

**Lake
Sidney
Lanier**



**UPDATING OF THE MASTER PLAN
LAKE SIDNEY LANIER
CHATTAHOOCHEE RIVER, GA.**



**United States Army
Corps of Engineers**

**Mobile District Office
Mobile, Alabama**

VOLUME 1

C00032

CESAD-PD-R (CESAM-PD-ER/18 Jun 87) (1110-2-240a) 1st End Mr. McGovern/mh/242-6043
SUBJECT: Lake Sidney Lanier Master Plan Update

Cdr, South Atlantic Division, Corps of Engineers, 510 Title Building,
30 Pryor Street, S.W., Atlanta, GA 30335-6801

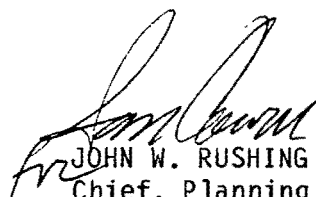
25 SEP 1987

FOR: Commander, Mobile District, ATTN: CESAM-PD-ER

Subject Master Plan is approved.

FOR THE COMMANDER:

2 Encls
wd all encls


JOHN W. RUSHING
Chief, Planning Division

CF:
CECW-ON w/enc1





DEPARTMENT OF THE ARMY
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REPLY TO
ATTENTION OF:

CESAM-PD-ER

18 June 1987

MEMORANDUM FOR: Commander, South Atlantic Division, ATTN: CESAD-PD-R


SUBJECT: Lake Sidney Lanier Master Plan Update

1. Reference is made to SAD 1st Endorsement dated 14 December 1981 of letter dated 14 September 1981, Subject: Secondary Submittal, Master Plan Update, Lake Sidney Lanier, GA.
2. The comments of the referenced endorsement have been incorporated in this Final Master Plan submittal.
3. Approval of this Design Memorandum is recommended.

FOR THE COMMANDER:

2 Encls

1. Master Plan Vol. I (7 cys)
2. Master Plan Vol II (7 cys)


N. D. McCLURE IV
Chief, Environment and
Resources Branch



PREFACE

With the increasing pressures on outdoor recreation resources of our country, it becomes imperative that plausible and effective planning, management, and operation efforts be directed towards Federal Recreation lands and waters and that these efforts provide a diversity of opportunities and preserve our forests, wildlife, streams, lakes, and rivers. Many times the natural environment suffers as a result of intense recreation use and because of poor planning and management efforts. The basis for any planning effort in maintaining a healthy and productive recreation environment at a project must lie in the capabilities and limitations of all natural resources which compose the areas involved. This Master Plan updating effort contained in the following pages is intended to provide direction to project development of recreational facilities which will improve opportunities for the visiting public and yet maintain and enhance the integrity of natural resources in the project area. This will be accomplished with the limited resources available at the project by designing areas for better utilization of facilities through consolidation and separation of activities. A prime consideration is the recommendation for the development of larger recreation areas and the closure of smaller areas if cost-sharing sponsors are acquired.

This Master Plan presents a comprehensive resource analysis of the multi-purpose facility, demonstrates management policies and guidelines, and provides guidance for optimal and practical use for the project while fulfilling the recreation needs of the public.

SUMMARY

This Master Plan Update is the culmination of public inputs and needs, resource analysis, and development principles and management guidelines in accordance with engineer regulations to assure optimum use and development of project lands and waters. With the increasing pressures for recreation and development in the Lake Sidney Lanier Market Area, this Master Plan shall serve as a guide for maximizing recreation opportunities for optimum public benefits while maintaining controlled conservation, preservation, and enhancement of natural resources. The following categories are discussed in greater detail in the main body of this document.

A. Recreation Needs Assessment

This extensive analysis provides information on historic population and recreation trends, market area economy, employment, and projections in recreation demand and need. Information collected and analyzed for recreation activity preference represent the results of public meetings and workshops, establishment of resource use objectives, and synthesis of local governmental philosophies for full consideration of local user needs.

B. Project Management and Operational Consideration

In order to fulfill effective management and operational objectives for administering project purposes and other functions, a detailed evaluation of all management procedures was undertaken. The results of this analysis reflect the implementation of effective and efficient management and operation policies of project lands and waters, and concern day-to-day and seasonal management by project personnel.

C. Environmental Resource Analysis

This Master Plan provides a thorough analysis of all land, water, and visual cultural resources. In order to provide effective and appropriate development of project lands and waters, while protecting and enhancing the quality of natural resources, specific site criteria of topography, soils, vegetation, wildlife, and visual quality formed a framework for determining suitability of use. Potentials and limitations exhibited by the combination of natural resources are discussed for various development classifications suitable to each recreational area. The composite indicated appropriate location development while enhancing natural resource integrity. The classifications are then transformed into land use categories for development that will guide efficient management of all project land and waters.

D. Development and Management Plans

With the inclusion of Land Use Allocations, development, management, and operational objectives are then implemented for providing sound planning recommendations for each area. Each recreational area has unique development and management recommendations for assuring optimum recreation opportunities for the public. All recommendations are intended to provide for maximum recreation and educational experience as part of a long-range plan.

Development guidelines and principles are prepared in sufficient detail in this Master Plan Update to allow for direct preparation of Feature Design Memoranda.



TABLE OF CONTENTS

PREFACE.....i

SUMMARY.....ii

I. INTRODUCTION

 A. Project Authorization.....1-01

 B. Project Purposes.....1-01

 C. Related Legislation.....1-01

 D. Pertinent Reports.....1-02

 E. Purpose of Updated Master Plan.....1-02

 F. Scope of Updated Master Plan.....1-02

II. PROJECT DESCRIPTION

 A. Location.....2-01

 B. Project Data.....2-01

 C. Non-Federal Operations.....2-06

III. CULTURAL RESOURCE ANALYSIS

 A. Introduction.....3-01

 B. Archeological and Historic Resources.....3-01

 C. Socio-Economic Characteristics.....3-02

 D. Accessibility.....3-04

 E. Existing Utilities.....3-06

 F. Adjacent Land Uses.....3-06

IV. RECREATION NEEDS ASSESSMENT

 A. Introduction.....4-01

 B. Regional Recreation Resources.....4-01

C. Project Visitation.....	4-03
D. Anticipated Demand, Supply and Need.....	4-06
E. Hiking - Needs and Supply.....	4-12
F. Consolidation/Closure Summary.....	4-13

V. ENVIRONMENTAL RESOURCES

A. Introduction.....	5-01
B. Climate.....	5-01
C. Geological Features.....	5-02
D. Topography.....	5-03
E. Soils.....	5-04
F. Water Resources.....	5-05
G. Vegetation.....	5-06
H. Vegetation Mapping Units.....	5-07
I. Wildlife Species.....	5-09
J. Endangered Plant and Wildlife Species.....	5-10
K. Visual Characteristics and Special Features.....	5-10
L. Environmental Composite Analysis.....	5-15

VI. FACTORS INFLUENCING AND CONSTRAINING

RESOURCE DEVELOPMENT AND MANAGEMENT

A. General.....	6-01
B. Environmental Constraints.....	6-01
C. Shoreline Erosion.....	6-02
D. Operational Procedures.....	6-03
E. Accessibility.....	6-04
F. Socio-Economic Conditions.....	6-04

G. Marina Concession Needs.....	6-05
H. Project Interpretation.....	6-05
I. Competing Resource Projects.....	6-06
J. Potential for Cost Sharing.....	6-06

VII. COORDINATION AND PUBLIC INVOLVEMENT

A. Introduction.....	7-01
----------------------	------

VIII. PROJECT ANALYSIS

A. Introduction.....	8-01
B. Land Based Capacity.....	8-01
C. Boating Capacity.....	8-18
D. Resource Objectives.....	8-23

IX. PHYSICAL PLAN OF DEVELOPMENT

A. Introduction.....	9-01
B. Existing Land Use Classification and Allocation.....	9-01
C. Proposed Land Use Allocation.....	9-01
D. Water Use Allocations.....	9-11
E. Master Planning Rationale.....	9-15
F. Land Use Suitability.....	9-16
G. Site Planning.....	9-17

X. SPECIAL PROBLEMS

A. Introduction.....	10-01
B. Special Land and Water Uses.....	10-01
C. Socio-Economics.....	10-02
D. Shoreline Erosion.....	10-03

E. Lake Fluctuation.....10-04
F. Preservation of Cultural Resources.....10-04
G. Fee Systems and Collection.....10-05

XI. RESOURCE MANAGEMENT GUIDELINES

A. Management Objectives.....11-01

XII. CONCLUSIONS AND RECOMMENDATIONS.....12-01

APPENDICES I Through VI

LIST OF TABLES

<u>TABLE NUMBER AND TITLE</u>	<u>PAGE NUMBER</u>
3-01 Market Area Distribution.....	3-03
3-02 Market Area Population Projections.....	3-04
4-01 Historic Visitation Rates.....	4-04
4-02 Visitation to Corps Sites.....	4-05
4-03 Seasonal Demand By Activity.....	4-05
4-04 Projected Visitation.....	4-06
4-05 Participation-Turnover Rates, Group Size.....	4-08
4-06 Summary of Major Facility Needs.....	4-12
4-07 Hiking-Needs and Supply.....	4-12
5-01 Plant Community/Sub-Community.....	5-08
5-02 Use Suitability Levels.....	5-16
8-01 Camping-Resource Capacity.....	8-03
8-02 Day Use Areas-Resource Capacity.....	8-03
8-03 Leased Camping Area-Resource Capacity.....	8-07
8-04 Leased Day Use Areas-Resource Capacity.....	8-07
8-05 Leased Exclusive Use Areas.....	8-08
8-06 Recapitulation-Resource Capacity.....	8-09
8-07 Total Project Design Day Load.....	8-10
9-01 Summary of Land Use Allocations.....	9-01
9-02 Lake Lanier Recreation Areas.....	9-04
9-03 Water Use Allocation Areas.....	9-14
9-04 Existing Recreation Facilities.....	9-21



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INTRODUCTION

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A. Project Authorization

The Buford Dam multiple purpose project was authorized by the River and Harbor Act approved July 24, 1946, Public Law 525, 79th Congress, 2nd Session. Buford Dam was completed in 1957 and the Lake created by this project was officially designated as Lake Sidney Lanier by Public Law 56-457 approved on March 29, 1956.

B. Project Purposes

The authorized purposes of the Buford project and Lake Sidney Lanier include flood control, water regulation, navigation, and power generation. Buford Dam is one unit of a comprehensive plan which provided flood control, Hydro-Electric power, and navigation capability on the Chattahoochee-Appalachicola-Flint River Basins in Georgia and Alabama.

C. Related Legislation

Section 4 of the Flood Control Act of 1944, authorized the Chief of Engineers ". . . to construct, maintain, and operate public parks and recreational facilities in reservoir areas under the control of the Secretary of the Army, and to permit the construction, maintenance, and operation of such facilities." Additional authorizations for development of public recreation facilities at power, flood control, and navigation projects are included in Section 209 of the Flood Control Act of 1954, Section 207 of the Flood Control Act of 1962, and by the Land and Water Conservation Fund Act of 1965, as amended.

EP 1165-2-1 of 30 June 1983 identified legislation applicable to civil works projects of the U.S. Army Corps of Engineers, in addition to the above. Public Laws pertinent to the operation and management of Lake Lanier are listed in Appendix I.

The environmental mission of the Corps of Engineers at Lake Sidney Lanier as other lakes is to carry out the "National Environmental Policy Act

of 1969," which established a policy for protection and enhancement of the country's natural environment. These policies translate into environmental guidelines in terms of public participation, planning, design, construction, and operations.

D. Pertinent Reports

Prior reports pertinent to the development and management of recreation resources at Lake Lanier are listed in Appendix II. Additional reports and studies were consulted in the preparation of this Master Plan Update and are referenced where appropriate.

E. Purpose of Updated Master Plan

Construction of Lake Sidney Lanier was completed in 1957. Design Memorandum 4B, the original Master Plan for the project, dated April 1965, has been guiding development and use since that time. This Master Plan Update evaluates existing conditions and objectives and describes how project resources may be enhanced, developed, and managed for optimum use and enjoyment in the public interest.

F. Scope of Updated Master Plan

The primary objectives of this Master Plan is to guide the planning, design, and construction of new or consolidated facilities and to provide a basis for the continuing management of all project resources.

1. General. The Master Plan Update consists of an inventory and analysis of base data and existing conditions. Recreation needs and the extent to which natural determinants and social conditions influence or constrain resource development and management were assessed and considered in the determination of future site development. Resource management guidelines included were developed in response to future development proposed. An analysis of all elements was utilized in the establishment of resource use objectives.

Special attention is focused on land allocation and specific site planning of individual recreation areas.

2. Objectives and Format of Master Plan Update. Planning objectives were developed and a plan of work designed to enable monitoring of the planning process. These planning objectives are listed below, with Master Plan Update referenced noted where objectives are addressed:

a. To prepare a plan for use as a ready reference for operation and management of existing facilities and for communication of intent for future development and management.

b. To explain methodologies used to reach conclusions.

c. To provide project data and identify present development and operations status. (Chapter II).

d. To identify and analyze cultural and social resources and characteristics within the project area. (Chapter III).

e. To assess present and future recreation needs in the project area. (Chapter IV).

f. To identify and analyze environmental resources on project lands as a determinant in preparation of development plans and management recommendations. (Chapter V).

g. To interpret factors influencing and constraining resource development and management. (Chapter VI).

h. To coordinate project planning with applicable Federal, State, and local agencies and with the general public (Chapter VII).

i. To identify the carrying capacity of project lands and analyze this in comparison with needs earlier identified. (Chapter VIII).

j. To establish resource objectives which specify the attainable publicly acceptable options for resource use based upon an analysis of resource capabilities and public needs. (Chapter VIII).

k. To propose a land use and conceptual plans for each public use area, including interpretive and marina concession development, where appropriate. (Chapter IX).

l. To propose general development priorities. (Chapter IX).

m. To provide more efficient operation by clustering certain uses and separating day use and overnight facilities. (Chapter IX and Volume II).

n. To identify and address special problems, not otherwise covered, which have an effect on development, management, and use of project lands. (Chapter X).

o. To provide resource management guidelines to improve conservation of project resources and facilitate project operations and management.

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PROJECT DESCRIPTION

PROTECTED DESCRIPTION

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A. Location

Lake Lanier is situated approximately 36 miles northeast of Atlanta and is the uppermost project on the Chattahoochee River. Buford Dam, located at Mile 348.5 on the Chattahoochee River near Buford, Georgia, provides storage for power, flood control, and regulation of streamflow and water supply for Atlanta. The main arm of the lake extends 44 miles up the Chattahoochee from the dam. A secondary arm extends approximately 19 miles up the Chestatee River, which is the principal tributary to Lake Lanier. The lake's approximately 540 miles of irregular shoreline, bays, and channels are contained in five Georgia counties--Hall, Lumpkin, Dawson, Forsyth, and Gwinnett. Gainesville, Georgia, located in Hall County is the largest community bordering the lake. Cumming and Buford, Georgia, flank the southern end of the lake, while Flowery Branch is located on the east side.

B. Project Data

1. Basin Summary.

Lake Sidney Lanier, located in the Chattahoochee and Chestatee River Basins, collects and releases drainage from an area of 1,045 square miles located on the southern slopes of the Blue Ridge Mountains. The Chattahoochee River's headwaters are formed just 4 miles south of Brasstown Bald in the Chattahoochee National Forest which extends some 71 miles northeast of Buford Dam. The Chattahoochee is fed by several tributaries which include Center, Dukes, Sautee, Blue, and Smith Creeks. Each of these tributaries all have their headwaters high on the southern tier of the Blue Ridge Mountains. The lake located in the upper reaches of the Piedmont Plateau just at the base of the Blue Ridge Mountains provides a maximum storage capacity of over 47,000 acres at elevation 1,085 and the normal recreation pool area contains 38,000 acres of surface water at elevation 1,071. In times of drought, the lake may be drawn down as far as 1,035 for minimum river flow downstream while still generating power at the dam.

The lake has a total storage of 2,554,000 acre-feet at full flood control pool, elevation 1,085. At normal power pool the lake's storage capacity is 1,917,000 acre-feet and at 1,035 minimum power pool a storage capacity of 867,000 acre-feet is maintained.

2. Lake Shoreline and General Character

Lake Lanier located at the base of the southern physiographic boundary of the Blue Ridge Mountains offers a shoreline of irregularity and strong relief. The terrain of the area has produced numerous pines and hardwood covered islands and promontories which present dramatic views across bays and channels of the lake. The irregularity of the terrain creates a total shoreline distance of 540 miles. The majority of the shoreline varies in slope from 5 to 30 percent with occasional steeper slopes. The rugged densely wooded terrain surrounding the shoreline provides a unique character and recreation experience for visitors at the project.

The diversity and density in vegetation types creates a unique visual backdrop for recreation. Species growing along the banks includes oaks, hickories, elm, sweetbay, ash, sycamore, persimmon, dogwood, alder, river birch, and others. On upland areas oak, hickory, beech, short leaf pine, loblolly, and slash pine are evident.

During project construction about 14,156 acres were cleared around the shoreline between 1,030 and 1,070 feet. Below elevation 1,030 to about 980, 9,390 acres of the trees were topped for public health and safety. About 2 percent of the shoreline in the upper reaches of the project were not cleared since they did not affect the public health and safety and provided cover for wildlife. Aquatic plants are not a problem at the lake since the shoreline as a whole is steep and eroded by wave action. The shoreline is eroded in many areas and is perhaps a main problem to maintaining soil and forest. The combination of surrounding development and use of the lake has had an impact on runoff and wave action causing deterioration of the shoreline in the past. Pertinent lake data is summarized in Appendix III.

3. Project Structures

Buford Dam consists of a 193-foot high rolled-fill earth dam, 2,360 feet long, with a top elevation of 1,106 feet. The water elevation directly north of the dam is 190 feet. Two earth filled saddle dikes each flanking the dam on the west and east banks also contain the lake with a total length of 6,600 feet (Figure 2-2). A 100-foot chute carved out of the rock provides a spillway for the dam with a crest elevation of 1,085. The powerhouse, located at the west side of the dam, contains three electrical generating units which provide a total of 86,000 kilowatts (Figures 2-1 and 2-3). Concrete intake structures located in an excavated channel contain gates and operating equipment for flow regulation through two power penstocks and the flood-control sluice. This sluice is 13 feet in diameter and is used when it is necessary to release water in flood control storage or during low-water flow. Pertinent data on project structures is provided in Appendix III.

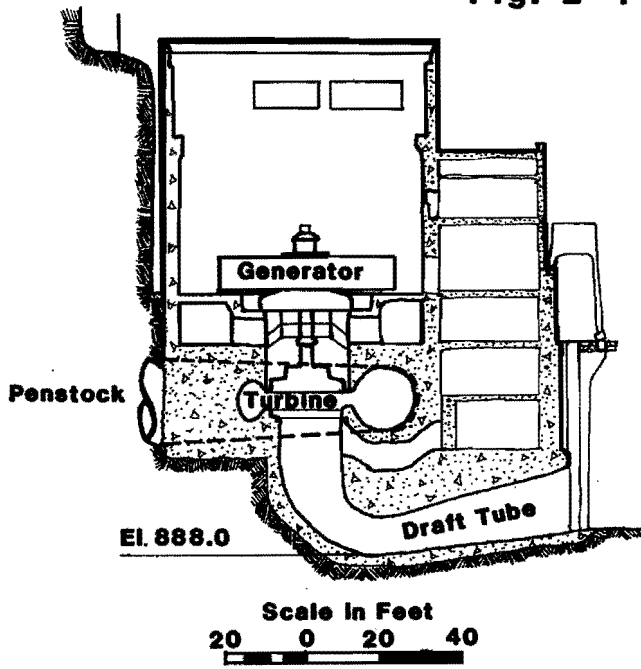
4. Lake Operation

a. Operations

The Buford project operates as a peak generating plant for the production of hydroelectric power. A 1,049,000 acre-feet storage volume between elevations 1,035 and 1,071 is allocated for power generation and low-water flow regulation. However, 637,000 acre-feet between elevation 1,076 and 1,085 has been reserved for flood control purposes. This capacity was designed to store runoff from all storm drainage of record over the 1,040-square-mile watershed basin above the dam. When storms occur in the Chattahoochee River Basin above the dam, storage is effective in minimizing flood levels in rivers as far downstream as West Point, Georgia.

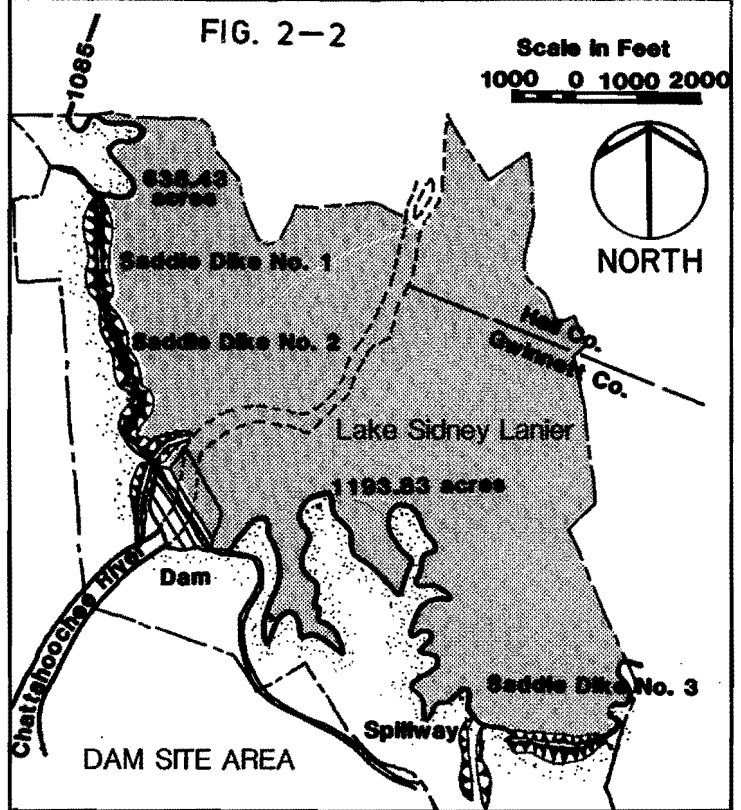
The Buford Power Plant, operated by the Corps of Engineers and utilized by Georgia Power Company, delivers electricity to municipalities, counties, or REA cooperatives in the area. The lake is generally drawn down about 9 feet annually to elevation 1,061 for generation of power. A drawdown to

Fig. 2-1



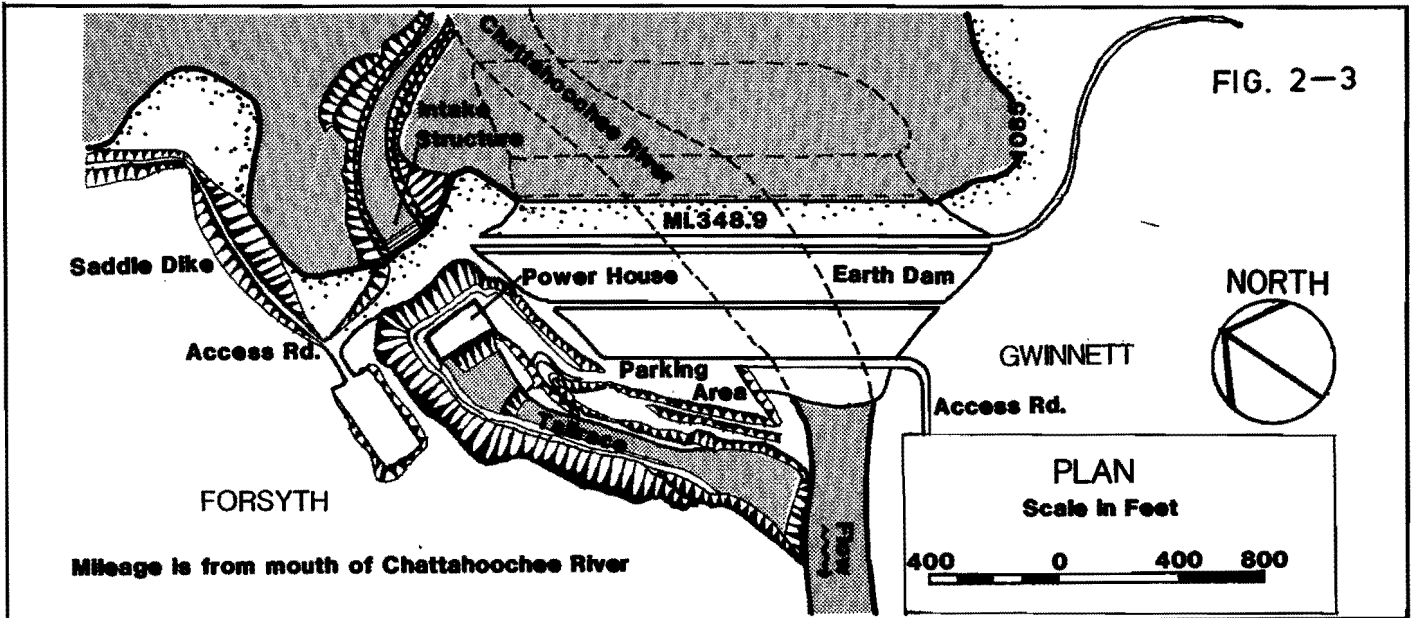
CROSS SECTION THROUGH POWERHOUSE

FIG. 2-2



DAM SITE AREA

FIG. 2-3



PLAN

Scale in Feet

minimum power pool, elevation 1,035 can be expected to occur only under extremely rare drought conditions. A maximum drawdown would seriously affect the recreation use of the lake by severely lowering and reducing the surface of the lake. Adverse effects would include grounded docks, unusable launch ramps, safety hazards, and generally a large exposed shoreline.

b. Flood Control Regulation

Operation for flood control depends on river stages forecast below Buford Dam. The maximum releases made into the river may be accomplished when not contributing to the above-bankful stages between Atlanta and Buford Dam. When the rising phase of a flood occurs, normal power operations continue unless releases for power generation combined with uncontrolled drainage in the 400-square-mile basin below cause maximum flood levels in the Chattahoochee River.

In that case, release for power operation is curtailed or reduced to the minimum required for station service in order to provide as much flood control as possible. When the flood begins to recede downstream, the water in flood control storage above (1,071 m.s.l.) is released so as not to exceed the stream bankful capacity. Normally when the elevation of the pool is above 1,071 feet, permissible releases are made for power, supplemented when necessary by sluice discharge. Flowage easements below the dam have been acquired to permit steady release of water up to 10,000 c.f.s. for flood storage and releases up to 12,000 c.f.s. for peak power operations when necessary. Appendix III identifies basic lake, dam, spillway flood control, and power characteristics.

5. Project Development and Operations Status

a. General. Construction of the Lake Lanier and Buford Dam project began in 1954 and was substantially completed in 1957. During initial development, the Corps constructed roads, parking areas, launching ramps, picnicking, and camping facilities with necessary utilities at most of the areas.

b. Project Areas. Of the 18,000 acres of Federal Lands surrounding the lake, 76 sites have been developed for public and quasi-public use and 2 sites for operations. These areas are mapped with pertinent data (i.e., Acreages, Operators and/or Lessee and recreational use designated) noted in Volume 2. There are ten commercial marinas operating on the lake. Eight are under direct commercial concession leases with the Corps, two of which are mixed concessions operating partly on Government land and partly on private land. The remaining two marinas operate under subleases on land leased to Hall County, GA, for public park and recreational purposes.

C. Non-Federal Operations

There are 16 sites leased to state and local governmental agencies for public park and recreational purposes. The State of Georgia leases the Lake Lanier Islands Resort site and four roadside park sites. Lake Lanier Islands Resort is a development operated jointly by the State and sublessees. Hall County, GA, leases four sites, two of which are subleased to marina concessionaires. The City of Gainesville, GA, leases five sites, two of which have not been developed. Gwinette County, GA, leases two sites near the dam. The City of Flowery Branch, GA, leases one site.

The Georgia Department of Natural Resources leases two additional sites for operational uses by its Game and Fish Division.

There are four quasi-public club sites. These include the Boy's Club, Inc., Boy Scouts of America, First Methodist Church and Kiwanis Club of Decatur.

Private clubs have developed eight sites. These include the Atlanta Athletic Club, American Legion, Athens Boat Club, Inc., Chattahoochee County Club, Georgia Lockheed Employees Club, Lake Lanier Sailing Club, North Georgia Sportsman Club, and the University Yacht Club.

D. Permits To Other Federal Agencies

Two sites have been permitted to Federal Agencies for recreational purposes; the Federal Aviation Administration and Ft. Benning, GA. A summary of all existing facilities is given on Table 9-04.

CULTURAL RESOURCE ANALYSIS

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A. Introduction

Cultural resources relate to those characteristics, activities, events, and settlement patterns of past and present human populations. This chapter includes information on archeological and historic resources on project lands, socio-economics characteristics of present area populations, and a description of present land uses of project lands and adjacent lands within one mile from project boundaries. Project structures, improvements, and operations earlier described are also cultural features.

B. Archeology and Historic Resources

The first systematic Archeological surveys in the Lake Sidney Lanier area were conducted in the late 1930's with funding provided by the Works Progress Administration. These surveys, directed by Robert Wauchope, recorded seven sites in Hall County, three sites in Gwinnett County, six sites in Dawson County, and eight sites in Forsyth County. No sites were recorded in Lumpkin County.

Subsequently, prior to completion of Buford Dam the River Basin Surveys of the Smithsonian Institution conducted surveys in 1950 and 1951. Sixty prehistoric sites were identified during this survey effort.

In 1978, the University of Georgia initiated cultural resources surveys of Government-owned lands at Lake Sidney Lanier. Approximately 6,000 acres of the total 18,000 acres of fee-owned lands were surveyed. A total of 540 prehistoric and historic archeological sites were recorded. Of these, 53 were recommended as potentially eligible for the National Register of Historic Places. Eighteen of these sites have been revisited by Corps of Engineers Archeologists and determined non-significant through consultation with the Georgia State Historic Preservation Officer (SHPO). The remaining 35 sites recommended as potentially significant will be evaluated individually.

Since the University of Georgia survey did not include all Government-owned lands, Mobile District Archeologists have continued to survey project tracts of lands for specific actions such as leases, timber sales, and upgrading of recreation facilities. The reports of these surveys are furnished to the Georgia SHPO.

C. Socio-Economic Characteristics

1. Area of Influence and Population. The area of influence, or market area of the project, includes those Georgia counties within a fifty-mile radius of the project.

The definition of the market area of the lake and the apportionment of county populations came from a Corps of Engineers memorandum dated 28 February 1979, entitled "Analysis of Needs for Different Types of Recreation Facilities at Various U.S. Army Corps of Engineers Reservoirs in Georgia for the Master Plan Comprehensive Recreation Study." The counties within the market areas were defined and their populations apportioned among competing projects.

The Lake Lanier Market Area includes fourteen entire counties and parts of eleven counties that compete with Allatoona Lake. This market area breakdown by county is given in Table 3-01.

The market area for the lake is largely rural, although more than half of the market area's population resides in the Atlanta, Georgia, SMSA.

2. Growth Trends. The market area percentages were applied to the population projections (1) to obtain the populations within the market area of the lake, for each of the design years. The market area population projections, shown in Table 3-02, forecast a net growth during the 20-year planning period.

3. Income. Total 1984 personal income in the market area is \$13 million or a per capita income of \$4,400. This is equal to 88% of the 1984 National per capita income of \$5,000.

(1) County-level projections, Bureau of Economic Analysis (BEA)-Dec 1982.

TABLE 3-01

MARKET AREA DISTRIBUTION

<u>COUNTY</u>	<u>1984 POPULATION</u>	<u>ALLOCATION TO MARKET AREA</u>	<u>1984 MARKET AREA POPULATION</u>
Banks	9,100	100%	9,100
Barrow	21,600	100%	21,600
Cherokee	53,900	20%	10,800
Clarke	76,400	100%	76,400
Cobb	330,500	40%	66,100
Dawson	5,600	90%	5,100
DeKalb	520,000	70%	364,300
Forsyth	29,000	90%	26,300
Franklin	15,800	100%	15,800
Fulton	593,800	60%	356,300
Gilmer	11,400	50%	5,900
Gwinnett	186,700	80%	149,400
Habersham	26,000	100%	26,000
Hall	77,800	95%	73,900
Hart	19,100	100%	19,100
Jackson	24,900	100%	24,900
Lumpkin	11,400	90%	10,200
Pickens	12,000	50%	6,300
Rabun	11,000	100%	11,000
Stephens	22,000	100%	22,000
Towns	6,200	100%	6,200
Union	10,000	100%	10,000
Walton	32,100	100%	32,100
White	10,800	100%	10,800
Oconee	<u>12,900</u>	100%	<u>12,900</u>
TOTAL MARKET AREA	2,139,100		1,372,500

(1) County level projections, Bureau of Economic Analysis

TABLE 3-02

MARKET AREA POPULATION PROJECTIONS

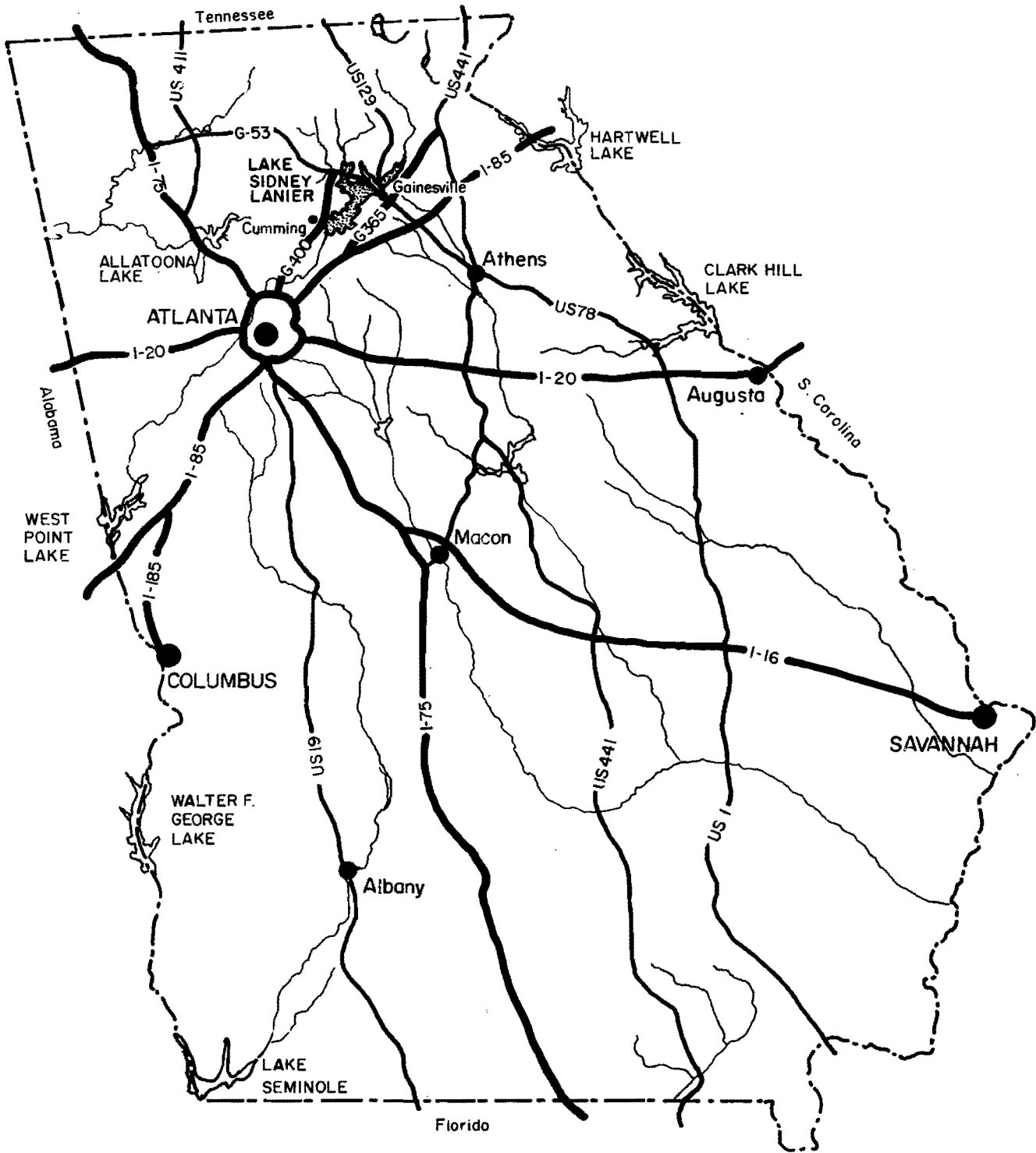
<u>YEAR</u>	<u>POPULATION</u>
1990	1,548,500
2000	1,703,400
2007	1,765,300

4. Employment. A significant amount of employment has been generated since the construction of the dam in 1957. Significant employment has occurred in recreation trades, building industry, services, and real estate. All recreation businesses are directly lake-related, as are the associated jobs and salaries.

D. Accessibility

Lake Lanier is served by U.S., State, and County Highways within the market area. One Interstate, 85, services the Lake's Recreation Area by providing direct access from the Atlanta metropolitan area. Georgia Route 985 which joins Interstate 85, four miles south of Buford, Georgia, is the major road which provides access to Gainesville, which parallels the east side of the lake.

Access to the western side of the lake is provided by Georgia Highway 400, which originates in Atlanta. Several State roads traverse the lake, providing thoroughfares between these two major arterials while providing direct access to recreation areas. This includes Georgia State Routes 20, 369, and 53. Local, State, and Federal Governments continue to build, improve, and maintain adequate roads for access to all developed recreation areas. The market area access roads are illustrated in Figure 3-1.



LOCATION AND ACCESS MAP

FIGURE 3-1



E. Existing Utilities

The planning area for Lake Lanier is serviced by several utility systems, both publicly and privately owned. Even though some areas are not directly served by an existing distribution line, they can be easily reached when necessary.

1. Electric Power. The Lake Lanier Project area is served by one major power utility company: Georgia Power Company. REA's include Sawnee Electric, Ogelthorpe Electric, and Jackson Electric.
2. Water Service. Most of the urban areas have their own municipal water systems to provide water services to residents, as well as service to some rural residents in their general vicinity. Other water service is by privately owned community systems and individual wells.
3. Wastewater Treatment and Disposal. Municipal systems exist in the larger cities of Gainesville and Flowery Branch.
4. Gas Service. Georgia Natural Gas Company is the only major distributor in the planning area.

F. Adjacent Land Use

Adjacent land uses deserve special attention in planning recreation development because of their direct impact on the project. While some land uses can be of benefit especially to users, some can be a detriment.

Most residential uses in the project area are located in urban areas, while many other residential sites are scattered along the traveled routes within the periphery of the lake. Some larger developments occur very near the shoreline and along access roads to recreation sites. There are numerous residences adjacent to the lake. This close proximity poses potential problems to user's access, shoreline management, and possible encroachments on public land.

The western portion of the market area, including virtually all of the area between Lake Lanier and Allatoona Lake, is predominantly rural, agricultural land, while in contrast, the eastern side of Lake Lanier has long represented the southern end of the so-called Piedmont Crest industrial and commercial strip which extends from Virginia, across North and South Carolina, and into Georgia to Atlanta. The stretch past Lake Lanier is traversed by the Southern Railway's main line, by I-85, by limited-access Georgia 365, by U.S. 23 and the Peachtree Industrial Boulevard from Atlanta. These transportation routes serve Gainesville as well as Atlanta and continue to support industrial, residential, and commercial development which supplants rural and agricultural land uses eastward from Lake Lanier. In turn, the access routes and the availability of land for non-agricultural use and the opportunities for employment currently generate relatively dense, first-class residential developments near Lake Lanier, and middle-income residential developments further to the east. Supporting commercial and recreational facilities have been developed along the access corridors eastward from Lake Lanier, including the State operated Lake Lanier Islands Tourist and Recreation Center, Shopping Centers, and off-the-lake boat sales and storage areas.

4.00

**RECREATION NEEDS
ASSESSMENT**

GENERAL
ELECTION NEEDS

100

A. Introduction

An important part of the master planning process is an assessment of projected demand and recreation needs. In making this assessment for Lake Lanier, visitation demand was estimated for the design years 1990, 2000, and 2007. These levels of demand were then used to determine resource requirements for facilities. The resource requirements form a basis of the needs-capacity analysis included in this study (Chapter VIII).

B. Regional Recreational Resources

Existing recreation in the market area consists primarily of active outdoor recreation. The region's mild climate, predominantly rural nature, and abundance of lakes and rivers encourage such activities as hunting, fishing, and boating. Other common recreation in the area is more urban-oriented and includes softball, golf, and tennis. The Lake Lanier market area is unusually rich in recreational opportunities for the public. The Corps of Engineers, State of Georgia, National Forest Service, and National Park Service have developed recreational areas and acquired scenic wilderness areas that offer a diversity of experience and opportunity.

Three other Corps projects, servicing North Georgia, provide recreational opportunities similar to Lake Lanier. They include Allatoona Lake, Hartwell Lake, and Carters Lake. Each project was authorized for power generation, water regulation, and flood control; however, the diversity of recreational opportunities offered by the four projects in close proximity to one another draws a substantial recreation population from North Georgia. One other Corps project, West Point Lake, has a minor impact on the market area due to its proximity to Atlanta.

Allatoona Lake provides power generation and water regulation on the Etowah River. This project offers 11,860 water surface acres for boating, fishing, and skiing and a substantial land area for tent and trailer

camping, boat launching ramps, picnicking sites, and hiking trails. Currently, Allatoona is the second highest visited Corps Lake in the country, due to its proximity to the Atlanta Metropolitan Area.

Hartwell Lake is located approximately 50 miles to the northeast of Lake Lanier on the South Carolina-Georgia State Line. Hartwell provides power generation and water regulation for flood control and water supply on the Savannah River. This Lake contains 58,000 acres of water surface for boating and fishing recreation. Hartwell has camping, picnicking, swimming, and hiking.

Carters Lake is located 45 miles northwest of Lake Lanier in Murray and Gilmer Counties. This Corps lake is the smallest and least developed project in North Georgia. This project is authorized for power generation and water regulation on the Coosawattee River. Approximately 3,200 acres of water surface provide opportunities for boating, skiing, swimming, and fishing.

The State of Georgia provides recreation opportunities at 7 parks in North Georgia. Amicolola Falls, Fort Mountain, Unicoi, Vogel, Moccasin Creek, Red Top Mountain, and Fort Yargo State Parks are located in the Blue Ridge Mountains and consist of mountain scenery, waterfalls, diverse vegetation, and fresh mountain streams. Each of these parks offer numerous camping facilities, picnic sites, hiking trails, and fishing streams.

The Chattahoochee National forest area in North Georgia manages 741,000 acres of forested mountain land. Generally, public lands are on higher mountain ridges, while private lands are in fertile valleys. The Forest Service has provided accessibility to 29 scenic and recreational areas which contain facilities for camping, fishing, picnicking, and hiking.

The National Park Service has recently acquired lands in North Atlanta for the development of the Chattahoochee River National Recreation Area. This park is unique in that it is a relatively undisturbed natural river in

the heart of a metropolitan area. Currently, canoers, rafters, and kayakers use the park as a take-out point; a boat ramp, parking facilities, rest-rooms, and trails exist.

There are several Georgia Power Company Lakes and TVA Lakes in the market area, but their influence is determined to be minimal.

The influence of these competing projects was considered in developing the visitation estimates for Lake Lanier. Counties within the Lake Lanier market area were assigned market share percentages based on the relative attraction of competing projects and Lake Lanier.

C. Project Visitation

Visitation data and estimated market area population for the years 1975 through 1984 were used to determine the current per capita visitation rate from the market area. The average per capita visitation rate was determined to be 11.63, as shown in Table 4-01. This rate is similar to the per capita use rates shown in Technical Report No. 2⁽¹⁾ for similar water resource projects.

(1) Plan Formula and Evaluation Studies - Recreation, Volume II, Estimating Initial Reservoir Recreation Use; U.S. Army Engineer Institute for Water Resources, June 1974.

TABLE 4-01

HISTORIC VISITATION RATES

<u>YEAR</u>	<u>MARKET AREA POPULATION</u>	<u>TOTAL LAKE VISITATION</u>	<u>PER CAPITA USE RATE</u>
1975	1,129,900	14,445,400	12.04
1976	1,213,200	13,048,800	10.76
1977	1,226,900	13,530,400	11.03
1978	1,254,900	16,290,700	12.98
1979	1,285,600	15,570,000	12.11
1980	1,316,600	16,497,300	12.53
1981	1,287,900	15,325,700	11.90
1982	1,316,100	14,295,400	10.86
1983	1,344,100	14,119,700	10.50
1984	1,372,200	15,876,200	11.57
			<u>11.63 (AVG.)</u>

The average per capita use rate, rather than rates from similar projects, was used to project future demand. The procedures in Technical Report No. 2, "Estimating Initial Reservoir Recreation Use," were developed as an aid in estimating demand for planned reservoirs and facilities. Since Lake Lanier has been in existence for 30 years and has had extensive development and visitation, existing visitation records were used as the basic for future visitation and demand estimates. Historic visitation data are recorded in detail, including visitation by year, month, site, and activity. In addition, the market area defined by the Corps of Engineers provides a single population from which to project future demand.

The visitation figures include visitors to Corps of Engineers areas and to other areas of the lake, both public and private. The proportion of visitors to the Corps of Engineers sites at the lake were determined to be 52.0% as shown in Table 4-02.

Monthly visitation by activity type was also tabulated using 1984 data. These figures were used to determine peak season visitation, as shown in Table 4-03. The overall peak visitation period for Lake Lanier is the 22-week span between 1 May and 1 October and includes 70 percent of the annual demand.

TABLE 4-02

VISITATION TO CORPS OF ENGINEERS SITES

<u>YEAR</u>	<u>TOTAL LAKE VISITATION</u>	<u>VISITATION TO CORPS SITES</u>	<u>PERCENT VISITATION TO CORPS SITES</u>
1975	14,445,400	7,817,100	.54
1976	13,048,800	7,337,600	.56
1977	13,530,400	7,898,100	.58
1978	16,290,700	8,421,500	.52
1979	16,570,000	7,831,600	.50
1980	16,497,300	8,457,600	.51
1981	15,324,700	7,567,900	.49
1982	14,295,400	7,155,400	.50
1983	14,119,700	6,731,000	.48
1984	15,876,200	7,711,200	.49
			<u>.52 (AVG.)</u>

TABLE 4-03

SEASONAL DEMAND BY ACTIVITY

<u>ACTIVITY</u>	<u>TOTAL 1984 VISITATION TO CORPS SITES</u>	<u>PERCENT OF VISITATION DURING PEAK SEASON</u>	<u>PEAK PERIOD (WEEKS)</u>
Boating	1,693,433	.56	May -- Aug (17)
Fishing	1,437,100	.60	April -- July (17)
Picnicking	1,911,000	.74	May -- Aug (17)
Sightseeing	3,089,300	.43	May -- Aug (17)
Skating	503,700	.59	June -- Aug (13)
Swimming	1,617,400	.78	May -- Aug (17)
Camping (1)	393,600	.55	June -- Aug (13)
TOTAL	10,645,600 (1)		

(1) Total activity visitation is greater than total 1984 visitation because of participation in multiple activities. Total 1984 visitation to Corps sites is 7,711,200.

D. Anticipated Demand, Supply, and Needs

1. Projected Visitation. Annual visitation to Lake Lanier was projected for the years 1990, 2000, and 2007, using the visitation rate developed from historic data and the Corps-approved population projections for counties within the lake's market area. The same per capita rate was applied to population projections throughout the 20-year planning period, in accordance with the procedure suggested in Technical Report No. 2. The projected total visitation was factored by 52.0 percent (as determined from the analysis of 1984 Corps sites visitation to the Corps of Engineer sites included in this plan.) The total projected day use visitation is shown in Table 4-04.

TABLE 4-04

PROJECTED VISITATION⁽¹⁾

<u>YEAR</u>	<u>MARKET AREA POPULATION</u>	<u>PER CAPITA USE RATE</u>	<u>PROJECTED VISITATION</u>	<u>CORPS AREA VISITATION (DAY USE)</u>	<u>CORPS AREA VISITATION (TOTAL)</u>
1990	1,548,500	11.63	18,009,100	9,374,700	10,020,229
2000	1,703,400	11.63	19,810,500	10,301,500	11,022,600
2007	1,756,300	11.63	20,530,400	10,675,800	11,423,100

(1) Day use visitation underestimates the number of visitor days, because campers are only counted once, even though they may remain at the recreation site for several days. This underestimation is corrected by using the following formula, as shown in Technical Report No. 2:

Total Initial use = (day use)/(1-proportion of camping)

In this case, camping comprises 7 percent of the total visitation.

Therefore, total use is calculated as day use divided by (1 - 0.07) = 0.93

These levels of demand were then used to determine the resource requirements at the lake for various types of facilities (boat ramps, camping areas, picnic areas). The resource requirements form a basis of the Needs Capacity Analysis portion of the Master Plan Update. (Chapter VIII)

2. Design Load Calculation. The design load for an activity at a recreation site is defined as the projected visitation participating in that activity for an average weekend day during the peak season. This number will be significantly greater than an "average day" but will be less than the peak day visitation that may occur on July 4th or Labor Day. Design visitation loads were calculated for each activity. The weekend design load for each activity was calculated using the Corps of Engineers formula:

$$DLA = \frac{AV \times Ps \times Pw \times PA}{WS}$$

where:

DLA = design load for activity A

AV = annual visitation

Ps = proportion of demand for activity A occurring during the peak season

Pw = proportion of annual visitation occurring on weekends

Ws = number of weekend days in the peak season

The total design visitation load (DL), for all activities, is determined using the same formula setting PA equal to 1.0. The total design load for years 1990, 2000, and 2007 is shown calculated below:

$$\frac{1990}{DL} = \frac{10,020,229 \times .70 \times .55 \times 1.0}{44} = 87,677 \text{ Total visitors}$$

$$\frac{2000}{DL} = \frac{11,011,600 \times .70 \times .55 \times 1.0}{44} = 96,447 \text{ Total visitors}$$

$$\frac{2007}{DL} = \frac{11,423,100 \times .70 \times .55 \times 1.0}{44} = 99,952 \text{ Total visitors}$$

3. Participation Rates. Participation rates for each of the recreation activities at Corps of Engineers sites on Lake Lanier were calculated from the historic activity use distribution. The sum of participation rates is generally greater than 1.0 because of visitors participation in more than one activity. Group size and turnover rates for the activities were obtained from the Bureau of Outdoor Recreation (BOR) report Guidelines for Understanding and Determining Optimum Recreation carrying Capacity, dated January, 1977. Table 4-05 lists the participation rate, turnover rate, and average group size for each activity.

TABLE 4-05

PARTICIPATION RATES, TURNOVER RATES AND
AVERAGE GROUP SIZE

<u>ACTIVITY</u>	<u>PARTICIPATING RATE</u> ⁽¹⁾	<u>TURNOVER RATE</u>	<u>AVERAGE GROUP SIZE</u>
Boating	0.21	2.3/day	2.9/Boat ⁽³⁾
Fishing (Boat) ²	0.18	1.8/day	2.0/Boat ⁽³⁾
Fishing (Shoreline)	0.03	1.7/day	1.0
Picnicking	0.23	1.8/day	4.6/Table
Sightseeing	0.38	4.0/day	4.0/Group
Waterskiing	0.06	2.4/day	3.1/Boat
Swimming	0.20	2.2/day	1.0/ ⁽⁴⁾
Camping	<u>0.07</u>	0.9/day	3.8/Site
Total	1.36 ⁽⁵⁾		

(1) Calculated from Historic activity use distribution

(2) Boat fishing was determined to comprise 85% of all fishing at Lanier

(3) 40 Launches/day per ramp lane capacity

(4) Average beach area per swimmer is 150 square feet

(5) A total participation rate greater than 1.00 indicates that visitors participate in multiple activities

4. Facility Needs. Using the above data and formulas, the facility needs for Lake Lanier was calculated for the years 1990, 2000, and 2007. In general, design was calculated and divided by group size and turnover rate to determine the design load facility demand. This was compared with existing facilities to determine future need. The calculations for the design year 2007 are shown below for each activity. Similar calculations were performed for the other design years.

1. Boating Demand: 2007

Peak period = 17 weeks = 34 weekend days

Demand during peak period = 56%

$$DL \text{ (Boating)} = \frac{11,423,100 \times .56 \times .55 \times .21}{34} = 21,700 \text{ participants}$$

21,700/2.9 persons per boat/2.3 turnover = 3,250 peak boat demands.

Estimate 1,050 boats use marina slips⁽¹⁾

3,250 - 1,050 = 2,200 peak boats to be launched

2,200/(40 launches/day/lane) = 55 lanes required

Parking required:

21,700 participants/2.9 persons per boat = 7,430 total boats per day

7,480 boats - 1,050 (using marina slips)/2.3 turnover = 2,800 (car/trailer)
parking spaces

2. Boat Fishing Demand: 2007

Peak period = 17 weeks - 34 weekend days

Demand during peak period = 60%

$$DL \text{ (Boat Fishing)} = \frac{11,423,100 \times .60 \times .55 \times .18}{34} = 19,950 \text{ participants}$$

19,950/2.0 person per boat/1.8 turnover = 5,500 peak boat demands

Estimate 2,100 boats use slips at marinas⁽¹⁾

5,500 - 2,100 = 3,400 boats to be launched

3,400/(40 launches/day/lane) = 85 lanes required

Parking Required:

19,950 participants/2.0 persons per boat = 9,975 total boats per day

9,975 - 2,100 (using marina slips)/1.8 turnover = 4,400 (car/trailer)
parking spaces

3. Shoreline Fishing Demand: 2007

Peak period = 17 weeks = 34 weekend days

Demand during peak period = 60%

DL (Shoreline Fishing) = $\frac{11,423,100 \times .60 \times .55 \times .03}{34} = 3,300$ participants

Parking Required:

3,300/(1.7/day)/(2.7/car) = 720 parking spaces

4. Waterskiing Demand: 2007

Peak period = 13 weeks = 26 weekend days

Demand during peak = 59%

DL (waterskiing) = $\frac{11,423,100 \times .59 \times .55 \times .06}{26} = 8,500$ participants

8,500/(3.1 person per boat)/2.4 per day) = 1,050 boats

Estimate 1,050 boats use marina slips therefore there is no ramp or parking requirements.

5. Camping Demand: 2007

Peak period = 13 weeks = 26 weekend days

Demand during peak = 55%

$$DL (\text{camping}) = \frac{11,423,100 \times .55 \times .55 \times .07}{26} = 9,300 \text{ participants}$$

$$9,300 / (3.8 \text{ per site}) / (.9 \text{ per day}) = 2,700 \text{ campsites}$$

6. Picnicking Demand: 2007

Peak period = 17 weeks = 34 weekend days

Demand during peak = 74%

$$DL (\text{picnicking}) = \frac{11,423,100 \times .74 \times .55 \times .23}{34} = 31,400 \text{ participants}$$

$$31,400 (4.6 \text{ persons/table}) / (1.8 \text{ Day}) = 3,800 \text{ tables}$$

3,800 parking spaces

7. Sightseeing Demand: 2007

Peak period = 17 weeks = 34 weekend days

Demand during peak = 43%

$$DL (\text{Sightseeing}) = \frac{11,423,100 \times .43 \times .55 \times .38}{34} = 30,200 \text{ participants}$$

$$30,200 / (2.7 \text{ persons per car}) / (4.0 \text{ per day}) = 2,800 \text{ parking spaces}$$

8. Swimming Demand: 2007

Peak period = 17 weeks - 34 weekend days

Demand during peak = 78%

$$DI (\text{Swimming}) = \frac{11,423,100 \times .78 \times .55 \times .20}{34} = 28,800 \text{ participants}$$

$$28,800 \text{ participants} \times 150 \text{ S.F. beach per participant} / 2.2 \text{ turnover} = 1,963,600$$

$$\text{S.F. of beach (or } 1,963,000 \text{ S.F.} / 43,560 \text{ S.F. Per Acre)} = 45 \text{ acres}$$

Parking required:

$$28,800 / (2.7 \text{ persons per car}) / (2.2 \text{ per day}) = 4,800 \text{ spaces}$$

(i) The 4,200 marina boat slips were allocated proportionally between pleasure boats, fishing boats, and waterskiing boats. There is 100% occupancy of the boat slips.

TABLE 4-06

SUMMARY OF MAJOR FACILITY NEEDS

<u>Activity/Facility</u>	1984	1990		2000		2007	
	<u>Supply</u>	<u>Demand</u>	<u>Need</u>	<u>Demand</u>	<u>Need</u>	<u>Demand</u>	<u>Need</u>
Boating/Launching Lanes	95	116	21	131	36	140	45
Picnic/Sites	1,373	3,300	1,927	3,650	2,277	3,800	2,427
Swimming/Beach Area (Acres)	15	39	24	43	28	45	30
Camping/Sites	1,248	2,380	1,132	2,600	1,352	2,700	1,452
<u>Parking</u>							
Auto/Trailer	2,080	6,100	4,020	6,900	4,820	7,200	5,120
Auto	9,935	10,680	745	11,750	1,815	12,100	2,165

The assessment of recreation needs shows a need for all facility categories project wide. There is a large amount of demand with a general lack of necessary facility development to accommodate the demand.

E. Hiking - Needs and Supply

The Georgia State Comprehensive Outdoor Recreation Plan was used to determine the need for hiking trails at Lake Lanier. The following Table lists Supply and Needs for the five counties encompassing Lake Lanier.

TABLE 4-07

<u>County</u>	<u>Supply (Miles)</u>	<u>Needs (Miles)</u>
Dawson	5	+ 4
Forsyth	0	- 4
Gwinnett	9	-16
Hall	6	- 5
Lumpkin	30	+28

+ Indicates a Surplus
- Indicates a Need

F. Consolidation/Closure Summary

Since the beginning of the closure program, two entire areas were closed or leased to other organizations. Davis Bridge and Jefferson Park were closed. Jefferson Park was later leased to the City of Gainesville for a day use area. Twenty-five (25) campgrounds were reduced to thirteen campgrounds. The camping facilities from Little River, Clark's Bridge, Balus Creek, Vann's Tavern, Nix Bridge, Mountain View, Burton Mill, Little Hall, Tidwell, Six Mile, Charleston, and Big Creek were relocated to renovated campgrounds at Shoal Creek, Van Pugh, Chestnut Ridge, Old Federal, Bolling Mill, Shady Grove, Bald Ridge Creek and Sawnee Campgrounds. With the exception of Bolling Mills, Old Federal, and Van Pugh, picnic and day use facilities from these eight campgrounds were relocated to other day use parks. Other campgrounds remaining to be renovated are Robinson, Keith's Bridge, Bethel Park and War Hill. Additionally, picnic facilities at Tidwell, Six Mile, and Little Shoal Creek were relocated to larger day use areas.

The closure and consolidation program at Lake Lanier remains a very viable and necessary program. Accelerated development of the surrounding area and the bulging population growth using the lake requires having the ability to rapidly change facilities to control unsafe conditions and to prevent unnecessary damage to the environment.



**ENVIRONMENTAL
RESOURCES**

5.00

HERONCE
ENVIRONMENTAL

200

A. Introduction

This chapter summarizes the inventory and analysis of natural and environmental resources of Lake Lanier. Climatological information, geological features and water resources are addressed on a project-wide scale and were utilized in the determination of recreation resource location. A more detailed level of analysis was conducted for the inventory and analysis of topography, soils and vegetation and wildlife. This data was mapped for each site and in combination for the Composite Analysis Maps (see Volume 2). This mapping illustrates the limitations that soils, slope, vegetation and wildlife present to recreation resource development and management. Visual characteristics and special features addressed were also analyzed on an individual site basis and serve to guide the recreation development program.

B. Climate

The climate of the area is characterized by mild wet winters and quite warm, humid summers. Since the lake is located at the foot of the Blue Ridge Mountains at an altitude of about 1,100 feet, summer temperatures are not quite as severe as they are at lower elevations. Ocean and gulf breezes tend to temper the cold of winter as well as the high temperatures of summer. January has been recorded as the coldest month with an average temperature of 45.0 degrees Fahrenheit. July has been the warmest month with an average temperature of 77.9 degrees Fahrenheit. The average growing season in the area is 233 days with the first killing frost in autumn occurring on November 13th and the last occurring March 24th. Extreme temperatures are rare for the area, with the highest temperature of 106 degrees Fahrenheit occurring in July 1980, and the lowest of -9 degrees in February 1899.

The average rainfall of the area is 52.3 inches with the highest rainfall periods occurring during July and March with a total accumulation of 5.5 inches. October records the lowest rainfall with slightly over 3

Inches. Snow is not uncommon to the area, since it has been recorded in 7 out of 12 months of the year. Accumulation is only slight and it remains on the ground for only short periods. Dry periods occur in autumn when long periods of pleasant, mild temperatures are quite common.

The winter wind direction is from the northwest; however, during periods of cold, wet weather winds originate out of the east and northeast. During the summer, winds are mostly from the south producing moderately high temperatures with high humidity.

C. Geological Features

The parent material underlying project lands is an unconsolidated mass from which soil forms. The soils that formed in residual materials are generally related to particular rock formations or parts of rock formations. According to the Geologic Map of Georgia the parent material underlying Lake Lanier are made up of granite gneiss, diorite schist, and mica schist. Cecil and Appling soils were derived from ordinary gneiss, granite, and schist. These soils were formed from parent material less resistant to weathering and contain fairly large quantities of clay, chiefly from feldspars. Madison soils were derived from mica schist. Gwinnett soils were derived from diorite and hornblende or mixed acid and basic rock. Louisberg soils were formed in parent material weathered from silicious rock and quartz sand, which are very resistant to weathering. These soils are therefore sandy and have faint horizons and in small, scattered areas hard rock is exposed.

The geologic substrate at Lake Lanier was formed during the younger Precambrian Era. The most ancient rocks known in the United States were formed during this era and are more than 2.5 billion years old. They are sedimentary rocks highly altered by heat and pressure that must have been derived by weathering and erosion of pre-existing and as yet unidentified older rocks. Life which probably originated on this planet over 3 billion years ago and distinct algal-like structures have been identified in rocks almost 2 billion years old, well back in Precambrian time.

D. Topography

The degree of steepness of the various land forms play a significant role in the development of recreation facilities and other land uses. Lake Lanier is a steep-sided mountainous impoundment that has inundated parts of valleys and feeder streams throughout its reach. The lake itself presents a view of a submerged shoreline in strong relief which has produced numerous islands and promontories. The adjacent terrain is one of generally rolling hills to steep bluffs with slopes ranging from 5 to over 30 percent. The strongest relief is found to the north and northwest of the lake. Rounded edge, hilltops, bluffs, islands, and elongated ridges protrude from the water's edge creating a wide variety of topographic features.

Slope analysis maps have been prepared for each individual recreation area at Lake Lanier. This mapping is on file at the Corps of Engineers, Mobile District Office. The developable lands of the project area are based on the following criteria:

1. 0-10% (Slight)

These areas have the greatest potential for development unless restricted by poor access or poor soils. Project development and use will be least disruptive to soil and forest ecosystems. Construction of recreational facilities will be cost effective since preparation costs for infrastructure, roads and use areas will be minimized. Most of the present recreation development can be found on high intensity use slopes.

2. 10-20% (Moderate)

These areas will not support heavy use. Moderate Intensity Slopes will be restricted to road cuts and use of land immediately adjacent to the lake. The range of uses applicable to moderate Intensity Slopes will be drastically reduced from that to High Intensity Use areas. Uses such as picnicking and primitive camping can be accommodated with minor slope alteration.

3. 20+% (Severe)

Low Intensity use slopes are highly susceptible to site disturbance. Site preparation for development and use on these areas would be extremely costly and detrimental effects would result from grading and excavation. These areas are restricted to only limited uses such as hiking and nature study.

E. Soils

1. Introduction.

An analysis of soils of each recreation site at Lake Lanier was based on mapping provided from the U.S. Department of Agriculture, Soil Conservation Service (SCS).

Enlargements of SCS maps (from 1" = 1,320' to 1" = 200') were made for project areas and are on file at U.S. Army Corps of Engineers; Mobile District Office. Soils descriptive data were utilized to determine the suitability of various land areas for recreation development and are illustrated as a part of the Natural Environmental Composite Analysis Maps. A total of 55 different soils series were identified in public use areas including Altavista, Appling, Cecil, Chewacla, Louisa, Madison, Roanoke, Starr, Toccoa, Vance, Wickham, and Wilkes.

2. Suitability Classes.

As part of the soils analysis, synoptic descriptions of each soil series occurring on the recreation sites were prepared, based upon technical data published by the National Cooperative Soil Survey. Utilizing selected portions of these data, a matrix evaluation was performed to determine a single suitability classification (development limitation) for each soil/slope category. The classification was based upon the soil's suitability for three uses: septic absorption field, building site, and camping area. The composite classification rated each of the soils to have slight, moderate, or severe limitations.

a. Slight limitations. The soils in this classification are highly suitable for all types of intensive recreation although a few have moderate limitations for use as septic drain fields. The slopes of these soils are less than 10 percent and generally less than 5 percent. They are all well-drained loamy sands or sandy loams and not susceptible to flooding.

b. Moderate limitations. These soils are suitable for some types of recreation facility development, but have severe limitations for certain uses. With proper consideration of the specific areas and end use during site design, these soils may be quite acceptable for certain uses although development costs may be higher than soils with slight limitations.

c. Severe limitations. Soils with severe limitations are generally in this category because of wetness caused by seasonal flooding, high water table, and/or poor drainage. These soils generally are bottomland with slight slopes, although some soils with steep slopes also have severe limitations. All of the soils in this classification have severe limitations for use as septic drain fields and at least moderate limitations for use as building sites or camping areas. With only few exceptions these soils should be avoided in development of recreation facilities for intensive use.

F. Water Resources

When considering water resources, one of the primary concerns is water quality, especially since the quality and quantity of aquatic life depends on this factor. Lake water quality is determined by the run-off of its watershed, the contributions of agricultural, industrial and urban use of the drainage area. Generally, the quality of water in Lake Lanier meets the criteria for "recreational" classifications as established by the Environmental Protection Division of Georgia. Some natural improvement in water quality has occurred in many cases as a result of inundation. However, there are some problem areas. Poultry producing and processing industries have been partly responsible for creating water quality problems

within the Lake Lanier Basin, but the chief pollutant is sediment. Due to steep mountain slopes in the watershed plus moderately erosive clay soils, sediment run-off is of a colloidal nature.

Because of the lake's width and water depth it is well suited for recreational activities such as skiing, sailing, pleasure boating and fishing. The overall water quality as it relates to recreational activities is favorable. More specific information relative to water quality can be found in Appendix D, Fish Management Plan, of the Master Plan, and in the Final Environmental Statement for Lake Lanier dated December 1974.

G. Vegetation

Lake Lanier lies in the Oak-Pine Forest Region of the Southern Piedmont Plateau. Elevations range from 1,071 to 1,150 feet on Federal lands adjacent to the lake. Virgin forests which existed before the influx of the white man are now completely gone due to forest harvesting in the region. Only small isolated stands of old trees, 200 to 300 years of age, remain as remnants of how the original upland forests must have appeared to man. Cutting, lumbering, and agriculture have caused a patchwork of fields, second growth forest communities of various ages, and culled hardwood stands.

Vegetation communities at Lake Lanier are distinguished by differences in species composition and microclimatic habitat. The level of dominant successional stages in plant communities is directly related to a specific habitat a plant species evolves from. Competition for light, water, and nutrient in a habitat are traits which cause certain species to become dominant. Each set of species change the physical substrate and microclimate, making conditions favorable for another set of organisms. The stage of succession in forest communities is therefore based on local microclimates, level of competition, and any outside disturbances including fire, cultivation, or harvesting.

Typical vegetation communities which constitutes the sum of Federal lands at Lake Lanier are listed in Appendix IV-i. These community types are distinguished by species composition and microclimate or habitat location. Each vegetation community is mapped and field checked by aerial photography.

H. Vegetation Mapping Units

Vegetation and wildlife resources have been mapped on an individual site basis. These maps are on file at the Corps of Engineers, Mobile District Office.

Vegetation types or communities are mapped by grouping similar composition and ecological habitats together. Each grouping or "unit" would be expected to react similarly to development. Generally, vegetation communities can be impacted upon in two ways, which result in a change of normal successional patterns. Primarily, the site can be altered by development causing a change in environmental habitat of the community. Disruption would be caused by changing drainage patterns, soil moisture and nutrient content, light intensity and exposure to wind. Secondly, a new plant species may be introduced into the community causing a disruption of order and balance in plant competition.

The degree to which development might impact and change existing plant communities is important in this analysis. Fragility units are assigned to each vegetative community or sub-community. These units are then classified to determine the level of impact a plant community may endure before a change in composition occurs. Criteria for fragility units are identified on Table 5-01.

Patterns of relative fragility are defined, in that proposed uses can be evaluated as to their effect on the existing vegetation community.

TABLE 5-01

Plant Community/Sub-Community

Fragility Classification

<u>DEVELOPMENT FRAGILITY CLASS</u>	<u>DEVELOPMENT CRITERIA</u>	<u>COMMUNITY TYPE</u>
I. Fragile	Forest types which are most susceptible to development and microclimate changes. These forests occupy wet extremes of the moisture gradient and are noticeably affected by drainage changes. Fragile environments occupy lower elevations along stream corridors and in the upper backwater portions of Lake Lanier.	Swamp, Bottomland Hardwood Cove Hardwood
II. Durable	This forest type is less susceptible to moisture changes in the soil. These species are better adapted to intense development and microclimate changes. This biological system spans the medium to moderate dry moisture range.	Upland Hardwood Pine-Hardwood Forests
III. Very Durable	These ecotypes are least subject to disruption by microclimatic changes since they occupy lands with adverse conditions. These ecotypes can be found on sites which have been disrupted at one time by clearing, cultivation or fire.	Pine Forests Pine plantation and old field succession.

I. Wildlife Species

A number of game and non-game species of wildlife exist in the Lake Lanier area. Beavers are in the creeks; deer and wild turkey are increasing in the area. Bobwhite, quail, mourning doves, rabbits, squirrels, as well as a variety of non-game birds, mammals, amphibians, and reptiles exist in the waters, forests, and fields. Because hunting is not permitted on project lands, wildlife provides enjoyment for the sightseer, naturalist, and outdoor recreationalist.

Resource management provides for maintaining diverse quality habitats for wildlife that occur in the region. These habitats are determined by available food and cover that is adequate to satisfy a variety of species. Nutritious foods must be available in sufficient quantities during critical periods of the year, and cover must be sufficient to satisfy the behavioral and psychological demands of the species. Since wildlife demands depends directly on vegetation composition, separations in habitats will constitute the type of species which can be found.

Since management of the forest-wildlife is an integral part of the total resource management plan, a discussion of maintaining vegetative diversity and quality is important for enhancing wildlife. Each vegetative type or community is composed of certain wildlife habitats that total the wildlife communities at Lake Lanier. The capability of managing wildlife species is proportional to the quantity and quality of the habitat. The Forest and Wildlife Management Plan, 1974, for Lake Lanier recommends management practices for providing necessary conditions to sustain a diverse wildlife population. These conditions can be described by management of the vegetation types as shown in Appendix IV-2.

J. Endangered Plant and Wildlife Species

The Georgia Game and Fish Division of the Department of Natural Resource has listed species whose status in Georgia is known to be endangered, and whose range overlaps Lake Lanier. However, there has been no known sightings of endangered wildlife species on project lands.

There are several species of endangered plants in the counties that encompass Lake Lanier. They include the following:

<u>Plant Species</u>	<u>Counties</u>
1. <i>Cypripedium calceolus</i> Var. <i>pubescens</i> (Yellow Lady's-Slipper)	Dawson, Forsyth, Lumpkin
2. <i>Hydrastis canadensis</i> (Golden Seal)	Dawson
3. <i>Waldstreinia lobata</i> (Barren Strawberry)	Gwinnett
4. <i>Nestronia umbrellula</i> (Nestronia)	Hall

K. Visual Characteristics and Special Features

1. Introduction

Visual characteristics and quality in the landscape must be recognized and planned for in the same manner as other resources considered in the Master Plan. The importance of a user's visual experience is as significant as any other factor in the perception of an area.

2. Visual Characteristics

Usually landscape character and unique or outstanding features are the two factors that determine visual quality. Unique or outstanding features are normally perceived as water falls, unique rock outcrops, vistas, natural elements encountered and special man-made features. Landscape character can generally be interpreted by landforms (topography, relief) and surface characteristics (land use, tree cover, water.) While

no specific study was done for visual characteristics, several observations were made that relate to the features of the project area. Except for concession marina sites and project operation areas near the dam, the majority of project lands are densely vegetated. This visual zone acts as a buffer which contributes a vital function to lakeside aesthetics. With the high level of recreation development on the lake, the shoreline maintains a uniform and harmonious tree canopy cover.

The protection and enhancement of these functional/visual buffers can be evaluated by considering the visual sensitivity of various viewsheds on the lake. Generally, Lake Lanier can be classified into 3 visual zones: lower lake viewsheds, middle lake viewsheds, and upper lake viewsheds. Each zone is characterized by magnitudes of project use, topographic changes, vegetation, adjacent land use and water configuration. Each visual zone is summarized in Figure 5-01 through 5-03.



FIGURE 5-01 Viewshed Zones

Lower Viewshed Zone: Generally project lands in the lower viewshed zone are intensely developed and receive a great amount of recreation use. A large expanse of canopy vegetation (trees) have been preserved for recreation use and enjoyment. These areas can be characterized by large expanses of water enframed by rolling terrain. Numerous islands jut out of the Lake's surface contribution to a high scenic quality in the region. Vegetation provides the role of unifying and buffering the shoreline in the lower viewshed area and more importantly gives a sense of scale and enframing to the water area. Preservation of these buffer areas are essential to the visual quality in this zone.

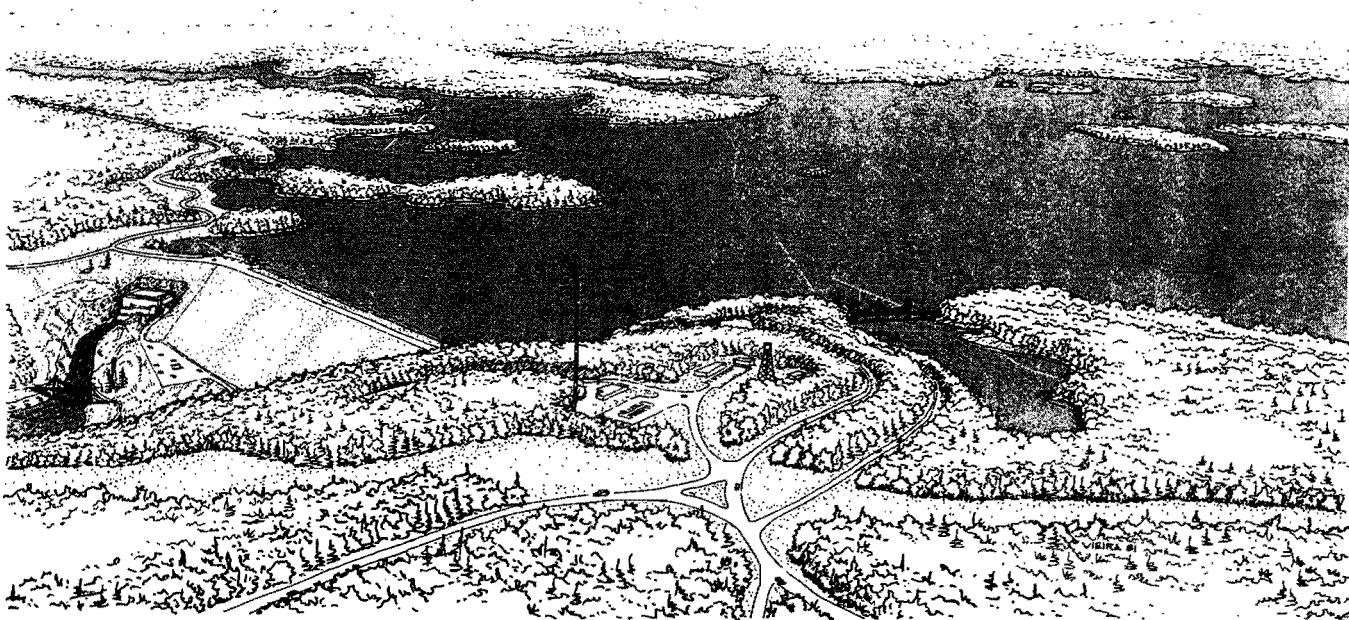




FIGURE 5-02 Viewshed Zones

Middle Viewshed Zone: This portion of the lake, located from Brown's Bridge north to Bolling Bridge and northeast to Thompson Bridge, is not as developed for recreation use as the lower viewshed area. The terrain is more pronounced with greater elevational changes. The lake itself forms elongated channels and bays with narrow coves. The interface between water and landform provides long views but not to the same degree as the lower zone. This area is occasionally interrupted by residential lots which overlook the lake. This area rates a high scenic value which is visually pleasant but not of unique character. Vegetation and landforms act as buffers to adjacent development and are very important in maintaining uniformity and continuity along the shoreline.

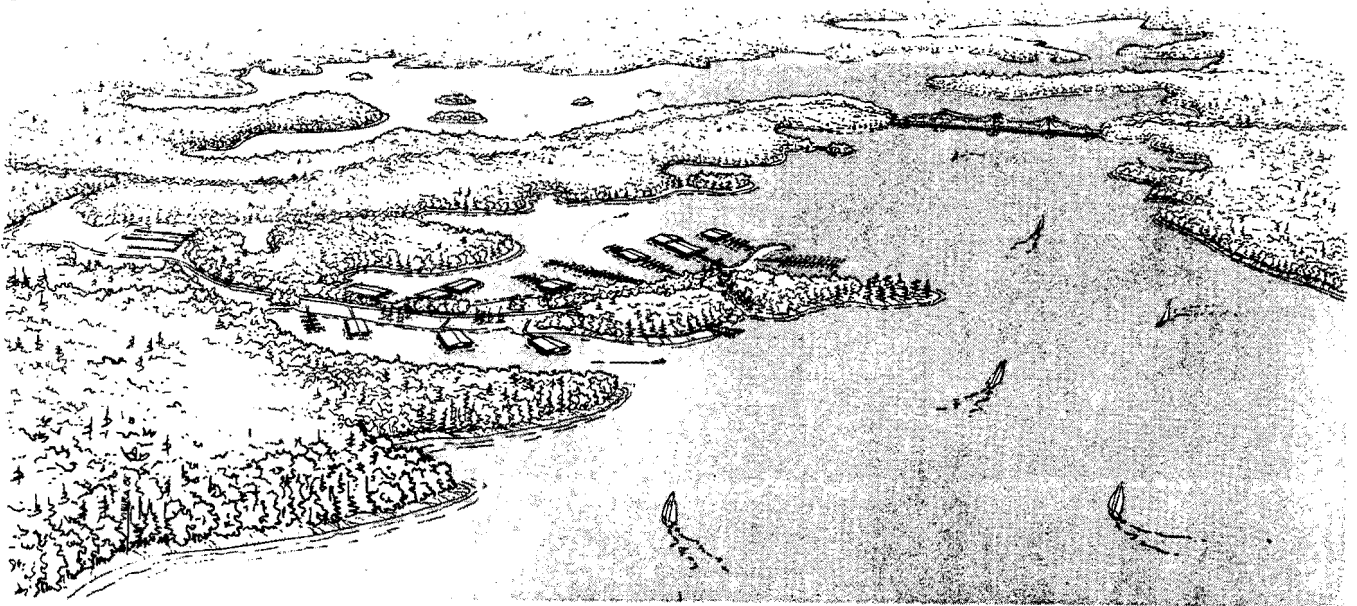
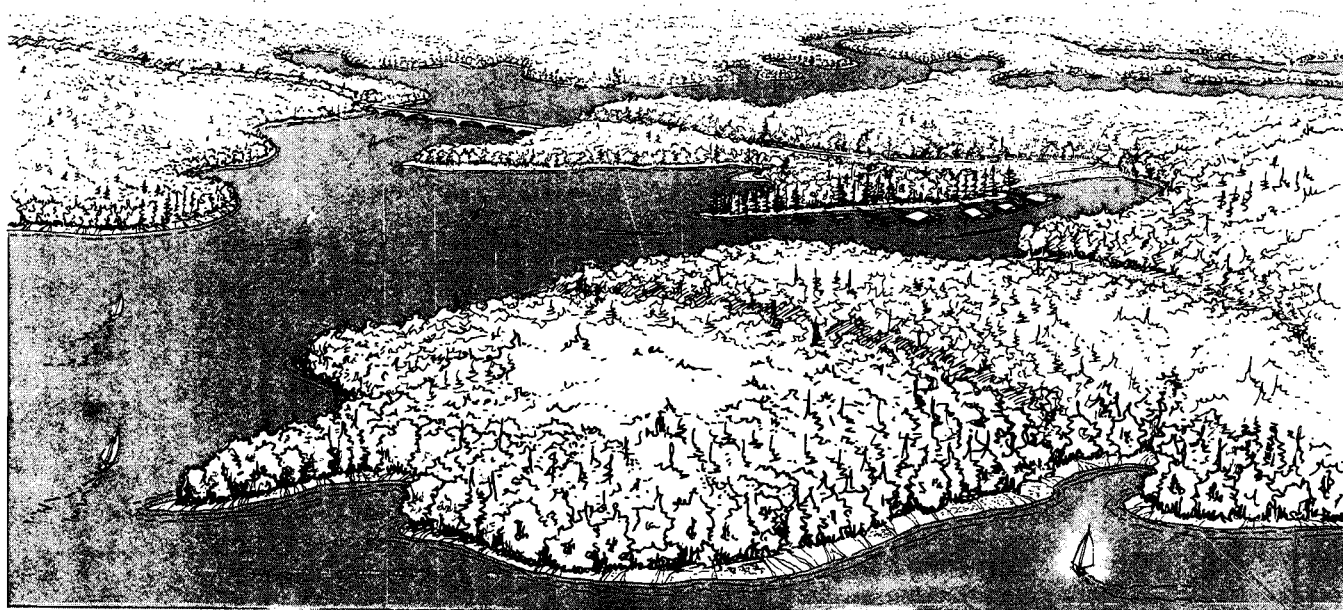




FIGURE 5-03 Viewshed Zones

Upper Viewshed Zone: The upper lake visual zones, located up each arm of the reservoir are the most scenic areas of Lake Lanier. This is determined by the fact that development is sparse and the landscape retains a wilderness condition. These areas are characterized by narrow channels, rolling mountains topography, and diverse vegetation cover. The area is dominated by mature stands of hardwood and pines and provides a secluded atmosphere that can't be found elsewhere on the project. Steeply sloping hills, bluff rock outcroppings and mature forests create a setting that enhances recreation enjoyment in this area.





3. Environmental Composite Analysis

The existing natural resources of Lake Lanier dictate land use potentials and limitations. By combining the natural resources of soils, slopes, vegetation, and wildlife, and visual sensitivity, a suitability composite is derived and used to locate areas which are attractive or vulnerable to future development and use. All categories of land use suitability are expected to react similarly to project use, management, and operation. An analysis was done for each individual recreation area, as shown on the various plates in Volume 2. Categories of development are based upon natural resources analyzed in this section and are derived from Table 5-02.

The suitability units provide a framework for identifying the ability of sites to withstand human use and development. These units identify highly sensitive environments or areas needed to preserve the visual integrity and protect the ecological process of the project. Use of the suitability composite does not preclude using some moderate use areas as high intensity use areas, however, it does indicate that precautions must be taken and tradeoffs must be evaluated. Lowering development density and site carrying capacity might be one alternative to be determined in this evaluation. Each suitability level has unique potentials and limitations which will enhance or restrict project use. Slope and soils have been chosen as key elements after all fragile or sensitive areas have been separated. Table 5-02 identifies suitability levels and describes potentials and limitations in each. Tables 8-01 thru 8-05 give the acreage of each suitability.

TABLE 5-02

Use Suitability Levels

Suitability Level	(1)	Composite Description	Use Description
I. High Use Intensity		Any Combinations of slopes 0-10%, most and moderately desired soils, durable wild-life/vegetation habitats and moderate to low visual sensitivity.	The variety and intensity of uses are greater than any other use category. These sites may handle many types of activities without impact to vegetation and wildlife.
II. Moderate Use Intensity		Any combination of slopes 10-20% with moderately desirable soils limited to sustain wildlife and vegetation habitats and preserve visual quality.	Areas of moderate slope and some fragile vegetation/wildlife habitats. These areas should well serve as buffer zones overflow from high use areas and restricted to low density development such as primitive camping, fishing, and hiking trails.
III. Restrictive Use Intensity		Any combination including fragile vegetation/wildlife habitats, rare or unique features, and slopes over 20%.	All fragile environments as wetland forests or unique geologic or archeologic features. These areas should be restricted, to scientific, educational and interpretive uses, or utilized as forest and wildlife preserves.
IV. Exclusionary Areas		Any exclusionary soils.	All areas which exhibit extremely poor soils and substrate. These areas may exist in wetland or flood plain areas or exist as a result of human disturbance such as landfills. These areas are retained as natural conditions.

(1) Identified on Composite Analysis Plates in Volume 2.

6.00

**FACTORS INFLUENCING
& CONSTRAINING RESOURCE
DEVELOPMENT & MANAGEMENT**

DEPARTAMENTO DE INVESTIGACIONES
Y COORDINACION TECNICA
CYCLOS INGENIERIA

200

A. General

This chapter discusses factors which influence and constrain the development and management of resources at Lake Lanier. Factors include environmental constraints, operational procedures, and physical limitations such as land area or access. Also influencing resource development are the demands for recreation as affected by population in the market area, competing resource projects, and available facilities at the project. Institutional constraints, such as the requirement for cost sharing, can also have a major influence on development and management of the resource.

B. Environmental Constraints

The environmental constraints at Lake Lanier play a major role in determining the activities suitable for each Corps site, the locations for those activities, and the extent of development at each site. Environmental constraints include items such as vegetation, topography, soils, and water characteristics.

1. Vegetation. Vegetation is the single most dominant resource influencing the recreation experience. While mature tree stands and specimen vegetation notably benefit the outdoor environment, the absence of vegetation significantly detracts from the same environment. Adequate vegetation cover serves to help reduce heat buildup in otherwise barren areas as well as reducing erosion caused by wind and water.

Certain vegetative types, including pines and upland hardwoods, are more tolerant and conducive to intensive recreation development. More sensitive areas are marshes and terrains devoid of vegetation. Protection and enhancement requires the proper utilization and management of vegetative areas in order to minimize the impact on these resources.

2. Topography. The lake is located in an area of rolling hills to very steep bluffs. While providing scenic overlooks and interesting hiking

terrain, these steep slopes inhibit the development of recreation facilities to a great extent.

3. Soils. The characteristics of soils types occurring on Lake Lanier greatly influence the development and management of recreation facilities. Certain soil types cannot sustain intensive recreation use due to the high erodibility and low strength characteristics of these soils. Specific facility location, e.g., a septic field, is constrained to a great extent by the suitability of existing soil types. In the planning and development of recreation resources it is essential to recognize the limitations imposed by individual soil types in order to minimize adverse impacts such as increased erosion and ground water pollution. Specific area soil testing is often necessary prior to final facility location.

C. Shoreline Erosion

Shoreline erosion affects resource use at Lake Lanier causing severe shoreline loss that requires the relocation of picnicking and camping facilities, generally to less desirable locations. Erosion may even create problems by undermining paved boat ramps or dock facilities. Additionally, eroded sediment deteriorates water quality, reducing the fish populations.

The Lake Lanier Management and Economic Impact Study of August 1979 analyzed lakeshore areas that are most susceptible to erosion. This analysis estimated average wind velocities and vectors on the water surface, combined soil and slope factors to determine shoreline characteristics and determined average wave characteristics. This analysis was achieved graphically and revealed a pattern of shoreline area that received the greatest damage from a wave action. The pattern revealed western shore areas of the lower lake basin are most susceptible to wind generated wave erosion, while the eastern shore and narrow channels and coves of the upper lake basin were markedly less subject to wave erosion.

A comparative analysis indicated a pattern of wave erosion generated by boat traffic is most severe within the bays of the eastern shore and along shoreline areas near the lakes commercial marinas. This problem is further discussed in Chapter X.

D. Operational Procedures

Lake fluctuation has a direct impact on recreation use at Lake Lanier, even though Lanier's lake level has been maintained relatively constant (near 1,070.71 msl). Since its creation, a limited range of seasonal fluctuation has significantly influenced the seasonal cycles of recreation use. As noted historically, a strong positive relationship exists between increases in lake level and yearly visitor days.

When lake level is drawn down visitor days are reduced, and the opposite occurs when the lake level is increased past normal power pool. However, at some point visitation will drop as the lake rises.

Since the lake level variations are largely the result of man-made management decisions, it may be concluded that future decisions which affect lake levels will have significant impacts on seasonal visitation and recreation use.

Demand for water supply downstream during drought periods will cause lake drawdowns and limit recreation use. This is to say that by existing operational policies in the event of use conflict brought about by drought, recreational use will be sacrificed in favor of downstream use for water supplies. There is a drought management plan for Lake Lanier approved August 1986 entitled "Drought Water Management Strategy for the Appalachian-Chattahoochee-Flint Basin."

The delivery of service to the public includes both direct services, such as interpretive guides, concessions, and information services, and support services, including maintenance, clearing, and administration.

Operational procedures should make the most effective use of Corps and local agency personnel, use cost sharing by local governments to the fullest extent possible, and adequately maintain natural and man-made resources for the long-term enjoyment of visitors. An important item in operational procedures is the enforcement of regulations, including the use of areas, and other activities that could damage or degrade the lake's environment.

E. Accessibility

Centered on the lake and Chattahoochee River, the market area is bounded by two Limited Access Highways that pass close to the lake, and two interstate highways--all focused on Atlanta.

Counties south of the lake have direct access to all developed recreation sites on the lower two-thirds of the lake. Primarily, all sites on the southern portion of the lake have either paved or gravel roads. North of Brown's Bridge, many of the roads are either gravel or earth at the access points and parks. Of the existing 76 total developed sites at the lake approximately 32 have paved roads, 30 have gravel roads and the remaining contain earthen roads. However, the ongoing rehabilitation program continues to upgrade these access roads.

F. Socio-Economic Conditions

Though the market area extends over 25 counties, the residents of five counties account for 70 percent of the total population. Of these five, portions of four (Cobb, Fulton, DeKalb and Gwinnett) are close to the lower end of the lake.

Along with the rapid growth in demand for outdoor recreation, there has been a coinciding growth in residential development on the periphery of metropolitan areas. These two forces have been acting on growth around Lake

Lanier. Because of the proximity to a large metropolitan area, Lake Lanier has attracted more off-shore residential and commercial development than is typical for other Corps' Lakes in the nation.

G. Marina Concession Needs

Lake Lanier has ten concessionaire marinas which provide mooring space for a major portion of the demand on the lake. The ten public marinas meet only a part of the total recreational demand at Lake Lanier. They supplement ~~seventy-one~~ other public access areas and ~~nine~~ areas not open to the general public (boat clubs, yacht clubs, country clubs, etc.), as well as privately-owned primary and vacation homes with direct lake access. These concession marinas accounted for 4,181 slips and dry storage spaces, over 40 percent of all such slips and spaces available at the lake.

Recognizing that environmental factors and the project carrying capacity must be carefully considered in future plans for resources utilization, it is recommended that limitation on the number of future wet slips provided on the lake at public marina concessions be regulated to help impact on the number of boats in use. This is in conjunction with regulating the number of private wet slips and the curtailment of constructing additional boat ramps. The current management procedure of limiting the number and location of wet slips on the lake should be continued with all environmental and economic factors being considered.

H. Project Interpretation

User awareness of project resources and management and operational procedures is essential in establishing the proper perspective necessary for optimum user enjoyment. A lack of knowledge, or misunderstanding, of project purposes often generates conflicts between management and the visiting public. These conflicts could result in an uninformed public in situations which could be hazardous to users. Dam operations, unstable

banks and unmarked fish shelters (stumps) are only several situations where a lack of knowledge presents a serious safety problem. Degradation and vandalism of project resources is often the result of disrespect which could be prevented through an increased public awareness of the value of available recreation resources.

Interpretive services can provide visitors with education information and promote a commitment toward the responsibility of project maintenance and resource enhancement.

I. Competing Resource Project

Within the market area of Lake Lanier are several competing projects. They include other Corps lakes, state parks, national parks, State TVA projects and Georgia Power Company Lakes.

Normally, competing resource projects offer users a choice among various activities, or provide for different experiences to the users. Lake Lanier is renowned for its recreational opportunities, while few of the competing resource projects can offer the same activity. But popularity is the key for Lake Lanier. This popularity of the lake will continue to dominate and therefore represent a positive influence on visitation.

J. Potential for Cost Sharing

The guidelines of P.L. 89-72 concerning cost sharing were made applicable to Lake Lanier by policy. This policy is given in DAEN-CWO-R letter of December 20, 1984, subject: Clarification of Recreation Facility Cost Sharing Policy. Without a local sponsor for recreation development, it is the clear intent of Congress and the policy of the Corps that costs to provide such facilities for public health and safety be kept at a minimum while complying with legal requirements. Only those facilities contained on the approved list in ER 1165-2-400 (dated 9 August 1985) shall be constructed with 100% Federal Funding.

Development of new facilities can be accomplished with 100% Federal Funding using O & M general appropriations and Special Recreation Use Fees (SRUF) as specified in ER 1165-2-400. These fees may be used for installation of new facilities, renovation of existing facilities and consolidation of project recreation areas, provided recreation area operation and maintenance costs are lowered or use fee revenues can be increased.

These efforts must take place in existing recreation areas. No new areas [areas not already listed in the Natural Resource Management System (NRMS)] can be constructed unless existing inefficient areas are closed and facilities relocated to develop the new area. Potential new areas are shown in this Master Plan in Volume 2.



7.00

**COORDINATION &
PUBLIC INVOLVEMENT**

700

COORDINATION

PHYSIC INSTITUTE

A. General

The Master Plan Update for Lake Lanier is developed in coordination with various Federal, State, County agencies and institutions, as well as numerous organizations at the local level. Corps policy states that during the investigation, planning, development, and operation and maintenance of all Civil Works Projects, close and continuing coordination will be maintained with Federal, State and local agencies with interests and responsibilities in the fields of public recreation, fish and wildlife, preservation of archeological and historic resources and environmental quality.

The Mobile District, in accordance with this directive, initiated extensive coordination with Federal, State, local agencies, and leaseholders on the project. Also, public participation workshops and meetings were held with the general public, public agencies and concessionaires to solicit their concerns and suggestions for the Master Plan Update. Appendix VI summarizes the coordination efforts undertaken in the preparation of the Master Plan Update with lists of agencies and groups who responded to the initial Corps of Engineers contacts.



8.00

PROJECT ANALYSIS

06.8

BIJAYA TORONTO

Resources Capacity

A. Introduction

The determination of optimum resource capacity requires the analysis of available land and water surface. Both resources are a limiting factor in overall development. Determination of the amount of these resources that is usable for recreation is the key to finding optimum capacity. This chapter is based upon a site-by-site assessment of available land and compares the results with current and projected water surface demands.

B. Land Based Capacity

1. Usable Land

The analysis of available land considered several criteria which are constraints on development:

- a. Soils
- b. Slopes
- c. Vegetation
- d. Size and shape of area
- e. Accessibility

Composite maps were developed for most sites which indicate four land use suitability levels based upon the combinations of soils, slopes, and vegetation found in each area. Table 5-02 describes the criteria and the suitable uses for each level. The usable land indicated in Tables 8-01 through 8-04 was measured from these composite maps and is the total of all level 1 and 2 land. Areas for which composite maps were not available were estimated based upon the average usable acreages of all other areas.

2. Existing Land Based Capacity

The analysis of land based capacity is represented in Tables 8-01 through 8-06. These tables provide data on three types of recreation areas:

- a. Corps of Engineers Operated Areas for public recreation
- b. Leased areas for public recreation
- c. Leased areas for private exclusive use

Tables 8-01 and 8-02 list all Corps of Engineers operated camping and day use areas. Tables 8-03 and 8-04 list all public camping and day use areas that are leased to other agencies for operation and development. Table 8-05 lists areas that are leased to private organizations for the exclusive use of their membership. These areas are not considered in the capacity analysis. Table 8-06 provides a recapitulation of areas and capacities for Tables 8-01 through 8-04.

The following is a description of each column and its contents for each Table exclusive of Table 8-05:

PLATE NO. - corresponds to the plate numbers in Volume 2 of this report.

NRMS NO. - a Natural Resource Management System number assigned to each area having recreation facilities. The CY 1984 NRMS facilities listing is the base year determining the number of authorized facilities for the project. However, there may be a slight variance due to differences in methodologies use in inventoring and calculating these numbers.

RECREATION AREA - area name

TOTAL ACRES - total acres between the government boundary and the 1070 contour. The official normal pool elevation is 1071. Considering the degree of accuracy of the contour maps used and the steepness of the terrain, the difference in acreage between the 1070 and 1071 contours is considered to be insignificant.

TABLE 8-01

CAMPING - RESOURCE CAPACITY

PLATE NO	NRMS NO	RECREATION AREA	TOTAL ACRES	USABLE ACRES	EXISTING SITES	EXISTING BOAT RAMP LANES	EXISTING DENSITY (SITES/AC)	CAPACITY 4/ACRE (SITES)	CAPACITY BASED ON RAMPS (SITES)	CAPACITY BANK FISHING (PERS)	CAPACITY SWIMMING (PERS)
5	7	SHOAL CREEK	169.1	113	123	1	1.09	452	133	84	1478
9	13	VAN PUGH	49.7	33	57	1	1.73	70 *	133	45	598
10	14	CRESTNUT RIDGE	112.6	80	70	1	0.88	320	133	86	3069
13	17	OLD FEDERAL	62.9	52	84	1	1.62	119 *	133	60	2024
36	45	DUCKETT MILL	97.3	36	54	1	1.50	144	133	122	660
39	50	BOLLING MILL	41.4	31	50	0	1.61	124	0	24	0
43	53	TOTO	64.5	35	7	1	0.20	140	133	40	0
46	56	WAR HILL	66.8	36	9	0 +	0.25	144	0	70	4162
56	66	BETHEL	85.4	60	20	1	0.33	240	133	31	0
66	74	SHADY GROVE	107.4	51	126	1	2.47	204	133	73	1001
70	77	BALD RIDGE CREEK	42.8	28	82	1	2.93	112	133	42	1822
73	81	SANNEE	32.6	26	56	1	2.15	66 *	133	31	1245
SUBTOTALS (DEVELOPED)			932.5	581	738	10		2135	1330	708	16059
47	-	PEA RIDGE	161.8	87	0	0	0.00	348	0	57	0
50	-	CRESTATEE BAY	166.9	94	0	0	0.00	376	0	84	0
55	-	JOY-EM-DOWN	83.3	64	0	0	0.00	256	0	41	0
60	-	SILVER SHOALS	138.9	34	0	0	0.00	136	0	47	0
61	-	FOUR MILE	82.2	47	0	0	0.00	188	0	64	0
63	-	SIX MILE	43.6	34	0	0	0.00	136	0	38	0
65	-	CHARLESTON COVE	139.0	91	0	0	0.00	364	0	14	0
SUBTOTALS (UNDEVELOPED)			815.7	451	0	0		1804	0	345	0
TOTALS			1748.2	1032	738	10		3939	1330	1053	16059

* CAPACITY LIMITED BY SITE CONFIGURATION

+ SEE TABLE 8-02 FOR RAMP CAPACITY IN D.U. AREA

TABLE 8-02

DAY USE AREAS - RESOURCE CAPACITY

PLATE NO	NRMS NO	RECREATION AREA	TOTAL ACRES	USABLE ACRES	EXISTING SITES	EXISTING BOAT RAMP LANES	EXISTING DENSITY (SITES/AC)	CAPACITY 4/ACRE (SITES)	CAPACITY BASED ON RAMPS (SITES)	CAPACITY BANK FISHING (PERS)	CAPACITY SWIMMING (PERS)
1	1	POWERHOUSE/DAM	6.0	3	0	0	0.00	12	0	4	0
1	2	LOWER OVERLOOK	7.5	3	25	0	8.33	12	0	8	0
1	3	UPPER OVERLOOK	9.2	7	15	0	2.14	28	0	0	0
5	6	SHOAL CREEK	8.4	4	0	2	0.00	0 X	222	10	0
7	11	BIG CREEK	26.9	16	37	4	2.31	64	444	22	629
8	12	BURTON MILL	37.7	25	36	2	1.44	100	222	34	0
9	13A	VAN PUGH	20.7	15	21	3	1.40	60	333	12	2710
14	18	OLD FEDERAL	17.0	8	0	2	0.00	0 X	222	10	7018
15	19	BALUS CREEK	15.3	13	25	2	1.92	52	222	10	0
17	20	MOUNTAIN VIEW	59.4	20	21	1	1.05	80	111	38	0
26	30	BELLTON BRIDGE	95.8	26	0	1	0.00	104	111	25	0
26	31	LULA	15.8	3	0	1	0.00	0 X	111	4	0
25	33	CLARKS BRIDGE	34.1	12	20	3	1.67	48	333	16	1496
28	36	LITTLE RIVER	28.8	17	23	2	1.35	68	222	23	0
29	38	Wahoo CREEK	13.4	8	6	1	0.75	0 X	111	24	0
30	39	THOMPSON BRIDGE	31.5	23	0	1	0.00	92	111	14	0
32	41	SARDIS CREEK	37.2	25	5	1	0.20	100	111	31	0
33	42	SIMPSON	7.4	6	9	1	0.00	0 X	111	16	0
34	43	ROBINSON	48.6	19	20	1	1.05	76	111	27	0
37	46	LITTLE HALL	41.6	28	40	4	1.43	112	444	46	0
39	50	BOLLING MILL	31.6	24	30	3	1.25	96	333	3	1430
42	52	LUMPKIN CO.	39.7	33	0	1	0.00	132	111	19	0
40	54	NIX BRIDGE	14.8	11	12	1	1.09	44	111	12	0
45	55	THOMPSON CREEK	14.1	9	0	3	0.00	0 X	333	11	0
46	56A	WAR HILL	41.2	6	8	4	1.33	24	444	33	0
49	59	KEITH'S BRIDGE	25.4	19	32	2	1.68	76	222	24	0
51	60	LONG HOLLOW	28.8	11	8	1	0.73	44	111	14	0
54	63	ATHENS	53.5	23	0	0	0.00	45 *	0	24	0
54	64	VANN'S TAVERN	16.5	7	6	4	0.86	0 X	444	14	0
59	67	TWOMILE	35.6	26	38	1	1.46	104	111	43	484
63	70	SIXMILE CREEK	13.8	8	0	2	0.00	0 X	222	8	0
65	71	CHARLESTON	16.3	12	11	3	0.92	48	333	13	0
67	75	YOUNG DEER	13.3	9	7	3	0.78	36	333	9	726
67	76	TIDWELL	7.4	7	0	3	0.00	0 X	333	12	0
71	79	MARY ALICE	111.0	84	0	4	0.00	336	444	64	4967
72	80	LITTLE RIDGE	46.6	28	0	2	0.00	112	222	50	0
73	82	WEST BANK	23.7	15	58	0	3.87	60	0	47	2033
1	84	LOWER POOL	9.9	6	6	1	1.00	24	111	8	0
-	85	GAINESVILLE MAR RAMP	2.0	2	0	1	0.00	0 X	111	0	0
2	92	BUFORD DAM PARK	120.8	98	76	0	0.78	392	0	78	0
SUBTOTALS (DEVELOPED)			1228.3	719	595	71		2581	7881	860	21513

X BOAT LAUNCHING AREA ONLY
 * CAPACITY LIMITED BY SITE CONFIGURATION

TABLE 8-02 CONTINUED

DAY USE AREAS - RESOURCE CAPACITY

PLATE NO	NRMS NO	RECREATION AREA	TOTAL ACRES	USABLE ACRES	EXISTING SITES	EXISTING BOAT RAMP LANES	EXISTING DENSITY (SITES/AC)	CAPACITY 4/ACRE (SITES)	CAPACITY BASED ON RAMPS (SITES)	CAPACITY BANK FISHING (PERS)	CAPACITY SWIMMING (PERS)
4	-	COUNTY LINE	13.9	7	0	0	0.00	28	0	14	0
9	-	SANDY POINT	17.8	9	0	0	0.00	36	0	25	0
4	-	AZALEA	21.3	11	0	0	0.00	44	0	12	0
4	-	CHATTAHOOCHEE BAY	25.6	13	0	0	0.00	52	0	14	0
16	-	PLEASANT HILL	56.2	28	0	0	0.00	112	0	31	0
18	-	RIVER BEND	32.0	16	0	0	0.00	64	0	29	0
18	-	BLUFF PARK	21.2	11	0	0	0.00	44	0	14	0
22	-	HIGHWAY 53	34.4	17	0	0	0.00	68	0	17	0
25	-	LONGSTREET BR. ACCESS	6.9	4	0	0	0.00	16	0	12	0
25	-	WHITE SULPHUR	58.1	19	0	0	0.00	76	0	36	0
29	-	BELLS MILL	11.3	6	0	0	0.00	24	0	8	0
34	-	RUSTIC RIDGE	14.8	7	0	0	0.00	28	0	16	0
35	-	DAVIS BRIDGE	31.0	18	0	0	0.00	72	0	26	0
37	-	CRAGGY POINT	9.2	5	0	0	0.00	20	0	12	0
31	-	JOHNSON CREEK	1.1	1	0	0	0.00	4	0	20	0
31	-	UPPER LATHAM CREEK	2.9	1	0	0	0.00	4	0	4	0
38	-	LATHAM CREEK	60.4	54	0	0	0.00	216	0	38	0
40	-	COOL SPRINGS	16.2	8	0	0	0.00	32	0	24	0
41	-	AURARIA	12.5	11	0	0	0.00	44	0	25	0
44	-	PLATEAU RIDGE	20.3	10	0	0	0.00	40	0	24	0
44	-	LIBERTY POINT	45.7	23	0	0	0.00	92	0	24	0
48	-	WILDCAT CREEK	22.7	19	0	0	0.00	76	0	18	0
49	-	MAYFIELD	15.7	8	0	0	0.00	32	0	16	0
52	-	BAY POINT	19.3	10	0	0	0.00	40	0	22	0
52	-	PLESANT GROVE	22.8	11	0	0	0.00	44	0	55	0
53	-	WILLIAMS FERRY	23.1	9	0	0	0.00	36	0	36	0
55	-	BUCKEYE	25.0	12	0	0	0.00	48	0	15	0
56	-	HAWTHORN	27.2	14	0	0	0.00	56	0	19	0
62	-	LITTLE MILL	15.8	14	0	0	0.00	56	0	16	0
62	-	MT. ZION	3.2	2	0	0	0.00	8	0	4	0
64	-	HIDDEN BAY	73.4	37	0	0	0.00	148	0	43	0
62	-	JOHNSTOWN	16.0	15	0	0	0.00	60	0	20	0
62	-	SHADSBURN FERRY	5.9	3	0	0	0.00	12	0	10	0
67	-	DESERTED POINT	9.2	5	0	0	0.00	20	0	10	0
68	-	PILGRIM MILL	10.8	5	0	0	0.00	20	0	13	0
68	-	BEAVER RUIN	8.0	7	0	0	0.00	28	0	12	0
69	-	ROCKY POINT	85.9	43	0	0	0.00	172	0	63	0
SUBTOTALS (UNDEVELOPED)			896.8	493	0	0		1972	0	797	0

TABLE 8-02 CONTINUED

DAY USE AREAS - RESOURCE CAPACITY

PLATE NO	NRMS NO	RECREATION AREA	TOTAL ACRES	USABLE ACRES	EXISTING SITES	EXISTING BOAT RAMP LANES	EXISTING DENSITY (SITES/AC)	CAPACITY 4/ACRE (SITES)	CAPACITY BASED ON RAMPS (SITES)	CAPACITY BANK FISHING (PERS)	CAPACITY SWIMMING (PERS)
70	-	BALD RIDGE CREEK	12.8	7	0	0	0.00	0 X	0	8	0
71	-	MUD RIDGE	8.1	4	0	0	0.00	16	0	11	0
71	-	EAGLE POINT	19.4	10	0	0	0.00	40	0	14	0
		ROADSIDE PARKS									
17	-	BROWN'S BRIDGE	21.9	11	0	0	0.00	44	0	21	0
30	-	THOMPSON BRIDGE	33.2	17	0	0	0.00	68	0	28	0
		ISLANDS									
72	-	LITTLE RIDGE	20.4	10	0	0	0.00	0 **	0	25	0
59	-	FOUR MILE	95.7	48	0	0	0.00	0 **	0	50	0
58	-	THREE SISTERS	152.7	94	0	0	0.00	0 **	0	93	0
9	-	GAINES FERRY	23.0	12	0	0	0.00	0 **	0	30	0
57	-	LIGHTS FERRY	53.5	27	0	0	0.00	0 **	0	85	0
17	-	BROWN'S BRIDGE	12.9	7	0	0	0.00	0 **	0	16	0
16	-	FLAT CREEK	23.2	12	0	0	0.00	0 **	0	30	0
49	-	KEITH'S BRIDGE	56.7	29	0	0	0.00	0 **	0	53	0
35	-	BIG JUNCTION	135.8	68	0	0	0.00	0 **	0	102	0
19	-	LITTLE JUNCTION	12.6	7	0	0	0.00	0 **	0	14	0
48	-	TAYLOR CREEK	63.0	39	0	0	0.00	0 **	0	52	0
40	-	NIX	109.3	47	0	0	0.00	0 **	0	83	0
38	-	LATHAM	15.5	8	0	0	0.00	0 **	0	19	0
28	-	WAHOO	72.4	37	0	0	0.00	0 **	0	60	0
SUBTOTALS (UNDEVELOPED)			942.1	494	0	0		168	0	794	0
TOTALS (DAY USE)			3035.6	1682	565	68		4625	7548	2448	20083

X BOAT LAUNCHING AREA ONLY

** CAPACITY LIMITED BY SITE ACCESS

TABLE 8-03

LEASED CAMPING AREAS - RESOURCE CAPACITY

PLATE NO	NRMS NO	RECREATION AREA	TOTAL ACRES	USABLE ACRES	EXISTING SITES	EXISTING BOAT RAMP LANES	EXISTING DENSITY (SITES/AC)	CAPACITY 4/ACRE (SITES)	CAPACITY BASED ON RAMP (SITES)	CAPACITY BANK FISHING (PERS)	CAPACITY SWIMMING (PERS)
21	87	LANIER POINT	17.4	14	0	0 +	0	56	0	29	0
19	91	RIVER FORKS	114.4	19	123	0 +	6.473	76	0	72	0
6	96	LAKE LANIER ISLANDS	1100.0	79	332	1	4.202	316	133	387	11000
TOTALS (LEASED CAMP)			1231.8	112	455	1		448	133	488	11000

+ MIXED USE AREA. SEE TABLE 8-04 FOR RAMP CAPACITY

TABLE 8-04

LEASED DAY USE AREAS - RESOURCE CAPACITY

PLATE NO	NRMS NO	RECREATION AREA	TOTAL ACRES	USABLE ACRES	EXISTING SITES	EXISTING BOAT RAMP LANES	EXISTING DENSITY (SITES/AC)	CAPACITY 4/ACRE (SITES)	CAPACITY (SITES)	CAPACITY BANK FISHING (PERS)	CAPACITY SWIMMING (PERS)
20	23	GAINESVILLE PARK	67.0	17	0	0	0.00	68	0	55	0
112	86	FLOWERY BRANCH	6.5	5	8	0	1.60	20	0	4	0
21	87	LANIER POINT	57.4	41	0	2	0.00	164	222	60	300
23	88	LONGWOOD	37.9	18	22	0	1.22	72	0	35	0
23	-	DOGWOOD	11.5	6	0	0	0.00	24	0	6	0
24	89	HOLLY	27.3	14	64	1	4.57	56	111	25	0
27	90	LAUREL	132.9	79	15	1	0.19	167 *	111	81	0
19	91	RIVER FORKS	114.4	21	42	1	2.00	84	111	72	750
3	93	EAST BANK	23.7	18	22	4	1.22	72	444	6	0
3	94	LANIER PARK	37.2	20	34	1	1.70	80	111	46	2257
3	95	GWINNETT PARK	24.7	12	42	1	3.50	48	111	14	0
6	96	LAKE LANIER ISLANDS	1100.0	28	520	2	18.57	112	222	387	11000
23	97	LONGSTREET BR ROADSIDE	6.9	1	8	0	8.00	4	0	5	0
37	98	BOLLING BR ROADSIDE	27.7	7	8	0	1.14	28	0	10	0
-	100	LANIER HARBOR MARINA	-	-	11	-	-	-	-	0	0
11	103	STARBOARD MARINA	20.0	11	0	1	0.00	44	111	14	0
12	104	AQUALAND MARINA	36.0	29	34	2	1.17	116	222	48	0
-	105	CLARKS COVE MARINA	-	-	20	-	-	-	-	0	0
TOTALS (LEASED D.U.)			1731.1	327	850	16		1159	1776	868	14307

* CAPACITY LIMITED BY SITE CONFIGURATION

TABLE 8-05

LEASED EXCLUSIVE USE AREAS (NO PUBLIC RECREATION)

PLATE NO	NRMS NO	RECREATION AREA	TOTAL ACRES
8	-	UNIVERSITY YACHT CLUB	13.6
10	-	ATLANTA ATHLETIC CLUB	7.3
13	-	LANIER SAILING CLUB	37.2
31	-	SCOUTLAND	132.4
22	-	HOGBACK RIDGE	49.3
15	-	HICKORY HILL	25.1
-	-	N. GA. SPORTSMANS CLUB	-
-	-	AMERICAN LEGION	-
-	-	CHATTAROOCHEE CNTRY CLUB	6.3
15	-	SADDLE RIDGE	30.7
-	-	ATHENS BOAT CLUB	-
51	-	GEORGIA LOCKHEED	7.7
70	-	HONEYSUCKLE RIDGE	43.3
TOTALS			352.9

TABLE 8-06

RECAPITULATION - RESOURCE CAPACITY

CATAGORY	TOTAL ACRES	USABLE ACRES	EXISTING SITES	EXISTING BOAT RAMP LANES	EXISTING DENSITY (SITES/AC)	CAPACITY 4/ACRE (SITES)	CAPACITY BASED ON RAMPS (SITES)	CAPACITY BANK FISHING (PERS)	CAPICITY SWIMMING (PERS)
CAMPING (DEVELOPED)	932.5	581	738	10		2135	1330	708	1659
DAY USE (DEVELOPED)	1228.3	719	595	71		2581	7881	860	21513
SUBTOTAL CORPS (DEVELOPED)	2160.8	1300	1333	81		4716	9211	1568	23172
CAMPING (UNDEVELOPED)	815.7	451	0	0		1804	0	345	0
DAY USE (UNDEVELOPED)	1838.9	988	0	0		2140	0	1591	0
SUBTOTAL CORPS (UNDEVELOPED)	2654.6	1439	0	0		3944	0	1936	0
LEASED CAMPING AREAS	1231.8	112	455	1		448	133	488	11000
LEASED DAYUSE AREAS	1731.1	327	850	16		1159	1776	868	14307
SUBTOTAL LEASED AREAS	2962.9	439	1305	17		1607	1909	1356	25307
GRAND TOTAL ALL AREAS	7778.3	3178	2638	98		10267	11120	4860	48479

TABLE 8-07

TOTAL PROJECT DESIGN DAY LOAD

DESIGN DAY LOAD BY ACTIVITY (Visitors/day)								
NRMS NO.	AREA	BOATING	BOAT FISH	SHORE FISH	WTR SKI	CAMP	PICNIC	SWIM

2	LOWER OVERLOOK	0	278	40	0	0	359	238
3	UPPER OVERLOOK	0	0	0	0	0	42	0
6	SHOAL CREEK D U	309	269	39	83	0	173	61
7	SHOAL CREEK C G	67	83	12	101	811	413	306
11	BIG CREEK	797	188	27	199	0	835	602
12	BURTON MILL	34	38	6	43	0	180	131
13	VAN PUGH PARK	244	249	36	257	370	1084	778
14	CHESTNUT RIDGE PK	48	54	8	61	472	252	184
17	OLD FEDERAL C.G.	56	68	10	81	362	330	244
18	OLD FEDERAL D.U.	163	172	25	184	0	768	555
19	BALUS CREEK	500	431	62	131	0	282	96
20	MOUNTAIN VIEW	287	248	36	74	0	162	55
30	BELTON BRIDGE	61	52	8	16	0	34	12
31	LULA PARK	45	24	4	0	0	30	22
33	CLARKS BRIDGE	607	532	77	151	0	645	458
36	LITTLE RIVER	84	78	11	82	0	313	213
38	WAHOO CREEK	60	55	8	50	0	221	150
39	THOMPSON BRIDGE	380	319	46	92	0	217	68
41	SARDIS CREEK	668	579	84	179	0	362	131
42	SIMPSON PARK	269	229	33	69	0	146	51
43	ROBINSON	8	7	1	7	0	30	21
45	DUCKETT MILL	204	177	26	55	69	111	40
46	LITTLE HALL PARK	194	163	24	47	0	111	34
50	BOLLING MILL	101	106	15	111	167	473	337
52	LUMPKIN PARK	32	31	5	31	0	133	93
53	TOTO CREEK	25	27	4	29	11	121	86
54	NIX BRIDGE	79	83	12	101	0	337	237
55	THOMPSON CREEK	226	197	28	63	0	127	44
56	WAR HILL PARK	64	65	9	67	100	283	203
59	KEITHS BRIDGE PARK	118	108	16	99	155	431	300
60	LONG HOLLOW	20	19	3	17	0	77	53
63	ATHENS PARK	0	0	0	0	0	0	0
64	VANNS TAVERN	71	66	9	61	0	263	184
SUBTOTAL		5821	4995	721	2541	2517	9346	5988

TABLE 8-07 CONTINUED

TOTAL PROJECT DESIGN DAY LOAD

DESIGN DAY LOAD BY ACTIVITY (Visitors/day)

NRMS NO.	AREA	BOATING	BOAT FISH	SHORE FISH	WTR SKI	CAMP	PICNIC	SWIM
66	BETHEL PARK	92	82	12	26	35	51	19
67	TWO MILE CREEK	74	65	9	56	0	247	170
70	SIX MILE CREEK	49	45	7	40	0	180	122
71	CHARLESTON	93	90	13	88	0	366	265
74	SHADY GROVE PARK	40	51	7	63	395	257	191
75	YOUNG DEER CREEK	63	62	9	65	0	273	195
76	TIDWELL PARK	120	119	17	120	0	514	362
77	BALDRIDGE CREEK	249	223	32	59	91	138	53
79	MARY ALICE PARK	415	266	38	290	0	1209	877
80	LITTLE RIDGE	30	33	5	37	0	152	111
81	SAWNEE	60	69	10	80	680	330	242
82	WEST BANK PARK	206	887	128	802	0	1097	879
-	WEST BANK TURNOUT	20	93	13	27	0	115	22
84	LOWER POOL	27	146	21	0	0	58	27
87	LANIER POINT	3	7	0	0	0	3	0
88	LONGWOOD PARK	0	422	61	14	0	522	415
89	HOLLY PARK	124	131	19	139	0	590	420
-	OTHER GEN PUB AREA	437	2920	421	83	0	0	337
90	LAUREL PARK	419	372	54	119	0	233	87
91	RIVER FORKS	0	0	0	0	0	0	0
92	BUFORD DAM PARK	0	101	15	0	0	432	308
93	EAST BANK ACCESS	401	352	51	110	0	242	81
94	LANIER PARK	63	58	8	54	0	233	163
95	GWINNETT PARK	18	79	11	24	0	52	18
96	LAKE LANIER ISLAND	1057	356	51	73	746	3120	5147
101	HOLIDAY MARINA	1539	404	58	345	0	695	1008
102	LAZY DAYS STORAGE	122	33	5	30	0	60	86
103	STARBOARD MARINA	545	145	21	128	0	258	374
104	AQUALAND MARINA	752	201	29	180	0	363	527
105	CLARKS COVE MARINA	322	96	14	87	0	204	252
106	GAINESVILLE MARINA	632	169	24	151	0	304	441
107	LANMAR MARINA	392	105	15	94	0	190	275
108	BALDRIDGE MARINA	868	243	35	241	0	485	703
109	HABERSHAM MARINA	245	45	6	122	0	43	161
-	GEORGIA HWY PARKS	4	128	19	33	0	79	24
SUBTOTAL		9483	8592	1240	3779	1947	13095	14363
TOTAL DESIGN DAY LOAD		15304	13588	1961	6320	4464	22441	20351

8-11

USABLE ACRES - Usable portion of "Total Acres" based upon composite analysis of slope, soils, and vegetation, and is the total of all level I and level II land. Some, mostly undeveloped areas, have not had a composite analysis completed. For these areas the usable acreage was estimated based on the average percent of usable acres of other areas.

EXISTING BOAT RAMP LANES - Number of existing boat launching lanes at each area. These quantities are used to determine boating related restrictions on land use capacities.

EXISTING SITES - Number of day use or camping sites existing or under construction at the time of this report.

EXISTING DENSITY - Ratio of existing day use/camping sites to usable acres.

CAPACITY (SITES) - Capacity of the area based upon a density of four day use or camping sites per usable acre.

Four sites per acre is a conservative density. BOR Optimum Recreation Carrying Capacity of 1977 indicates a range of 4 to 35 per acre for day use and a range of 3 to 10 per acre for tent/trailer camping. EM 1110-2-400 requires a density not to exceed 12 per acre for day use and 5 per acre for camping. These guidelines apply within the development area and do not include outlying natural buffer areas within the park that provide nature study, hiking, fishing, and visual screening. The 4 per acre standard used here applies to all usable land from property line to the lake's edge. Experience at Lake Lanier indicates that campers prefer a spacing of from 75 to 100 feet center to center between campsites. This spacing, plus allowance for roads and adjustments for field conditions, results in a density of about 4 or 5 per acre.

CAPACITY BASED ON RAMPS (SITES) - Capacity based upon the number of existing boat launching lanes. (See paragraph 5. Boating related restrictions on land development.)

CAPACITY BANK FISHING - Bank fishing capacity is based on 15 fishermen per mile of recreation area shoreline with a 1.7 turnover rate. This too, is a conservative number. BOR guidelines indicate a range of from 1 to 528 per mile and WES Instruction Report R-80-1 indicates about 100 per mile.

CAPACITY SWIMMING - Swimming capacity is listed in numbers of persons and represents the capacity of existing swimming areas. Total carrying capacity has not been analyzed. The capacity of each area was calculated using both the square foot method and the lineal feet of shoreline method. The highest of the two numbers is listed.

Square Foot Method:

50 S.F./Person, Sand

60% on beach, 30% in water, 10% elsewhere

Therefore, Capacity = $\frac{L \times W \text{ (Beach)}}{50 \times 60\%}$

This assumes there is adequate water area for this capacity.

Lineal Foot Method:

Capacity = $\frac{L.F. \text{ Beach Shoreline} \times 2 \text{ Persons}}{}$

Table 8-06 provides data on the total project acreage identified for recreation purposes, total net acreage suitable for recreation development, total number of existing camp sites and day use sites, the optimum resource capacity based upon development of all usable land at a density of 3 sites per acre, and the optimum resource capacity based upon existing supporting ramp lanes. Total bank fishing and existing swimming capacities are also included.

3. Daily Capacities of Existing Developed Areas

By applying user density factors and turnover rates to the existing day use and camping facilities, it is possible to determine optimum

visitation in terms of visitor days for existing land based facilities. For day use sites a user density of 4.6 per site with a turnover rate of 1.8 is used. For camp sites a user density of 3.8 per site with a turnover rate of .9 is used:

a. Existing Capacity, Camping

Corps 768

Leased 455

1,223 Sites

$$1,223 \times 3.8 \text{ pers/site} \times .9 \text{ turnover} = 4,182 \text{ Visitors/Day}$$

b. Existing Capacity, Day Use

Corps 551

Leased 819

1,370 Sites

$$1,370 \times 4.6 \text{ pers/site} \times 1.8 \text{ turnover} = 11,344 \text{ Visitors/Day}$$

While visitors participate in other activities such as swimming and fishing, these other activities are not major determinants in the use of land. Shore fishing is limited to a very narrow band along the shoreline. This activity has historically been less than 10% of camping and day use combined and it is likely that there will continue to be adequate shoreline available. Except at major swimming areas such as Mary Alice Park, swimming is generally a second activity for most visitors so that their numbers are usually included in the day use or camping calculations which determine land use requirements.

4. Current Utilization

Current design day load is the total daily visitation by activity which occurred in 1984, the year for which the latest data is available. Design day load data for all Corps operated and leased public use areas are tabulated in Table 8-07. This data represents current demands on existing recreation facilities. By comparison of this data with the capacities provided in Table 8-06 it can be determined whether existing facilities are

being over or under utilized:

a. Camping

4,464 (Design Day Load) - 4,182 (Existing Capacity) = 282

Therefore, existing camping facilities are being over-utilized by 282 visitors per day.

b. Day Use

22,441 (Design Day Load) - 11,344 (Existing Capacity) = 11,097

Therefore, existing day use facilities are being over-utilized by 11,097 visitors per day.

c. Swimming

48,823 (Existing Capacity) - 20,351 (Design Day Load) = 28,472

Therefore, there is presently existing extra swimming capacity for 28,472 visitors per day.

d. Bank Fishing

4,181 (Existing Capacity) - 1,961 (Design Day Load) = 2,220

Therefore, there is presently existing extra shore fishing capacity for 2,220 visitor days.

5. Boating Related Restrictions on Land Development

A discussion of the lake surface capacity for boating is contained in this chapter, Section C. BOATING CAPACITY, where it is recommended that boat launching facilities remain at existing levels to help in controlling overuse of the water. An analysis of the relationship of launching facilities to other land based facilities is appropriate to determine the effect that restricting water access has on the development of land based facilities.

Recent surveys of campgrounds and day use areas indicate that 33% of campsites and 20% of day use sites are occupied by a group with a boat. On

the basis of these percentages, turnover rates of .9 for camping and 1.9 for day use sites, and launching capacities of 40 per day per boat ramp lane, it is possible to determine development limitations based upon existing ramp lanes:

$$\text{CAMPING -- } \frac{40}{.333 \times .9} = 133 \text{ sites per ramp lane}$$

$$\text{DAY USE -- } \frac{40}{.2 \times 1.8} = 111 \text{ sites per ramp lane}$$

There are several areas with existing ramps shown in Table 8-01 through 8-04 that have a greater capacity based upon usable land than the ramps can support. Increasing the number of boat ramp lanes and commensurate parking at these areas would have a direct adverse effect on the lake by allowing an increased number of boats on the water. In order to achieve a balanced development that will insure optimum use of all facilities, land based development of these areas should be restricted to that which can be supported by the existing ramps. However, there are areas that, on the basis of boat user percentages, appear to have under-utilized ramps. If actual conditions prove this to be so, then it would be possible to close or remove under-utilized lanes in order to install lanes where needed to support the full development potential of other areas.

Volume 2 of this report indicates future launching facilities at Johnson Creek, Upper Latham Creek, and Auraria. Upper Latham Creek and Johnson Creek are subimpoundments that require boat access for management purposes. Auraria is proposed as a canoe launching site. None of these future installations will have an impact on overall boating traffic.

Tables 8-01 and 8-04 show several areas that have no boatramp based capacity. These areas can be fully developed on the basis of usable acreage but will remain without boat launching facilities unless they are transferred from another area. There are several other areas where the existing density of development is greater than 4.0 and where existing development may also be greater than existing boatramp capacity. Lanier Islands, River Forks, and Holly Park are examples of this. In these instances development and boatramp capacities should remain at their present levels.

6. Capacity With Full Development

The existing density data provided in Tables 8-01 through 8-04 indicates that most existing public use areas are not fully developed to a level of 4 sites per acre of usable land. Because existing camping and day use facilities are presently over-utilized, it would be useful to know the capacity of all areas if they were fully developed.

An analysis of land development capacity based upon 4 sites per acre is theoretical at this point. The actual capacity of an area can only be accurately determined by detailed study and will be largely determined by overall configuration of the usable land area. The results of the following analysis is intended to be used only as a guide.

Table 8-06 indicates that Corps operated public use areas have a capacity for 6,570. This assumes the following:

- a. Existing areas that are presently developed at a density greater than 4 sites per acre will remain at their present level.
- b. Certain small areas may be designated as boat launching sites only and will have no other development.

188
Lake Lanier

c. Remaining areas will be developed to a level of 4 sites per usable acre.

According to projected demands indicated in Chapter 4, the campsite day use site mix should be 42% camping and 58% day use. Therefore, the capacity of fully developed Corps operated sites can be calculated as follows:

$$6,570 \text{ sites} \times .42 = 2,759 \text{ camp sites}$$

$$6,570 \text{ sites} \times .58 = 3,811 \text{ day use sites}$$

If leased sites remain at their present level of development, the total capacity of all public recreation areas will be:

	<u>Day Use</u>	<u>Camping</u>
Corps Operated Areas	3,811	2,759
Leased Areas	<u>819</u>	<u>455</u>
	4,630 Sites	3,214 Sites

It is indicated in Chapter 4 that there will be a demand for 2,700 camp sites and 3,800 day use sites by the year 2007. It is apparent that these projected demands can be met on lands presently designated for public use recreation.

C. Boating Capacity

I. Boating Study Results

The maximum practicable water capacity is based upon navigable water surface acres and the distribution of the various boat types on the water. On this basis, a boating study titled Study of Recreation Boating and Lakeshore Management Needs at Lake Sidney Lanier was completed in March

of 1985. The following is a synopsis of that portion of the report having to do with boating capacity:

On 9 September 1983, the District Engineer directed that a study of boating conditions at Lake Sidney Lanier, Georgia, be initiated. The study was to address the following:

- a. Lake carrying capacity
- b. Private boatdock permitting criteria
- c. Lakeshore Management Plan; need for revision
- d. "Grandfathering" existing private boatdocks
- e. Public Involvement

The carrying capacity (social capacity) of the lake water surface was determined using Instruction R-80-1, July 1980, titled Recreation Carrying Capacity Handbook; Methods and Techniques for Planning, Design, and Management. Using the methods contained in the handbook, it was determined that the social capacity of the water surface for four classes of boats is 3,595 boats.

The actual use of the lake was estimated based on three factors:

- a. Each boat launching ramp lane can accommodate 40 launches per day.
- b. 25% of marina slips are empty (boat on the lake) at any one time.
- c. 15% of private slips are empty (boat on the lake) at any one time.

On this basis it was determined that actual use on busy days was 6,160 boats.

Comparison of actual use with social capacity indicates a 71% overuse on busy days.

Visitation data from 1967 thru 1984 indicates that boating use has leveled off. This is probably due to two factors:

a. Use levels tend to be self regulating based upon user perceptions and their tolerance of crowded conditions.

b. Public launching ramps, commercial marinas, and, to a lesser extent, private docks and ramps, are control valves which limit the number of boats that can enter the lake during a given period.

It is probable that if boat handling facilities remain at their present capacity, the use level of the lake will remain fairly constant.

There are several recommendations concerning the boating capacity which are listed in Chapter XII.

2. Additional Loading

Since completion of the Boating Study, 22 additional launching lanes have been constructed and 1,264 commercial storage spaces have been authorized. In accordance with the boating study, the launching lanes will contribute $22 \times 40 = 880$ boats and the commercial slips will contribute $1,264 \times .25 = 316$ boats to the overall use of the lake surface. Accordingly, this will result in an adjustment of the overuse from 71% to 105%.

3. Actual Use Based on Monthly Visitation

Further support for the report findings can be developed with the use of monthly project visitation data. Monthly visitation reports provide the total visitation from all sources for each month of the year. Visitation for the months of April through August 1984 was as follows:

April - 1,302,762
 May - 2,023,898
 June - 2,137,678
 July - 1,934,680
 August - 1,811,247

Numbers of boats can be extrapolated using the following factors applied to the above visitation data:

a. The natural Resources Management System (NRMS) indicates that 28% of visitation is boating oriented. This includes pleasure boating, water skiing, and boat fishing.

b. There are an average of 4.33 weeks per month.

c. One third of recreation visits occur on a weekend day.

d. The average number of passengers per boat is 3 and the turnover rate is 2.

Therefore:

$$\frac{\text{Monthly Visitation}}{4.33} = \text{Weekly visitation}$$

$$\text{Weekly visitation} \times .33 = \text{Weekend day visitation}$$

$$\text{Weekend day} \times .28 = \text{Boater visitation}$$

$$\frac{\text{Boater visitation}}{3} = \text{Number of boats}$$

$$\frac{\text{Number of boats}}{2} = \text{Number of boats @ peak hour}$$

Figure 8-01 is a graph of this information and compares it to the findings of the boating study.



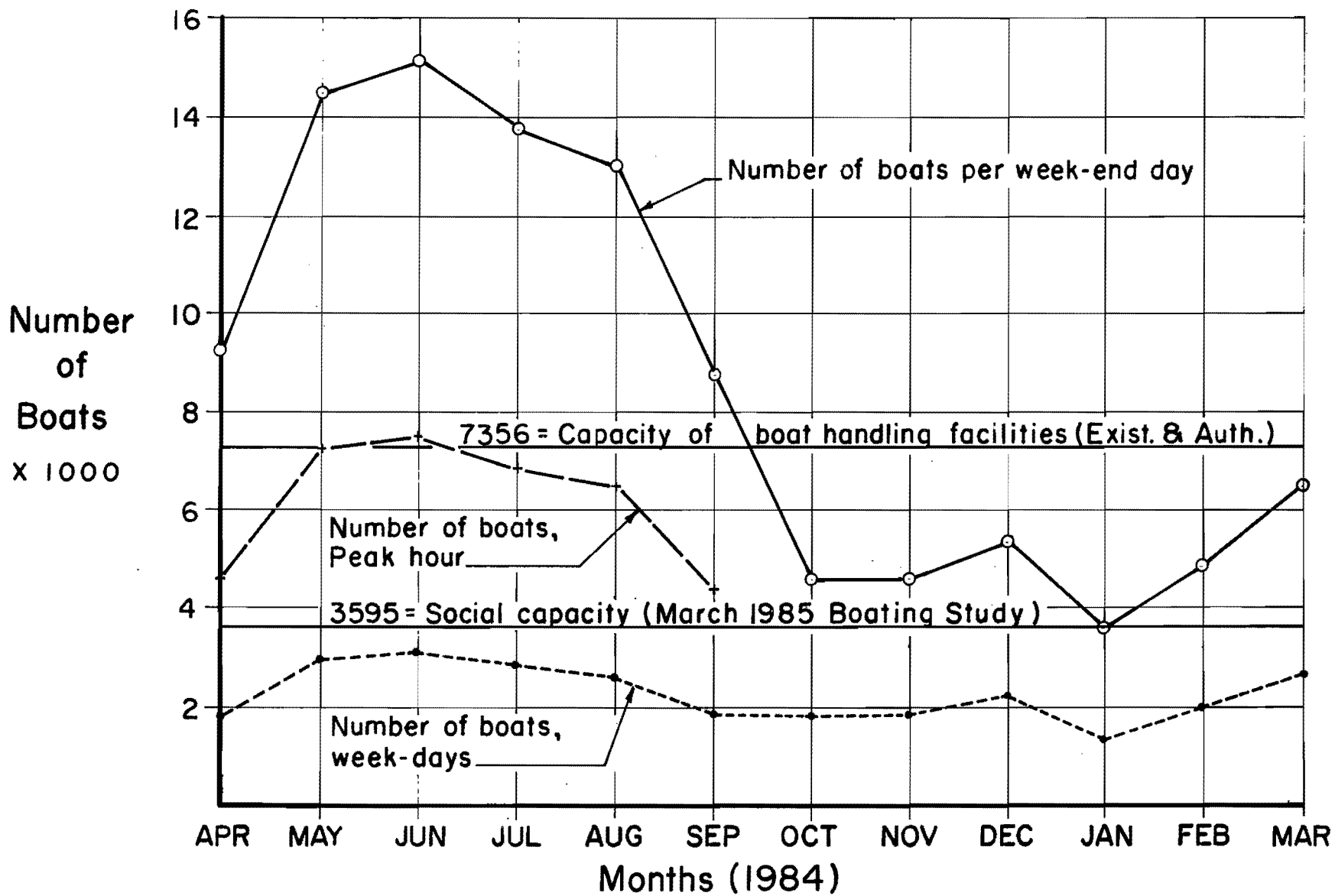


FIG. 8-01

1984 BOATING USE AT LAKE SIDNEY LANIER

(Based on NRMS data for 1984, March 1985 Boating Study, and 1984 monthly visitation)



4. Conclusion

There is strong evidence that the water surface is being utilized by boaters beyond its capacity. The lake surface is a limited resource which cannot be expanded as visitation increases. While it is true that boating use has tended to stabilize in the last few years, there is evidence that this is due to limitations in boat handling facilities rather than water surface area. Experience indicates that so long as there is available parking and launching facilities users will assume that there is also adequate water surface area for their boat.

The quantity of boat handling facilities should be commensurate with the capacity of the water surface and maintained at that level. This is the most useful and effective measure that the Corps of Engineers has in maintaining a level of use that is safe, enjoyable, and sensitive to the limitations of the resource.

Water capacity is a major constraining factor in project development. Any expansion of land based facilities to meet present and projected needs must recognize this constraint and be planned accordingly.

Resource Objectives

D. General

In accordance with ER 1105-2-167, resource planning objectives for the utilization, development, management, and operation of project lands and waters have been established. These objectives are established as "clearly written statements which specify the attainable options for resource use as determined from study and analysis of resource capabilities and public needs." It is the policy of the Corps of Engineers that all water resource projects within their jurisdiction will have an established set of resource objectives and that these objectives shall be based on the expressed

preferences of residences in the market area populus. Each specific resource objective outlined in this section of the document was determined through public participation while consideration was given to the capabilities of natural and man-made resources and management policies. Resource objectives are incorporated as part of this Master Plan Update to guide the design, development, and management of the project recreational areas and to obtain the greatest possible benefit through meeting the needs of the public and to protect and enhance environmental quality.

1. Determination and Implementation of Resource Objectives

The implementation of this policy was obtainable through public workshops in which objectives were established by the expressed preferences of the general public, public agencies, and concessionaire operators.

Their input was collected, analyzed, and synthesized into 5 major objectives which are compatible with the capabilities of the resource and reflect management and operational policies. The following resource objectives which are incorporated into this Master Plan Update reflect the needs of the public and relate to natural, cultural, and recreation resources of the project.

Resource Objective No. 1

To provide adequate quantity, quality, diversification, and distribution of recreation facilities and yet protect the natural resources of the project.

This objective will be obtained through an intensified program of professional land and water management which will provide the public the best use and enjoyment of facilities consistent with the carrying capacity of the Natural Resource and the health and safety of the using public, as well as, by maintenance of a warm and cold water fishery suitable for optimum fishing use with the assistance of the State Game and Fish

Commission, and lastly, by providing a safe, uncrowded, enjoyable water surface for optimum boating use through proper management and zoning restrictions.

Resource Objective No.2

Provide the best quality outdoor recreation opportunities possible in the most efficient manner.

This objective will be obtained by: Maximizing efficiency and diversification of recreation facilities the Corps manages and encouraging local agencies and concessionaires to the extent practical to manage and develop their areas to Corps Standards or above. (These standards may be adjusted for non-federal entities and concessionaires to allow them to compete with Corps areas and/or make a profit); promoting a decrease in the number of smaller recreation areas and an increase in the size of areas as the opportunity arises; Maintaining an Intensified overall planning and design for more efficient management.

Resource Objective No. 3

Provide the best quality concession facilities to serve the public, maximize profits and minimize environmental degradation.

This will be achieved by instituting standards of operation and development corresponding to the Corps SOP's for Operation and Maintenance of recreation areas to the extent practical.

Resource Objective No.4

Provide the public with an educational and interpretive program which is both interesting and stimulating.

This objective will be achieved by providing a comprehensive interpretive trail systems (i.e., auto, bicycle, boating, equestrian, foot,

etc.) with view points, rest stops, shelters, information, and interpretive displays.

Resource Objective No. 5

Maintain project lands, not in use for developed recreation use for the purpose of scenic, forest, and wildlife enhancement.

This objective will be obtained by setting aside appropriate lands for these purposes and by instituting a reseeding program utilizing native materials seeds (i.e., tree, shrub, flower, etc.) And last, by seeking greater involvement of the private sections in providing habitat (i.e., bird nest boxes, water flow nesting areas, etc.)

9.00

**PHYSICAL PLAN
OF DEVELOPMENT**

В ДАТГОРНИКА
ВН. СТОЛ. 57/58

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A. Introduction

Plans for development and use presented in this chapter are based on and are the culmination of results of earlier inventories, analyses and objectives described in previous chapters. The more general land use plans included and the individual site development plans are intended as guidelines toward achieving resource objectives and optimum uses of project lands and waters.

B. Existing Land Use Classifications and Allocation

I. Project Lands

a. Land Use Classifications

Categories for land use classification are set forth in ER 1120-2-400 dated 12 February 1976. These categories, as illustrated on the previously prepared Existing Land Use Allocation Plan, are as follows:

- (1) Project Operations
- (2) Operations: Recreation - Intensive Use
- (3) Operations: Recreation - Low Density Use
- (4) Operations: Natural Area
- (5) Water - Recreation Pool

C. Proposed Land Use Allocation of Project Lands

The proposed land use allocation plan for Lake Sidney Lanier provides the basic foundation for guiding individual area design/development, management and operation decisions. The resource composite of project recreational areas is important in determining the proper allocation of all

project lands. The natural resource composite represents optimum use of land, based solely on attractiveness of resource features in each area. However, in some cases these optimum designations were adjusted to meet past commitments of long-term lease agreements and with already extensively developed recreation areas. The main difference between the existing land use plan and the proposed land use plan is the conversion of lands designated as natural areas and low-density recreation to intensive use recreation.

This was done to make these large tract of lands available for future recreation development when cost-sharing sponsors become available, as discussed in paragraph E. In the interim, these lands will be used for wildlife management. Also there is a conversion of lands to wildlife management on a permanent basis to accomodate the habitat of wildlife that is known to exist in these areas, particularly, waterfowl.

The Land Use Allocation Plan illustrated on Plate 1 is the final determination of combining resource capabilities, proposed management activities, user demand, and resource use objectives.

Table 9-02 lists all designated recreation lands and operations areas and lists their acreages above normal pool (1071) and flood pool (1085). The areas are categorized in this table by:

- a. Corps operated public recreation
- b. Leased land for public recreation
- c. Leased land for private club use
- d. Corps operations areas

The following paragraphs define the intent of proposed land use allocation classifications. Table 9-01 represents total acreage to each allocation category.

TABLE 9-01

SUMMARY OF LAND USE ALLOCATIONS
AT LAKE SIDNEY LANIER

LAND USE CATEGORY	ACRES
Project Operations	483.00
Operations: Recreation-Intensive Use	6,128.00
Operations: Recreation-Low Density Use	1,650.00
Operations: Wildlife Management	1,280.00
Natural Areas	8,608.00
<hr/>	
Water-Recreation Pool	38,024
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*Total Project Land Above EL. 1071	18,150
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*New Acreages are being mapped to reflect the current normal pool elevation. When these acreages become available an amendment will be made to this Master Plan Update.

TABLE 9-02
Lake Lanier Recreation Areas

	Acres	
	<u>1071' & above</u>	<u>1085' & above</u>
<u>CORPS OPERATED PUBLIC USE</u>		
Athens	53.5	29.8
Auraria	12.8	- #
Azalea	21.3	18.5
Bald Ridge Creek C. G.	42.8	10.7
Bald Ridge Creek D. U.	12.8	6.0
Balus Creek	15.3	12.4
Bay Point	19.3	11.0
Beaver Ruin	11.0	3.6
Bell's Mill	11.5	8.5
Bellton Bridge	95.8	27.6
Bethel	85.4	50.8
Big Creek	26.9	17.8
Big Junction Island	135.8	105.1
Bluff Park	21.2	18.1
Bolling Mill	73.0	36.4
Browns Bridge Island	12.9	10.0
Buckeye	25.0	19.6
Buford Dam Park	120.8	105.3
Buford Dam - Lower Overlook	7.5	5.9
Buford Dam - Lower Pool	9.9	- *
Buford Dam - Upper Overlook	9.2	9.2
Burton Mill	37.7	26.8
Charleston	16.3	10.6
Charleston Cove C. G.	139.0	62.3
Chattahoochee Bay Park	12.6	21.3
Chestatee Bay Point	166.9	139.4
Chestnut Ridge	112.6	69.1
Clark Bridge	34.1	12.6
Cool Springs	16.2	11.4
County Line	13.9	9.7
Craggy Point	9.2	6.2
Davis Bridge	36.1	25.8
Deserted Point	15.0	10.2
Duckett Mill	97.3	51.2
Eagle Point	19.4	9.6
Flat Creek Island	23.2	11.5
Four Mile Creek	82.2	64.0
Four Mile Island	56.7	43.9
Gaines Ferry Islands	23.0	12.8
Hawthorn	27.2	19.9
Hidden Bay	73.4	54.2
Highway 53	34.4	27.9
Johnson Creek	1.1	0.4
Johnstown	16.0	4.0
Jot-em-down	138.9	121.9

* Below Dam

No topography available

TABLE 9-02 Continued
Lake Lanier Recreation Areas

	Acres	
	<u>1071' & above</u>	<u>1085' & above</u>
Keiths Bridge	25.4	14.1
Keiths Bridge Island	56.7	43.9
Latham Creek	60.4	32.9
Latham Island	15.5	9.2
Liberty Point	161.8	135.4
Lights Ferry Island	53.5	31.8
Little Hall	41.6	22.5
Little Junction Island	12.6	9.9
Little Mill	15.8	9.5
Little Ridge Island	20.4	10.9
Little Ridge Creek	46.6	17.3
Little River	28.8	16.2
Little Shoal Creek	8.4	3.9
Long Hollow	28.8	21.3
Lula	15.8	6.6
Mary Alice	111.9	79.6
Mayfield	15.7	11.4
Mountain View	59.4	49.2
Mount Zion	3.2	1.2
Mud Ridge	19.4	9.6
Nix Bridge	14.8	6.4
Nix Island	109.3	85.0
Old Federal C. G.	62.9	29.3
Old Federal D. U.	17.0	8.0
Pea Ridge	32.0	23.1
Pilgrim Mill	8.1	5.0
Plateau Ridge	20.3	3.7
Pleasant Grove	22.8	15.8
Pleasant Hill	21.2	18.1
River Bend	32.2	23.1
Roadside Parks:		
Browns Bridge	21.9	17.1
Thompson Bridge	33.2	24.1
Robinson	48.6	38.8
Rocky Point	85.9	64.1
Rustic Ridge	14.8	10.1

TABLE 9-02 Continued
Lake Lanier Recreation Areas

	Acres	
	<u>1071' & above</u>	<u>1085' & above</u>
Sandy Point	25.6	21.3
Sardis Creek	37.2	12.2
Sawnee	32.6	23.4
Shadbury Ferry	5.8	3.6
Shady Grove	107.4	80.6
Shoal Creek	169.1	146.3
Silver Shoals	138.9	121.9
Simpson	7.4	4.1
Six Mile Creek	13.8	6.9
Six Mile C. G.	43.6	23.1
Taylor Creek Island	63.0	46.6
Thompson Bridge	31.5	25.4
Three Sisters Island	152.7	107.2
Tidwell	7.4	1.1
Toto Creek	64.5	53.8
Two Mile Creek	35.6	16.4
Upper Latham Creek	13.3	6.7
Van Pugh C. G.	49.6	36.7
Van Pugh D. U.	20.7	12.7
Vanns Tavern	16.5	8.5
Wahoo Creek	13.4	6.9
Wahoo Island	72.4	51.3
War Hill	108.0	81.9
West Bank	23.7	22.1
White Sulphur	58.1	45.6
Wildcat Creek	22.7	17.2
Williams Ferry	23.1	11.3
Young Deer Creek	13.3	6.7

LEASED PUBLIC USE AREAS

Aqualand	48.5	30.2
Dogwood	11.5	10.6
East Bank	114.4	92.8
Flowery Branch	6.5	4.8
Gainesville	67.0	54.9
Gwinett County	24.7	21.0
Holly	27.3	13.4
Lanier Point	74.8	35.8
Lanier	37.2	21.9 *
Laurel	132.9	118.1
Longstreet Bridge	6.9	3.4
Longwood	37.9	21.5
Lumpkin County	39.7	32.4
River Forks	114.4	92.8

* Includes R. O. W. Below Saddle Dike

TABLE 9-02 Continued
Lake Lanier Recreation Areas

	<u>Acres</u>	
	<u>1071' & above</u>	<u>1085' & above</u>
<u>LEASED PUBLIC USE AREAS (CONTINUED)</u>		
Roadside Parks:		
Bolling Bridge	27.7	19.5
LongStreet Bridge	6.8	4.8
<u>MARINAS</u>		
Aqualand	152.7	82.7
Bald Ridge	83.9	27.9
Clarks Cove	69.9	49.8
Gainesville	49.2	21.4
Habersham	3.0	-
Holiday on Lake Lanier	42.5	23.0
Lanier Harbor	13.0	-
Lan-Mar	66.0	43.1
Lazy Days	24.1	16.7
Starboard	37.7	23.1
<u>LEASED FOR PRIVATE CLUB USE</u>		
American Legion	3.6	1.6
Athens Boat Club	Under Revision	
Atlanta Athletic Club	7.3	4.6
Chattahoochee Country Club	6.3	1.5
Geo. Lockhead	7.7	2.3
Hickory Hill	25.1	21.0
Hogback Ridge	49.3	37.1
Honeysuckle Ridge	43.3	24.4
Lake Lanier Sailing Club	37.2	27.6
Scoutland	132.4	101.1
Saddle Ridge	30.7	25.8
<u>CORPS OPERATIONS AREAS</u>		
Operations Areas Dam & W. Saddle Dike	323.3	38.5 *
Spillway & Saddle Dike	154.4	38.5
Sardis Cr.	2.7	
Total	483.5	

* Includes R. O. W. Below Saddle Dike










LAKE SIDNEY LANIER

LAND USE ALLOCATIONS MAP

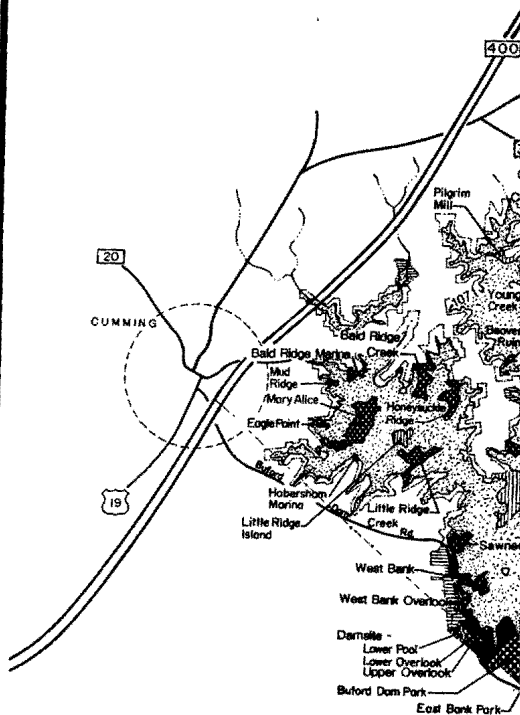
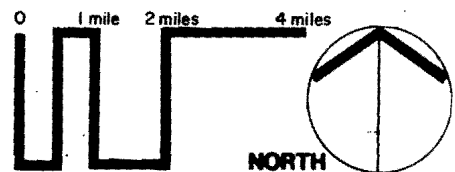
LEGEND

-  PROJECT OPERATIONS
-  RECREATION: INTENSIVE USE
-  RECREATION: LOW DENSITY
-  WILDLIFE MANAGEMENT
-  NATURAL AREAS

UPDATING OF
THE MASTER PLAN
LAKE SIDNEY LANIER
CHATTAHOOCHEE RIVER,
GEORGIA

U. S. ARMY ENGINEER DISTRICT, MOBILE
CORPS OF ENGINEERS
MOBILE, ALABAMA

PLATE 1





Land Use Allocations

The classification scheme consists of land uses within the Federal Reservation Boundary, defined in publication ER 1120-2-400 (dated 12 February 1976) as follows, along with observations on mapping:

1. Project Operations

DEFINITION: Lands acquired and allocated to provide for safe, efficient operation of the project for those authorized purposes other than recreation and fish and wildlife. In all cases this will include, but is not limited to, the land on which project operational structures are located. Lands on navigation projects which are required for industrial and public port terminals will be included in this allocation. Agricultural use of these lands will be permitted on an interim basis when not in conflict with use for authorized purposes, recreation use or wildlife habitat.

LOCATION: Structures directly related to Buford Dam (saddle dikes, the spillway, and adjacent land for protection of these) were mapped in this category.

2. Operations: Recreation - Intensive Use

DEFINITION: Lands acquired for project operations and allocated for use as developed public use area for intensive recreational activities by the visiting public, including areas for concession and quasi-public development. No agricultural uses are permitted on these lands except on an interim basis for terrain adaptable for maintenance of open space and/or scenic values. This category includes recreation lands established for development of recreational uses in the future. Interim use will be for wildlife management.

LOCATION: Recreation areas developed for high-density, high-volume use with facilities provided to support tent and trailer camping and areas for high-use recreation, especially water-based (as marinas and boat launches with adjoining camping facilities) were mapped in this category.

3. Operations: Recreation - Low-Density Use

DEFINITION: Lands acquired for project operations and allocated for low-density recreation activities by the visiting public are required as open space between intensive recreational developments or between an intensive recreational development and land which, by virtue or use, is incompatible with the recreational development and would detract from the quality of the public use. Such incompatible land may be located either on the project or adjacent to the project. Land required for ecological workshops and forums, hiking trails, primitive camping, or similar low-density recreational use available for significant role in shaping public understanding of the environment will be under this allocation. No agricultural uses are permitted on this land except on an interim basis for terrain adaptable for maintenance of open space and/or scenic values.

LOCATION: Recreation areas not highly developed with primitive or tent camping, picnicking, and other activity areas not heavily used, and also lakeshore adjoining residential property with boat docks and associated structures existing, and areas with some development that do not fall into category #2, were mapped in this category.

4. Operations: Natural Areas

DEFINITION: Land acquired for project operations and allocated for preservation of scientific, ecological, historical, archeological or visual values. Lands managed to protect rare and endangered species of flora or fauna will be allocated as natural areas. Normally limited or no development is contemplated on land in this allocation. Narrow bands of project land located between the normal recreation pool and the project

boundary generally fall within this category. Project operational land may be a dual allocation. No agricultural uses are permitted on this land.

LOCATION: Areas with little or no development, especially small islands and limited access areas with no infrastructure, except in some cases isolated boat docks, were mapped in this category.

5. Operations: Wildlife Management Area

DEFINITION: Areas potentially suitable for wildlife management and having habitat characteristics falling into one or both of the following categories:

a. Areas of special habitat characteristics suitable for propagating or harvesting specific wildlife either known to exist in these areas or requiring such habitat characteristics.

b. Areas supporting sufficient variety of vegetation types for provision of year-round food and cover requirements for wildlife.

LOCATION: Areas that have been defined as waterfowl habitat in certain embayments of the lake as well as areas of future recreation potential will be indicated as wildlife management areas on an interim basis.

D. Water Use Allocations

The water use allocation plan exemplifies a need to protect the boating public, minimize conflicts between land and water use activities and protect sensitive environmental resources. Four water allocation zones are designated for Lake Lanier. They include: unrestricted use, restrictive use, no wake zone and no boating zone. The definitions of these four allocation zones are listed in the following text. Table 9-03

Illustrates each category of water use allocated for the lake. Proposed buoys and navigational aids are also illustrated for proper management of the lake.

1. Unrestrictive Boat Use

These water areas, which are allocated to unrestricted use, include all water-orientated activities. Most of the reservoir areas (which include large bays and channels) have been allocated to this category. These areas are proposed for all types of boating activities such as pleasure boating, sailing, skiing, and fishing.

2. Restrictive Boat Use

Restrictive boat use zones are limited to only certain low intensive water use activities such as low speed pleasure boating and fishing. The areas restricted to this type of use include narrow coves and inlets which are not suitable for motor boating at high speeds such as water skiing. The danger involved, pollution, noise levels generated, and negative effects on fishing are all factors which contribute to the need for these water use zones. Swimming areas would also be affected by such activity use.

3. No Wake Zone

The speed of water crafts are restricted to levels which will not create damaging waves, hazardous conditions, or disturbance to fragile shoreline areas in this category. These zones are delineated and marked near public ramps, beaches, marinas and other facilities which might be disturbed or damaged by wave action generated by high speed boating.

4. No Boating or Water Use Zone

This category applies to water zones which are buoyed off extremely dangerous to the public and are designated around operational structures of the dam/intake structure and near areas where shallow water and submerged obstacles create a danger to boats traveling at high speeds.

TABLE 9-03 WATER USE
ALLOCATION AREAS

CATEGORIES

Unrestricted Boat Use	Restricted Boat Use	No Wake Zones	No Boating or Water Use Zones
<p>All open water, bays, channels, comprising the majority of water surface acres on lake. These areas are unrestricted and are proposed for all boating activities - pleasure boating, sailing, water skiing, fishing</p>	<p>These areas will be buoyed and restricted to only certain low speed boat uses. These areas include: Bald Ridge Creek Flowery Branch Cove 4 Mile Creek 2 Mile Creek Yellow Creek Wahoo Creek West Fork East Fork Upper Latham Creek Julian Creek Chestatee River (Upper) Upper Flat Creek</p>	<p>These areas are to be buoyed and restricted as a no wake zones. These zones will be marked near public ramps, marinas, beaches.</p>	<p>These zones are extremely hazardous and will be prohibited to all water use activities. These areas shall include zones near operational structures and near shallow water where submerged obstacles present a hazard to boating.</p>

E. Master Planning Rationale

The design Intent of the original Master Plan was to provide areas of mixed use (overnight use and day use in the same area) and historically this is the way the areas have been utilized. Also, there has been an overall lack of recreation facilities to accommodate the ever-increasing visitation demand at Lake Lanier and at the present time most of the available recreation has reached or exceeded its carrying capacity. This is occurring without full development since people are recreating without sufficient facilities. However, the potential land based resource of the project has not reached the maximum practicable carrying capacity, but it will take a cost-sharing sponsor to be able to develop any new recreation lands.

Under current planning objectives and constraints the only means available of providing additional facilities to meet the needs at existing recreation areas is through the rehabilitation and SRUF Fund Programs by upgrading and expanding facilities to make them better organized and more self-sufficient.

Of first importance, this Master Plan Update recommends the better utilization of existing recreation areas by providing direction for the development of these areas to their optional potential. The expansion of facilities within areas and the separation of day use from overnight use areas will provide for a better organized and more efficient resource, and therefore improve the overall management of project lands.

This is not to say that all of the ever-increasing demand will be satisfied so as to overload the resource. Some of the expected demand cannot be accommodated.

Of second importance, this Master Plan Update recommends that if cost-sharing sponsors are acquired, the foregoing planning position should be re-evaluated with consideration given to the development of other areas,

particularly, the larger ones. (These areas are shown on the Land Use Allocation Plan as future recreation lands.) These areas are shown with proposed facilities development in Volume 2. Also, all of the public leased areas (both developed and non-developed) are shown with conceptual development plans in Volume 2. The area location plan in Volume 2 shows all the potential recreation lands that have been identified.

A prime consideration for the proposal to develop larger areas is that this will consolidate more recreation facilities in one area while providing an opportunity to close some of the smaller, less efficient areas. Also, it should be noted that most of the existing recreation development and, hence, visitation occurs on the eastern side of the lake. The larger, undeveloped, future recreation lands are on the western side of the lake. Developing these areas would more evenly distribute the recreation facilities, and hopefully, the visitation around the lake alleviating some of the impact on the resource.

F. Land Use Suitability

Land use suitability matrices were prepared prior to the preparation of facility development plans. In this analysis of determining suitable recreation use for each designated area, the long-term impact of development on resources was important in this evaluation. Existing facility impact is also evaluated as to overuse or underuse. A resource rating is then assigned to each site according to the attractiveness of individual resource factors that would satisfactorily accommodate intensive recreation development. A set of resource factors were analyzed and they include: offsite resources (access, utilities, land use, etc.); and several onsite factors (environmental composite, existing facilities, facility condition, soils, shape, vegetation unique features.) When an area failed to meet certain resource requirements, a low score was assigned to that resource condition, determining that this area was not suitable for intense recreation development. Areas which required extensive modification or areas that were eliminated on the premises that development

would incur a public hazard were also considerations in this analysis. Seven categories of recreation use were assigned to the individual recreation areas and they include: day use (intensive development), day use (low intensive development), night use (intensive), night use (low intensive), natural areas, concessionaire, and site closure.

G. Site Planning

I. General

On the 18,000 acres of Federal lands which surround Lake Lanier there are 76 existing recreation areas. Of these, 48 areas have been developed and are maintained and operated by the Corps of Engineers. Five concessionaires lease areas directly from the Corps while four of these areas are operated as commercial marinas. Three sites are operated by the State of Georgia, two of which are roadside parks and Lake Lanier Islands is a state park. Another ten areas are leased, developed and maintained by local governments while three of these are commercial marinas which sublease from the local entity. Finally, another twelve areas are leased by semi-private clubs or quasi-public groups. Table 9-04 lists all of the existing facilities at each recreation area.

This section represents the design results of individual recreation areas by considering and evaluating all data inventory, data analysis, and resource use objectives. Site plans illustrated here, are presented in conjunction with site resource composite drawings in order to illustrate optimum utilization of project features and resources. Descriptions of each individual recreation area are presented in outline form in Volume 2 to provide a clear and concise representation of pertinent site factors such as location, access, natural resource characteristics, positive and negative resource features, existing and proposed facilities and design intent. All area plans for future recreation development and area description data are documented in Volume 2 of this Master Plan Update.

2. Site Analysis

The site analysis composite map for each individual recreation area was illustrated to represent the resources that are compatible for recreation development. The graphic technique used on composite drawings were developed with the intention of "highlighting" areas that are most suitable for development. "Darker" site areas are less suitable for development and such development would be detrimental to the natural features of that area. Composite levels as discussed in Chapter V and are developed in accordance of soil, slope vegetation, and visual sensitivity overlays. Positive features such as attractive forest stands and scenic views were also considered in this analysis. It should be recognized that site analysis factors were mapped outside of the limits of designated recreation areas to insure maximum coverage of the analysis. Likewise, this information will be useful in making decisions in future planning and design efforts. Composite Analysis drawings are presented in conjunction with area development plans in Volume 2 of this Master Plan Update.

3. Existing Facilities Inventory

A field inventory of all existing recreation areas was conducted for determining facility additions and locations during preliminary states of the design effort. All areas which contain existing recreational facilities are outlined on the site bubble diagrams and a list of facility quantities are also represented. This approach provides information on the design of each area and represents basic conceptual framework of each area and the inter-relationships between all existing and proposed recreation areas. Detailed base maps were prepared for use in feature design memoranda at the Mobile District Office. These detailed inventory maps show the exact location of recreation facilities at a scale of 1 inch = 200 feet, but are not contained in this report.

4. Area Plans

The area plans for future development are illustrated in "bubble diagram" style utilizing extensive buffer areas for separation of uses and Federal recreation symbol for the identification of use areas. General use areas such as tent/trailer camping, primitive camping, swimming, launching ramp, picnicking and fishing are illustrated on the site plan drawing with accompanying table listing acres, sites, and spaces allocated for future use. These tables also discriminate between total existing/programmed and future development facilities. This information is presented in Volume 2 of this Master Plan.

Support facilities that service each of the general use areas are illustrated by Federal recreation symbols. Each facility to be located upon the area plan is included only as future development. These support facilities will service general recreation areas or be used in the renovation and redevelopment of existing areas. Support facilities will include parking, roads, restrooms, changehouse, bathhouse, courtesy docks, etc. The information that is developed on site plans presents relationships between existing and future development for use areas and interprets the basic conceptual framework and requirements for the development and management of the project.

Future development area plans are used with an intention to illustrate the potential for development on each area to establish a logical pattern and distribution of facilities and activity areas throughout the project. These plans will also be utilized in establishing land areas that are most capable of supporting intensive recreation use.

The recommendations illustrated on the future development drawings may depict a redesign or renovation of an existing recreation area. These considerations were made in order to establish greater control over the use of these areas or to eliminate conflicts between uses by redistributing facilities in accordance with recreation demand.

Detailed area concept drawings illustrating future development facilities were also developed as part of this procedure. These development drawings on file at the Mobile District Office will also be utilized for preparation of future design memoranda.

TABLE 9-04

1986 EXISTING RECREATION FACILITIES

-----SANITARY-----RECREATION FACILITIES-----																		
AREA AREA	WB	SHWR	VT	PT	PICNIC	CAMP	ELEC	GROUP	GROUP	LNCH	LNCH	SWIM	CAR	CAR/TRLR	TRAIL	AMPHI-	PLAY COUR	
CODE NAME					SITE	SITE	HKUP	CAMP	PIC	RAMP	LANE	AREA	PARKING	PARKING		THEATER	AREA TESI	

CORPS OPERATED PUBLIC RECREATION																		
01	Powerhouse	0	0	0	0	0	0	0	0	0	0	0	98	0	0	0	0	0
02	Lower Overlook	0	0	0	0	25	0	0	0	0	0	0	36	0	0	0	1	0
03	Upper Overlook	1	0	0	0	15	0	0	0	2	0	0	62	0	2	0	1	0
06	Shoal Creek D.U.	0	0	0	2	0	0	0	0	0	1	2	0	59	0	1	0	1
07	Shoal Creek	0	4	1	2	0	123	65	2	0	1	1	30	22	1	1	2	0
11	Big Creek	1	0	0	0	37	0	0	0	0	2	4	1	38	54	0	0	0
12	Burton Mill	0	0	0	4	36	0	0	0	0	1	2	0	78	16	0	0	0
13	Van Pugh	1	2	0	2	21	57	0	0	1	2	4	3	202	74	0	0	2
14	Chestnut Ridge	0	2	0	4	0	70	32	0	0	1	1	2	39	21	0	1	2
17	Old Federal	0	2	0	2	0	84	59	1	0	1	1	3	26	21	0	1	1
18	Old Federal D.U.	1	0	0	0	0	0	0	0	0	2	2	2	97	30	0	0	1
19	Balus Creek	0	0	0	4	25	0	0	0	0	1	2	0	45	15	0	0	0
20	Mountain View	1	0	0	0	21	0	0	0	0	1	1	0	76	22	0	0	0
30	Bellton Bridge	0	0	0	0	0	0	0	0	0	1	1	0	5	20	0	0	0
31	Lula Park	0	0	0	0	0	0	0	0	0	2	1	0	12	51	0	0	0
33	Clarks Bridge	1	0	0	2	20	0	0	0	0	1	3	1	172	79	0	0	1
36	Little River	0	0	0	4	23	0	0	0	0	1	2	0	55	28	0	0	0
38	Wahoo Creek	0	0	0	2	6	0	0	0	0	1	1	0	12	12	0	0	0
39	Thompson Bridge	0	0	0	0	0	0	0	0	0	1	1	0	18	70	0	0	0
41	Sardis Creek	0	0	0	2	5	0	0	0	0	1	1	0	97	34	0	0	0
42	Simpson Park	0	0	0	2	9	0	0	0	0	1	1	0	20	13	0	0	0
43	Robinson Park	0	0	0	8	20	24	0	0	0	1	1	0	44	20	0	0	0
45	Duckett Mill	1	1	0	6	0	54	0	0	0	1	1	1	10	17	0	0	0
46	Little Hall	0	0	0	8	40	0	0	0	0	1	4	0	60	110	0	0	0
50	Bolling Mill	1	2	0	8	0	50	50	0	0	1	3	1	267	73	0	0	2
52	Lumpkin Co. Park	0	0	0	0	0	0	0	0	0	1	1	0	20	18	0	0	1
53	Toto Creek	0	0	0	2	7	0	0	0	0	1	1	0	10	25	0	0	0
54	Nix Bridge	0	0	0	2	12	0	0	0	0	1	1	0	31	18	0	0	0
55	Thompson Creek	0	0	0	2	0	0	0	0	0	1	3	0	36	68	0	0	1
56	War Hill	0	0	0	8	8	9	0	0	0	1	4	1	156	110	0	0	1
59	Keith's Bridge	0	0	0	6	32	0	0	0	0	1	2	0	64	30	0	0	0
60	Long Hollow	0	0	0	4	8	0	0	0	0	1	1	0	20	14	0	0	0
63	Athens Park	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
64	Vanns Tavern	1	0	0	0	6	0	0	0	0	2	4	0	26	40	0	0	0
66	Bethel Park	0	0	0	4	0	20	0	0	0	1	1	0	5	30	0	0	0
67	Two Mile Creek	1	0	0	2	38	0	0	0	0	1	1	1	12	18	0	0	0
70	Six Mile Creek	0	0	0	0	0	0	0	0	0	1	2	0	9	18	0	0	1
71	Charleston Park	1	0	0	0	11	0	0	0	0	1	3	0	65	50	0	0	1
74	Shady Grove Park	0	3	0	0	0	126	45	2	0	1	1	3	40	18	0	0	2
75	Young Deer Creek	1	0	0	0	7	0	0	0	1	1	3	1	47	45	0	0	1
76	Tidwell Park	0	0	0	2	0	0	0	0	0	1	3	0	21	45	1	0	0
77	Bald Ridge Creek	0	3	0	0	0	82	82	0	0	1	1	1	64	12	0	0	0
79	Mary Alice Park	1	0	0	0	0	0	0	0	1	1	4	1	251	98	0	0	1
80	Little Ridge	0	0	0	0	0	0	0	0	0	1	2	0	5	18	0	0	0
81	Sawnee Park	0	2	0	0	0	56	44	0	0	1	1	1	15	20	0	1	1
82	West Bank	3	0	0	0	58	0	Y	0	2	0	0	2	258	0	1	0	1
83	West Bank Overlook, Dam	0	0	0	0	0	0	0	0	0	0	0	0	55	0	0	0	0
84	Lower Pool	0	0	0	2	6	0	0	0	0	1	1	0	98	14	1	0	0
85	Gainesville Marina Ramp	0	0	0	0	0	0	0	0	0	1	1	0	0	10	0	0	0
92	Buford Dam Park	0	0	1	0	76	0	0	0	2	0	0	0	76	0	0	0	0

SUB TOTAL CORPS AREAS 16 21 2 96 572 755 377 5 9 48 81 26 3042 1521 7 4 18 13

TABLE 9-04 (continued)

1986 EXISTING RECREATION FACILITIES

-----SANITARY-----RECREATION FACILITIES-----																			
AREA AREA	WB	SHWR	VT	PT	PICNIC	CAMP	ELEC	GROUP	GROUP	LNCH	LNCH	SWIM	CAR	CAR/TRLR	TRAIL	AMPHI-	PLAY		
CODE NAME					SITE	SITE	HKUP	CAMP	PIC	RAMP	LANE	AREA	PARKING	PARKING		THEATER	AREA		
																	TESY		
																	DOCK		

LEASED - PUBLIC RECREATION																			
96	Lake Lanier Islands	14	12	0	520	322	Y	2	3	3	3	1	3536	74	4	1	Y	Y	
97	Longstreet Bridge	0	0	0	8	0	0	0	0	0	0	0	7	0	0	0	N	N	
98	Bolling Bridge	0	0	0	8	0	0	0	0	0	0	0	13	0	0	0	N	N	

SUB TOTAL		14	12	0	536	322	0	2	3	3	3	1	3556	74	4	1			
LEASED - PUBLIC RECREATION																			
086	Flowery Branch Park	1	0	0	8	0	0	0	1	0	0	0	16	0	0	0	N	Y	
087	Lanier Point	0	0	0	0	0	0	0	0	1	1	0	30	25	0	0	N	N	
088	Longwood Park	1	0	0	22	0	Y	0	1	0	0	0	97	0	0	0	Y	N	
089	Holly Park	0	0	0	64	0	0	0	1	1	1	1	58	36	0	0	N	N	
090	Laurel Park	2	0	0	15	0	0	0	2	1	1	1	200	15	0	0	Y	N	
091	River Forks	1	0	0	42	0	0	0	3	1	1	0	75	20	0	0	Y	Y	
093	East Bank	0	0	0	22	0	0	0	0	1	4	0	33	62	0	0	N	N	
094	Lanier Park	0	0	0	34	0	0	0	1	1	1	1	90	18	0	0	N	N	
095	Gwinnett Park	0	0	0	42	0	0	0	0	1	1	0	65	24	0	0	N	N	

SUB TOTAL		5	0	0	249	0	0	0	9	7	10	3	664	200	0	0			
LEASED - MARINAS AND BOAT STORAGE																			
100	Lanier Harbor	0	0	0	11	0	0	0	1	1	10	0	50	76	0	0	N	Y	
101	Holiday On Lake Lanier	2	0	0	0	0	0	0	0	0	0	0	666	0	0	0	N	Y	
102	Lazy Days Storage	0	0	0	0	0	0	0	0	0	0	0	164	0	0	0	N	Y	
103	Starboard Marina	2	0	0	0	0	0	0	0	1	1	0	100	28	0	0	N	Y	
104	Aqualand Marina	1	3	0	34	0	0	0	2	1	2	0	600	80	0	0	N	Y	
105	Clarks Cove Marina	1	0	0	20	0	0	0	0	2	2	0	150	20	0	0	Y	Y	
106	Gainesville Marina	2	0	0	0	0	0	0	0	1	1	0	150	10	0	0	N	Y	
107	Lan Mar Marina	1	0	0	0	0	0	0	0	0	0	0	190	0	0	0	N	Y	
108	Bald Ridge Marina	1	0	0	0	0	0	0	0	2	2	0	211	30	0	0	N	Y	
109	Habersham Storage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N	Y	

SUB TOTAL		10	3	0	65	0	0	0	3	8	18	0	2281	244	0	0			
LEASED - PRIVATE CLUBS																			
110	University Yacht Club	1	0	0	0	0	0	0	0	0	0	0	150	500	0	0	N	Y	
111	Atlanta Yacht Club	1	0	0	0	0	0	0	0	0	0	0	50	9	0	0	N	Y	
113	Athena Boat Club	1	0	0	0	0	Y	0	0	0	0	0	50	10	0	0	N	Y	
114	Lanier Sailing Club	1	0	0	0	0	0	0	0	0	0	0	80	20	0	0	N	Y	
115	Chattahoochee Cntry Club	1	0	0	0	0	0	0	0	0	0	0	50	10	0	0	N	Y	
116	American Legion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	N		

SUB TOTAL		5	0	0	0	0	0	0	0	0	0	0	380	549	0	0			

TOTAL LEASED AREAS		34	15	0	850	322	0	2	15	18	31	4	6881	1067	4	1			

GRAND TOTAL ALL AREAS		50	36	2	96	1422	1077	377	7	24	66	112	30	9923	2588	11	5	18	13

10.00

SPECIAL PROBLEMS

00.01

SPECIAL PROGRAMS

A. Introduction

There are certain problems and issues concerning Lake Lanier that are not readily classified into broad categories or are of such a nature as to be best addressed individually. Problems include natural resource preservation, fish and wildlife management, cultural resources, user fees, special land and water uses, administration and operations, shoreline stability, boat launching areas, and vehicular control. While some of these topics are discussed in other sections of this report, others are mentioned only in this chapter. All are particularly important to the U.S. Army Corps of Engineers recreation areas at Lake Lanier.

B. Special Land and Water Uses

Certain activities at Lake Lanier present special problems to the management and operation of the lake's facilities. These special uses and their associated problems are discussed briefly in this section.

1. Boating

A Boating Study was done in March 1985 analyzing the boating capacity at the project. This report is on file in the Corps of Engineers, Mobile District Office. This report addresses the problem of boating overuse and makes several recommendations. (See Chapter XII)

2. Lakeshore Management

The lakeshore is a limited resource which is under great pressure from a variety of users. This interface of water and land is naturally where much activity takes place. Sunbathers, swimmers, picnickers, fishermen, boaters, sightseers, and homeowners are all strongly attracted to this area for a variety of reasons related to recreation. Man's inherent attraction to the water urges him to fulfill his recreational needs either in it, on it, or near it. The water's edge is the springboard area for all of his water oriented activities.

The very characteristics that make the lakeshore attractive to people will be destroyed or severely damaged by them if abuse or overuse of this resource is allowed. Thus, Lakeshore Management is very important to help maintain the shoreline at its best to serve the public recreation needs for now and in the future.

Of particular concern are the areas classified Limited Development where there has been vigorous growth of private exclusive uses. It is recognized that some of this development has occurred through historical precedent and previous commitment. However, since 1979, this type of development has continued to proliferate. Since 1979 it is estimated that the numbers of private boat docks and appurtenances have doubled.

3. Fish and Wildlife Management

The major management tool to be used for enhancing the resources is habitat manipulation. This means employing aggressive silvicultural and fisheries management practices to provide habitats suitable for the plant, wildlife and fish communities.

Another major problem in Georgia has been in providing adequate legal protection for wildlife management. The Georgia Game and Fish Division has recommended that a forester and a wildlife biologist be assigned to the project with citation powers under Title 36 so they may assist the Corps in controlling problems on Federal lands. All uniformed Corps personnel have citation authority.

C. Socio-Economics

Given the high concentration of population within the Lake Lanier market area there is a major problem in the control and use of the lake with its incredible volume of people.

With the expected increase in visitation in the near future, this has a tremendous impact on the resource and on management. With the existing recreation facilities, the demand has exceeded the current carrying capacity. There is a great need for additional recreation facilities through the rehabilitation program and development of more recreation areas by obtaining cost-sharing sponsors.

D. Shoreline Erosion

The most prevalent environmental problem at Lake Lanier is shoreline erosion. Erosion of the lakeshore is primarily caused by wind and boat generated waves that act upon fragile shores by removing soil particles and trees. The amount of shoreline material which is removed is dependent upon the physical characteristics of the wave, the length of time a wave acts at one given point of the shore and shoreline composition of soil structure. The greatest amount of soil loss occurs between the 1,076 and 1,066 elevation. However, damage to the shoreline may extend as high as 1,082 feet.

Any increase in the normal pool (1,070) resulted in a considerably higher amount of shoreline loss. In 1972, the normal pool level was increased from 1,070 feet to 1,071 feet and this increase resulted in loss of 775 acres of additional lakeshore land due to erosion and flooding. The estimated land value lost exceeded 17 million dollars. Since the establishment of the policy pool elevation 1,071, much project lands have been lost to erosion. Many thousands of trees have also been lost to erosion. The loss of these trees reduce the visual buffer zone between the water surface and adjacent private developments. Lakeshore erosion also contributes to nutrient gain in the lake which increases water turbidity and eutrophication.

The abrupt edge between the land and water surface is composed of poor soils and is difficult and expensive to stabilize. Areas with steep

shorelines have the most apparent erosion problems, All designated recreation areas which are exposed to heavy wave action should be established immediately since continual recreation use will cause deterioration. Areas which have other designations will continue to erode until stable slopes are developed and natural regeneration of vegetation occurs.

E. Lake Fluctuation

The complex nature of Lake Lanier's shoreline causes lake surface fluctuation to impact recreation activity upon the lake and influence the economic character of the region. Many environmental problems also result from lake surface fluctuation. Perhaps the most impacted areas of the lake are those large bays and channels with shallow waters that are impassible in fall drawdowns. This results in a lowered level of recreation use and causes a strain on the recreation economy of the area. According to the Lake Lanier Economic Impact Study of 1979, the current practice of rapid fall season drawdowns for the benefit of power production, costs the regional economy more in those few months than is produced in power revenues in an entire year. Extreme lake fluctuation also has a disastrous effect on shoreline erosion since many new areas become exposed to wave action at drawdowns.

Since Lake Lanier receives the highest level of recreation use and with the growing concern of future water supply which will impact lake level drawdowns, it is recommended that a comprehensive study of Lanier's reservoir regulation and water level be undertaken to derive new guidelines for future reservoir water regulation. The Mobile District Office has two reports which study the effects of water level fluctuation. These are the Navigation Maintenance Plan and the Drought Management Plan for the ACF system.

F. Preservation of Cultural Resources

It is estimated that many archeological sites exist on project lands, many in unknown locations. Protection of archeological resources has included the policy decision not to identify archeological sites on project maps nor otherwise identify them to the general public. Although some surveys have been conducted to inventory the archeological and historic resources at the project, this inventory is not complete. Significant cultural resources exist on project lands currently utilized for intensive recreation. Preservation of these resources, until such a time that excavation is feasible, presents an ongoing management problem. Methods are presently employed to discourage disruptive actions by "curious" visitors although these are not entirely successful. Ideal measures would deter vandalism by increasing user knowledge of the significance of these resources. Discouraging access by means of designating associated land areas as natural areas can also prove successful as protective measures. Prohibiting access by fencing off an area often proves to be the only truly effective means of preservation, although this method should only be used as a last resort.

G. Fee Systems and Collection

Access entrance fees cannot be charged by any designated Corps recreation areas. However, user fees for camping or swimming beaches may be utilized to aid in maintenance and operational costs in parks and are authorized under Public Laws 90-433, 92-347 and 93-303. Under these laws, user fees may be charged for the use of sites, facilities, equipment, or services which the Federal government furnishes at all water resource projects. Fee systems for future recreational areas will be implemented where necessary to support facilities and operational services at Lake Lanier in accordance with ER 1130-2-404.



11.00

RESOURCE MANAGEMENT

00.11

RESOURCE MANAGEMENT

A. Management Objectives

The superceded ER 1130-2-400 dated 28 May 1971 provide an outline for Appendices to the Master Plan. These Appendices present precise site-specific information on project resources and plans for development and administration in the following areas:

- Appendix A: Project Resource Management Plan
- Appendix B: Forest Management Plan
- Appendix C: Fire Protection Plan
- Appendix D: Fish and Wildlife Management Plan
- Appendix E: Project Safety Plan
- Appendix F: Lakeshore Management Plan

It is the responsibility of the Resource Manager to prepare resource Management Plans, review them annually, and update them formally every five years. Annual work plans are to be developed and cooperative activity with other agencies is required in the implementation of all plans.

The updated ER 1130-2-400 dated 1 October 1983 requires that existing Master Plan Appendices be replaced by an Operational Management Plan (OMP) within one year of the date the Appendices are due for revision. However, actual preparation time will be dictated by the availability of funds based on priorities outlined in the annual budget guidance. In accordance with ER 1130-2-400 the Operations element has begun preparation of the OMP for Lake Sidney Lanier with an expected completion date of October 1987. Part I of the OMP, Natural Resources Management, will replace former Master Plan Appendices B, C, and D. Part II of the OMP, Park Management, will replace former Master Plan Appendices A, E, and F.

ER 1130-2-400 dated 1 October 1983 provides a basic outline to be used in the development of the project OMP, and is supplemented by SADvr 1130-2-18 dated 6 June 1984 which provides further guidance. Preparation of the OMP is the responsibility of the project resource management staff.

The staff however, should include public involvement in the development of the plan to insure that the OMP can be implemented with public support. Appropriate federal and state agencies, special interest groups, lessees, adjacent landowners, and other identified publics should be allowed input into the development and subsequent revisions of pertinent sections of the OMP. The OMP will include annual work plans and a five-year work schedule, and will outline in detail the specific operation and administration requirements for natural resources and park management, consistent with applicable ER 1130-2-400 series and the approved project Master Plan.

12.00

**CONCLUSION &
RECOMMENDATIONS**

00.21

RECOMMENDATIONS
CONCLUSIONS

A. Conclusions and Recommendations

The conflicts between public and private use, conservation versus development are issues which will intensify in the future. This Master Plan Update establishes those guidelines which will temper conflicts and conform with the needs of the public. The demand for outdoor and water-related recreation is greater than the project resources can accommodate. The lake and its region are evolving from a rural economic character into a high developed urban recreational resource. The level of proposed recreation development recommended in this plan will not be able to accommodate all recreation needs of the market area. Therefore, guidelines in this plan correspond to a level of development that is compatible with the projects' resource carrying capacity. However, this plan places important emphasis on controlling access, development of capable land areas, erosion control, conservation/preservation measures, safety management, and other management and operational procedures which are required for heavy volumes of people.

As public attendance is evidently going to increase, the Corps of Engineers must not lose sight of their basic goals in the Recreation-Resource Management Program. These goals include the enhancement of opportunities for quality recreation experiences, wise management of natural resources and management of project facilities in an effective and cost efficient manner. Many small sites around Lake Lanier are poor developments which are inadequate for effective management and maintenance. These sites should be considered for closure since they do not provide for efficient public use. Larger areas, which offer potentials for diverse recreation opportunities and may receive a greater volume of visitors, should be developed. These areas have been presented in this document. Increasing demand for recreation has put pressure on other areas resulting in uncontrolled use and often damaging natural areas which should be enhanced and protected.

All sites upon the lake contain land units of varying capability to withstand recreation development. In order to provide adequate protection of the environment from overuse, only those land units capable of sustaining recreation use without resource degradation will be considered for future development. It will be necessary for administrative and management divisions within the Mobile District to exercise greater skills using all appropriate regulations for establishing guidelines and implementation procedures of forest, fish, wildlife, resource, safety and lakeshore management plans, since future development and use will place pressure on the control and enhancement of these resources. The public must also be educated to project safety, ecological habitats, and historical aspects of the project resources. Interpretive programs have been identified in the Master Plan which will provide guidelines for providing users with environmental awareness, safety procedures and aspects of cultural significance.

It should be emphasized that this plan is not a rigid plan of action. It is, rather, a set of guidelines which have been developed through intensive study of all influencing factors presently known, with their appropriate application to the planned use and development of the project. Therefore, as situations change and new variables come into play, it may be necessary to perform required changes and to re-evaluate the plan to maintain proper and efficient use of this project. This plan has been developed so that it is flexible, and needed changes can be incorporated through approved amendments without disruption of the entire plan.

The development of additional lands for recreational purposes is essential to relieving some of the demand and impact for lake-related recreation at Lake Lanier. It is recommended that new areas be developed as the opportunity presents itself.

Continued coordination and cooperation between the Corps of Engineers, the State and Federal agencies, local governments and private groups is necessary to maintain adequate and updated management policies and

implementation procedures for sound and efficient utilization of project lands and waters. New Corps development cannot begin without a non-Federal cost-sharing entity under guidelines of Public Law 89-72. Therefore, it is imperative that the public be made aware that their demands for recreation cannot be met by the Corps without assistance from non-Federal entities. The Corps should also encourage state and local governmental organizations to assume greater responsibility for development, management and operation of recreation, fish, wildlife, and forest resources at Lake Lanier. As cost-sharing sponsors are acquired strong consideration should be given to the development of the larger areas which will consolidate recreation facilities and allow for the closure of smaller less efficient areas.

Water capacity is a major constraining factor in project development. Any expansion of land based facilities to meet present and projected needs must recognize this constraint and be planned accordingly.

The quantity of boat handling facilities should be commensurate with the capacity of the water surface and maintained at that level. This is the most useful and effective measure that the Corps of Engineers has in maintaining a level of use that is safe, enjoyable, and sensitive to the limitations of the resource. This can best be accomplished by limiting access to the water by not providing any additional boat ramps to help control the overcrowding of the lake. Add new ramps only if other ramps are closed. This should be done in conjunction with regulating the number and size of public and private boat wet slips.

Continue the consolidation/closure program as a viable renovation effort to help control unsafe conditions and protect damage to the environment while providing a better organized and more efficient resource.

Investigate and make a comprehensive study of all designated recreation areas which are exposed to heavy wave action since continual use will cause further deterioration of the resource.

With growing demands on the water supply of Lake Lanier, comprehensive guidelines should be established for reservoir regulations and water levels that impact on recreation.

Implement the proposed development plans as opportunity becomes available to establish greater control over the use of these areas or to eliminate conflicts between uses by redistributing facilities in accordance with recreation demand.

Other recommendations relate to boating and include the following:

1. Limit boat storage on government land and water including private boat-docks and commercial marinas.
2. Provide control gates at entrance to public ramp parking areas that could be closed when the lot is full.
3. Maintain present capacity of boat launching ramps and parking facilities.
4. Provide one or two marinas with limited storage capacity (dry only) at the northern end of the lake above Brown's Bridge in order to encourage use of the upper reaches of the lake.
5. Increase number and authority of patrols on the lake.
6. Increase user education.

It is recommended that the Master Plan Updating for Lake Sidney Lanier be

approved as a general guide for the preservation, conservation and enhancement of the natural and cultural resources while providing new and diverse opportunities for recreation. This Master Plan is intended to serve as a guide in preparing feature design memoranda for the development, management and improvement of recreation facilities as described in the Physical Plan of Development.



APPENDICES

SECRET

APPENDIX I

PUBLIC LAWS

1. Public Law 85-624, Fish and Wildlife Coordination Act of 1954. As amended in 1958, this act provides that fish and wildlife conservation shall receive equal consideration with other project purposes and be coordinated with other features of water resource development programs.
2. Public Law 86-717 on Forest Conservation. This act requires the Corps of Engineers "To encourage, promote, and assure fully adequate and dependable future resources of readily available timber, through sustained yield programs, reforestation and accepted conservation practices, and to increase the value of such areas of conservation, recreation and other beneficial uses."
3. Public Law 89-72, Federal Water Project Recreation Act of 1965, as amended. Public Law 89-72 requires that development of separable recreation lands include non-federal local sponsors who contribute at least 50 percent of development costs and 100 percent of operations and replacement costs as follows: Where non-federal local sponsors participate in management and enhancement of sport fish and wildlife resources, first costs may be shared on a 75 percent federal and 25 percent non-federal basis, but not on projects which were substantially completed on March 7, 1974. When land is acquired to provide access and utilization of fish and wildlife resources for public recreation, costs may be shared 50-50. (See section J of Chapter 6 for additional information).
4. Public Law 89-669, Protection of Rare and Endangered Species Act. This act requires that federal land holding agencies shall seek to protect native fish and wildlife which are threatened with extinction, and to the extent practical and consistent with the primary purposes of these agencies, shall preserve habitats of threatened species on lands under their jurisdiction.
5. Title II, Section 234 of Public Law 91-611, River and Harbor and Flood Control Acts of 1970. Designated federal personnel are given citation authority by this Act for the purpose of citing visitors who commit violations of adopted rules related to the protection of Corps of Engineers project resources.

6. Public Law 93-291, Preservation of Historic and Archaeological Data Act of 1974.

Public Law 93-291 permits the expenditure of up to one percent of the amount appropriated for a Civil Works Project for the survey, recovery, analysis and reporting of important data (scientific, historical, archaeological and paleontological) which may be lost as a result of project development under Corps of Engineers jurisdiction. This includes authorization for such expenditures on operating projects.

7. Public Law 93-303 of 1974, on Recreation Use Fees. This Act amends Section 4 of Public Law 88-578, The Land and Water Conservation Fund Act of 1965, by allowing fair and equitable user fees for campgrounds operated on federal lands by federal agencies. This does not include authority to the Corps of Engineers to assess an entrance fee for general use of project resources except where specialized facilities, equipment or services are provided.

8. Public Law 93-643, Highway Amendment of 1974. The Highway Amendment of 1974 allows the Department of Transportation to participate in construction or reconstruction of access roads leading to public areas on Corps of Engineers reservoirs.

APPENDIX II PRIOR PERTINENT DESIGN MEMORANDA

<u>No.</u>	<u>Document</u>	<u>Date</u>
4B	The Master Plan for Lake Sidney Lanier	April 29, 1965
4	Development and Management of Buford Reservoir (Lake Sidney Lanier)	September 18, 1956
4B(C2)	Construction Design Memorandum Public Use and Access Facilities	August 9, 1962
4B(C3)	Construction Design Memorandum Public Use and Access Facilities	May 13, 1965
Appendix B & D	Project Resource Management Plan	December 1972
4B Supplement #1	Forest Management Plan	March 4, 1969
Appendix B & D	Manual for Managing Forest Lands and Wildlife	October 1974
Appendix B & D	Forest and Wildlife Management Plan	July 1974
Appendix D	Fish Management Plan	July 1974
4B Supplement #1	Land Use Plan for Lake Sidney Lanier	March 9, 1967
FDM	Shower/Washhouses for Chestnut Ridge Park	September 1978
FDM	Waterborne Toilets for Shoal Creek Camping Area	May 1979
FDM	Construction Plans for Camper Shower/Washhouses at Van Pugh Park and Old Federal Park	June 1979
FDM	Construction Plans for Camper Shower/Washhouses at Shady Grove Park	September 1979
FDM	Shower/Washhouse at Site "E" Shoal Creek Park	September 1981
FDM	Shower/Washhouses at Little Hall Park	September 1981
FDM	Shower/Washhouses at Bald Ridge Creek	September 1981
Letter Report	Upgrading for Sanitary Facilities at Sardis Creek Park, Big Creek Access Area, Tidwell Park and Old Federal Road Park	August 1982
Letter Report	Upgrading of Sanitary Facilities at	

	Mary Alice Park	November 1983
Letter Report	Upgrading of Sanitary Facilities at Young Deer Creek, Charleston Park, Vanns Tavern, Clarks Bridge, Old Federal Day Use and Two Mile Day Use	June 1984
Letter Report	Office Addition to the Resource Manager's Office	March 1985
Letter Report	Upgrading of Sanitary Facilities at Duckett Mill, Bethel Park and War Hill Park	August 1985
Letter Report	Upgrading of Sanitary Facilities at Bolling Mill and Thompson Creek	November 1985

APPENDIX III

PERTINENT PROJECT DATA

STREAM FLOW

Drainage area at dam site - square miles	1,040
Estimated minimum discharge (25 Aug 1925) - cfs	119
Minimum mean monthly flow (Sep 1925) - cfs	263
Average annual flow (1903 - 1958) - cfs	2,024
Discharge at bankfull stage - cfs	10,000
Maximum mean monthly flow (Dec 1932) - cfs	8,590
Maximum recorded discharge (8 Jan 1946) - cfs	55,000

SPILLWAY-DESIGN FLOOD

Total rainfall - inches	21.74
Initial loss - inches	0.00
Average infiltration rate - inches per hour	0.04
Total storm run-off - inches	19.68
Total volume of storm run-off - acre-feet	1,092,300
Peak rates of flow	
Natural flow at dam site - cfs	279,300
Inflow to full reservoir - cfs	428,900
Total reservoir outflow - cfs	26,670
Spillway discharge - cfs	14,660
Duration of flood - days	5

LAKE

Pool elevations - feet msl	
Maximum pool, spillway design flood (initial pool, elevation 1,070)	1,099
Top of flood-control pool	1,085
Top of power pool	1,070
Minimum power pool	1,035
Storage volumes - acre feet	
Total storage - elev. 1,085	2,554,000
Flood-control storage, elev. 1,085 to 1,070 (11.48 inches runoff)	637,000
Power storage, elev. 1,070 to 1,035 (18.91 inches runoff)	1,049,400
Dead storage, below elev. 1,035	867,600
Lake areas - acres	
Top of flood-control pool, elev. 1,085	47,182
Top of power pool, elev. 1,070	38,024
At maximum drawdown, elev. 1,035	22,442
Area within taking line - acres	
Purchased in fee simple	56,155
Right to inundate acquired by easement	719
River bed	1,133
TOTAL	58,007

PERTINENT DATA (Cont'd)

Length of shore line - miles	
Top of flood-control pool, elev. 1,085	760
Top of power pool, elev. 1,070	540
Length of lake at elevation 1,070 - river miles	
Chattahoochee River	44
Chestatee River	19

DAM

Type	Rolled-fill earth
Length along crest of main dam - feet	1,630
Top width - feet	40
Base width (approx.) - feet	1,000
Height of main dam above river bed - feet	192
Total length of saddle dikes - feet	6,600
Elevation, top of dam and saddle dikes - feet msl	1,106

SPILLWAY

Type	Uncontrolled chute
Width of chute - feet	100
Crest elevation - feet, msl	1,085

FLOOD-CONTROL SLUICE

Number of sluices	1
Diameter - feet	13.25
Discharge capacity with pool at elev. 1,085 - cfs	11,590
Discharge capacity with pool at elev. 1,070 - cfs	11,030
Centerline of intake	950
Bottom of intake	942

POWERHOUSE

Size of building		
Length - feet		205
Width - feet		94.5
Type - Indoor, reinforced concrete and structural steel construction		
Elevations - feet, msl		
Bottom of substructure (approximate)		885
Low point of draft tube		888
Centerline of distributor, 40,000 kw units		927
Centerline of distributor, 6,000 kw units		922.5
Generating units	<u>6,000 kw</u>	<u>40,000 kw</u>
Number (initial and ultimate)	1	2
Speed, rpm	277	100
Spacing, center to center, feet	-	62
Turbines		
Type	Francis	Francis
Rotation	counter-clockwise	clockwise
Guaranteed capacity at best gate,		
136-foot net head - hp each	8,400	55,000

PERTINENT DATA (Cont'd)

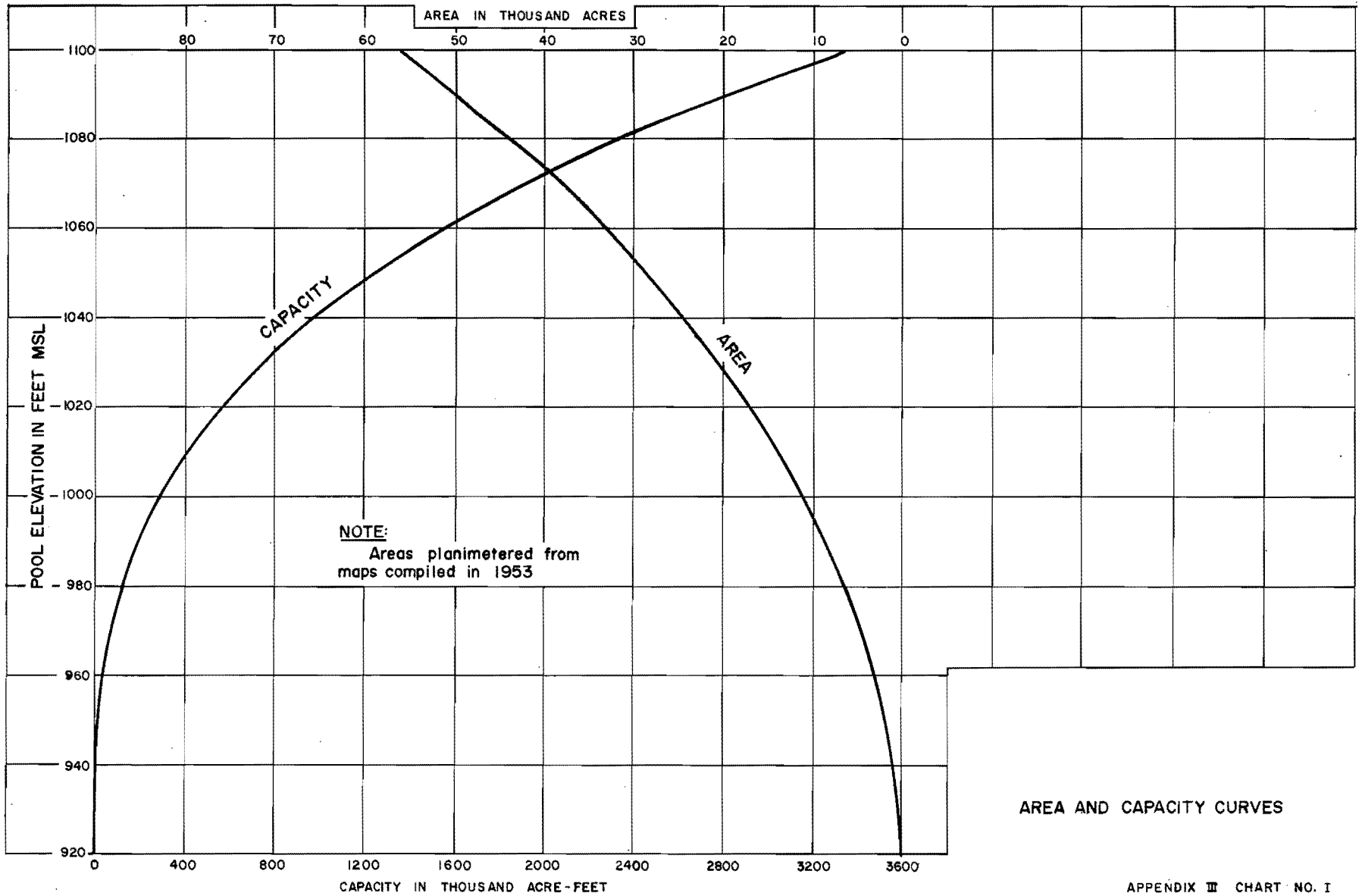
Generators

Rated capacity, continuous, 60° C Rise - kw each	6,000	40,000
Rated capacity, continuous, 60° C rise - kw each	6,667	44,444
Guaranteed capacity, continuous, 80°C rise - kw each	7,667	51,111
Power factor	0.90	0.90
Voltage	13,800	13,800

POWER DATA

Drawdown for storage - feet		35
Volume in power storage (elev. 1,035-1,070) - acre-feet		1,049,400
Rated net head, feet		136
Tailwater elevations, feet msl		
Maximum, all units operating at full gate - outflow 12,000 cfs		926
Normal, 1 large unit operating - outflow 4,000 cfs		918
Normal, 2 large units operating - outflow 8,000 cfs		922
Normal, all units operating - outflow 8,600 cfs		923
Minimum - no flow		911
Plant output		
Dependable capacity - kw		73,000
Average annual energy - kwh		170,000,000
Average annual primary energy - kwh		127,000,000

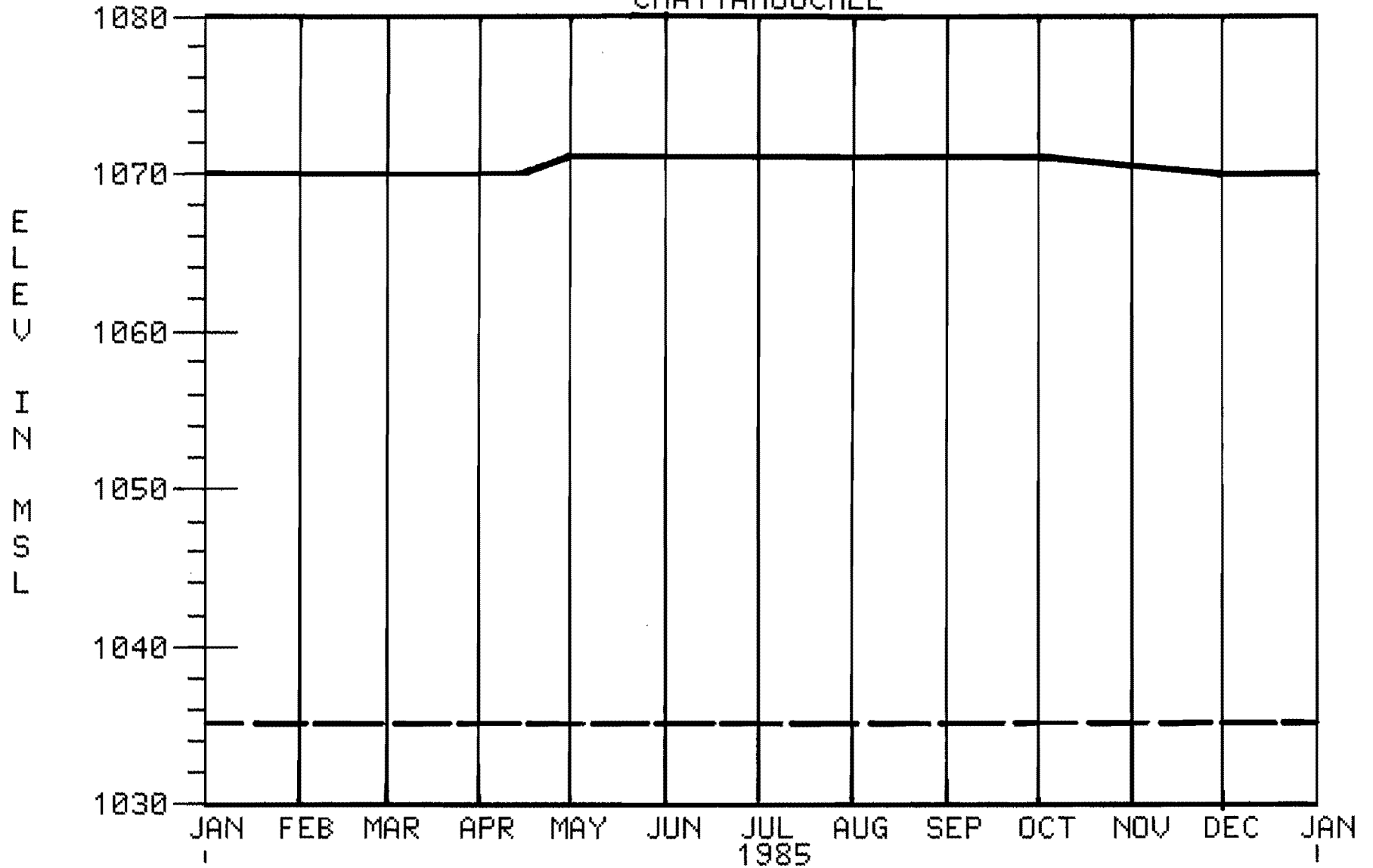




AREA AND CAPACITY CURVES



CHATTAHOOCHEE



———— BUFORD RULE CURVE ELEV
- - - - - BUFORD MAXIMUM DRAWDOWN ELEV



A P P E N D I X I V - I

VEGETATIVE COMMUNITIES

Vegetation Community Type Species Composition Microclimate Location

BOTTOMLAND HARDWOODS



Overstory

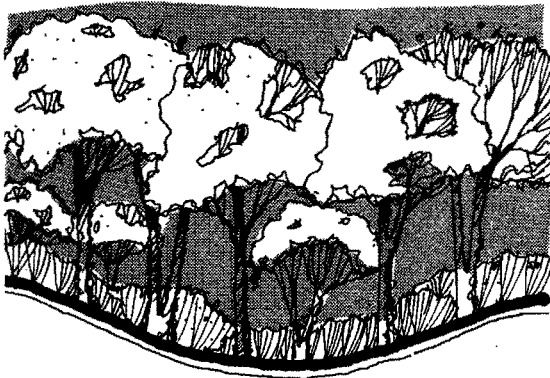
River Birch
Sycamore
Black Willow
Ash

Found on lower moist lands that are prone to flooding, gently sloping to flat topography, 70 percent basal area on hardwood overstory species.

Understory

Blue Beech
Redbud
Sugarberry
Ash
Box elder

COVE HARDWOODS



Overstory

American Beech
Sugar Maple
Basswood
Tuliptree

Hardwoods which exist on low to mid elevation terrain in coves, moist sites protected in ravines on flat to steep topography.

Understory

Paw paw
Dogwood
Redbird
Buckeye
Magnolia
Yellow Poplar

Vegetation Community Type

Species Composition

Microclimate Location

PINE-HARDWOOD FOREST



Overstory

Virginia Pine
Shortleaf Pine
Loblolly Pine
Black Gum
Hickories
Oaks

A forest which is in a state of release for hardwood species to dominate overstory. This forest is located on mid to upper slopes on moist to dry sites.

Understory

Sweetgum
Hickories
Oaks
Dogwood
Sourwood

PINE FOREST



Overstory

Virginia Pine
Shortleaf Pine
Loblolly Pine
Longleaf Pine

Forest in which overstory is dominated by pines. Occurs on sites which tend towards a xeric condition on flat to steeply sloping terrain.

Understory

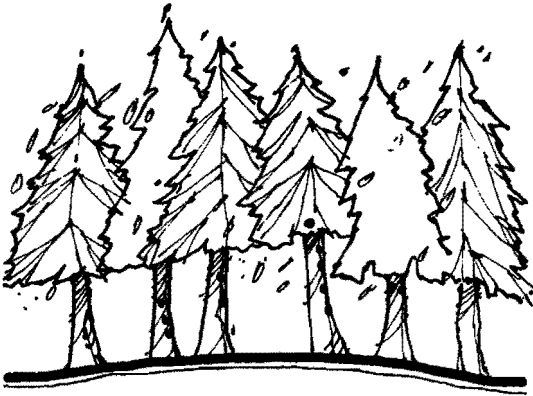
Sweetgum
Hickories
Oaks
Blackgum
Ash
Dogwood

Vegetation Community

Species Composition

Microclimate Location

PINE PLANTATION



Overstory

Virginia Pine
Loblolly Pine
Longleaf Pine

Absence of
Understory

Stands which are altered by man to maximize the production of wood. Sites range on all conditions of land which do not flood.

OLD FIELD SUCCESSION



Shrub Stratum

Sweetgum
Winged Elm
Persimmon
Hawthorne
Ash
Pine Species

Lands which are a result of recent disturbance such as cultivation, lumbering, or fire. This successional community occupies moist to dry sites and vary in topographic location.

SWAMPS



Overstory
(if present)

Water tupelo
Bald cypress

Understory

Black Willow
Alder
Buttonbush
Rushes
Sedges
Water lillies
Cuttails
Smartweeds

Food productive species for wildlife. These forests occur on low elevations which flood readily or have constant standing water, an overstory may be lacking.



Old Field Succession Areas: A balance of open land and forest is important to both recreationalists and wildlife. The diversity creates an environment that will support a wider range of animal species and further enhances the recreational potential of the area. Those stands in old field succession should be maintained as open land. Mowing and burning of old field areas will stimulate growth of herbaceous vegetation and thus is more beneficial wildlife.

Operational Areas: Corps regulations require that stands of this type are kept in a well-manicured condition. Landscaping of these areas can be a source of food and cover for wildlife. Landscaping should include the use of native ornaments which provide food and shelter for wildlife.

Pine Forests (Mature): These stands, composed predominantly of mature pines, should be converted to pure hardwood stands in order to provide diversity to the landscape and wildlife habitats. These stands should be thinned to allow the invasion of hardwoods into the stand.

Pine-Hardwood Forests: This stand type has excellent species composition. A balance between pines and hardwoods should be maintained for a healthy stand and increase the production of food for wildlife. They usually have a high proportion of mast-producing species.

Upland Hardwood Forests: Trees occurring in the overstory include black oak, hickory, northern red oak, post oak, southern red oak, white oak, American beech, black cherry, red maple, yellow-poplar and sourwood. These stands have diverse species composition made up of large attractive, mast-producing trees and serve well as wildlife habitats. Some stands of this type are overstocked and may require thinning by removing some competing plants for plant nutrients and sunlight.

Cove Hardwood Forests: Stands of this type occur along stream drainages. They should not be thinned as thinning would result in erosion problems. Such low areas serve well as wildlife habitats and no management practices are necessary for stands of this type.

Bottomland Hardwoods: These stands also serve to prevent erosion along streambeds and on the shoreline of the Lake. These stands are composed of black oak, hickory, white oak, American beech, ash, black cherry, black willow, box elder, catalpa, persimmon, red maple, river birch, silver maple, sweetgum, sycamore, yellow-poplar, sourwood, and black walnut. Bottomland hardwoods are diverse in composition and provide excellent habitat for wildlife. These stands should be left undisturbed.

APPENDIX V
DESIGN GUIDELINES

A. Site Selection

The siting of proposed facilities and use areas at Lake Lanier is based upon the natural resource composite determined in Chapter 5 and established recreation use patterns. A number of site characteristics will limit or influence the location of proposed facilities. These characteristics include user density, topography, soils, visual quality, vegetation and wildlife. Size and configuration of designated recreation areas also influence user density and the type of facility development that will occur.

The site selection process assures that only suitable topography will be used for siting recreation facilities. Major cuts and fills will be minimized, while existing clearings will be used for intense development when feasible. All existing disturbed areas will also be used whenever possible to protect forest ecosystems and enhance visual quality. These siting procedures will maintain fragile land resources and protect the scenic characteristics of the shoreline.

Topographic exposure and microclimatic factors were also considered in siting recreation facilities. All facilities and use areas were sited according to orientation and exposure to sun and wind in order to maintain user comfort, maximize energy conservation, and minimize adverse effects of sun and wind. The following table demonstrates siting attempts in respect to sun, wind and topographic exposure.

Topographic exposure and micro-climatic factors were also considered in siting recreation facilities. All facilities and use areas were sited according to orientation and exposure to sun and wind in order to maintain user comfort, maximize energy conservation, and minimize adverse effects of sun and wind. The following table demonstrates siting attempts in respect to sun, wind and topographic exposure.

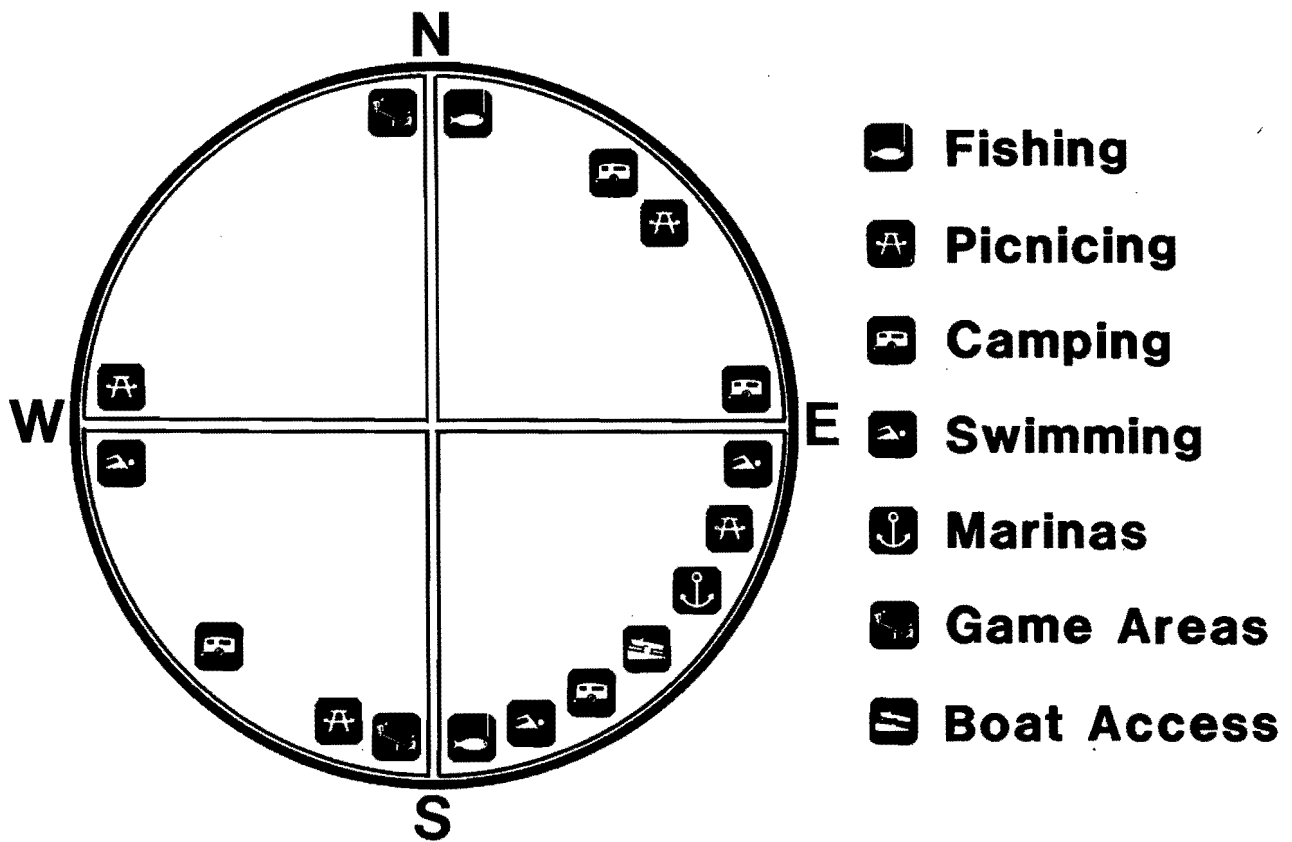
Table V-1 . Siting Procedure

Use Facilities	Siting Intent	Microclimate Condition
Fishing	Provide shade for user, minimize sun reflection on water.	Shaded North and South Shorelines
Picnicing	Provide shade for user, minimize fall and spring winds, maximize summer breezes	Shaded Northeast, East, South, and West exposures.
Camping	Provide shade for user maximize summer breezes, avoid siting in low topographic pockets, avoid spring and fall winds.	Shaded upper and mid range slopes, Locate sites on Northeast, East, South and Southwest topographic exposures.
Swimming	Provide open, sunny areas, avoid northerly exposures, avoid areas susceptible to wave action.	Locate on sunny open, protected bays and coves which are oriented to South, West, and East.
Marina expansion of Docks	Minimize exposure to damaging winds, and wave action.	Locate in coves and small bays which are protected from wind and waves.

TABLE V-1 (Cont'd)

Use Facilities	Siting Intent	Microclimate Condition
Sports Courts/ Field Games	Minimize sunshine in the eyes of participants.	Locate these uses on flat terrain with north-south orientation.
Boat Access (Launch Ramps)	Minimize boat launching difficulty by minimizing wind and wave action.	Locate ramps on shoreline slopes of 7 to 15% and access bays or coves which are protected from wind and waves.

Relationship Of Topographic Aspect To The Location Of Recreation Development



B. Water Systems.

Each recreation area, where warranted by anticipated use, will provide a source of portable water. Existing municipal service will be utilized when feasible by the extension of nearby water service into designated recreation areas. When the use of municipal service is not feasible, wells will be used upon justification of subsurface aquifers by field investigation. Wells will be used only when water service is not within a reasonable distance to a recreational area. Table V-2 summarizes anticipated yields per day for each type of facility. All water supply systems will be designed in accordance with EM 1110-2-400 and state standards for public water supplies.

The siting of water supply lines will be accomplished with minimal disturbance to site features and located to minimize excessive lengths. All wells and treatment facilities shall be sited near roads and parking areas accessible to service vehicles. Wells will also be located away from visitor use areas to minimize disturbance to the system.

All water supply facilities will meet established standards and requirements which comply with U.S. Public Health Service, the State of Georgia and Corps of Engineers.

Table V-2.

DEMAND ON WATER SUPPLY

TYPE OF AREA	GALLONS/DAY/PERSONS with waterborne facilities	GALLONS/DAY/PERSONS without waterborne facilities
	Water Supply	
Tent and Trailer Camp	30	-
Tent only Camp	25	-
Group Camp	10	5
Primitive Camp	5	2
Picnic Area	5	2
Boat Launching Area	5	2
Marina	10	-
Marine Dumping Station	30	-
Dwelling	75	-
Control Station	10	-
Swimming Beach and Bathhouse	10	-
Maintenance Area	50	-
Visitor Center	5	-
Fishing Area	10	2

Waste Collection and Treatment Systems.

Where warranted by anticipated use, waterborne sanitary facilities will be provided at recreation areas with adequate collection and wastewater treatment. For all waterborne restrooms, treatment facilities will consist of septic tanks with sand filters and tile fields. All wastewater treatment systems will be sized according to criteria contained in EM 1110-2-400 and all effluents shall be chlorinated. Recreation areas which do not receive heavy use shall provide pit toilet facilities. Pit toilets should be used in areas having low use (under 50,000 annual recreation days) and in primitive areas. The following collection facilities will be used at Lake Lanier according to type and intensity of use.

1. Waterborne Facilities. These sanitary facilities consist of restrooms, washhouses, and bathhouses. All of these collection facilities will be treated with systems utilizing septic tanks, sand filters, and chlorination. Generally, one septic tank and sand filter will be used per facility, however two minor facilities may be piped into one system. All sewer lines will be gravity type in order to relieve high costs in maintenance of pumping systems. The cost of wastewater treatment facilities will be estimated on a cost per gallon of wastewater treated in each facility.
2. Pit Toilets. These facilities will be utilized in areas which receive an annual visitation of less than 50,000 visitor days. Basically vault toilets will be provided in primitive and low intensive recreation areas where use does not warrant waterborne facilities. These facilities will always be located where they can be serviced by maintenance vehicles.

3. Trailer Dump Station. This facility will be provided at trailer camping areas for collecting wastes from recreational vehicles. The disposal station will provide facilities for waste dumping and treatment will occur in sand filter septic tanks and drain fields.
4. Boat Dumping Stations. All marinas that accomodate houseboats with MSD holding tanks will be required to provide dumping stations. This station will consist of a holding tank with pumps to move wastes to pumping stations on shore.
5. Wastewater Pumping Stations. Wastewater pumping stations will be required to pump effluent from waterborne facilities at lower elevations to treatment facilities at higher elevations.

All waterborne restrooms, vault toilets, and waste treatment facilities will be sited to take advantage of gravity flow systems. Force mains will be required for waterborne and treatment facilities where pumping uphill is needed. Final sizing of force mains will be determined in feature design memoranda according to head loss due to friction along the pipe and pump sizes in pumping stations.

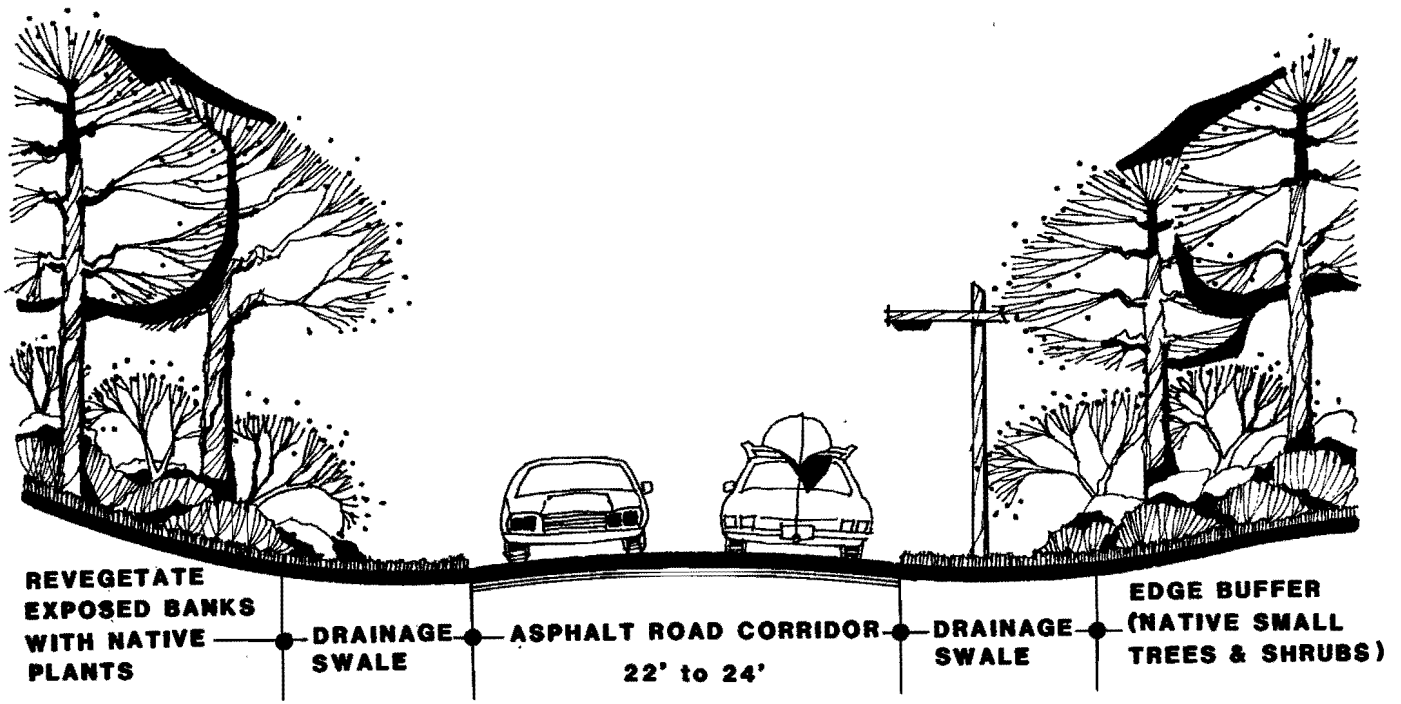
All wastewater collection and treatment facilities shall be sited above 50 year flood elevation 1080 msl. All treatment facilities will be located on suitable land areas with minimal land disturbance preserving the aesthetic quality of the area and allow for safe and efficient operation. Septic systems and drain fields shall be located in areas where ground water will not be effected by filtration. All water wells should be at least

150 feet from septic facilities.

The determination of sewage flow quantities are necessary in estimating the size and costs of septic facilities. These estimates are based upon criteria for determining sewage and water supply flows in EM 1110-2-400. These estimates are based upon standards used to derive anticipated demand for recreational facilities. All septic tank facilities will be sized to peak weekend demand, while sand filters will be sized on average weekly demand.

D. Roads, Parking Areas and Launching Ramps

1. Roads : The proposed road system at Lake Lanier will play a significant role in providing efficient movement and sequential recreational experiences for the visiting public. All access and circulation roads will be asphalt, with appropriate base coarse depth compatible with local soils and projected traffic loads. Whenever possible, suitable borrow material fill should be used to build the roadbed slightly above the natural ground level. This will preserve existing vegetation and allow for greater control of vehicular traffic in designated areas. Drainage swales needed on the road edge for runoff will be graded to natural appearing contours and vegetated with grasses. Curbs will be used only in heavy traffic areas where congestion is a problem.



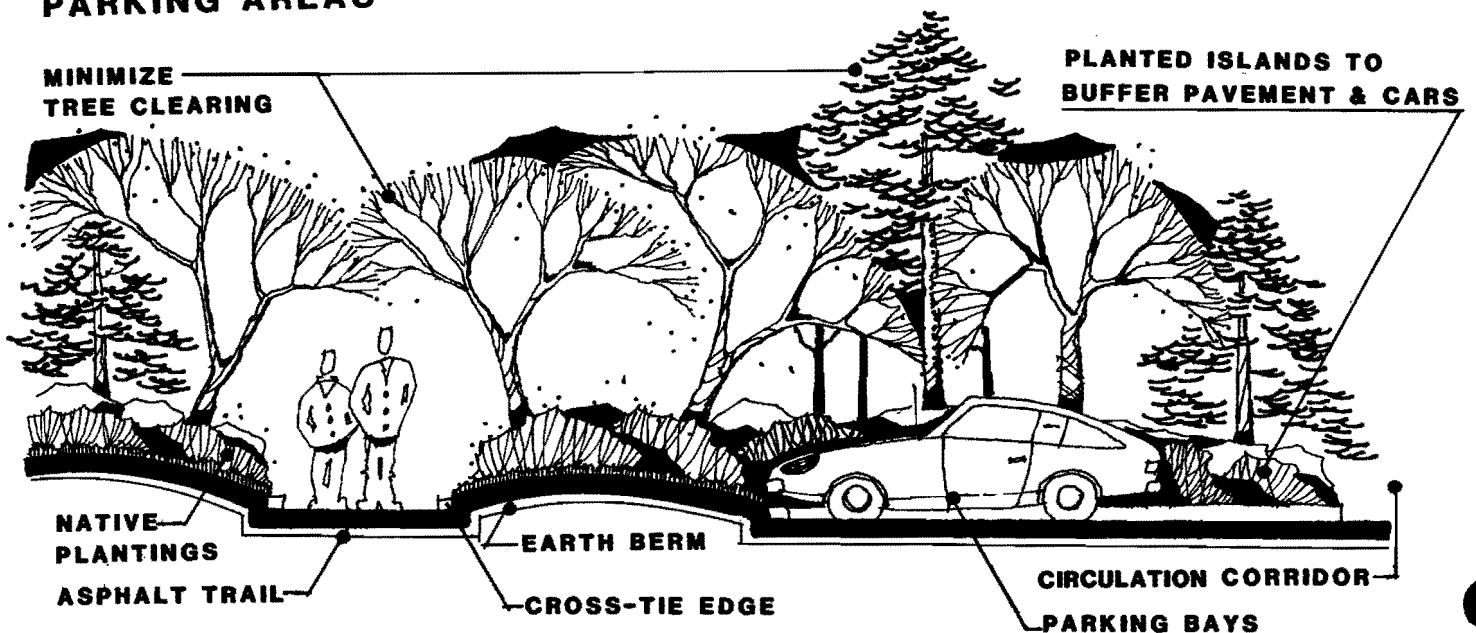
ROAD PROFILES

2. Parking Areas: Parking will be an integral part of the circulation system at Lake Lanier. All parking lots will be divided by natural vegetation and new landscape plantings buffers, creating visual screens between bays. The impacts of large expanses of pavement will be minimized in the layout of parking lots. Pedestrian distances from the parking area to an activity area have been placed within 150 to 200 feet, however intense screening of native vegetation should be used to visually separate parking from proposed uses. Clearing for construction of parking lots will be done with care in an attempt to preserve as much of the natural buffer as possible. Where clearing is

necessary, the following measures should be considered:

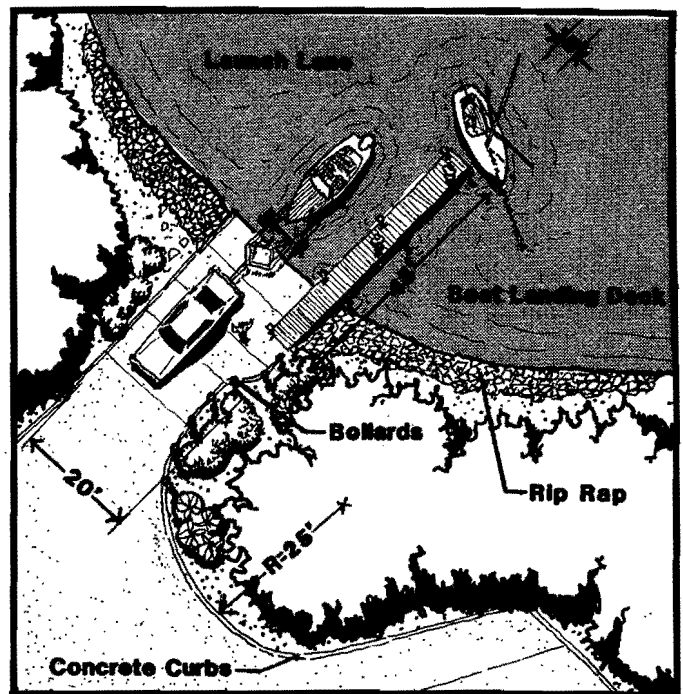
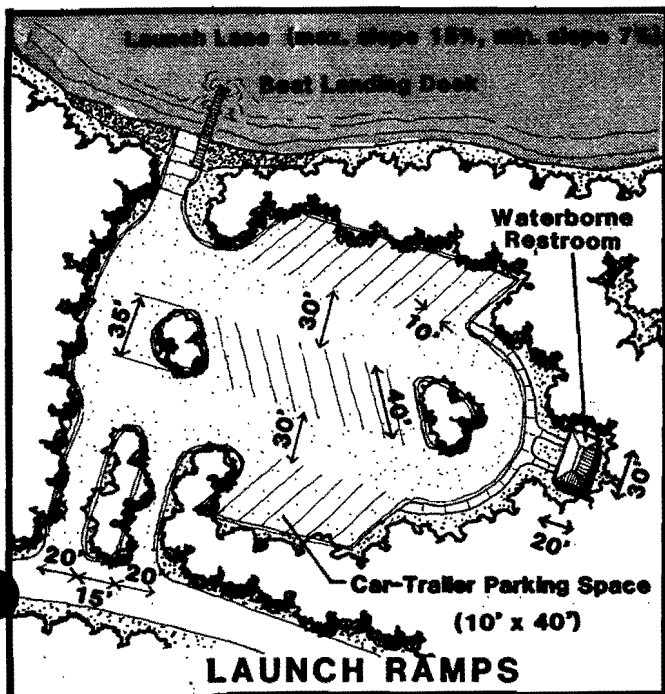
- a. All healthy plant life adjacent the work limit shall be maintained in the construction of parking structures.
- b. Paved surfaces will not encroach more than $\frac{1}{4}$ of the projected canopy area of any tree without subsurface modification.
- c. Parking areas will be sited in curvilinear fashion to limit views across long expanses of pavement.
- d. Screenings will be used to separate parking from use areas.
- e. All disturbed areas around the parking structures should be replanted with native vegetation in order to preserve a visual continuity in the design of the area.
- f. Pavement surfaces will be placed among existing trees minimizing root damage during construction.

PARKING AREAS



3. Launching Ramps: A central launching dock should be provided at each ramp to protect the public from injuries sustained from launching the boats. Docks should be long enough to provide for both landing and launching. Back-up space and launching lanes shall be large enough for maneuvering the trailer and concrete curbs or bollards will be used when protection of road edges are needed. All launching ramps should be separated from all other recreation activities in order to minimize circulation conflicts and provide safe movement of vehicles and pedestrians.

All boat lanes shall be at least 12 ft. wide and where multiple lanes occur, they should be divided by launching docks. A 6" curb will always be placed along the outer edge of each launch ramp. Boat launch lanes should extend to 1060 ft. m.s.l. at a grade of 12 to 15 percent whenever possible. Launch ramps which have edges exposed to wind and boat generated wave action shall be stabilized with rip rap to prevent shoreline erosion.



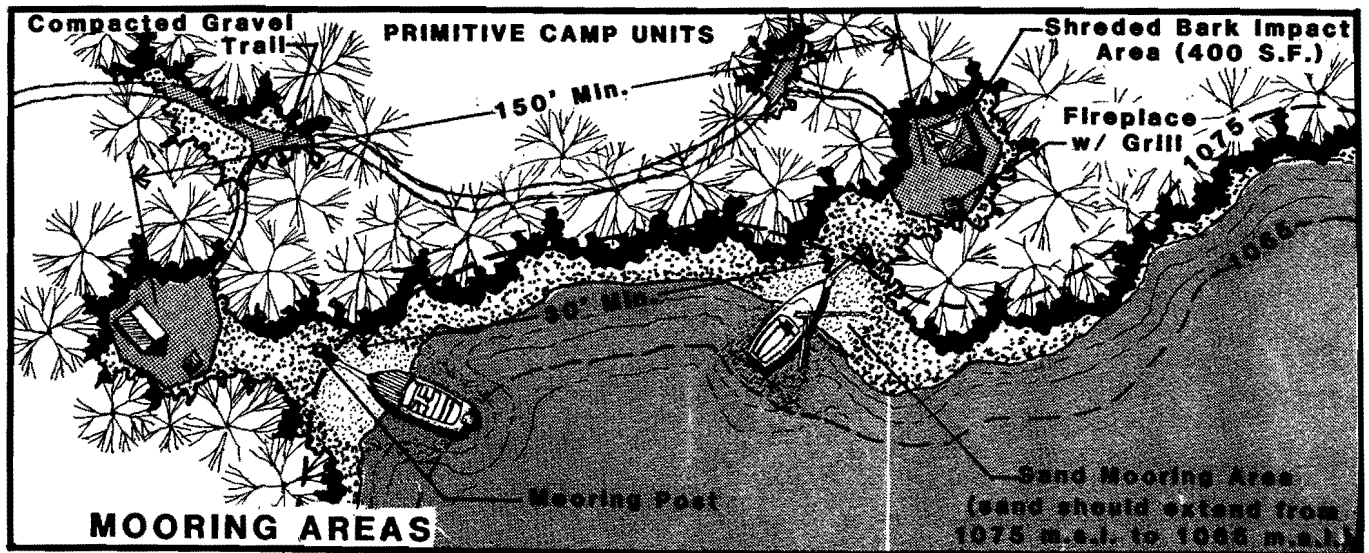
E. Mooring Facilities.

1. Docks: The construction, maintenance and operation of all proposed docks should be in strict accordance with Corps of Engineers policies and regulations. All boat docking facilities shall be treated wood, metal or combination of both with flotation by styrofoam or equal floating device. The location of docks shall be in coves or protected channels which will not be exposed by wind or boat generated waves. The following docks will be associated with the design and layout of proposed recreation areas.

a. Courtesy Docks: A minimum of one courtesy dock will be provided at each anticipated heavy use recreation area. Each courtesy dock will accommodate a minimum of four boats at one time and the design of these docks will be determined in Feature Design Memoranda. All proposed dock basin areas will have adequate depth of at least 4 ft. between the propellor and the bottom of the lake at all times to minimize turbidity. All docks should be functional from 1060 to 1078 ft. m.s.l.

b. Fishing Docks: These docks will be provided in areas designated for bank fishing. Fishing docks will be designed the same as courtesy docks with the addition of railings for safety and will allow access for the handicapped. All fishing docks will be designed to accommodate pool fluctuations from 1060 to 1078 m.s.l.

2. Mooring Areas (Tie-up type): Mooring areas with tie-up posts will be provided at primitive areas and at designated camping sites. Each mooring area will be visually connected to proposed camping on picnicking sites for security. Mooring posts will be wood bollards anchored in concrete footings for accommodating large houseboats. Mooring posts should be located in areas protected from winds and waves and shall have shallow waters with sand filled bottoms for protection in grounding the bow at the boat.



F. Picnic Facilities.

Picnic sites will be located with respect to vegetation quality, orientation of views, topographic features and site fragility. All picnic units will conform to natural vegetation patterns and slope orientation. All proposed units will be separated by natural and planted vegetative buffers in order to maintain a sense of privacy and increase user comfort. Spacing between units will vary depending on vegetative density and topographic relief.

The impact area for each unit will consist of porous paving material such as crushed stone or river gravel. Porous impact areas will permit surface runoff to penetrate the ground and will allow for revegetated edges to take on a natural appearance. Cross-tie edging may have to be used to contain impact material on moderately steep terrain.

Table and bench combinations, generally 6 to 8 feet in length, will be of masonry wood or metal, or a combination of these materials. Each picnic unit shall provide one fireplace or adjustable grill. Trash receptacles will be placed at every three picnicking units and one water spigot shall be used for every 10 sites. Water service should be from wells or municipal sources and should have the capacity for 10 gallons per user day where waterborne toilets are part of the development. Two gallons per user day will be required where waterborne toilets are not part of the development.

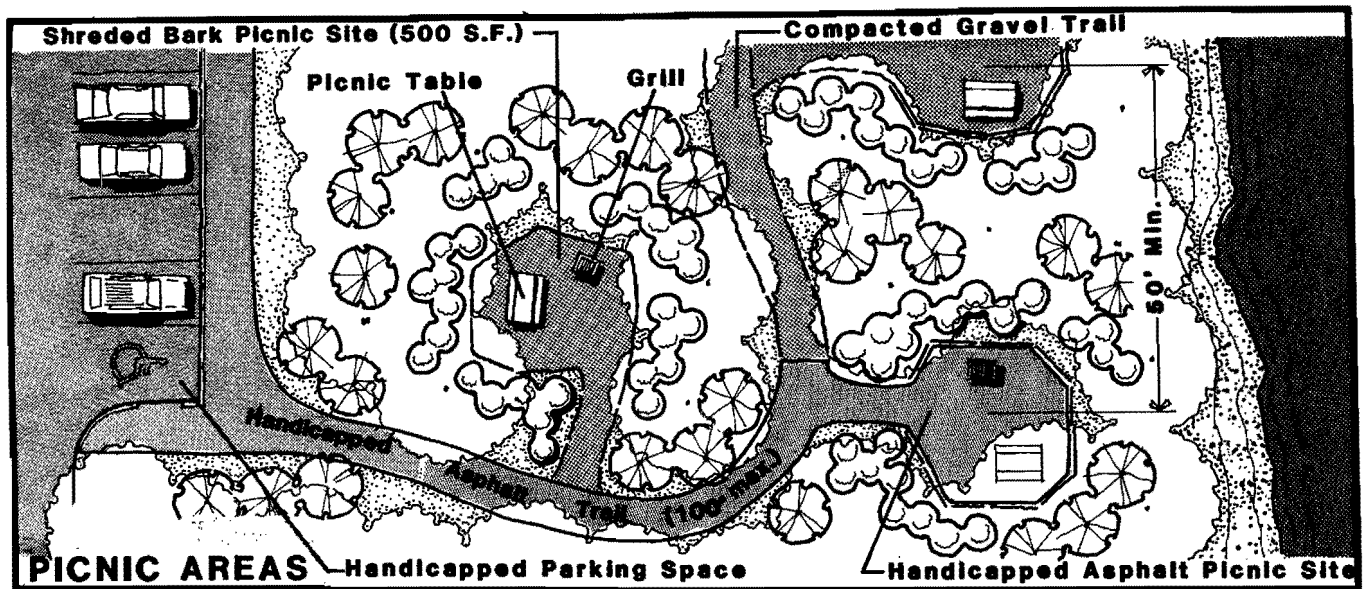
Picnic sites will be provided along main trail systems to minimize the impact of this activity on site resources. Asphalt trails will be provided as main access corridors to handicap picnic units. At least one unit shall be designated for handicap persons at each picnic area. These sites shall be located near washhouses or restrooms. One car parking space will be provided for each picnic unit as a separate cost item.

In high use picnic areas one comfort station shall be provided for each 25 picnic units. Comfort stations shall be located with a minimum of 100 feet and a maximum of 600 feet from the picnic units they serve. In areas which do not justify the use of waterborne toilets, vault toilets will be used and sited according to the preceding criteria.

Picnic shelters will also be provided at a rate of one shelter for each 35 individual picnic units and where demand will warrant this facility.

F. (Cont'd)

Most shelters will be designed to accommodate 8 or 12 tables depending on the area in which it is located. The costs of picnic shelters defined in this study is for a moderate size structure with 8 tables, 4 grills, and 4 trash receptacles and a concrete floor.



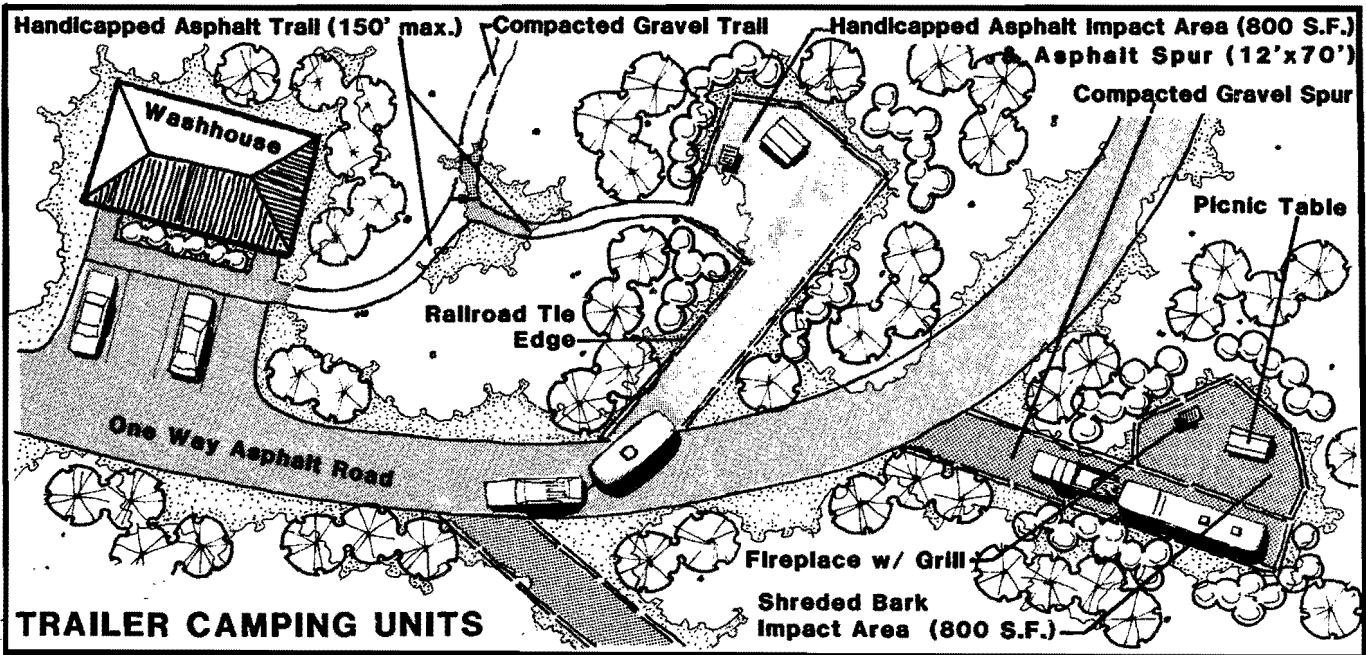
G. Camping Units.

Areas at Lake Lanier will be developed to accommodate three types of campers: tent, trailer and primitive. Both tent and trailer camping will be oriented towards automobile circulation, while primitive camping will only be accessible by hiking. Research has shown that tent campers prefer to be separated from trailer and RV campers and tent campsites are easier to adapt on steeper terrain.

a. Trailer Camping Units.

Each camp site will provide a table and fireplace with grill. Water will be provided with one multiple spigot for every five camps. One wastewater drain and one trash receptacle will be situated for convenient use by 3 campsites. A sanitary waste-dumping station will be located at each camp area and will be

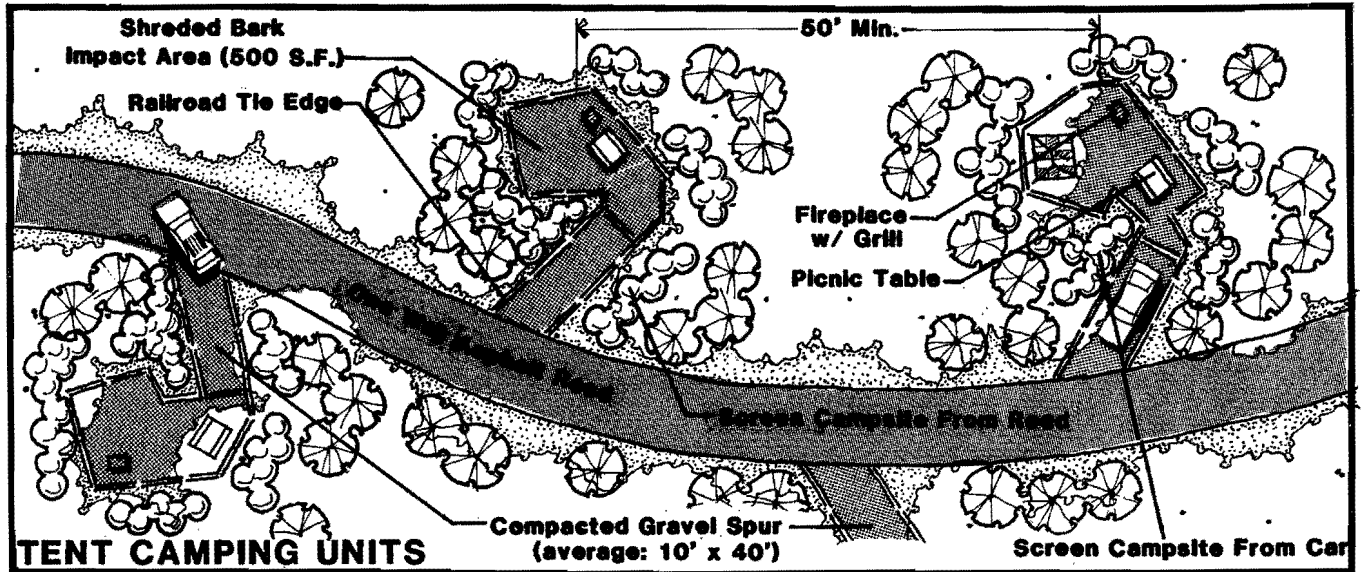
equipped with a water-flushing device to conform to public health laws. The trailer disposal station and sophisticated washhouses eliminate the need for sewage hookups. Water and electrical hookups will be provided when feasible. Distance between units will vary depending on vegetation and terrain although 75 ft. will be a minimal distance of separation.



- b. Tent Camp Units: Tent camping units will provide facilities similar to trailer units with the exception of electrical and water hookups. The spurs of each campsite will be shortened from 70 ft. to 40 ft. in an attempt to screen the car from the impact area. Native plant material will be used to separate units and provide privacy. Water will be provided by spigots at a rate of one for each 8 campsites centrally located between sites.

G.

(Cont'd)



- c. Primitive Camp Units: Access to primitive camping units will be provided by trails and boat access. One mooring post or one car space will be provided for each unit. Each site, separated a minimum of 150 ft., will include a fireplace with adjustable grill and a designated impact area. Trash receptacles will be distributed in convenient locations at one receptacle per two sites. One vault toilet will be provided in convenient locations, and a multiple - spigot water source will be used by eight sites.

H. Swimming Beaches.

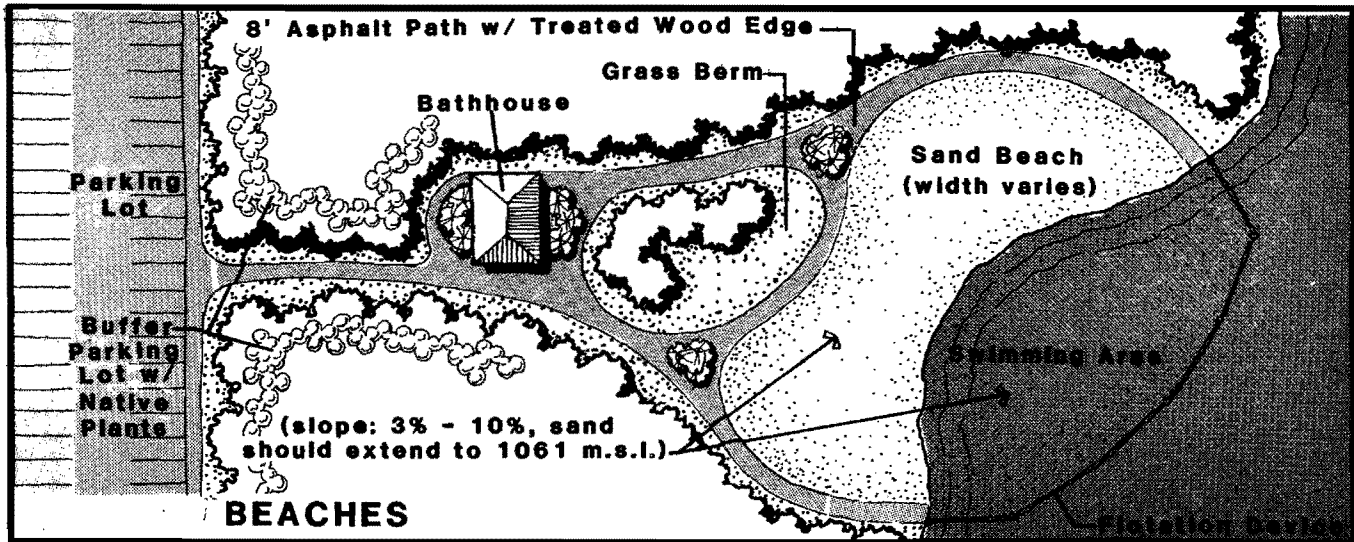
All swimming beaches will be sited to take advantage of shoreline slope, sun and wind orientation, and relationships to other activities for safety and convenience. Slopes will be uniform, ranging from 3 to 10 percent. Once a uniform gradient has been established for the subgrade, a 1-ft. lift of sand will be provided as the designated beach floor.

The beach area will generally be confined by a pedestrian trail on the landward edge, and a water related edge of 3:1 slope in the water. The

H.

(Cont'd)

swimming area should be confined by some type of flotation device such as log booms for safety and separation of use. All beaches will be designed to extend 6' below normal pool elevation or to 1064' m.s.l. Beaches and sun bathing areas will be separated from parking areas with native vegetation buffer strips.



I. Buildings.

The design of all future buildings shall consider: economy of operation, ease of maintenance, functional criteria, visual appearance, and climatic provisions. Every building will promote an ease of operation for each staff member working in it to reduce personnel costs. Facilities shall be designed for minimal maintenance and expenditures related to repair. All buildings should use materials which are vandalproof. Functional considerations must be considered to increase the usability of the structure for both recreation-
alist and staff members. Each building shall be clearly defined in its function graphically and architecturally, and take on an appearance which is compatible with the site. Natural materials should be used to reflect the environment which is characteristic of Lake Lanier. Future construction materials should be wood and textured concrete. The same architectural style should also be used throughout the project to provide visual continuity and

design unity. The buildings at Lake Lanier should be designed to maximize energy conservation through response to sun and wind. Winter solar gain shall be maximized in the design of buildings while summer sun shall be minimized on the structure. Natural ventilation and breeze corridors shall be promoted in the design of the site and building for increasing human comfort during summer months.

The following paragraphs describe all major structures that have been proposed in the master plan. The costs of all structures in the master plan include architectural components, site preparation, and utilities within 5 ft. of the building.

- a. Washhouses: Washhouses are to be designed for camping areas at a rate of one per 50 units and a maximum of 100 units in addition to comfort stations. Each washhouse shall contain a women's area, a men's area, utility area, and laundry area. The women's area shall contain a minimum of 4 showers, 4 lavatories, and 4 water closets while the men's area will contain 4 showers, 4 lavatories, 3 water closets and one urinal. The utility area shall provide electrical panels, water storage, and supply storage. These buildings will not be heated or air-conditioned. These buildings shall have exterior lights, water fountains, walks, and trash receptacles. The laundry area shall contain 2 laundry tubs and a built-in table.
- b. Bathhouses: Bathhouses will be the largest sanitary structure for the master plan. These buildings are located in association with major swimming beaches. Each bathhouse shall contain a women's area, men's area, utility room, storage, and a

basket check area. Fixtures for each area will be based upon the visitation use at each beach area.

- c. Comfort Stations: Comfort stations shall be located in both camping and day use areas. Each use area requires separate program criteria for design of the comfort station as described below.
1. Camping Areas: One comfort station is needed for each 50 camping units. The men's area shall contain 3 toilets, 1 urinal, and 4 lavatories. The women's area shall contain 4 lavatories and 4 water closets.
 2. Day-Use Areas: One comfort station is needed for each 2,500 daily visitors. The men's area shall contain 2 water closets, 2 urinals and 2 lavatories. The women's area shall provide 4 toilets and 2 lavatories. This facility should be located a minimum of 150 ft. from the nearest picnic site.
- d. Pit Toilets: Pit toilets shall be provided in both camping and day-use areas. Provide two single units (one seat each sex) for each 10 to 15 units of camping units. Provide one double unit for each 1,500 normal daily visitors in day-use areas that do not exceed 50,000 total annual visitor days.
- e. Water and Sewage Demand for Sanitary Structures: The water and sewage load requirements of sanitary buildings will be determined from daily visitor use rates on each site. Eighty percent of the water demand for these structures will be required for sewage flow and disposal. These values will be used in

I. (cont'd)

determining required fixtures and the capacity of water and sewage systems.

- f. Control Booths (Gatehouses) : Gatehouses shall be provided at the entrance to designated camping areas or day-use areas that require a user fee. Gatehouses are sited to the attendant's convenience is collecting fees and observing visitors that enter a site. Booths shall be lighted, have a telephone and provide good protection from the elements. Control booths with restroom facilities shall have a floor area of 6 ft. x 12 ft.
- g. Picnic Shelters : Picnic shelters shall be open structures with one major fireplace and a concrete slab floor. These buildings shall be designed with architectural styles which enhance the site. Each Building shall accommodate a minimum of 8 picnic tables and a secondary impact area shall be provided with tables and grill for overflow use.
- h. Visitor Center/Resource Manager Office: The Visitor Center/Resource Manager Office Building integrated use structure is currently being designed as a separate A/E contract.

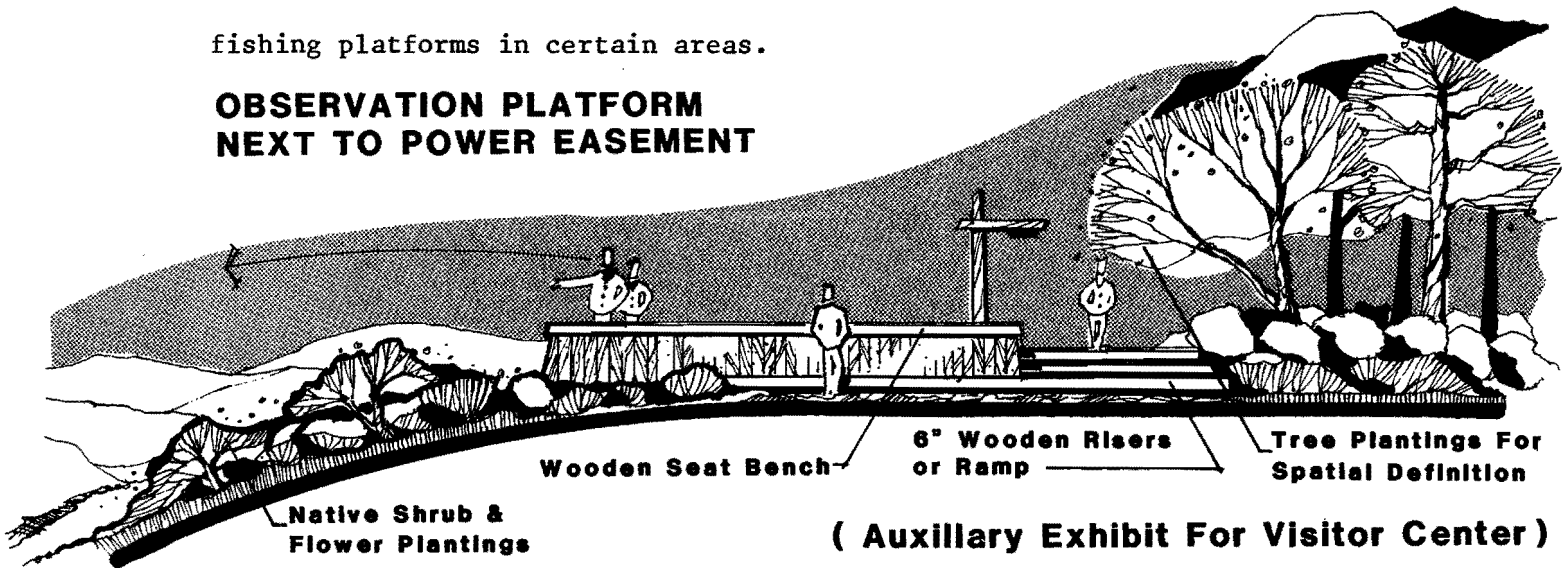
J. Overlook Structures:

Boardwalks and overlook decks will be provided for observation in wildlife areas and for interpretive purposes near the dam and powerhouse area.

All boardwalks to be located in wildlife and nature areas will consist of a 6 ft.

wide wood decking surface with wooden railings and set on heavy piers. All observation structures should be sited with the top of the deck above flood elevation 1080 ft. m.s.l. These structures may also be used as fishing platforms in certain areas.

OBSERVATION PLATFORM NEXT TO POWER EASEMENT



(Auxillary Exhibit For Visitor Center)

K. Playground Facilities:

Playgrounds will be provided in each major recreation area. They will be a minimum of 1 acre in each area and should be located on relatively flat land near major trails. These areas will consist of play structures which promote behavioral, educational, psychological, and physical opportunities for children. Playgrounds will accommodate facilities for running, jumping, climbing, swinging, sliding, and exploration in order to sustain interest in play. Impact surface materials will be placed around playground areas and will include sand, bark chips, and pea gravel or any combination of these.

L. Bridges:

Two types of bridges will be used in the master plan, a long-span pedestrian bridge at the tailrace area of the dam and a short-span bridge used at various recreational areas. A long span pedestrian bridge at the

L. (cont'd)

tailrace area will be used to cross the Chattahoochee River on the lower side of the dam. Diamond truss or cable suspension systems are very effective for long spans as well as visually desirable. Short span bridges will be used for crossing small streams on the recreation areas. These bridges should be constructed similar to boardwalks with pressure-treated wood members using bolts or bracing for attaching framing members. This structure should be simple in detail and provide railings for safety.

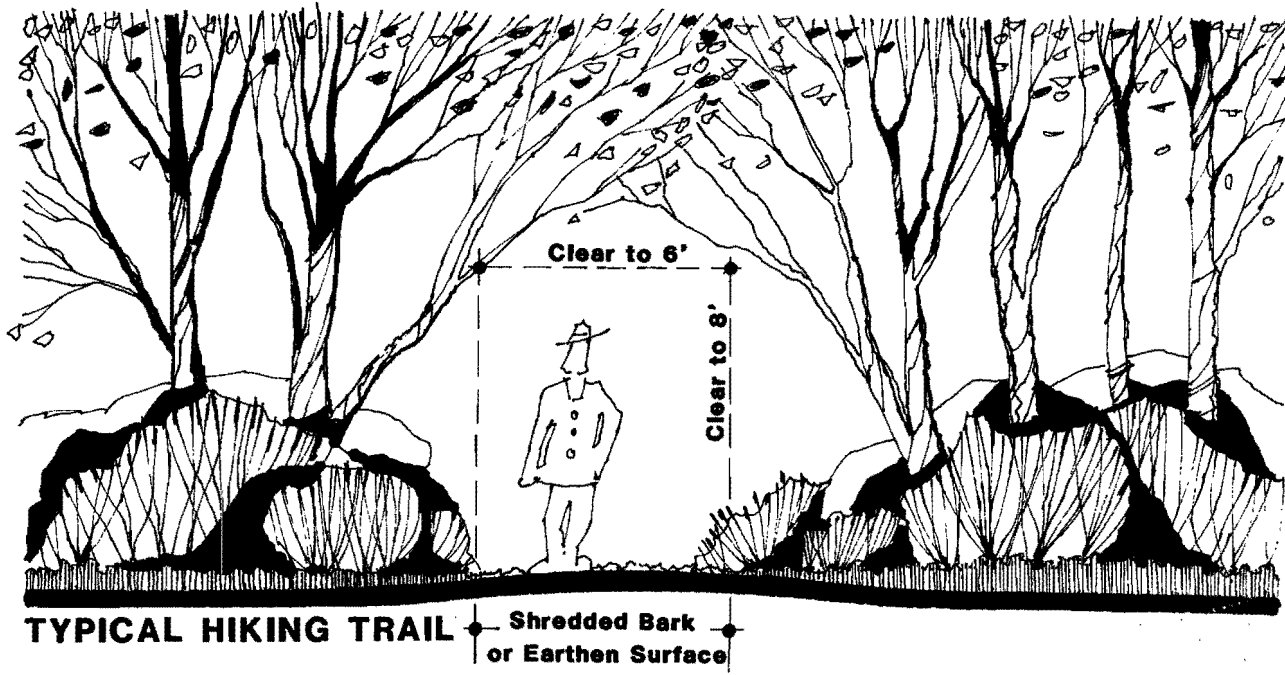
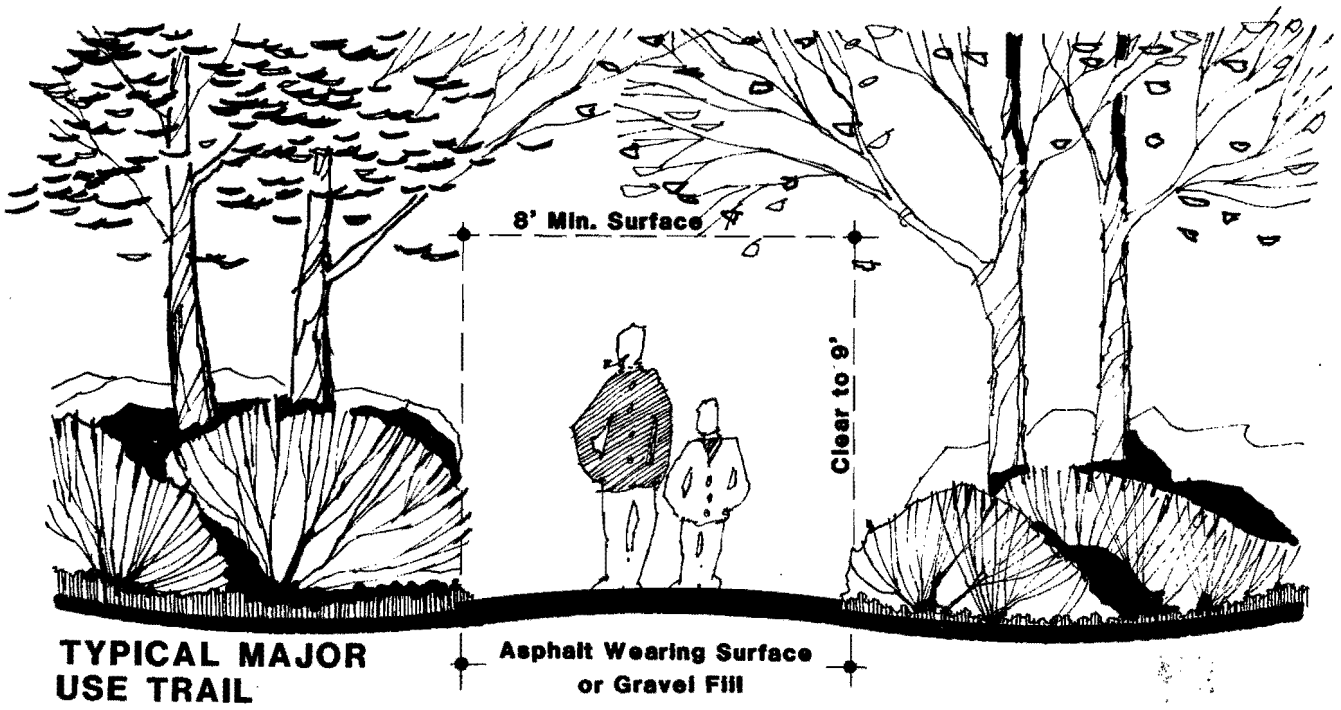
M. Trails

Trails should be paved with asphalt where heavy visitation is expected to impact on the land. All handicap access trails should be paved with asphalt. Widths should be 6 to 8 ft. and edges should be rolled and thickened allowing vegetation to soften the impact of line created by a path. All paved paths should be layed out in response to the terrain with a maximum slope of 8.3 perant. Major cuts and fills will be avoided in the layout of paths.

Secondary trails which will not receive a heavy amount of traffic should be constructed out of compacted gravel or crushed stone. Widths should be a minimum of 4 ft. and should vary to provide a natural edge. Vegetation should be allowed to re-establish on trail edges but not contribute a hazard to the hiker. Typical guidelines for trail clearing are shown below:

The construction of a trail system which would connect major recreational areas is not feasible due to constraints in topography and private property.

Canoe trails have been designated in the Upper Chestatee and Chattahoochee Rivers and are illustrated on Map 9-2 . These waters should be designated canoeing trails made accessible to public use. Literature should be made available describing designated canoe launching areas and distances between each landing.



N. Site Improvements, Grading and Planting:

Site improvements and preparation for various buildings, camping areas, and day use areas will vary according to individual site characteristics such as soils, slope, existing vegetation, and surrounding uses. During site preparation phases, the guiding concept will be the retention of as much natural vegetation as possible. All grading will be done with

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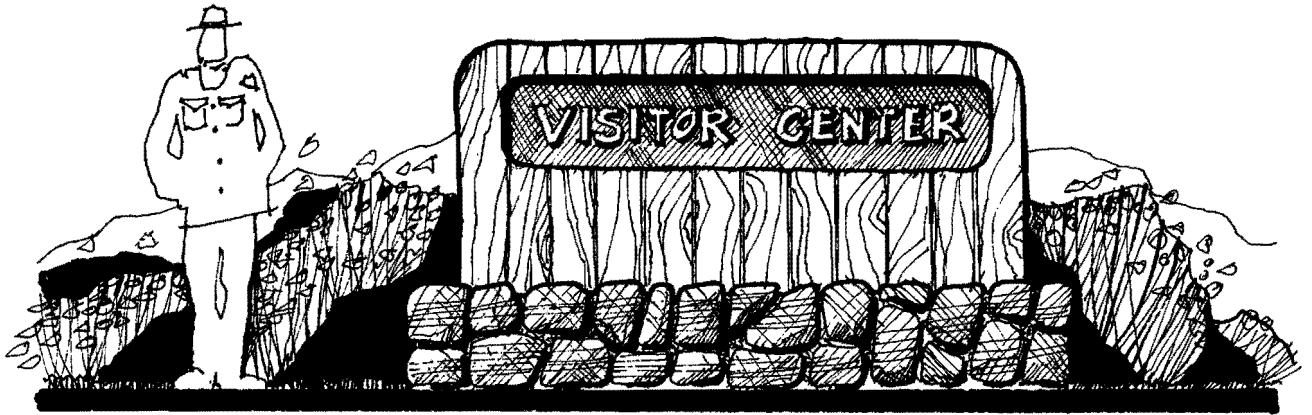
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established erosion control measures in an attempt to conserve soil runoff and preserve vegetation character. Natural vegetative patterns should be reconstructed when site disturbance is unavoidable in grading for facilities. Landscape plantings, throughout the project, will be used to screen, buffer, blend, and enhance constructed facilities into the natural surroundings of the site. Native trees and shrubs for landscape plantings will be used with the intent of creating indigenous, maintenance free and functional use areas. Both deciduous and evergreen plantings should be used to create seasonal color, form, and texture. Denuded road cuts and fills with steep banks require hydro-mulching and seeding of herbaceous cover and grasses. After establishment of a herbaceous cover, tree seedlings can be planted to blend road graded areas into woodlands. Mass plantings of trees and shrubs will be needed to screen and separate use areas. Existing and proposed entrance areas should also enhance with a variety of landscape plantings for greater definition.

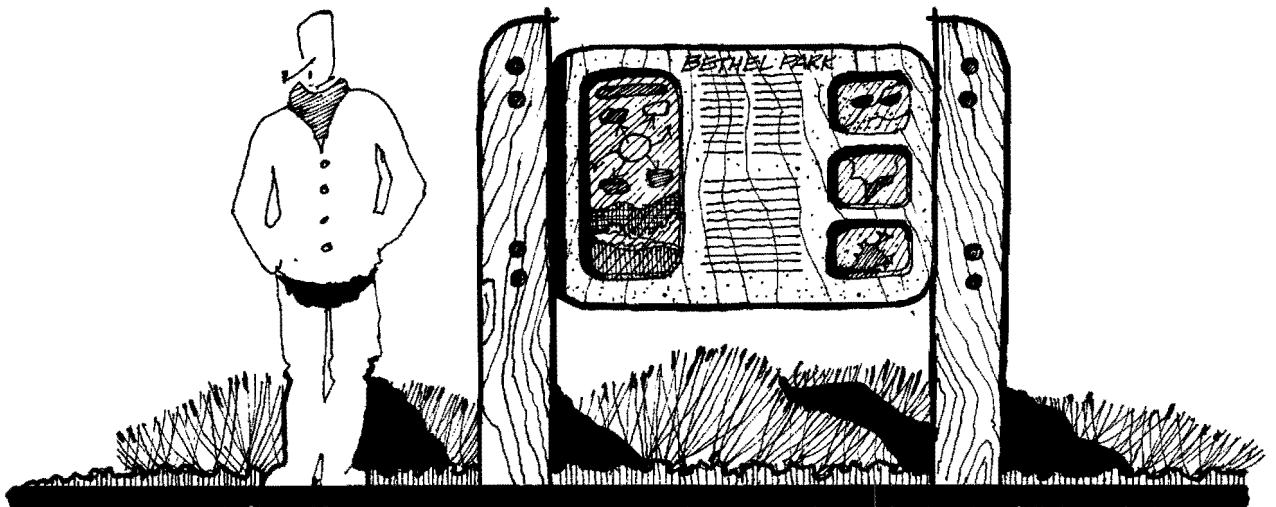
0. Signs.

The signage system around the project and in designated recreation areas will serve to direct and inform visitors in clear and concise manner with a minimal amount of units. The Corps of Engineers has implemented a nationwide sign program as an appendix to the graphics and standards manual to improve the consistency of project signs. The replacement or modification of all signs will be accomplished to conform with the new sign standards.





PARK ENTRANCE SIGN



PARK INFORMATION SIGN



P. Interpretation Devices.

The exhibit will consist of graphics panels, photographs, illustrations and real life "found" objects. "Found" objects are to be actual elements such as a genuine water wheel or generator that are produced locally if possible and that reflect the character of the area. Graphics will be used to describe found objects and other elements of the exhibit.

Contributing to the exhibit theme will be several sections dealing with specific aspects of the project. They are:

1. The Lake - Past and Present.

Exhibit elements that describe the geological and cultural history of the lake region and how the CoE has been involved in the recent past and in the present.

2. The Lake - A Recreation Resource

Information bearing upon the recreational aspects created by the lake. Types of recreation described are to be both water and land related from swimming to hiking. Recreational opportunities in the area surrounding the lake are to be described in exhibit form or in the form of handouts.

3. The Lake - An Energy Source.

The exhibit is to describe and illustrate the lake as a reservoir used for electrical power generation. It is to show how the dam and powerhouse harness hydro power and turn it into electricity.

4. The Lake - Its Inhabitants and Environment.

Displays that describe the physical nature of the lake contents and how it serves as a part of an ecological chain. A display is included regarding the sun's interaction with the lake.

5. The Lake - Its Namesake.

A display describing Sidney Lanier and the reasons he was chosen as the project Namesake.

Associated with the interpretive devices in the visitor center complex will be auxillary exhibits and features which will help tp unify the area as a total visitor experience. Auxillary exhibits will include an overlook pavilion atop the dam, a powerhouse tour and exhibit area, walkway from dam to visitor center, flora and fauna trails, overlook structure at power easement, and bridge across tailrace area to lower plateau. Each designated exhibit area will consist of appropriate graphics, signing, seating and building materials which relate to the visitor center complex and present a cohesive, unified program to the public.

Q. Navigational Devices.

Small boat navigational devices at Lake Lanier shall be used to warn,

Q.

(Cont'd)

direct and control boat traffic. Buoys will be used to control boat traffic around boat ramps and marinas. Lighting should also be provided at access points and mooring areas to guide evening fishermen and other boaters back to shore. As a safety measure for boaters, storm warning flags and lights should be provided at all major boat access areas to warn boaters of approaching dangerous winds, and storms. Also, boating rules and regulations should be posted at all launching ramps and marinas to increase boater safety and awareness. Navigational maps should also be provided at these areas, warning boaters of potential dangers such as bridges, shallow waters, overhead power lines, and other obstructions.

R. Visitor Safety Controls.

The following safety devices shall be used to protect the public from possible dangers.

- a. Protective/Boundary Fencing: In areas where dangerous situations exist, such as along the interpretive walkways near the dam and powerhouse, protective fencing shall be provided for user safety. In natural areas, around the project boundary fencing may be used to define and separate federal property from private property.
- b. Barricades: In order to prevent vehicular traffic from entering potentially dangerous areas or to prevent traffic from entering into special management or operational areas, barricades will be used at entrance roads.
- c. Special Features for Handicapped: Building entrance ramps will be provided for wheelchair access. These ramps will consist of non-slip surfaces and provide direct and safe

access into buildings. Each restroom, washhouse and bathhouse facility shall provide at least one toilet for use by the handicapped. These facilities will provide handrails and one lavatory which can be used from a wheelchair. At least one handicap parking space will be provided in parking lots which service recreation facilities. These spaces shall be convenient for the handicapped and a drop curb, if necessary, will be provided at all walkways and trails. Special markings, and symbols shall be used to define and identify special features for the handicapped. The following design criteria shall be applied for handicap facilities.

- (1) Interpretive trails designed with appropriate slope, surfacing, and related design features to allow easy access and use for all visitors.
- (2) Dock facilities that allow wheelchair access.
- (3) Special parking spaces to accommodate wheelchair unloading and that allow safe and convenient access to related facility areas.
- (4) Play equipment, picnic tables, and interpretive media that allow use by the handicapped.
- (5) Swimming areas to allow wheelchair access.
- (6) Campsites that area designated for handicap use.

S. Facilities for the Elderly:

The majority of all recreational facilities at designated areas will be suitable for the elderly. Items provided in this master plan will be of

special interest to the elderly. These facilities include shoreline trails, and paths, fishing docks, and interpretive features. The interpretive trails, ramps, handicap facilities will be negotiable by those elderly persons with physical limitations.

T. Telephone and Electric Facilities.

To the extent that is feasible, all electric and telephone service lines to public use areas should be placed underground. All utility lines shall be placed in conjunction with road clearings and right-of-ways so as to minimize site disturbance and installation costs. All buildings, sewage lift stations, boat ramps, most parking areas, gasoline pump areas, and 50% trailer camping units will be furnished with electric power. Telephone service should be provided in major day use and overnight areas. At least one telephone should be accessible in each area.

Lighting will be provided at all buildings, tent and trailer camping areas, parking areas, launch ramps, and roadways for safety, security, and convenience. Low level lighting shall be provided around overnight camping areas accessible by automobile and next to control stations and sanitary buildings. Security lights will be added at administrative and operational structures to prevent vandalism and provide lighting for emergency work. All launch ramps and access points require lighting for night identification and night-time launchings. The cost of electric service to proposed recreation facilities includes transformers, junction boxes and installation in the cost estimate for this master plan update. At least 50 percent of all traffic camping areas will be furnished with electric service.

U. Solid Waste Collection.

Refuse disposed in all designated recreation areas will be picked up

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regularly on a contract basis. Cooperative agreements for disposal of refuse will be entered into with surrounding communities, municipalities or counties.

APPENDIX VI

A. Federal Agencies:

Regional Office, U. S. Forest Service, Dept. of Agriculture, 1720 Peachtree Rd., Suite 720	Atlanta, GA 30309
Regional Federal Hwy Administrator, Bureau of Public Roads, Dept. of Transportation, Fed. Hwy Admin. 1720 Peachtree Rd., Suite 200	Atlanta, GA 30309
Engrg & Watershed Planning Unit, Soil Conservation Service, PO Box 11222	Ft. Worth, TX 76100
Field Representative, Southeast Region, U.S. Dept. of the Interior, 404 Financial Service Bldg, 148 Cain St, NE	Atlanta, GA 30303
Regional Coordinator, Environmental Protection Agency, 1421 Peachtree Street, NE, Suite 300	Atlanta, GA 30303
Director, Southern Region, Federal Aviation Administration, P. O. Box 20636	Atlanta, GA 30303
State Clearinghouse, Intergovernmental Relations Div., Office of Planning & Budget, 270 Washington St., SW	Atlanta, GA 30334

B. State of Georgia Agencies:

Regional Director, Bureau of Sport Fisheries & Wildlife, Room 30A, Peachtree-Seventh Bldg.	Atlanta, GA 30323
Department of State Parks, 7 Hunter Street Bldg.	Atlanta, GA 30334
Public Service Commission, State Capitol	Atlanta, GA 30334
State Planning Engineer, Bureau of State Planning and Community Affairs, 270 Washington St., SW	Atlanta, GA 30334
Department of Natural Resources, Trinity-Washington Bldg., 270 Washington Street, SW	Atlanta, GA 30334
State Archaeologist, Dept. of Anthropology, West Georgia College	Carrollton, GA 30117
Office of Legislative Counsel, State Capitol, Room 316	Atlanta, GA 30334
Executive Secretary, Georgia Historical Commission 116 Mitchell Street, SW	Atlanta, GA 30303
Game and Fish Division, Dept. of Natural Resources, 270 Washington Street, SW	Atlanta, GA 30334

State Soil & Water Conservation Committee, 318 Extension Annex Bldg.	Athens, GA 30601
Institute of Natural Resources, University of Georgia 203 Forestry Building	Athens, GA 30601
Dept. of Agriculture, Agriculture Bldg, Capitol Square	Atlanta, GA 30334
Georgia Recreation Commission, 270 Washington St, SW, Room 703	Atlanta, GA 30334
Atlanta Region Metropolitan Planning Comm., 900 Glenn Building	Atlanta, GA 30601
State Conservationist, Soil Conservation Service, P.O. Box 832	Athens, GA 30601
Georgia Mountain Planning & Development Commission, 419 Bradford, NW	Gainesville, GA 30501
<u>C. Local Agencies:</u>	
Director, Hall County Parks Dept., Courthouse Annex	Gainesville, GA 30501
Superintendent, Gainesville Recreation Dept., 830 Green Street, NE	Gainesville, GA 30501
Gainesville, Hall County Planning and Zoning Commission, Courthouse Annex	Gainesville, GA 30501
County Commissioner, County Courthouse	Dahlonega, GA 30533
Sheriff, Lumpkin County	Dahlonega, GA 30533
Mayor, City of Dahlonega, Maple Street	Dahlonega, GA 30533
County Commissioner, Dawson County Courthouse	Dawsonville, GA 30534
Sheriff, Dawson County, PO Box 113	Dawsonville, GA 30534
Mayor, City of Dawsonville Route #3	Dawsonville, GA 30534
Mr. Ed England, Sheriff, Hall County, Hall County Courthouse	Gainesville, GA 30501
Mr. James A. Harlety, Mayor, City of Gainesville, City Hall	Gainesville, GA 30501

Mr. G.A. Singleton, Chief of Police, City of Gainesville, City Hall	Gainesville, GA 30501
Mr. Fred Myers, Mayor of Flowery Branch, Mulberry Street	Flowery Branch, GA 30542
Mr. H.D. Miller, Mayor, City of Lula, McLeod Street	Lula, GA 30554
Mr. Clabus, Cooper, Mayor, City of Oakwood, Main St.	Oakwood, GA 30566
Mr. John H. Mattox, District Conservationist, Soil Conservation Service, PO Box 569	Gainesville, GA 30501
Mayor, City of Alpharetta	Alpharetta, GA 30201
Mayor, City of Atlanta	Atlanta, GA 30334
Mayor, City of Austell	Austell, GA 30001
Mayor, City of Ball Ground	Ball Ground, GA 30107
Mayor, City of College Park	College Park, GA 30337
Mayor, City of East Point	East Point, GA 30344
Mayor, City of Fairburn	Fairburn, GA 30213
Mayor, City of Hapeville	Hapeville, GA 30354
Mayor, City of Roswell	Roswell, GA 30075
Mayor, City of Smyrna	Smyrna, GA 30080
Mayor, City of Woodstock	Woodstock, GA 30188

D. Leaseholders:

Managers of the quasi-public lease areas and concession lease areas at Lake Lanier were contacted so that they might express their concerns.

Holiday on Lake Lanier Marina

J.W. Beachem, Chairman of the Board
Holiday on Lake Lanier, Inc.
Holiday Road
Buford, Georgia 30518

Bald Ridge Marina

Mr. Ed O. Johnson, President
Marine Development Corp.
Bald Ridge Marina
P.O. Box 836
Cumming, Georgia 30130

Lan Mar Marina

Lan-Mar Marina
c/o William A. Frankel
1800 Peachtree Road N.W.
Suite 501
Atlanta, Georgia 30309

Gainesville Marina

Mr. Ed Cox, President
Gainesville Marina, Inc.
P.O. Box 1261
Gainesville, Georgia 30501

Aqualand Marina

Messrs. Bob Wayne & Gene Wayne
Chattahoochee Parks, Inc.
Aqualand Marina
Flowery Branch, Georgia 30542

Snug Harbor Marina

Mr. Jerry L. Wheeler, President
Wheeler Enterprises, Inc.
570 McDonough Blvd., S.E.
Atlanta, Georgia 30315
(404) 627-1114

Kelly Marina

Mr. John R. Landers or
Mr. Louis L. Gibbs
Kelley Marina and Boat Company
P.O. Box 428
Flowery Branch, Georgia 30542
(404) 967-6231

Habersham Boat House

Habersham Boat House, Inc.
c/o Lipscomb Manton & Johnson
112 North Main Street
Cumming, Georgia 30130
Lipscomb Manton & Johnson
(404) 887-7761
Habersham Boat House
(404) 887-3107

Lanier Harbor Marina

Mr. Paul A. Story or
Mr. L. Benjamin Spears
Lanier Harbor Marina
2110 Pinetree Drive
Buford, Georgia 30518
(404)945-8844

Lanier Beach

Andrew B. McGregor
Lanier Beach
Route 10, Box 45
Cumming, Georgia 30130

