7,070
	Wiring and lights		338
	Site drainage		674
004-042	**Shop**		$ 8,225
	Reroof		7,222
	Repair floor, replace toilet		615
	Repair CMU walls		388
004-043	**Storage Shed**		$ 1,154
	Cover windows		144
	Replace siding		1,011
004-044	**Garage**	$ 7,823	
004-045	**Barn**		$ 2,325
	Rebuild doors		225
	Siding, trim		2,100
004-046	**Picnic Shelter**		$ 6,293
	Replace roof decking, shingles		2,993
	Replace doors, columns, railing		1,650
	Replace pump		1,650
004-047	**Pumphouse at Swimming Pool**	$ 1,500	
004-048	**Pumphouse near Morrow Mt.**		
	Replace heater		$ 225
004-049	**Pumphouse at Ranger Residence**		$ 225
	Heater		
004-050	**Pumphouse at Kron Site**		$ 135
	Stonework		
	Roof repair		
004-051	**Pumphouse - Campground B**		$ 1,163
	Reroof		525
	Remove fuse box, other equipment		135
	Replace door, repair wall, repaint		428
	Site drainage		75
004-053	**Personnel Barracks**		$ 11,222
	Windows, screens, crawl space door		878
	Siding, trim, gutters		10,029
	Termite damage inspection		315
004-054	**Personnel Barracks**		$ 4,581
	Screens, crawl space door, exterior paint		1,665
	Drywall, repaint ceilings, replace trim		2,046
	Site drainage		75
	Exterminator		600
	Light fixtures		195
004-055	**Storage Shed at Building 016**		$ 584
	Paint		

004-056	**Boat Cover**		$ 1,613
	Safety shields for lights		113
	Siding - repair and stain		1,500
004-059	**Firewood Sale Shed**		$ 1,620
	Reroof		300
	Siding - repair & stain		1,320
	TOTALS	$ 24,123	$ 269,274

MORROW MOUNTAIN STATE PARK FACILITY REPAIR NEEDS SUMMARY

DEFICIENCY CATEGORY	PRIORITY 1 (CRITICAL)	PRIORITY 2 (SERIOUS)	PRIORITY 3 (MINOR)	CATEGORY SUBTOTAL
SITE	7823	8127	1710	17660
EXTERIOR ENVELOPE	24419	89986	20282	134688
INTERIOR ENVELOPE	1833	18096	13464	33393
FIRE/LIFE SAFETY	45	15	0	60
HANDICAPPED ACCESS	0	38424	0	60
PUBLIC HEALTH	0	0	0	0
HVAC	0	16509	48	16557
PLUMBING/UTILITY	345	7512	1163	9020
ELECTRICAL	31354	1718	195	33267
	65819	180387	36862	283068

Deficiencies that are a threat to fire and life safety or the health of an individual are considered to be "critical." A "serious" deficiency is one that is not considered a threat to fire and life safety, but could cause further damage to the structure if left uncorrected. "Minor" deficiencies are those elements that require general maintenance and repair.

MORROW MOUNTAIN
STATE PARK
BUILDING LOCATIONS

Figure VII-1. Building Locations

MORROW MOUNTAIN STATE PARK ROAD AND UTILITY INVENTORY

INTRODUCTION

This survey gives a brief description of the existing condition of the current park infrastructure (roads and water, sewer, electrical and telephone systems) and makes general recommendations on upgrading and maintaining these systems. The information is based on a two-day inspection of the facilities on June 12 and June 13, 1991 and knowledge of previous work on construction projects at the park. Other information comes from the ITRE study on roads and parking, original construction drawings, and interviews with the park superintendent and maintenance staff. This information is not a complete and detailed survey, but rather a general overall review of the present facilities at the park.

The inventory is divided into five major sections: roads and parking areas; water system; sewer system; electrical system; and telephone system. Each section is broken down into two parts: existing conditions and recommendations for improvement.

Morrow Mountain is one of four state parks that had most of their major facilities built in the late 1930s and early 1940s by the U.S. Department of Interior Civilian Conservation Corps. Therefore, most facilities at Morrow Mountain are more than 50 years old and in poor condition. Although the facilities were built with high-quality materials and workmanship, they are now in need of major renovations. Included in this report are recommendations for repair.

ROADS AND PARKING AREAS

Existing Conditions

1. According to the study completed by the Institute for Transportation Research and Education (ITRE) in March, 1990, there are eight miles of paved and a half mile of unpaved road. There are 20,284 square yards of paved parking lots and 1,733 square yards of unpaved parking areas.

2. The ITRE study listed $106,766 of roadway maintenance and paving needs for Morrow Mountain. In reviewing the study, it was determined that this amount of money would not be enough to cover the actual cost of paving and restoring the roadway cross-section to a safe driving surface.

3. In April 1991, under the park's annual agreement with the N.C. Department of Transportation, there was $125,000 allotted from this fund to repave approximately 5.1 miles of park roads, grade road shoulders and patch pavement.

4. In addition to the $125,000 for road resurfacing, $5,000 was set up for grading and additional stone for unpaved roads. This resurfacing contract paved all the main park roads and some high-traffic secondary roads within the park.

5. The remaining paved park roads are in fair shape. The records we have indicate the roads were last resurfaced in 1968, but they appear to have held up remarkably well. A fair amount of shoulder and ditch work is needed.

6. The road culverts are in good shape except for a few that need replacing or repairing. The majority of the culverts are concrete, but some are metal and in poor shape. There is a total of 3,411 linear feet of roadway piping within the roadway system. There are 87 individual pipe culverts ranging in size from 15 to 42 inches. ITRE recommended that three of the 87 be replaced, but it appears that number should be larger.

7. The unpaved roads are in good shape since the N.C. Department of Transportation added gravel, graded, and pulled ditches on all unpaved roads, including the dumpster road.

8. The paved parking lots are in fair-to-moderate shape, with the 200-car parking lot at the lower picnic area in the worst condition. No parking spaces are striped, and there are no directional arrows in the parking lots. The paving surfaces are a mat and seal coat. Some patch work is needed in a few locations.

9. The unpaved parking lots are in fair condition, with minor repairs needed.

10. The road shoulders and ditches are in poor condition, with several dangerous drop-offs along the shoulder. There is very little grass along the shoulder due to the heavy tree canopy. The existing newly paved road shoulders are scheduled to be brought up to grade by the N.C. Department of Transportation.

11. There are several slate retaining walls in the park that need a great deal of work. There was not enough time to do a total inspection, but some walls were in need of major tuck pointing and repair. Damage occurred when water was allowed to penetrate the upper course of stone.

12. New guard rails were installed from the hairpin curve to the parking lot at the summit during May 1991.

Recommendations for Roads and Parking Areas

1. At the present time, the funding by the N.C. Department of Transportation is adequate to keep the roads maintained. The remaining roads that have not been resurfaced should last from three to five years before resurfacing will be needed.

2. A patching allotment of approximately $4,000 yearly is needed to cover pot holes, cracks and edge patching.

3. An evaluation needs to be done on all rock retaining walls and side slopes at the hairpin curve at the Morrow Mountain Road.

4. Paved parking lots need to be striped to allow more efficient parking. The lower picnic area parking lot needs to be resurfaced within the next three years. Directional arrows need to be installed. The present N.C. Department of Transportation reimbursement does not allow for parking lot construction.

5. Maintenance of the unpaved roads by the Department of Transportation should be continued at the current funded rate. Paving these roads at the present time is not recommended.

6. The park sign systems need to be brought up to the N. C. Department of Transportation Road Standards. The estimated cost is $5,000.

WATER SYSTEMS

Existing Conditions

1. The park is served by four separate water systems, with each system having one or more six-inch diameter water wells for its water supply. The distribution system is composed of various size piping of either PVC, galvanized, or transit pipe. The majority of the distribution piping is worn out and needs to be replaced. Descriptions of each of the four water systems and the facilities they serve follow.

2. <u>The Hattaway Water System</u> - This system is by far the largest of the water systems. It is composed of four different water wells, one 50,000-gallon concrete storage reservoir, and approximately three miles of distribution lines. All wells pump into the 50,000-gallon concrete storage tank, where the water is then gravity-fed by a 6-inch transit main water line to each distribution point. The main well is located behind the swimming pool filter room and has a capacity of approximately 12 gallons per minute (GPM).

The second well is located at the entrance to campground A. It has a capacity of approximately 10 gallons per minute. These two wells are the park's primary water source.

The third well is located on the Kron Road approximately 400 feet from the Kron House parking lot. The capacity of this well is 12 GMP. This well is not used at the present time unless there is a sudden high demand or water loss from the reservoir.

The fourth well on the system is located in campground C. Its capacity is 12 GPM. It has been temporarily abandoned due to pump failure and plumbing problems.

All wells are on time clocks. All wells and associated piping were upgraded with chlorination and water meters in 1990. The Hattaway Reservoir is located on Hattaway Mountain, the mountain adjacent to the swimming pool, approximately 75 feet above the pool. The Hattaway systems serve the swimming pool bathhouse, pool, first aid room, park office, museum, lower picnic area (two toilets, four drinking fountains), group camp areas (three hose bibbs), three camping areas (three washhouses and approximately 20 hose bibbs), maintenance area (shop, water hydrant, ranger residence), and vacation cabins (six cabins). The Hattaway system is considered a public community water system and requires more water sampling than the rest. Except for the park's not having a licensed operator, the system is in compliance with the N.C. Division of Health Services' Water Supply Branch.

3. The Morrow Mountain Summit Area Water System - This system has one six-inch well located about half way up Morrow Mountain. The well supplies approximately 12 gallons a minute. It was drilled around 1974 to provide water to the summit area toilets and picnic shelter. The water is pumped to a 7,500-gallon concrete storage reservoir located beside the picnic shelter and the old concession building at the top of the mountain. The water is then pumped to the summit toilet building using a two H.P. centrifugal pump with a bladder pressure tank. This pump was replaced in 1990. The main distribution system is two-inch galvanized piping with smaller sizes to the toilet and picnic area. There are approximately 1,800 linear feet of distribution lines in this system. A new chlorinator and water meter were installed in 1990. The distribution system was replaced in 1968.

4. The Personnel Barracks and Ranger Residences Water System - This system has one six-inch water well located approximately 200 feet from the ranger residence (building #40). This well has a capacity of approximately 10 GPM. The well is very high in iron and manganese and has an iron filter and a water softener. The water softener was installed in 1990 and the iron filter a few years before that. This

system serves two ranger residences and the personnel barracks. The distribution system is approximately 1,000 feet of two-inch or less of either galvanized pipe or PVC. The 200-gallon pressure tank was replaced in 1990.

5. The Boat House Water System - This system has one well of 10 GPM and serves only the boat house toilets and concession area. It is the smallest of the four systems. A new wellhouse, pressure tank and chlorination were added in 1990. The well is located approximately 200 feet west of the boathouse. There are approximately 350 feet of 1-1/2 inch galvanized piping located in this system. The age of this distribution system is uncertain.

6. The Swimming Pool Water System - Although this system does not provide drinking water and is not included as one of the four water systems, it does provide water for the swimming pool, which holds approximately 250,000 gallons of water. This system consists of a 3/4-acre storage reservoir located at the top of Sugar Loaf Mountain. A three-inch PVC line connects to the original three-inch transit pipe about 200 feet below the dam. The line then ties in at the pool chlorination room approximately 3,500 linear feet away. This system was replaced approximately 10 years ago. The reservoir is in poor shape, with work needed on the intake structure as well as the pier and fence.

Recommendations for Water Systems

1. Since the Hattaway System is the largest, oldest and most important of the four systems, it should be the first to be renovated. The primary need at the present is to replace the distribution system, which is completely worn out except for some new sections that have been replaced in the last few years. A complete evaluation of the whole system needs to be done, but it is estimated that approximately $250,000 would be needed to replace the three miles of waterline and valves.

2. A study of the 50,000-gallon concrete reservoir is the second recommendation for the Hattaway System. Although it appears to be structurally sound, it may need some major concrete repair on the inside, considering the age of the reservoir.

3. Since the improvements in 1990, the wells and wellhouses (FIIP building numbers 004-021, 004-034, 004-050, 004-051) at the Hattaway System are adequate. Most of the well pumps have been replaced within the last five years.

4. The Summit Area Water System - This system is in fair condition except for the distribution lines from the Summit Reservoir to the toilet building and drinking fountains.

This line should be replaced. The condition of the line from the reservoir to the well is uncertain and should be tested and replaced if necessary. There appears to be major deterioration of the concrete reservoir, which should be checked out and replaced if necessary. The wellhouse (FIIP building number 004-048) and related piping are in good shape. The estimated cost to upgrade this system is $75,000.

5. The Personnel Barracks and Residence Water System - This system is in poor shape primarily due to poor water quality. In addition, the distribution system needs to be replaced. There is presently a capital improvement project of $35,000 to renovate this system. The project includes replacing the distribution system and running a two-inch line to the Summit Area wellhouse.

6. Boathouse Water System - This system is in good shape except for the unknown condition of the distribution system. The 300 feet of distribution line should be replaced with 1-1/2-inch PVC, and a new drinking fountain with valves should be installed. Approximate cost is $15,000.

7. Swimming Pool Reservoir - This system was replaced around 1980, except for approximately 200 linear feet, and is in good shape except for a few valves. The existing needs are for the installation of a chain link fence around the reservoir and the construction of a pier to the intake pipe. Approximate cost of this project is $50,000.

SEWER SYSTEMS

Existing Conditions

1. There are 15 different sewer system at Morrow Mountain ranging in size from 1,000 gallons to approximately 7,500 gallons. All systems have conventional septic tanks with drainfield lines except for the cabin system, which is a low pressure system with a pump tank. The majority of these systems are in very poor condition. The main cause of failure is either from roots getting into the sewer lines or from the nitrification field being completely covered with trees, with roots infiltrating the system. Table VII-1 contains the size, location, and age of each system as well as the facilities each serves.

Recommendations for Sewer Systems

1. Boathouse Sewer - Install manhole riser, replace 250 linear feet of sewer outfall line, replace drainfield. Estimated cost: $10,000.

2. Swimming Pool Bathhouse - Install two manhole risers, replace drainfield and distribution box. Estimated cost: $40,000.

3. Office and Lodge Sewer System - Add manhole risers in tank, replace 500 linear feet of sewer, replace drainfield. Estimated cost: $50,000.

4. Campground "A" Sewer System - Replace 300-foot sewer outfall line, install two manhole risers. Estimated cost: $10,000.

5. Campground "B" Sewer System - Patch existing septic tank. Re-landscape existing drainfield. Estimated cost: $10,000.

6. Lower Picnic Area Sewer - Replace 400 linear feet of sewer outfall line, replace manhole, add riser on septic tank. Estimated cost: $12,000.

7. Campground "C" Sewer System - Replace 400 linear feet of sewer outfall line with two manholes. Estimated cost: $10,000.

8. Campground Dump Station - Add two manhole risers on septic tank. Estimated cost: $750.

9. Maintenance Area Sewer - Replace entire system. Estimated cost: $5,000.

10. Ranger Residence (Building #16) - Replace entire system. Estimated cost: $5,000.

11. Vacation Cabins Sewer System - Replace pump controls and pumps, check out flow in PVC lateral lines. Estimated cost: $5,000.

12. Summit Area Sewer - Re-landscape sewer drainfield. Estimated cost: $3,000.

13. Superintendent House (Building #41) - Replace 200 linear feet of sewer outfall line. Estimated cost is $3,000.

14. Personnel Barracks - Replace total system. Estimated cost: $15,000.

15. Ranger Residence (Building #40) - Repair drainfield lines and install a manhole riser on tank. Estimated cost: $3,000.

ELECTRICAL DISTRIBUTION SYSTEM

Existing Conditions

1. A complete renovation of the power distribution system was done by L. E. Wooten in 1974 and 1976. All overhead power was placed underground with new pad-mounted transformers. The project was done in two parts, the main primary feeder distribution system installation in 1975 and the secondary electrical lines in 1976-1977.

2. There is approximately 20,000 linear feet of primary service with 20 power transformers. In addition, there is 9500 linear feet of underground secondary power in the park.

3. All building services were brought up to code in 1977 under another contract that L.E. Wooten designed.

4. The power supply is provided by the city of Albemarle and the meter is located outside of the park boundary near Shiloh Baptist Church.

Recommendations for Power Distribution System

1. The power transformer should be upgraded to have a fuse-disconnect type transformer. The existing fuses are very expensive to replace. Estimated cost is $25,000.

2. The power distribution system seems to be in good shape, but it would be better if the city of Albemarle owned the system instead of the park.

TELEPHONE DISTRIBUTION SYSTEM

Existing Conditions

1. Concord Telephone Company supplies the telephone service to the park and has responsibility for providing and maintaining service.

2. There is one pay telephone, located at the park office. The rest are private lines located at the park office, bathhouse, maintenance shop, ranger residences (buildings #16 and #40), and superintendent's residence (building #41). There is also a telephone line to the cabins, but it is not in service.

Recommendations for Telephone System

1. Provide a pay telephone at bathhouse or campground.
2. Telephone company will provide the service.

Table VII-1. INVENTORY OF SEWER SYSTEMS AT MORROW MOUNTAIN

NO.	Facility Served	Location	Age	Tank Size	Drainfield	Condition of System and Comments
1.	Boat House Toilets	Front of Boat House	40 yrs Approx.	Unknown	5 lines at 100 ft.each	Fair - No trouble present time
2.	Bathhouse First Aid S.	Tank @ S.E. Corner B.H.	50 yrs	7'X16'X6.3'Septic 6'X 7' X 5 Dosing	25 lines 100 ft. ea.	Drainfield grown up w/trees poor; dist.box stopped up with roots; mail outfall line replaced in 1991.
	Swimming Pool	Field 400' in front of B.H.				
3.	Office & Exist.Lodge	Behind Lodge Approx.500' behind lodge	50 yrs	10'X7'X 514 Septic 8'X8'X4' Dosing	20 lines @ 100 ea.	Poor - Drainfield in woods needs replacing
4.	Campground "A" Washhouse	Woods-Across Rd.from W.H.	30 yrs	Unknown	Unknown	Poor -sewer outfall 250' long drainfield in a low area
5.	Campground B-Washhouse	Woods-Across from W.House	50 yrs	Approx. 10 X 20 X 6.0	5 lines @ 200'ea.	Approx. 1000 L.F.of 6" outfall line replaced in 1980.
6.	Lower Picnic Area toilets	Approx.250' east of men's Toilet Bldg.	22 yrs	2500 gallon	40 lines, 100 ea. 100 ea.	Roots in outfall line need risers.
7.	Campground "C" Washhouse	250' from washhouse	22 yrs	21 X10 X 6.0'Septic No Dosing tank	10 lines @ 200' ea.	Good drainfield (mowed); roots in outfall lines.
8.	Dump Station	Beside Pump Station	20 yrs	2500 gallons No dosing	5 lines @ 100' ea.	Good - No problems to date; Mowed drainfield;
9.	M & Service Area	Behind Shop	40 yrs	1000 gallons No dosing	Unknown	Poor; new tank and drainfield.
10.	Ranger Residence (Bldg.#16)	Northside of house	40 yrs	1000 gallons	Unknown	Poor; kitchen sink drains into ravine.

Table VII-1. INVENTORY OF SEWER SYSTEMS AT MORROW MOUNTAIN (continued)

NO.	Facility Served	Location	Age	Tank Size	Drainfield	Condition of System and Comments
11.	Six vacation cabins	Approx.400' below cabins	10 yrs	Two 1200 gallon	24 lines at various lengths	Low pressure system fair to good; pumps not working.
12.	Summit Area Toilets	Approx.1000' down mountain	1 yr	1500 gal - septic 400 gal - dosing	6 100' lines	Good; erosion on drainfield installed in April 1991.
13.	Supt.House (Bldg.#41)	400'in front house	30 yrs	1200 gallons	4 lines @ 75'ea.	Fair; new tank in 1960; lines uneven flow.
14.	Personnel Barracks	Between both barracks	50 yrs	3.5'x8x 5.3'septic 4'x8'x1.5' dosing	6 lines @ 100 ea.	Poor; drainfield in woods; grown up.
15.	Ranger Residence (Bldg.#40)	Behind house	30 yrs	1200 gallons	3 lines @ 100'ea.	Fair; root problem.

MAJOR CAPITAL IMPROVEMENT PROJECT PRIORITIES

PROJECT PRIORITY LIST

The Morrow Mountain State Park Master Plan describes the long-range vision of what the park should be. A significant portion of the master plan is devoted to identifying short- and long-term development plans for the park. The methods by which these development plans are to be implemented are identified by detailing specific capital improvement projects that can be constructed through the state construction process. By evaluating and ranking each of these projects, the Division created a priority list of capital improvement projects for each park and for the state parks system. The Morrow Mountain project rankings are based on the park objectives, such as promoting public health, protecting natural resources, enhancing environmental education, increasing public accessibility, and improving the park's aesthetic appearance (Table VII-2).

Table VII-2. Pre-GMP Project Priority List

Rank	Description	Total Costs
1.	Demolish and Replace Warehouse	$ 94,900
2.	New Water System at Barracks & Residences	34,500
3.	Renovation to Shoreline, Trails, Summit Area	1,001,900
4.	Visitor Center Complex	674,600
5.	27 rental cabin package	2,621,600
6.	Repave Roads	1,819,000
7.	Kron Cemetery Restoration	136,300
8.	Electrical Renovation	15,100
9.	Renovate Lodge to Interpretive Area	1,452,5000
10.	Trail Renovation, fire and bridle	307,900

CHANGES TO PROJECT PRIORITY LIST

As a part of the general management plan process, the master plan, published in 1976, was carefully reviewed to determine if changes were needed. In reviewing master plan capital improvement recommendations, the general management plan evaluation team considered factors such as changes in environmental regulations, condition of facilities, natural heritage inventory, changes in recreation demand, park visitor safety considerations, State Parks Act stipulations, and current recreation demand. This review of proposed capital improvements resulted in changes, additions, and deletions to capital improvement proposals. A detailed description of each capital improvement project is presented in Appendix B.

Projects With Revised Cost Estimates and Unchanged Scopes

1. The electrical renovations project consists of transformer fuse replacements ($26,900)

Projects to Be Deleted

1. The summit/shoreline renovation project ($1,001,900) is broken into two separate projects and are described in the "projects to be added" listing.

2. The visitor center complex ($674,600) is no longer a separate project. An expanded project will renovate the lodge into a visitor center and environmental education center.

Projects With Changed Scopes

1. Trail renovation costs were increased from $307,900 to $855,900 to cover trail relocations and hardening necessary to address erosion and compaction problems caused by years of visitor use.

2. Kron House renovations ($137,900) combine all building repair needs at the site (detailed on page VII-5) and landscape work on cemetery.

3. Road repavement costs ($193,000) were reduced to include only parking lot and masonry repairs because the park roads were repaved under an agreement with the Department of Transportation.

4. The new water system project at the barracks and residences ($34,500) was increased to include all water and sewer system repairs ($712,500). A detailed description of water and sewer system needs is presented in this chapter.

5. The maintenance area repairs project expands the warehouse demolition and replacement project by including other building repair needs ($358,300).

6. Renovation of the lodge ($1,719,500) into a visitor center is expanded by adding a day-use environmental education center.

Projects To Be Postponed and Reconsidered During the Next General Management Plan

1. The 27 rental cabin package ($2,621,600) was postponed because maintaining existing facilities should take precedence over a major expansion of visitor services.

Projects Proposed To Be Added

1. A building demolition project ($40,300) is based on the building and facilities inspection described in this chapter.

2. A building renovations project is added to ensure that park structures meet minimum code and safety requirements ($169,600). The repairs are based on the building inspection described in this chapter.

3. The barracks replacement project ($299,000) is needed to provide adquate housing for seasonal workers.

4. Group camp tent and trailer camp area landscape repairs ($1,264,800). Extensive landscaping repairs, including the hardening of all campsites, are needed due to the history of heavy visitor use and the lack of maintenance funding.

5. Shoreline area improvements ($459,700) are needed to improve the boat launch including paving the parking lot, installing rip-rap, and adding foot bridges and courtesy docks.

6. Summit area landscape improvements ($334,900) are needed to address existing erosion and compaction problems by providing walkways and hardened picnic sites. Interpretive displays and vista clearing are also included.

7. New residence ($116,100) required as housing for EE Center manager.

REVISED PROJECT LIST

Table VII-3. Revised Project Priority List

Rank	Description	Total Cost
1.	Parkwide Water and Sewer Replacement	$ 712,500
2.	Maintenance Area Improvements	358,300
3.	Masonry Curbing and Parking Lot Repair	193,100
4.	Group and Family Campground Improvements	1,264,800
5.	Shoreline Landscape Improvements	459,700
6.	Building Renovations and Repairs	169,600
7.	Electrical Renovation	26,900
8.	Lodge Renovation to Visitor Center and Environmental Education Center (EEC)	1,719,500
9.	Kron Complex Repairs and Cemetery Stabilization	137,900
10.	Summit Area Landscape Improvements	334,900
11.	Trail Renovation, Fire and Bridle	855,900
12.	Barracks Replacement	299,000
13.	Residence for EEC Manager	116,100
14.	Building Demolition	40,300
	TOTAL:	**$6,688,500**

MORROW MOUNTAIN STATE PARK LAND ACQUISITION NEEDS

LAND STATUS

Morrow Mountain State Park contains 4,693 acres, including land from an unrecorded lease from CP&L. In the 1985 appropriation for state park land acquisition, Morrow Mountain State Park was included in the second year of funding for the acquisition of inholdings and access control. Funds from the second year of the appropriation were frozen, however, and most were redirected to other projects by the legislature.

The unrecorded lease from CP&L is for land below the 246-foot elevation between the park and Lake Tillery for state park purposes. This lease has a 60-day written-notice terminating clause for CP&L. Past correspondence on file indicates that CP&L would be willing to enter into a recordable lease if the state felt it was necessary.

FUTURE LAND ACQUISITION NEEDS

Completing the existing master plan for Morrow Mountain State Park would require the acquisition of 764 acres. Continuing priorities are the visual and water quality protection along Mountain Creek on the south side of the park, inholdings on the southwest side of the park, and a parcel on the north side of the park for access control.

Also recommended is the addition of a lease from CP&L for approximately 100 feet into the lake to enable park staff to enforce park rules and regulations along the shoreline. This would require FERC approval. The area involved will be determined with CP&L officials during negotiations. (Figure VII-2)

SUMMARY

1985 size of the park	4,693 acres
Current program additions	0 acres
1991 size of the park	4,693 acres
Master planned needs	764 acres
Master planned size of the park	5,457 acres

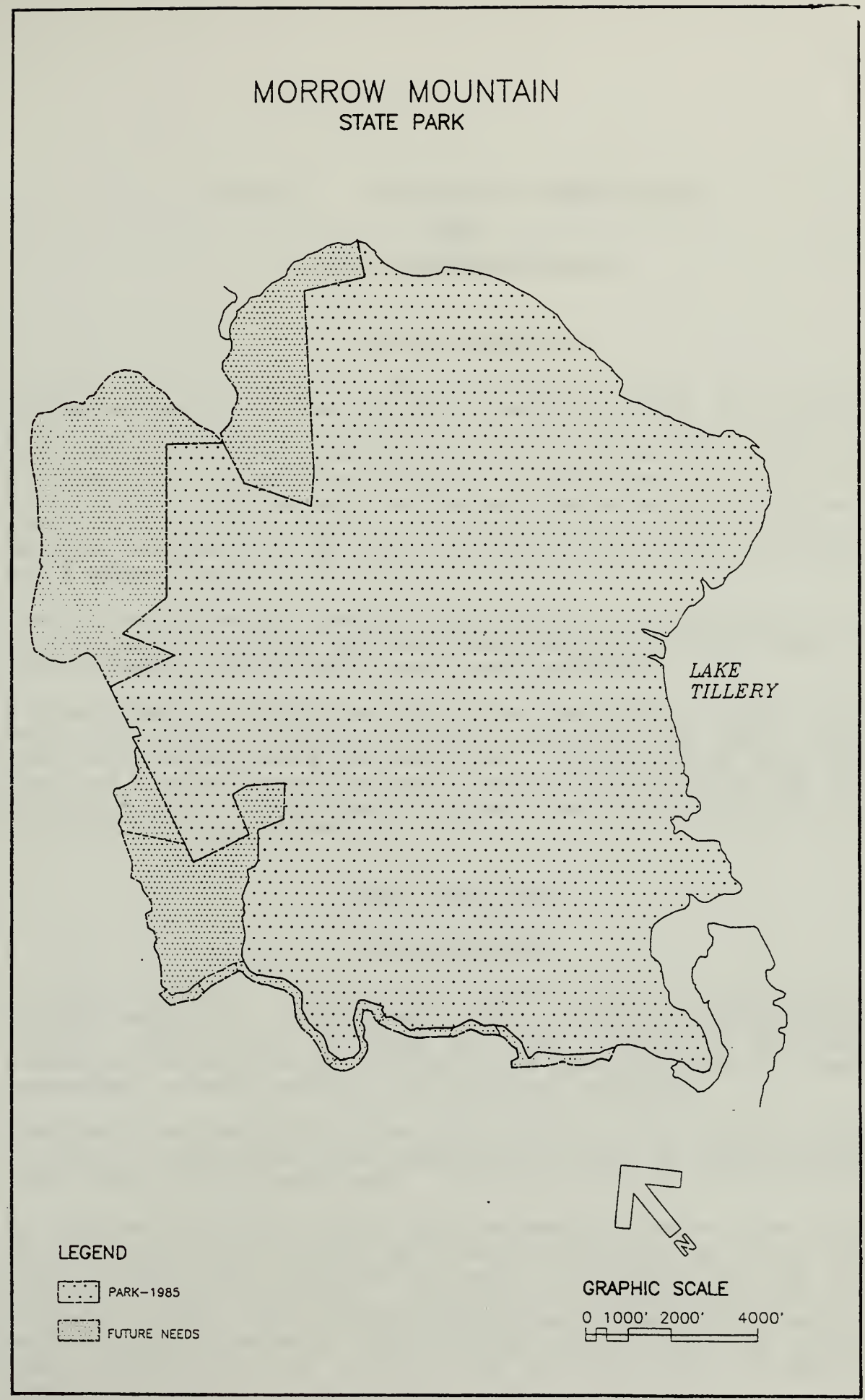


Figure VII-2. Land Acquisition Needs

VIII. VISITOR SERVICES AND PARK OPERATIONS

VISITOR SERVICES

Visitor use facilities at Morrow Mountain State Park are more extensive than most state parks in North Carolina and typify the kind of construction favored by the Civilian Conservation Corps. There is a museum and a lodge used as the park office and for group meetings and interpretive exhibits. Individual and group picnic areas are available as well as the only swimming pool located in a North Carolina state park. Fifteen miles of hiking trails wind through the park and 16 miles of bridle trails are available to serve equestrians.

Lake Tillery provides boating opportunities. A boat ramp is open to the general public for the launching of private boats, and rental canoes and row boats are also available.

A wide range of camping facilities are available. There are 106 tent and trailer campsites open throughout the year, and two primitive camping areas are available: a youth-group tent camping area and a backpack camping area. Morrow Mountain is one of the two state parks offering cabin rentals, with six cabins available from March through November.

PARK OPERATIONS

PARK MANAGEMENT

The park provides a complex and diverse array of staff-intensive visitor services. Sufficient staff, adequate resources, and regular training are required in order to provide the highest quality of interpretation and education services, natural resource management, visitor safety, and facility operation.

Because of an inadequate budget and insufficient staffing levels, the basic operational and maintenance needs of Morrow Mountain State Park are not being met.

In accordance with the North Carolina Administrative Code, minimum operating hours during the off season are 8 a.m. to 6 p.m., seven days a week, this requiring the gate to be open and the office staffed 70 hours per week. Currently, the staff consists of one half-time clerk, two maintenance personnel, three park rangers, and one park superintendent. The clerical workload and the operating hours necessitate the addition of one full-time clerk-typist

position to provide initial public contact and to handle the administrative workload of the park.

With the added responsibilities of maintaining trails and managing Boone's Cave as a satellite park, park staff need two additional maintenance positions stationed at Morrow Mountain.

Morrow Mountain State Park is also in critical need of adequate operating funds. Funds are needed in almost every budget line item: to fund trail construction and maintenance projects; to purchase materials and supplies for building maintenance; to replace equipment; and to address natural resource management concerns at Morrow Mountain. (Table VIII-1)

Table VIII-1. Current and Proposed Permanent Staff Positions

Current Permanent Positions	Proposed Additions
Superintendent	Maintenance Mechanic (2)
Ranger II (2)	General Utility Worker
Ranger I	Clerk-Typist
Maintenance Mechanic (2)	
Clerk-Typist (1/2)	

INTERPRETATION AND EDUCATION PROGRAMS

Morrow Mountain State Park contains an abundance of natural and archaeological resources capable of supporting a variety of interpretation programs as well as environmental education activities. Although the park was not selected to house one of the three residential environmental education centers (EEC) planned for the state parks system, it possesses the elements that would make it a potentially outstanding regional day-use EEC. The Civilian Conservation Corps-constructed lodge now housing the park office and its surrounding grounds should be renovated into a building serving as the park visitor center, park office, exhibit area, and a day-use environmental educational center.

During the general management planning period, the park should concentrate on programming dealing with its primary themes and on conducting more outreach efforts through the local school systems. Outreach programming would encourage local support and understanding of the park's role as a unique component of the state park system; and school systems would support the park as an important environmental education resource.

VISITOR PROTECTION AND SAFETY

Two serious issues currently affecting visitor protection and safety at Morrow Mountain State Park need to be addressed during this planning period: the need for an adequate visitor center to replace the current park office; and the need for adequate lifeguard services at the Division's only swimming pool.

Morrow Mountain State Park hosts over 250,000 visits annually, but does not have a properly designed visitor center. The lodge should be renovated to serve as a new visitor center and office complex. The visitor center serves as the visitor's initial point of contact with park staff and the primary source of park facility and programming information. This visitor center would also have space allocated for an exhibit area as well as the day-use environmental education center.

Provision of lifeguard services is an important management issue at every state park or recreation area where swimming is allowed. While there are numerous swimming beaches, Morrow Mountain State Park has the system's only swimming pool. It is therefore the one facility in the park system that must have an adequate, well-trained lifeguard staff on duty during operating hours. The park's relatively remote location and the non-competitive lifeguard wage scale make it extremely difficult to attract qualified, experienced lifeguards in sufficient numbers to ensure dependable pool operations throughout the summer.

The Division is currently without a swimming area management guideline and has adopted the standards recommended by the National Water Safety Congress. Under these standards, the park requires a lifeguard staff of six: five guards and one chief lifeguard. Salaries statewide vary from $5 to over $8 per hour. The Division offers $4.62 to $4.81 per hour. To create a competitive situation, the Division's safety officer recommends: a starting salary of $6 an hour for lifeguards and $6.50 for chief guards, which is an increase of 30 to 35 percent; seasonal barracks for housing; and lifeguard uniforms provided by the Division at no charge.

PARK TRAILS SYSTEM AND MAINTENANCE

The park's trail system is composed of approximately 17 miles of hiking-only trails and 15 miles of trails used for both hiking and horseback riding. These trails are one of the major recreation facilities in the park, their popularity evidenced by their heavy use.

Visitor safety is a major concern in the management of the park's trail system because of the steep slopes, loose rocky footing, and the many sites with heavily compacted soils and exposed roots. Present conditions have resulted from an unfortunate combination of poor initial construction techniques, heavy public use, and little

or no funds and staff to provide proper trail maintenance. All 32 miles of trail must be reconstructed.

Many sections of trail should be rerouted to avoid the most damaged areas. These damaged areas should be reclaimed and not left to natural processes to heal them. Many water drainage structures need to be installed during this massive reconstructive process as well.

The entire trail system in the park must be surfaced after reconstruction to withstand the foot and horseback traffic it now receives. Designated bridle/hiking trails should be covered with a four-inch base of crusher-run stone and topped with two inches of fine screenings and rock dust. Trails designated for hikers only should have a two-inch base of crusher-run stone and a two-inch surface of fine screenings and rock dust. Native stones should be used for surfacing whenever available.

The increased park maintenance staff described in the Park Management section of this chapter will be used to address trail maintenance problems. A trails maintenance budget and the necessary supplies and equipment must also be funded after reconstruction is completed.

Mountain-bicycle use of the trails system is not permitted and should not be considered for the park until the present trial programs at South Mountains and William B. Umstead state parks are completed and evaluated.

The existing trails at Morrow Mountain State Park should have signs and blazes that comply with Division standards, and the park should have an accurate and informative trails brochure and map. This extensive trails system could also benefit tremendously from the provision of additional parking for hikers and horseback riders. A properly designed parking facility with a hardened or paved surface, unloading ramp, and watering facilities would ensure more efficient utilization of the available space and less resource and personal property damage.

PARK VOLUNTEER PROGRAM

No major management issues are noted, although the park's interpretation and education programs would benefit from the participation and expertise of volunteers. The campground host program would also benefit greatly from an additional campsite with full hook-ups.

PARK CONCESSIONS AND REVENUE GENERATION

Morrow Mountain State Park and the surrounding region should undergo a market demand study and cost-benefit analysis before additional cabins are considered. This study should also recommend

the most efficient method of providing cabin maintenance and janitorial services.

Another concession issue concerns the operation of the bath house at the swimming pool. The prices of retail sale items should be increased slightly, and additional food items such as popcorn and hot dogs should be added to the menu at the concession stand. Because of the relative remoteness of the park, significant revenue increases could be realized by slight price increases and by offering expanded, more appetizing food selections to swimmers, hikers, and campers.

APPENDIX A

PARK PROFILE

APPENDIX A

EXAM PROFILE

PARK PROFILE
May, 1992

Location: Stanly County

Size: 4,693 acres

Established: 1935

Facilities:

Barracks
Boathouse (rowboat and canoe rental in season)
Boat launch (one lane, Lake Tillery)
Family cabins (6)
Family camping (106 sites, no hookups, restroom/shower)
Group camping (primitive)
Maintenance area
Park office/lodge
Picnic area (85 tables, 2 shelters)
Residence (3 houses)
Swimming (pool, bathhouse, refreshment stand)
Trails (16 miles, hiking; 12 miles, bridle)

Existing Staff:

Permanent	Seasonal
Park Superintendent III	Park Attendant (2)
Park Ranger II (2)	Chief Lifeguard
Park Ranger I	Lifeguard (3)
Clerk-Typist III (1/2)	Refreshment Stand Manager I
Maintenance Mechanic (2)	Refreshment Stand Clerk (2)
	Bathhouse Manager II
	General Utility Worker

Statistics:

	Fiscal 1991
Visitation (Calendar)	310,675
Operating Budget	248,895
Revenue	119,848

APPENDIX B

CAPITAL IMPROVEMENT REQUESTS

North Carolina's Division of Parks and Recreation

MAY 13, 92

Momo By Meanscore

Job Description	Job Codes	Locations	Mean Score	Total Costs
arkwide water and sewer replacement	610R 4 1	Morrow Mtn	638	$ 712,500
aintenance area improvements	148R 4 24	Morrow Mtn	613	$ 357,600
asonry curbing and parkinglot repair	410R 4 1	Morrow Mtn	541	$ 193,000
roup / family t&t campground improvements	230R 4 1	Morrow Mtn	512	$ 1,264,600
horeline landscape improvements	10R 4 6	Morrow Mtn	511	$ 459,500
uilding renovations and repairs	530R 4 1	Morrow Mtn	498	$ 169,500
lectrical renovation	610R 4 9	Morrow Mtn	497	$ 26,800
odge renovation to v.c. and e.e. center	132R 4 1	Morrow Mtn	484	$ 1,719,800
ron complex repairs/cemetery stabilization	10R 4 2	Morrow Mtn	483	$ 137,900
ummit area landscape improvements	10R 4 3	Morrow Mtn	479	$ 334,800
rail renovation, fire and bridle	260R 4 8	Morrow Mtn	462	$ 855,600
arracks replacement	100R 4 1	Morrow Mtn	454	$ 298,800
esidence for eec manager	300N 4 1	Morrow Mtn	450	$ 116,100
idg. demolition	510R 4 1	Morrow Mtn	444	$ 40,300
				$ 6,686,800
				$ 6,686,800

otal number of jobs reported = 14

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