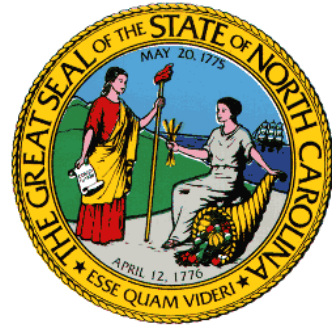


**U.S. Army Corps of Engineers
Wilmington District
and the
State of North Carolina**



**Falls Lake
Master Plan
Neuse River Basin**



May 2013

Executive Summary

Falls Lake Master Plan

Falls Lake (the project) is operated by the U.S. Army Corps of Engineers (USACE) and includes the Falls Lake Dam, approximately 12,400 acres of open water, and approximately 25,600 acres of surrounding land. This land includes the Falls Lake State Recreation Area, portions of the Butner-Falls of Neuse Game Land, as well as lands leased to local governments. Most of the project lands, except for a small area around the dam, are leased and managed by the State of North Carolina (North Carolina). The North Carolina Division of Parks and Recreation (NCDPR) and North Carolina Wildlife Resources Commission (NCWRC) handle the day-to-day operation of the project lands on behalf of the State. USACE and North Carolina are assisted by other management partners at Falls Lake, including the City of Raleigh, Wake County, and the North Carolina Botanical Garden Foundation. Future cooperation and development at the project by other agencies and groups could result in additional partners being involved in the management of Falls Lake.

Falls Lake was authorized by the 89th Congress through the Flood Control Act of 1965 and the Rivers and Harbors Act of 1965 (Public Law 89-298) as the initial unit of the comprehensive plan for the development of the water resources in the Neuse River Basin. Additional authorization for the development of public recreational facilities at power, flood control, and navigation projects comes from Section 4 of the Flood Control Act of 1944, Section 209 of the Flood Control Act of 1954, and by the Land and Water Conservation Fund Act of 1965, as amended.

Purpose of Master Plan

Master Plans are required for civil works projects and other fee-owned lands for which USACE has administrative responsibility for management of natural and manmade resources. The Master Plan provides a programmatic approach to the management of all of the lands included within the Falls Lake boundary. The Master Plan is the basic guidance document outlining the responsibilities of USACE and North Carolina pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands and associated resources. The Master Plan is a planning document anticipating what could and should happen, with the flexibility to adapt to changing conditions over the life of the plan. Detailed management and administration functions are handled in the Operational Management Plan (OMP), which translates the concepts of the Master Plan into operational terms.

The primary goals of the Master Plan are to prescribe an overall land management plan, Resource Objectives, and associated management concepts, which: (1) Provide the best possible combination of responses to regional needs, resource capabilities and suitability, and expressed public interests and desires consistent with authorized project purposes; (2) Contribute towards providing a high degree of recreation diversity within the region; (3) Emphasize the particular qualities, characteristics, and potentials of the project; and, (4) Exhibit consistency and compatibility with national objectives and other State and regional goals and programs.

Master Plan Update

The 1981 Master Plan provides USACE, North Carolina, and other management partners with a series of detailed construction projects for the different management areas located within the project boundary. The construction-based Master Plan does not provide USACE and North Carolina with means of refining these plans or taking proactive action to anticipate and respond to needs that are not included in the document.

Since the publication of the 1981 Master Plan, USACE has updated its policies directing the development and implementation of Master Plans. Specific Master Plan requirements are contained in Engineer Pamphlet (EP) 1130-2-550 Project Operations – Recreation Operations and Maintenance Guidance and Procedures, which was last updated on August 30, 2008.

The current guidance includes revised categories of Land Classifications used to define project lands, as well as shifting from a construction-based document to a policy-based document. The current guidance also includes requirements for an interdisciplinary team approach to be used for the development, reevaluation, and supplementation or updating of Master Plans. Coordination with other agencies and the public is an integral part of the master planning process.

This Master Plan is accompanied by a Geographic Information Systems (GIS) database. The database can be continually updated throughout the life of the plan to allow USACE, North Carolina, and other management partners to take proactive management actions and adapt existing strategies.

Public Involvement

Coordination with other agencies and the public is an integral part of the master planning process. During the initial stages of the planning process, USACE held two public open houses on January 26, 2010 at Durant Nature Park's Campbell Lodge in the City of Raleigh and January 27, 2010 at the Durham East Regional Library. Prior to the open houses, announcements were sent to individuals, organizations, and agencies on the Falls Lake mailing list. Announcements also were posted in local newspapers, on USACE web sites, and announced on local television and radio stations.

The open house style allowed guests to come and go in a timeframe that suited their schedules. The open house format also allowed members of the planning team to interact with their guests, to answer questions about the planning process, and to solicit input that would help guide the master planning process. A public comment period was held from the date of the mailings (January 6, 2010) until 30 days following the open houses. Comments could be submitted in writing, via email, or on a USACE web site during the comment period. All written comments received during this period were considered during the master planning process. While not all of the subjects raised during the comment period can be addressed in the master planning process, the comments obtained during the comment period greatly informed the master planning process. The comments received during this initial scoping period and during the public review of this document

are included in Appendix E and accompanied by responses from USACE and North Carolina.

As part of the effort to update the Falls Lake Master Plan, USACE also held an agency meeting to solicit additional input on the master planning process. USACE invited representatives from State and Federal agencies in North Carolina, with jurisdiction or interest in the resources at Falls Lake, along with representatives from local counties and towns, to an initial scoping meeting at the USACE Visitor Assistance Center on January 23, 2009. During the meeting, the planning team presented an overview of the master planning process, discussed existing plans and resources concerns, and solicited comment and input on the master planning process. While not all of the subjects raised by these agencies can be addressed in the master planning process, the comments obtained during the comment period greatly informed the master planning process. The comments received from the agencies during the initial scoping period and during the public review of this document are included in Appendix E and accompanied by responses from USACE and North Carolina. The initial scoping meeting was the first of several meetings between USACE and representatives of State agencies.

Many of the local representatives that attended this agency meeting suggested that USACE and North Carolina include them throughout the master planning process for a more inclusive planning process that would result in a more useful management document. In response to this request, USACE and North Carolina scheduled and attended meetings in late 2011 and early 2012 with representatives from the City of Creedmoor, the Town of Butner, the Town of Wake Forest, the City of Raleigh, Durham City and County, Granville County, and Wake County. During these meetings, representatives from USACE and North Carolina updated local officials on the master planning process, presented different options for the classification of project lands, and solicited further input on the process. Input received during these meetings was used to make some of the final decisions on the Land Classifications and Resource Objectives that are presented in this Master Plan.

On November 2, 2012, the Master Plan, along with the associated Programmatic Environmental Assessment (PEA) and Draft Finding of No Significant Impact (FONSI), were made available for a 45-day review and comment period. Notification of this comment period was mailed to local media, regulatory agencies, and individuals and provided on the Falls Lake website. Copies of the document were made available on the USACE web site and at the USACE Visitor Assistance Center, Durham County East Regional Library, and Wake County North Regional Library. All comments received will be considered in the preparation of the Final Master Plan and FONSI.

Proposed Master Plan – Land Classifications

During the master planning process, options were developed for classifying project lands and identifying Resource Objectives and Recommended Future Uses for these lands. These options were reviewed by USACE and North Carolina and presented to the localities discussed above. Comments received from public input also provided USACE and North Carolina with insight into public desires for the future use of project lands, as well as regulatory and resource concerns of other agencies. This information was used in identifying the appropriate Land Classifications for different management areas within the project, as well as the Resource Objectives that should govern these classifications. Resource Objectives are written statements that specify the attainable options for resource development and/or management. Resource Objectives are consistent with authorized project purposes, Federal laws and directives, regional needs, resource capabilities, and expressed public desires. Land Classifications are distributions of project lands by management categories which, based upon resources available and public needs, provide for full utilization while protecting project resources.

General review of some of the project-wide goals at Falls Lake was conducted as part of the master planning process. One of USACE’s top priorities at Falls Lake is to continue to work with North Carolina to provide a diverse offering of outdoor recreation opportunities and natural resource management that will lead to better accomplishment of project purposes. As such, the Master Plan identifies several undeveloped locations within the project that could be used to support future recreation sites. The Master Plan also includes Resource Objectives designed to guide USACE and North Carolina in meeting the purposes of Falls Lake. The rationale for the decisions made in selecting the elements included in the Resource Plan is presented in the Master Plan, as well.

Comparison of the Current and 2013 Master Plan Land Classifications

The different Land Classifications used in the two Master Plans make a direct comparison difficult; however, some similarities do exist. Table ES-1 shows how the current Land Classifications have translated into the proposed Master Plan.

Table ES-1: Conversion of Land Classifications between 1981 Master Plan and 2013 Master Plan

1981 Master Plan	Proposed Master Plan
Operation – Recreation Intensive Use	Recreation
Operation – Recreation and Wildlife Low Density Use	Multiple Resource Management
Operation – Recreation Low Density Use	Multiple Resource Management
Operation – Wildlife Management/Reserve Forest Land	Multiple Resource Management
Project Operations	Project Operations
Separable Recreation*	Recreation or Multiple Resource Management

* Separable Recreation is a Land Allocation that was displayed with Land Classifications in the 1981 Master Plan. For comparison purposes, it is presented in this table.

The primary change in the Land Classifications is the way low intensity/undeveloped lands are addressed. Previously, there were five Land Classifications used to describe different lands that are consolidated under the Multiple Resource Management Land Classification in the proposed Master Plan (Recreation Low Density Use, Natural Area, Wildlife Management/Reserve Forest Land/ Recreation and Wildlife Low Density Use, and Separable Recreation). In addition, the Land Classifications included in the proposed Master Plan no longer reference the Land Allocations as was done in the 1981 Master Plan. Instead, Land Allocations are discussed independently of the Land Classifications. As a result, more of the project lands are classified as Recreation or Multiple Resource Management than would have been under the 1981 Master Plan. The definitions included in the proposed Master Plan are listed below.

Project Operations: This classification includes lands required for the dam and associated structures, Visitor Assistance Center, maintenance compounds, and other areas that are used by USACE to operate and maintain Falls Lake. Project Operations also includes lands used by North Carolina and its lessees to maintain operations at their respective management areas.

Recreation: These lands are designated for intensive levels of recreational use to accommodate and support the preferences and needs of project visitors within the capabilities of the natural resource base.

Multiple Resource Management: This classification includes lands managed for one or more of the following subclassifications: low density recreation, wildlife management, vegetation management, and future/inactive recreation.

Table ES-2 provides a comparison of the acreages included under the existing Land Classifications and those included in this Master Plan. The inconsistency in total acreage listed in the table is based on the mapping technology used for each plan. In either case, acreages presented in a Master Plan are for planning purposes only (official acreages are maintained by USACE Real Estate Division).

Table ES-2: Current and Proposed Land Classifications

Land Classification	Acreage	
	1981 Master Plan	Proposed Master Plan
Easement	183	183
Multiple Resource Management	N/A	21,196
Operation – Natural Area	120	N/A
Operation – Recreation Intensive Use	10,951	N/A
Operation – Recreation Low Density Use	818	N/A
Operation – Recreation and Wildlife Low Density Use	804	
Operation – Wildlife Management/Reserve Forest Land	12,199	N/A
Project Operations	308	374
Recreation	N/A	3,630
Total	25,383	25,383

Notes: Acreages are for planning purposes only.
 1981 Master Plan acreages based on present day GIS measurements of management areas.
 Water area not included in acreage calculations.
 N/A means not applicable. This classification not used for the indicated Master Plan.

Using the Master Plan

The Master Plan serves two primary purposes that are equal in importance. First, it is the primary management document for the project and provides direction for many of the other plans that guide the operation of Falls Lake. This Master Plan sets the stage for the update of many of the resource management plans maintained by USACE and North Carolina at Falls Lake, such as the Operational Management Plan. Regular updates to the Master Plan will allow USACE and North Carolina to maintain active resource management plans, as well.

The Master Plan also is a land use management tool. As a land use tool, this Master Plan provides USACE, North Carolina, other management partners, and the public with the current classification and preferred future uses of project lands. The current Land Classification of project lands allows for a visual evaluation of the distribution of uses of project lands. An example of how this illustration may be beneficial is through the identification of project lands that are suitable for the development of a new recreation

facility by USACE, North Carolina, a current sublease holder, or a future sublessee. Maintaining an up-to-date Master Plan will allow USACE and North Carolina to respond effectively to development plans made internally or by outside parties.

Updating the Master Plan

This policy-based Master Plan, along with the accompanying PEA and GIS database, provides USACE and North Carolina with a “living” management document. This living document sets goals and objectives but does not establish concrete development plans. This allows for flexibility in the management and development of Falls Lake, within a clear policy framework.

NEPA - Programmatic Environmental Assessment

The proposed Master Plan provides a programmatic approach to the management of all of the lands included within the Falls Lake boundary. A PEA was prepared to cover all environmental features that could be affected by adoption of the proposed Master Plan. The PEA evaluated the implementation of the proposed Master Plan and a No Action Alternative (continued use of the 1981 Master Plan). The PEA analyzed the potential impact the two alternatives would have on the natural, cultural, and human environment. The document was prepared in accordance with the National Environmental Policy Act of 1969, as amended (NEPA); regulations of the Council on Environmental Quality (CEQ) (40 CFR 1508.9); and USACE regulations, including Engineer Regulation 200-2-2: Procedures for Implementing NEPA (USACE 1988).

The typical focus of NEPA compliance consists of environmental assessments for individual projects, rather than for long-range plans. However, application of NEPA to earlier and more strategic decisions not only meets the CEQ (40 CFR 1500-1508) and USACE regulations for implementing NEPA (ER 200-2-2), but allows USACE and North Carolina to begin considering the environmental consequences of their actions long before any physical activity is planned.

As the intent of the Master Plan is to develop a guide to the sustainable use of resources within Falls Lake, it was not possible to define the exact nature of potential impacts prior to receiving specific project proposals. Therefore, environmental consequences may be less than or may exceed what is described in the PEA. To ensure future environmental consequences are captured and coordinated as accurately as possible, additional agency review and NEPA coordination for future projects is prescribed in the Master Plan.

Based on the information contained in the Draft Master Plan and the PEA, and comments received during agency and public scoping, the 2013 Master Plan would not significantly impact the quality of the human environment; therefore, an Environmental Impact Statement will not be prepared.

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Acronyms and Abbreviations

ACHP	Advisory Council on Historic Preservation
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CSA	Combined Statistical Area
DM	Design Memorandum
EIS	Environmental Impact Statement
EM	Engineer Manual
EOP	Environmental Operating Principle
ER	Engineer Regulation
EP	Engineer Pamphlet
Falls Lake SRA	Falls Lake State Recreation Area
FONSI	Finding of No Significant Impact
GIS	Geographic Information Systems
MBTA	Migratory Bird Treaty Act
msl	relative to mean sea level
National Register	National Register of Historic Places
NCDPR	North Carolina Division of Parks and Recreation
NCDWR	North Carolina Division of Water Resources
NCOSBM	North Carolina Office of State Budget and Management
NCWRC	North Carolina Wildlife Resources Commission
NEPA	National Environmental Policy Act of 1969, as amended
NHPA	National Historic Preservation Act
North Carolina	the State of North Carolina
OMP	Operational Management Plan
PEA	Programmatic Environmental Assessment
the project	Falls Lake
REAS	Recreation Economic Assessment System
SCORP	North Carolina State Comprehensive Outdoor Recreation Plan
SHPO	State Historic Preservation Officer
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VERS	Visitation Estimation and Reporting System

1.0 Introduction

1.1 Project Description

Falls Lake (the project) is operated by the U.S. Army Corps of Engineers (USACE) and includes the Falls Lake dam, approximately 12,400 acres of open water, and approximately 25,600 acres of surrounding land. This land includes the Falls Lake State Recreation Area, portions of the Butner-Falls of Neuse Game Land, as well as lands subleased to local governments. Most of the project lands are leased and managed by the State of North Carolina (North Carolina). The North Carolina Division of Parks and Recreation (NCDPR) and North Carolina Wildlife Resources Commission (NCWRC) handle the day-to-day operation of the project lands on behalf of the State. USACE and North Carolina are assisted by other management partners at Falls Lake, including the City of Raleigh, Wake County, and the North Carolina Botanical Garden Foundation. Future cooperation and development at the project by other agencies and groups could result in additional partners being involved in the management of Falls Lake.

Construction of the Falls Lake dam began in 1978 and was completed in 1981. The dam is located on the Neuse River, approximately 22 miles downstream of the confluence of the Eno River and Flat River. The Neuse River has an estimated drainage area of 5,700 square miles. Falls Lake drains approximately 760 square miles in the upper portion of the Neuse drainage. The pertinent data for Falls Lake is included in Appendix A of this document.

The project is located in the northeastern portion of North Carolina near the “Triangle Area”, which includes the City of Raleigh and City of Durham, as well as Wake, Durham, and Granville counties. The dam site is approximately 10 miles north of downtown Raleigh and 17 miles southeast of Durham. Given the developed nature of these areas, Falls Lake and its surrounding lands are readily accessible via interstates and local roads (Appendix J, Figure 1).

1.2 Project Authorization

Falls Lake (Appendix J, Figure 2) was authorized by the 89th Congress under the Flood Control Act of 1965 and the Rivers and Harbors Act of 1965 (Public Law 89-298) as the initial unit of the comprehensive plan for the development of the water resources in the Neuse River Basin. Additional authorization for the development of public recreational facilities at power, flood control, and navigation projects comes from Section 4 of the Flood Control Act of 1944, Section 209 of the Flood Control Act of 1954, and by the Land and Water Conservation Fund Act of 1965, as amended.

1.3 Project Purposes

Falls Lake was designed and constructed for flood damage reduction within the Neuse River Basin. Construction of the Falls dam was authorized by the Flood Control Act of 1965 (PL 89-298) enacted by the 89th Congress on 27 October 1965 under House Document Number 175, Eighty-ninth Congress. The legislation outlined the plan of basin development with regard to flood control, water supply, recreation, fish and wildlife enhancement, and stream flow regulation for water-quality control. These mandated project purposes are described below.

1.3.1 Flood Damage Reduction

Flood damage reduction in the Neuse Basin below Falls dam is one of the primary project purposes. This objective is achieved by capturing floodwaters in the reservoir and then releasing them downstream at a controlled, less-damaging rate. From construction through 2012, operations at Falls Lake have prevented an estimated \$612,893,000 in cumulative flood damages

1.3.2 Water Supply

Water supply is another authorized purpose of Falls Lake. The reservoir is the primary water supply for the City of Raleigh, which also provides water supply to other surrounding communities in Wake County. An agreement between the City of Raleigh and USACE allows for the City of Raleigh to utilize the entire water supply pool at Falls Lake, which comprises 42.3 percent of the conservation pool storage.

1.3.3 Water Quality

Water quality control is an authorized purpose of Falls Lake, with 57.7 percent of the conservation pool storage allocated for this purpose. This storage is used to maintain water quality downstream of the dam in the Neuse River during low-flow conditions by making releases from the lake to meet minimum flow targets immediately below Falls Lake and also further downstream at Clayton, North Carolina. Augmentation of low-flows in the Neuse River benefits a number of downstream municipal and industrial water systems, as well as the aquatic ecosystem.

1.3.4 Fish and Wildlife Enhancement

Falls Lake is authorized to enhance fish and wildlife resources and habitat at Falls Lake. Fish and wildlife resources are managed through habitat enhancement and recreational fishing and hunting, which is allowed in various locations within the project. Habitat enhancement is further supported by the 12 waterfowl sub-impoundments located within the project boundary. USACE also strives to maintain specific water levels during the spring months to promote reproduction of fish and other aquatic species. When feasible, the USACE has worked with NCWRC and U.S. Fish and Wildlife Service to provide downstream flow releases during the spring months that benefit spawning runs of anadromous fish species.

1.3.5 Recreation

Provisions for allowing public recreation on project lands were included in original legislation. Today, project lands include campgrounds, waterfowl impoundments, boat ramps, a marina, picnic areas and swim beaches, and miles of interpretive and hiking trails.

1.4 Purpose and Scope of the Master Plan

The Master Plan provides direction for development and use of project lands. It is a vital tool for the responsible stewardship of project resources for the benefit of present and future generations. The Master Plan is programmatic and identifies conceptual types and levels of activities, not designs, project sites, or estimated costs. Actions by USACE, North Carolina, and other management partners must be consistent with the Master Plan. Therefore, the Master Plan must be kept current in order to provide effective guidance in decision-making at Falls Lake. The original Falls Lake Master Plan was approved in 1981. The 1981 Master Plan and other pertinent studies are listed in Table 1.

The Master Plan is based on responses to regional and local needs, resource capabilities and suitabilities, and expressed public interests that are consistent with authorized project purposes and pertinent legislation and regulations. The plan is distinct from the project-level implementation emphasis of the Operational Management Plan (OMP). Policies in the Master Plan are guidelines implemented through provisions of the OMP, specific Design Memoranda (DMs), and the Annual Management Plans. The broad intent of this Master Plan is to accomplish the following:

- Determine appropriate uses and levels of development of project resources;
- Provide a framework within which the OMP and Annual Management Plans can be developed and implemented; and
- Establish a basis on which out-grants and recreational development proposals can be evaluated.

1.4.1 Master Plan Scope

The USACE mission at reservoir projects includes managing, conserving, and improving environmental and cultural resources while providing quality public recreational experiences to serve the needs of present and future generations. This Master Plan includes guidance for appropriate uses, protection, and conservation of the natural, cultural, and man-made resources at Falls Lake. The Master Plan includes:

- A comprehensive description of the project resources, as well as factors influencing resource management and development (Section 2.0);
- An identification of management issues faced by project managers, including conservation and enhancement of natural and cultural resources, visitor conflicts, and adjacent land uses (Section 3.0);
- A synopsis of public involvement and input in the master planning process (Section 4.0);
- Land Allocation and Classifications (Section 5.0);

- Resource Objectives and identification of existing and future recreational sites (Section 6.0 and 7.0, respectively);
- Review and adherence to USACE Environmental Operating Principles (EOPs) (Section 8.0);
- Conclusions and Recommendations (Sections 9.0 and 10.0, respectively); and
- A listing of pertinent data, the associated compliance with the National Environmental Policy Act of 1969, as amended (NEPA), and other related data (Appendices).

1.4.2 Master Planning Process

Preparation of this Master Plan was a cooperative effort between USACE and North Carolina. For more than two years representatives from the two agencies met to discuss the master planning process, the policies that should be addressed in the document, and how the project lands should be classified and managed in the future.

The agencies were supported by the other management partners at Falls Lake; other Federal, State, and local agencies; non-governmental organizations; and members of the general public through public involvement opportunities provided throughout the planning process. Scoping comments from government officials and the general public were important for identifying issues that needed to be addressed in the Master Plan. Details regarding the public involvement efforts for the Master Plan are provided in Section 4.0.

One of the primary contributions these groups and agencies made to the master planning process was through their geographic information systems (GIS) data. The different layers of GIS data obtained through the scoping process were combined with USACE's own data to create a GIS geodatabase to support the master planning process and the future implementation of the plan. The geodatabase helped inform the resource analysis, Land Classifications, and Resource Objectives of the Master Plan, and was used to create many of the figures included in this document. These figures not only illustrate different resources in and around Falls Lake, but also display the level of data available for future management of project lands.

Table 1: Pertinent Prior Reports

DM No.	Title	Document Date
1	Site Selection	May 1967
2	Hydrology and Hydraulic Analysis	May 1967
3	General Design Memorandum	March 1968 (Resubmitted February 1970)
4	Preliminary Master Plan	February 1968 (Resubmitted January 1971)
5	Construction Facilities	April 1968
6	Access Road	April 1968
7	Real Estate	April 1968 (Resubmitted March 1972)
8	Construction Materials	May 1968
9	Necessity and Plan for Relocation and/or Modification of NC Route 98	July 1968 (Resubmitted May 1973, March 1974)
10	Geology	June 1968
11	Necessity and Plan for Relocation and/or Modification of Interstate 85 and US Highway 15	February 1969 (Resubmitted March 1973)
12	Reservoir Clearing and Mosquito Control	October 1971 (Resubmitted August 1972)
13	Necessity and Plan for Relocation of SR 2002 (Via SR 2009 and 2010)	January 1972 (Resubmitted July 1972)
14	Dam and Spillway	November 1972
15	Outlet Works	November 1972
16	Necessity and Plan for Relocation of Seaboard Coast Line Railroad and Southern Railway	October 1971 (Resubmitted April 1973 January 1974)
17	Necessity and Plan for Relocation of Powerlines	April 1974
18	Necessity and Plan for Relocation of Telephone Lines	October 1973
19	Necessity and Plan for Relocation of Public Service Company Gas Transmissions	July 1975
20	Necessity and Plan for Relocation of City of Raleigh's Raw Water Lines	March 1973 (Resubmitted March 1974)

Table 1: Pertinent Prior Reports

DM No.	Title	Document Date
21	Necessity and Plan for Relocation of NC Route 50	May 1973
22	Necessity and Plan for Relocation of Secondary Roads	February 1974
23	Construction Procedure and Diversion Plan	December 1974
24	Operation and Maintenance Facilities	February 1987
25	Sedimentation Ranges	March 1975
26	Relocation – Cemeteries	March 1981
27	Master Plan	December 1981
28	Resource Manager’s Office	April 1983
29	Initial Reservoir Filling Plan	April 1982
30	Rollingview Recreation Area	May 1985
31	Ranger Security Buildings	April 1986
32	Beaverdam Recreation Area	April 1987
33	Wildlife Sub-impoundments	May 1986
34	Mangum House Rehabilitation	February 1986
35	Holly Point Recreation Area	March 1987
36	Archeological and Historic Sites Management Plan	September 1989
37	State Administration Facilities	February 1988
38	B.W. Wells and Shinleaf Recreation Areas	November 1989

The USACE six-step planning process (Appendix C) was used in organizing, analyzing, and incorporating the input received during the master planning process. Input from agencies, groups, and individuals was important in identifying significant resources; issues and opportunities; planning objectives and constraints; important features of the project; and public needs, desires, and concerns. These factors were taken into account in forming the proposed Resource Objectives, Land Classifications, and Recommended Future Uses of project lands. Different options for these three elements of the Master Plan were considered by USACE and North Carolina and shared with the public to evaluate their ability to meet the following criteria:

- Meeting project purposes and expressed public needs and desires;
- Minimizing adverse environmental impacts; and,
- Consistency with relevant laws and regulations and regional needs and plans.

The options and input received during the public scoping process were considered by USACE and North Carolina as the two agencies developed the Land Classifications, Resource Objectives, and Recommended Future Uses included in this document. The attached Programmatic Environmental Assessment (PEA) (Appendix D) was developed to measure the impact these proposed changes would have on the natural, cultural, and human environment in and around Falls Lake. The PEA recommends a Preferred Alternative that provides the most appropriate level of stewardship, management activities, and types and levels of recreation development and use for Falls Lake project lands.

This updated Master Plan and associated PEA were prepared in accordance with the following guidance:

- Engineer Manual (EM) 1110-1-400, Engineering and Design – Recreation Planning and Design Criteria, 01 November 2004;
- Engineer Pamphlet (EP) 1130-2-550, Project Operations – Recreation Operations and Maintenance Guidance and Procedures, 15 November 1996, 01 Oct 1999 (change 1), 01 Mar 2002 (change 2), 15 Aug 2002 (change 3), 30 Aug 2008 (change 4);
- Engineer Regulation (ER) 200-1-5, Environmental Quality – Policy for Implementation and Integrated Application of the U.S. Army Corps of Engineers Environmental Operating Principles and Doctrine, 30 October 2003;
- ER 200-2-2, Environmental Quality – Procedures for Implementing the National Environmental Policy Act, 4 March 1988;
- ER 1105-2-100, Planning Guidance, 22 April 2000, 30 Jun 2004, 31 Jan 2007, 30 Jun 2004, 20 Nov 2007; and
- ER 1130-2-550, Project Operations – Recreation Operations and Maintenance Guidance and Procedures, 15 November 1996, 1 October 1999, 1 March 2002, 15 August 2002, 30 Aug 2008, 30 Mar 2009.

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2.0 Factors Influencing Resource Management and Development

This section of the Master Plan includes an inventory of the resources within the boundary of Falls Lake. In some cases, the description of resources extends beyond the boundaries of the reservoir lands to provide an accurate description of the existing conditions. This section also documents pertinent public laws and management plans. This information was one of the primary decision-making tools used in selecting the Resource Objectives, Land Classifications, and Recommended Future Uses discussed later in the document. This information also serves as a “snapshot” of current resource conditions to be considered in the future as policies are reevaluated and/or carried forward to the implementation phase.

2.1 Description of the Reservoir

Falls Lake is located in the northeastern portion of North Carolina, in the Triangle Area which includes the City of Raleigh and City of Durham, as well as Wake, Durham, and Granville counties. The Falls Lake dam is approximately 10 miles north of downtown Raleigh and 17 miles southeast of Durham (Appendix J, Figure 1).

Falls Lake includes approximately 12,400 acres of open water and an additional 25,600 acres of surrounding project lands (Appendix J, Figure 2). Falls Lake dam is an earth and rock fill structure with a top elevation of 291.5 feet relative to mean sea level (msl) and an overall length of 1,915 feet. An additional concrete barrier was later added across the top of the dam as part of modifications made to offset a storage shortage, which increased the effective height of the dam to about 294.5 feet msl. As part of the overall development of Falls Lake, USACE built many of the recreational and operational facilities that are now operated by North Carolina. Under the lease agreement, North Carolina is responsible for the maintenance and management of these facilities. USACE actively manages a small portion of these lands (318 acres). USACE managed lands include the Visitor Assistance Center, which houses USACE offices and interpretive displays; the Falls Lake dam; the Tailrace Access Area; and the trails and picnic areas that immediately surround these facilities. The remaining acreage is leased to North Carolina under a 50-year lease agreement that was signed in 1972. The North Carolina Division of Water Resources (NCDWR) administers the State’s lease, and the land is divided for management between NCWRC and NCDPR. NCWRC manages undeveloped recreation lands and permanent game lands as part of the Butner-Falls of Neuse Game Land. Most of the NCWRC managed lands are concentrated in the western portion of Falls Lake and along the narrow ends of its tributaries. NCDPR manages lands in developed recreation areas as the Falls Lake State Recreation Area. These lands are generally located in the central portion of the lake. In addition, Wake County, the City of Raleigh, and the North Carolina Botanical Garden Foundation lease lands around the reservoir for recreational purposes. These areas are discussed in greater detail under Section 2.22.

2.2 Lake Operation

The Falls Lake dam is currently operated to provide a normal pool elevation of 251.5 feet msl, which is commonly referred to as the guide curve elevation. USACE divides its reservoirs into different pools that meet the purposes of the given reservoir. Above the guide curve is the reservoir's flood pool, and below the guide curve is the conservation pool which contains the water supply and water quality storage. The capacity and elevation of these pools are specific to the reservoir. The specific pool elevations at Falls Lake are provided in Appendix A.

One primary objective of Falls Lake is flood damage reduction. This is accomplished by capturing flood waters in the 221,182 acre-feet of controlled flood pool storage between elevations 251.5 and 264.8 feet msl within the reservoir, and then later releasing those waters at a controlled, less-damaging rate.

The Falls Lake water supply objective is met through the dedication of 42.3 percent of the conservation pool to existing water supply contracts. A contract between USACE and the City of Raleigh was signed on February 24, 1972 that allows the City to utilize the entire water supply pool, which the City estimates to have a 50-year safe yield of 67 million gallons per day. Meeting the water supply purpose does not normally require special operations at the reservoir. During periods of extreme drought, however, the water supply pool may be significantly depleted. The Falls Lake Water Control Manual and Drought Management Plan provide direction on how this operation would be planned for and managed (USACE 1990).

The remaining 57.7 percent of the conservation pool is allotted to meet the water quality purpose at Falls Lake. Releases from the water quality pool are made to meet downstream flow targets immediately below the dam and further downstream at Clayton, NC. The Falls Lake Water Control Manual provides guidance on minimum downstream flows that must be maintained throughout the year. During normal conditions, releases from the reservoir are generally comparable to inflows. However, during periods of low flow, additional releases may be made through the dam to augment and maintain desired downstream flows. Multilevel water quality gates in the dam allow for the release of surface waters during times of the year when the lake is stratified (USACE 1990).

Finally, Falls Lake supports recreation; however, there are no special pool operations for recreation. Recreation opportunities are provided to the maximum extent possible without significant interference with the other purposes described above. Under normal conditions, this operation strives to provide a full conservation pool throughout the year, but summer conditions combined with seasonal water withdrawals/releases commonly result in summer drawdowns to some degree. When water levels are too low or high, USACE, North Carolina, and other management partners must modify recreational offerings to achieve the other goals at the reservoir. Additional details on lake operations are provided in the Falls Lake Water Control Manual (USACE 1990).

2.3 Hydrology and Ground Water

The movement of water into, through, and out of Falls Lake is influenced by annual and seasonal precipitation patterns, evaporation and transpiration rates, human development and water uses within the Neuse River watershed above the Falls Lake dam (Appendix J, Figure 3), and to a lesser extent the geology and landforms within the Neuse River watershed. The amount of water and its ability to move through the project influences current and future management of Falls Lake. This includes the movement of surface waters through the reservoir, as well as the availability of ground water for drinking water wells for recreational areas not served by municipal water systems.

2.3.1 Surface Water

At conservation pool elevation, approximately 251.5 feet msl, Falls Lake is 22 miles long with approximately 245 miles of shoreline. This equates to about 12,400 acres of open water surface area. The reservoir receives most of its input from its tributaries during the winter and spring months and occasionally from storms in the summer. The reservoir averages a 2.5 foot fluctuation during the summer months; however flood events and prolonged droughts have and will continue to cause fluctuations in lake level outside of this range. These fluctuations have notable implications for recreation, wildlife, vegetation, shoreline erosion, and aesthetics on the project.

2.3.2 Ground Water

Ground water resources are an important natural resource within the project area. Ground water contributes base flow to the rivers and streams feeding into the reservoir, discharges to the land surface as seeps and springs creating wetland habitats, and is the source of potable water for many of the recreational areas within the project area. Neither the U.S. Geologic Survey (USGS) nor the NCDWR maintains active ground water monitoring stations in close proximity to Falls Lake (USGS 2009, NCDWR 2009). Despite this lack of data, some information on the area's ground water resources can be inferred from its location.

Most of bedrock geologic units in the project area, including the sedimentary rocks of the Triassic Basin, have little or no primary porosity or permeability. Most ground water occurs and flows within the structural fractures and joints, and bedding planes of the bedrock. In general, fracture occurrence and connectivity decrease with depth due to lithostatic pressure. Consequently, most water supply wells in the project area are typically completed in the upper 300 to 500 feet of fractured bedrock.

Ground water recharge in the Piedmont province varies depending on soil and rock types, topography, and seasonal precipitation and evapotranspiration rates. Most of the ground water recharge occurs in interstream (upland) areas. Ground water recharge is generally estimated to range from 10 to 20 percent of mean annual precipitation. In general, ground water recharge in the Carolina Slate and Raleigh Belts is higher than in the Durham Triassic Basin due to the coarser, more permeable nature of soils in these terrains.

As noted above, the availability of ground water to water supply wells is primarily dependent on the occurrence and connectivity of water bearing fractures. Therefore, well yields are highly variable depending on the number and water bearing properties of the fractures intersected by the well. Well yields may vary from less than two to over 50 gallons per minute.

In general, the yields of wells completed in the Durham Triassic Basin are lower than wells completed in either the Carolina Slate Belt or the Raleigh Belt. The difference in well yields is due to the greater fracturing and recharge within the crystalline rocks, and because the crystalline rocks are typically overlain by a thick layer of residuum that provide additional ground water storage.

Ground water quality within the sedimentary rocks Durham Triassic Basin is generally poorer than the water quality within the crystalline rocks of the Carolina Slate and Raleigh Belts. In general, ground water within the Durham Triassic Basin is characterized by higher dissolved solids, higher iron and manganese concentrations, a higher pH, and higher hardness. Some wells completed in the Durham Triassic Basin have very poor water quality. Ground water quality within the crystalline rocks is generally characterized by lower dissolved solids and iron and manganese levels, and lower hardness. In many wells, low pH is the primary water quality condition that requires treatment (USGS 1997, Heath 1984, LeGrand 1967).

Prior to the development of new drinking water wells in and around the project, local County officials evaluate the proposed area for well suitability. The findings of these evaluations are used to locate new wells.

Since the previous Master Plan, there have been a few new drinking water wells installed at recreational lands within the Falls Lake boundary. To avoid unnecessary impacts to the Falls Lake watershed, the surrounding jurisdictions have largely avoided introducing water and sewer lines into the area. Lands within the project are not connected to municipal systems and continue to rely on well water.

2.4 Sedimentation

The rate of sedimentation within the reservoir is influenced by regional and site specific conditions, including annual and seasonal precipitation patterns and associated stormwater runoff, as well as shoreline erosion. Sedimentation is an unavoidable problem for reservoirs like Falls Lake, due to steep banks, upstream erosion, erodible soils, and wind and wave action.

During the construction of the reservoir, an allocation of 25,073 acre-feet below the elevation 236.5 feet msl was designated for sediment accumulation and storage. This volume was selected based on the predicted sedimentation over a 100 year period (USACE 1981). In 1997, a sedimentation resurvey did not indicate any significant loss of storage in the sediment pool (USACE 1997). This does not mean that sedimentation is not occurring in portions of the reservoir. There are some select areas in the reservoir that experience higher levels of sedimentation due to shoreline erosion or the pattern of

sediment transport through the water. In some cases, these isolated areas of high sedimentation can hinder recreational opportunities or natural conditions.

The availability of storage in the sediment pool within the reservoir has led to discussions between North Carolina and USACE about the possible use of water in the sediment storage pool for temporary, emergency water supply in the event that the water supply storage in the reservoir is depleted (NCEMC 2008).

2.5 Surface Water Quality

The North Carolina Division of Water Quality publishes data on water quality throughout the State in its 303(d) Impaired Waters Assessment. The most current 303(d) list available for North Carolina was completed in 2012. The report identifies portions of the Flat River, Ellerbee Creek, Knapp of Reeds Creek, Lick Creek, and Little Lick Creek as they empty into the reservoir, as well as the reservoir itself, as being impaired for supporting aquatic life. This means that these bodies of water do not meet the national water quality criteria established in the Clean Water Act (NCDWQ 2012).

To address this growing problem in the Neuse River Basin, North Carolina Environmental Management Commission adopted the Falls Lake Rules, a set of permanent rules to implement the Neuse River Nutrient Sensitive Waters Management Strategy. The strategy is based on a set of rules governing riparian areas, agriculture, stormwater, nutrient management, and wastewater. The rules include regulations regarding stormwater management for new and existing development, wastewater discharge, agriculture, and actions by State and Federal entities. The rules also include options for offsetting nutrient loads and fertilizer management (NCDWQ 2013).

2.6 Geology, Topography, and Soils

The local and regional geology of Falls Lake was a principal natural resource factor in the siting and development of Falls Lake and also is a significant factor in ongoing management of the reservoir. Geology influences many of the physical characteristics of the project area, including topography and slopes, width and depth of the reservoir, and the composition and distribution of the other project natural resources including soils and vegetation. Since the publication of the 1981 Master Plan, there have been limited changes to the geology, topography, and soils on project lands. Any measurable changes that have occurred have been a result of the construction of new facilities or shoreline erosion. The development of new facilities required the installation of ground water wells, grading of existing topography, and construction of impervious surfaces over undeveloped soils. Shoreline erosion also results in exposure of geologic features, changes in topography, and loss of soils within a limited area.

2.6.1 Geology

The Falls Lake watershed occurs with three distinct geological terranes. The headwater area of Falls Lake (above the reservoir) is underlain by metamorphic and igneous rocks of the Carolina Slate Belt. As shown on Appendix J, Figure 4, only a small portion of the project extends into this geologic terrane. The Carolina Slate Belt consists mostly of low grade metamorphic (meta-igneous and meta-volcanic) rocks with coarser-grained intrusive granitic rocks. These metamorphic rocks includes slates, phyllites, and schists that are typically fine-grained and platy, and moderately to highly fractured. There are no general development restrictions associated with this geologic terrane.

The portion of the project west of River Mile 10 is underlain by Triassic-age rocks that were deposited in a graben or rift basin. This rift basin, referred to as the Durham Triassic Basin, extends from the South Carolina border to central Granville County, and is one of multiple rift basins through the Mid-Atlantic States. The sedimentary rocks of the Durham Triassic Basin consist of complexly interbedded conglomerates, sandstones, siltstones, and claystones that have been locally intruded by diabase igneous rocks, are less resistant to erosion than the crystalline rocks to the east and west. Prior to construction of Falls Lake, the Neuse River had cut a wide floodplain with relatively low topographic relief through the Durham Basin. Therefore, this area of Falls Lake is characterized by a greater width, shallower depths, and a more subdued shoreline than the portion of Falls Lake east of River Mile 10.

East of River Mile 10, Falls Lake is underlain by meta-igneous and meta-volcanic rocks of the Raleigh Belt, including dense, moderately fractured gneisses, gabbros, granodiorites, and diorites. These rocks are hard and more resistant to erosion than the Durham Basin rocks. Therefore, this area is relatively narrow and deep, with significantly steeper shorelines (North Carolina Geological Survey 1985).

2.6.2 Topography

The influence of the underlying geology on topography is clearly evident throughout the project. The low topography relief and gentle slopes (shown in green) characteristic of the northwest portion of the project are underlain by Triassic rock. The higher topographic relief and higher slopes shown for the southeastern portion of the project are underlain by crystalline rocks of the Raleigh Belt (Appendix J, Figure 5).

Previous project planning divided topography on project lands into four categories: gentle slopes (0-5 percent), moderate slopes (5-15 percent), steep slopes (15-25 percent), and very steep slopes (over 25 percent). These categories continue to be applicable in defining the topography at Falls Lake and the types of development that may be supported on different slopes.

Gentle slopes (0-5 percent) are generally suited for most types of development, unless the area lies within a floodplain where it is subject to other constraints. East of River Mile 10, these areas consist of fairly small parcels of land on the crests of hills or along ridge lines. When possible, these areas have been utilized for recreational facilities. Between Interstate 85 and River Mile 10, slopes less than 5 percent occur as along the ridge lines

and along the lake shoreline. West of Interstate 85, these lands exist primarily in floodplains along the lake.

Moderate slopes (5-15 percent) exist throughout the project and have been utilized for the development of intensive recreation activities. This is especially true for lands that lie on a 5-10 percent slope. Slopes of 10-15 percent require more planning and design before they can be developed for intensive recreational use.

Steep slopes (15-25 percent) are common on project lands east of River Mile 10. Development of facilities to support intensive recreation on these slopes is difficult, as extensive grading and maintenance is required. Use of these lands has been focused on low intensity recreation activities. The constructability, maintenance and costs as well as potential impacts to natural resources should be thoroughly address for any future development of these steep slope areas.

Very steep slopes (over 25 percent) have been and should continue to be avoided for intensive recreational development due to the expense of construction and maintenance, and the adverse environmental consequences. In some cases, previous development on these slopes has included trails and scenic overlooks. Any future development of very steep slopes should take into account construction and maintenance constraints and costs and potential impacts to natural resources. In most cases, these slopes are best used for natural areas or wildlife conservation areas.

2.6.3 Soils

Since the publication of the 1981 Master Plan, the names, definitions, and categories of soil resources have been redefined. The properties of these resources, however, remain unchanged. The soils found within the boundaries of Falls Lake are related to the underlying geologic parent material. In the upper portion of the lake (west of River Mile 10), the bottom lands are characterized by poorly drained silty clay loam to somewhat poorly drained silt loam alluvial floodplain soils. Many of these soils are hydric (Chewacla and Wehadkee soils) and have some development limitations due to low permeability and moderate to high shrink swell potential. Upland soils in this portion of the lake are typified by sandy clay loam soils. These soils (Creedmoor, Mayodan, and Pinkerton) are principally derived from Triassic-age sedimentary rocks and do not have significant development limitations. In the upper reaches of a few tributaries, Iredell and Picture soils have formed on the underlying diabase dikes. These soils are hydric and typically have significant development limitations due to high shrink swell potential.

In the lower part of the watershed, the uplands contain soils which are derived from the underlying deeply weathered metamorphic rocks. These soils vary in texture but are generally well drained with few development limitations (NRCS 2006).

In the 1981 Master Plan, soils within the project boundaries were classified by their ability to support development. These classifications influenced development and management of Falls Lake for the last 30 years. The principal change to soil conditions over the last 30 years has been the increased area of impervious surfaces.

The classifications previously applied to soils are still relevant today. The most desirable soils to support recreational facilities are deep, moderately permeable, well-drained, clayey soils that have loamy sand to sandy loam surface. The least desirable soils are those that have poor drainage, shallow bedrock, high shrink swell, and/or low load-bearing capacity. A complete listing of the soil types found within the project boundaries is included on Table F-1 in Appendix F.

2.7 Climate

The moderate climate in the region surrounding Falls Lake is characterized by long spring, summer, and fall seasons, and relatively short winters. Average annual rainfall in the region is nearly 45 inches, with less than 2 inches of snowfall. Average summer and winter temperatures are approximately 73 and 47 degrees Fahrenheit, respectively. Temperatures can exceed 90 degrees Fahrenheit in the summer and fall below 32 degrees Fahrenheit in the winter (Wake County 2009a). Table 2 provides a summary of information on regional climate data.

Table 2: Historical Climate Report	
Climate Phenomenon	Annual
Average Summer Temperature (degrees Fahrenheit)	73
Average Winter Temperature (degrees Fahrenheit)	47
Average Total Precipitation (Inches)	45
Average Total Snowfall (Inches)	<2

Source: Wake County 2009a

Prevailing winds in the region are from the south and southwest. The average wind speed through the region is over 11 miles per hour (Johnston and Weibel 2006). When winds are from the northeast, the region tends to experience higher wind speeds (Allen and Wu 2009). Tropical hurricanes impact the coast of the State approximately one to two times per year, most often in the late summer and early fall. Since Falls Lake is located well inland, the main impact of hurricanes at the reservoir is increased precipitation.

2.8 Vegetation Resources

The condition of vegetative communities effects current and future management of Falls Lake, as USACE, North Carolina, and the other management partners must determine how communities should be managed to meet the multiple purposes at the reservoir. NCWRC actively manages forests on the project lands under its jurisdiction. This includes forest thinning, regeneration cuts, and prescribed burns designed to achieve conditions that promote healthy vegetation and wildlife populations. NCDPR carries out very limited forest management on its lands around Falls Lake.

Table 3 summarizes the distribution of timber stand types across the project based on a project-wide timber inventory performed in 1987-1988. The table, along with Appendix J, Figure 6, also illustrates the different land uses within the project boundaries.

Along with management actions described above, changes to the previously documented vegetative communities also may be influenced by development outside the project boundaries. This development has fragmented forests that were once viable ecological communities, and has changed the forest management priorities at Falls Lake. In some cases, this has led foresters to focus efforts on maintaining forested areas that were considered less desirable in the previous management documents.

Table 3: Timber and Land Resources at Falls Lake

	Percentage of Project Lands (%)
Bottomland Hardwood	31
Pine	21
Hardwood - Pine	19
Old Field	17
Upland Hardwood	7
Marsh	4
Developed	2
Total	100

2.9 Fish and Wildlife Resources

Enhancing and protecting fish and wildlife resources within project lands is a congressionally authorized project purpose at Falls Lake. As such, the condition of fish and wildlife resources is a determining factor in current and future management of Falls Lake. Management of fish and wildlife resources is focused on the protection of native species and the promotion of game species to support recreational fishing and hunting.

The 1981 Master Plan, and other surveys, have noted viable habitat for a variety of waterfowl, other birds, mammals, amphibians, and reptiles. Since the 1981 Master Plan, increasing levels of urbanization around the project have impacted some of these species by limiting available habitat. This development, however, has made the relatively undeveloped lands at Falls Lake more important habitat in the region and increasingly valuable to native species.

To document changes in wildlife populations, NCWRC conducts regular inventories of fish resources within Falls Lake. Between 1987 and 1998, the agency stocked the reservoir with striped bass. Stocking was abandoned to focus management efforts on the high quality largemouth bass population found in the reservoir. In 1999, 2005, 2007, 2009, and 2011, NCWRC collected largemouth bass from the lake to determine trends in size. The results of this study found that, although the reservoir supports a quality fishery, the fish are relatively small (less than 16 inches) (NCWRC 2012a).

Since 2000, NCWRC also has collected crappie from the reservoir every other year to determine size and population trends. The studies indicated that the population is slightly overcrowded. This has resulted in the fish showing slowed growth, reduced weights, and large numbers in specific age groups. These findings led NCWRC to recommend that the crappie fishery continue to be harvested without restrictions (NCWRC 2012b).

Similar studies have not been performed on wildlife species, although NCWRC maintains records on the number of game species harvested in different regions of the State. Hunting and fishing is allowed throughout most of the project lands, in accordance with State and local laws. NCWRC maintains game lands within the project boundary to support different game and non-game species.

The value of the Falls Lake project lands to fish and wildlife has been further enhanced through the work by USACE, NCWRC, and other partners to develop the wildlife areas and impoundments located throughout the project. These areas were designed to meet the project purpose of enhancing fish and wildlife habitat, fulfilling mitigation agreements between USACE and the U.S. Fish and Wildlife Service (USFWS), as well as providing recreational opportunities for wildlife viewing or hunting. Appendix J, Figure 6 illustrates the different habitat values that exist within the project boundary.

2.10 Rare and Endangered Species and Communities

A specific component of USACE and North Carolina's commitment to enhancing fish and wildlife populations at Falls Lake is the consideration and protection of rare and endangered species and communities. Within Durham, Granville, and Wake counties, five Federally-listed species are known to exist (USFWS 2010). These species and their habitat requirements are described in Table 4. Additional species of concern that are known to exist in the counties, and may occur on project lands, are listed in Appendix F.

The last survey of special status species or habitats on project lands was conducted by North Carolina Natural Heritage Program in 1986. The survey identified 13 plant species of special significance, including two populations of smooth coneflower and 13 Registered Natural Areas ranging from 0.5 to nearly 700 acres (USACE 1994).

Wetlands also occur in many of the Falls Lake natural areas and provide quality habitats for many species. In North Carolina, more than 70 percent of the species listed as endangered, threatened, or of special concern depend on wetlands for survival. Many common species of waterfowl, fish, birds, mammals, and amphibians also live in wetlands during certain stages of their lives (NCDENR 2010). Given the scale of the figures presented in the Master Plan, it would not be possible to illustrate the location or size of the wetland features within the project. This information, however, is included in the accompanying geodatabase and can be used to assist USACE and North Carolina in future actions to implement the Master Plan.

Table 4: Federally-listed Species Known to Occur in the Falls Lake Region

Common Name	Scientific Name	Description	Habitat Requirements
Red-cockaded woodpecker	<i>Picoides borealis</i>	A medium-sized bird with black and white coloration.	Optimal habitat is characterized as a broad savanna with a scattered overstory of large pines and a dense groundcover containing a diversity of grasses and shrub species.
Dwarf wedgemussel	<i>Alasmidonta heterodon</i>	A small freshwater mussel with a trapezoidal-shaped shell.	Typically found in shallow to deep quick running water on cobble, fine gravel, or on firm silt or sandy bottoms. Other habitats include submerged aquatic plants, and near stream banks underneath overhanging tree limbs.
Michaux's sumac	<i>Rhus michauxii</i>	A low growing, densely hairy, dioecious shrub.	Today, many of the Michaux's sumac occurrences are in areas that are artificially disturbed, such as highway and railroad rights-of-way, pine plantations, edges of cultivated fields, and other cleared lands.
smooth coneflower	<i>Echinacea laevigata</i>	A perennial herb with smooth stems, few leaves, and pink to purplish flowers.	Occurs primarily in openings in woods, such as cedar barrens and clear cuts, along roadsides and utility line rights-of-way, and on dry limestone bluffs. It usually is found in areas with magnesium- and calcium-rich soils and requires full or partial sun exposure.
harperella	<i>Ptilimnium nodosum</i>	An annual herb with slender, erect stems.	Occupies rocky or gravelly shoals of clear, swift-flowing streams and the edges of intermittent pineland ponds or low, wet savannah meadows on the Coastal Plain. In all habitat-types, the species occurs in a narrow range of water depths; it is intolerant of deep water and of conditions that are too dry. However, the plants readily tolerate periodic, moderate flooding.

Source: Natureserve 2010

2.11 Mineral and Timber Resources

There are no active mineral extraction activities on or adjacent to project lands at Falls Lake. Timber resources, discussed in Section 2.8, exist throughout Falls Lake. Prior to the development of Falls Lake, many of these resources were regularly harvested. Since the development of Falls Lake, however, management of these resources is for the purposes of wildlife and fire management. Since the 1981 Master Plan, the rapid growth and development of residential, commercial, and industrial properties along the project boundary and throughout the surrounding region has further limited the quantity of and access to mineral and timber resources. It is likely that the existing level of resource extraction will continue in the future.

Timber harvesting and management for the purpose of wildlife enhancement is primarily practiced on lands managed by NCWRC. Timber management on these lands includes prescribed burning, selective thinning, and timber harvesting to enhance wildlife habitat and promote forest health. These activities generate some revenue which, in accordance with the lease between USACE and North Carolina, is reinvested in the state agency's operation at Falls Lake.

2.12 Land Use

Falls Lake is in the upper portion of the Neuse River Basin. The reservoir is surrounded by 25,600 acres of public land. USACE leases the majority of this land to North Carolina for wildlife management and outdoor recreation purposes. The State subleases some of this land to Wake County for Blue Jay Point County Park and the County's waste collection site. State land also is subleased to the North Carolina Botanical Garden Foundation for Penny's Bend State Nature Preserve. North Carolina subleases land to the City of Raleigh for Forest Ridge Park and the City's water intake. USACE leases land to the City of Raleigh for Forest Ridge Park and a canoe launch on the Neuse River.

The 1981 Master Plan established the groundwork for the location and development of the various amenities and access points to Falls Lake. Much of the central portion of Falls Lake, located on both sides of NC 50 has been developed for high intensity day and overnight recreation uses and is managed by NCDPR. Blue Jay Point County Park (Wake County) and the proposed Forest Ridge Park (the City of Raleigh) park are located east of the NC 98 bridge within the lower one-third of the reservoir. The upper one-third of the reservoir is surrounded by lands that are much flatter and are managed as game lands by NCWRC.

Land use patterns outside the project boundary historically have been rural, agricultural, and forest resource based. Over the past 20 years, however, the lands within the region are becoming increasingly urbanized as population growth throughout the Triangle Area has increased significantly. Population figures are discussed in greater detail in Section 2.17.

Appendix J, Figure 7 shows the dominant land cover classes in the area surrounding Falls Lake. The figure also illustrates the notable development pressures from Durham City/County, the Town of Butner, and the City of Creedmoor along the U.S. Interstate 85 corridor and from the Town of Wake Forest and the City of Raleigh in the south and east along the NC 1 highway corridor. The surrounding counties land management plans (e.g., comprehensive land use plans/maps), lay out policies and proposed land uses appropriate for development proximal to Falls Lake.

The Durham County Comprehensive Land Use Plan classifies the land adjacent to Falls Lake as “Open Space, Public and Private”, and “Rural Areas.” For land use planning purposes, the area surrounding Falls Lake exists within the rural tier. The rural tier signifies low density development with an emphasis on agricultural uses and single family residential development on large lots, to minimize demand for public infrastructure. Land uses allowed in the rural tier include natural resource areas and open space, agriculture and related activities, rural residential and single family development, institutional, commercial use limited to neighborhood oriented uses, and industrial uses limited to resource extraction. A minimum of 40 percent open space is required in the rural tier (Durham 2009).

Durham County has adopted a watershed protection zoning district around Falls Lake, as well. The more stringent “Falls Lake Critical Area” includes lands within one mile of the reservoir. In this area, non-residential uses are allowed only if they were permitted prior to 1992. Residential lot sizes within this area must be a minimum of three acres (Durham 2009). Additionally, the Eastern Durham Open Space Plan, adopted April of 2007, examined land use issues affecting the City and County and assessed the need to preserve open space within the area. The adoption of the plan included policies that promote the conservation of open space within the Panther Creek, Little Lick Creek, and Lick Creek sub-watersheds (Durham 2007).

To address development pressures occurring to the south and southeast of the project, the Wake County Land Use Plan classifies the area around Falls Lake as Non-Urban Area/Water Supply Watershed. Such areas are designated and managed as land not expected or intended to be urbanized or served by municipal services (e.g., sewers and water supplies) in the foreseeable future. Residential development density and impervious surface coverage of non-residential development are limited by this zoning designation. Additional requirements included vegetated buffer and only allowing nonresidential land uses that are less likely to adversely affect water quality. In general, Wake County limits new residential development to a maximum gross density of 0.5 lots per acre in the areas closest to Falls Lake (Wake County 2012).

Present development patterns in Granville County show that subdivisions are progressively being developed along NC 50 towards Creedmoor and will continue to do so as long as development pressures exist from the City of Raleigh. The recently drafted Land Use portion of the Creedmoor Comprehensive Plan focuses future growth in existing developed areas and does not provide the policy or infrastructure to expand the City towards Falls Lake (USACE 2012b). The other pattern that is prominent for

Granville County is the zoning and encouragement of industry along Interstate 85; however, the County's Future Land Use Map identifies lands adjacent to the lake as "Low-Medium Density Residential" and "Medium Residential" (Granville County 2010).

2.13 Borrow Areas and Utilities

Borrow areas were created on project lands during the construction of the reservoir and the surrounding recreation facilities. Since the completion of those construction activities, the borrow areas have been filled and/or revegetated. There are no active borrow areas within the project boundary.

Utilities passing through and providing service on project lands include gas pipelines, telephone lines, water intake and distribution lines, sewage lines, and electrical transmission and distribution lines. These utilities include a natural gas pipeline, owned and operated by the Public Service Company of North Carolina, adjacent to and parallel with Interstate 85 and in other locations on the lake. The City of Raleigh operates a water intake within the reservoir which includes associated structures on the shoreline upstream of the dam. High voltage overhead power lines parallel Route 98 for a portion of the project and also cross project lands near the NC 98 Bridge, Lick Creek, Little Lick Creek, and near Mile Marker 14. Distribution lines feed electricity to locations around the lake including the recreation areas. In addition to these distribution lines, the South Granville Water and Sewer Authority wastewater treatment plant is located near the Brickhouse Road Wildlife Area on Knapp of Reeds Creek.

2.14 Paleontology

As discussed in Section 2.6, Falls Lake is underlain by sedimentary rocks of the Durham Triassic Basin and metaphoric and igneous rocks of the Carolina Slate and Raleigh Belts. Although paleontological resources, including thin coal seams and Triassic vertebrates, have been identified elsewhere in the sedimentary rocks of the Triassic Basins along the east coast, there are no known paleontological resources in the Newark Group rocks that occur beneath Falls Lake (Clark et al., 2004).

2.15 Cultural Resources

Prehistoric period cultural resources identified within Falls Lake range from long-term habitation sites spanning several prehistoric time periods to isolated artifacts and include sites from the Paleo-Indian through Woodland periods (circa 10,000 B.C.-circa 1600 A.D.). Prehistoric sites in the vicinity of the reservoir include lithic scatters, lithic workshops, rockshelters, and short-term habitation sites. Historic period cultural resources include cemeteries, dwellings, dumps, farmsteads, and mills. These sites range from the sixteenth to the twentieth century. Past surveys have recorded both historic and prehistoric sites which document the entire span of human occupation of the area.

Background research, including consultation with USACE archaeologists and the North Carolina State Historic Preservation Office (SHPO), identified a total of 1,128 previously recorded archaeological sites within the Falls Lake boundary. Of these sites, a total of 34

sites have been determined eligible for inclusion in the National Register of Historic Places (National Register). Three properties, James Mangum House, Rock Cliff Farm, and Fairntosh, are listed on the National Register and fall within the boundary of the project, while another, Falls of Neuse Manufacturing Company, is located just outside the project. In the 1981 Master Plan, Fairntosh is listed as the Bennehan-Cameron Plantation Historic District and includes 6,000 acres with one-third of the plantation on reservoir property. The Falls of Neuse Manufacturing Company property had two elements (dam and raceway) that were within the reservoir boundary. These structures were demolished during the construction of the Falls Lake dam.

As part of the 1981 Master Plan, two surveys and evaluations were conducted on project lands. The surveys within the reservoir boundary included large-scale surveys (10,500 and 8,100 acres), medium-scale surveys (350 and 132 acres), architectural surveys, pedestrian surveys, shoreline surveys (48 linear miles), and site-specific investigations to determine the eligibility of both archaeological sites and historic resources for inclusion in the National Register. A total of 281 sites were identified during these surveys. Two sites were recommended for immediate excavations due to potential disturbance by the flood pool and six others were considered significant (USACE 1981). These archaeological investigations, as well as the many other efforts that were conducted prior to and following the 1981 Master Plan, are summarized in Table F-7 in Appendix F.

The 1981 Master Plan includes a description of the probability model developed for most of the Falls Lake project property. The areas were divided into High, Medium, and Low Sensitivity. High Sensitivity areas included areas where known significant sites were present or that they may occur. No development was suggested for these areas. Medium Sensitivity areas are where known moderately sized sites occurred or that may occur. Surveys were suggested before any construction was done. Finally, Low Sensitivity areas are those where no sites occurred or that may have been significantly disturbed. No surveys were necessary in these areas. Using up-to-date information, this model is still applicable for planning future development at Falls Lake.

2.16 Visual Quality

The views, vistas, and visual quality of Falls Lake can be defined by its two unique parts of the reservoir. The topography of the eastern half consists of gently rolling hills and ridges with a northeast to southwest trend. Where the project crosses into the Deep River Basin¹ (west of NC 50), the topography is flatter and the northeast-southwest trending ridges are absent.

Throughout the project, dense stands of pine and hardwood forest provide a canopy over much of the shoreline and, in combination with the gentle topography, limit most long distance views from shore. The twisting reservoir path line and pattern of coves and inlets, further restricts sight distances. Although the forest cover may restrict site

¹ The Deep River Basin is the name applied to the Triassic Basin extending from south of the City of Raleigh through the Falls Lake area. It is one of multiple Triassic Basins along the East Coast of the United States.

distances across the project, these resources also enhance the visual quality of the area by changing with the seasons.

The most notably scenic areas of the lake are around the Holly Point, Shinleaf, and B. W. Wells State Recreation Areas. These areas of the reservoir are located east of NC 50 and north of NC 98. The management areas have numerous rock outcroppings and some of the tallest, prominent rock cliffs in the area which form the “S” curve between the three management areas.

Human development and its presence around Falls Lake have not had noticeable effects on visual quality throughout much of the project. The vegetation between the edge of the reservoir and the project boundary provides a buffer obstructing most views of private residences and upland road networks into the area. The majority of human built structures in the visual environment are recreation related, including boat ramps, campgrounds, beaches, and picnic areas. Other elements of the human built environment that are visible throughout the project include infrastructure related to the operation of the dam and reservoir.

2.17 Demographics

2.17.1 Zone of Influence

Falls Lake sits just outside of the City of Raleigh and draws visitors from the surrounding area. Visitor surveys were not conducted specifically for this Master Plan; however, previous surveys suggest that 90 percent of visitors to the project originate from within a 50 mile radius (Banaitis 2011). As such, portions of the 16 counties that fall within this radius, referred to as the “zone of influence”, were identified for demographic analysis. These counties include: Alamance, Caswell, Chatham, Durham, Franklin, Granville, Harnett, Johnston, Lee, Nash, Orange, Person, Vance, Wake, Warren, and Wilson (Appendix J, Figure 8).

The US Census Bureau’s designation for this region is the Raleigh-Durham-Cary Combined Statistical Area (CSA), referred to here as the Triangle CSA or Triangle. The Triangle CSA is made up of Chatham, Durham, Franklin, Harnett, Johnston, Orange, Person, and Wake counties and includes the major cities Raleigh, Durham, Chapel Hill, Cary, Wake Forest and other small neighboring towns.

2.17.2 Population

In 2010, North Carolina had an estimated population of just over 9,535,483. This ranks North Carolina as the 10th most populous state (including Washington, D.C.). The Triangle CSA comprises over 85 percent of the population within the zone of influence. Wake, Durham, and Johnston counties are the most populous of those in the Triangle CSA and make up nearly 62 percent of the population within Falls Lake area. Table 5 summarizes population estimates for counties within the zone of influence from 1970 to 2010 (Census 2010, NCOSMB 2010).

North Carolina's population growth rate has consistently been greater than the U.S. population growth rate over the past 20 years. Each County in the zone of influence experienced population growth from 1990 to 2000. Caswell, Vance, and Warren counties experienced small population decreases (below 3.1 percent) from 2000 to 2010 (Census 2010, NCOSMB 2010).

The population within Triangle CSA has increased significantly over the past 20 years. The area is home to three major cities located in a close proximity to each other, Raleigh (population 403,892), Durham (population 228,330), and Cary (population 135,234) along with the nearby Town of Chapel Hill (population 57,233). Population in the Triangle CSA increased 28.1 percent (average annual increase of 3.5 percent) between 1990 and 2010, while North Carolina's population increased 14.2 percent (average annual increase of 1.8 percent) (Census 2010, NCOSMB 2010).

2.17.3 Population Projections

Population projections by the North Carolina Office of State Budget and Management (NCOSBM) show an annual population growth rate ranging from 1.7 percent to 3.1 percent in the Triangle CSA and 1.6 percent to 2.7 percent in the Falls Lake zone of influence over the next 20 years. Appendix J, Figure 9 shows the projected populations for the entire zone of influence as well as the Triangle CSA over the next twenty years (NCOSMB 2010). Table 6 shows the projected populations for the counties within the zone.

Table 5: Populations of Falls Lake Zone of Influence Counties Since 1970					
County	1970	1980	1990	2000	2010
Alamance County	96,502	99,319	108,213	131,503	151,745
Caswell County	19,055	20,705	20,662	23,550	23,676
Granville County	32,762	34,043	38,341	48,837	60,122
Lee County	30,467	36,718	41,370	49,407	58,059
Nash County	59,122	67,153	76,677	87,705	96,215
Vance County	32,691	36,748	38,892	43,119	45,477
Warren County	15,340	16,232	17,265	19,992	21,022
Wilson County	57,486	63,132	66,061	73,927	81,643
<i>Chatham County</i>	29,554	33,415	38,979	49,725	63,870
<i>Durham County</i>	132,681	152,235	181,844	224,619	268,925
<i>Franklin County</i>	26,820	30,055	36,414	47,600	60,978
<i>Harnett County</i>	49,667	59,570	67,833	91,464	115,579
<i>Johnston County</i>	61,737	70,599	81,306	123,301	170,151
<i>Orange County</i>	57,567	77,055	93,662	116,017	134,325
<i>Person County</i>	25,914	29,164	30,180	35,744	39,585
<i>Wake County</i>	229,006	301,429	426,311	633,461	907,314
Triangle CSA	329,231	383,958	437,623	534,949	1,760,727
Area Total	612,946	753,522	956,529	1,321,931	2,298,686
North Carolina	956,371	1,127,572	1,364,010	1,799,971	151,745

Note: Counties in the Triangle CSA are in italics.

Source: NCOSMB 2010

Table 6: Population Projections for Zone of Influence Through 2025				
County	2010	2015	2020	2025
Alamance County	151,745	169,331	185,900	202,386
Caswell County	23,676	22,964	22,731	22,547
Granville County	60,122	60,452	63,644	66,838
Lee County	58,059	65,829	71,778	77,728
Nash County	96,215	102,675	108,955	115,234
Vance County	45,477	43,746	43,919	44,094
Warren County	21,022	19,812	19,765	19,732
Wilson County	81,643	86,654	92,253	97,853
<i>Chatham County</i>	63,870	71,853	79,692	87,529
<i>Durham County</i>	268,925	309,245	344,120	378,995
<i>Franklin County</i>	60,978	65,511	70,900	76,262
<i>Harnett County</i>	115,579	132,851	149,432	166,015
<i>Johnston County</i>	170,151	204,911	235,029	265,146
<i>Orange County</i>	134,325	142,089	151,229	160,368
<i>Person County</i>	39,585	38,193	38,576	38,889
<i>Wake County</i>	907,314	1,112,839	1,290,149	1,467,458
Triangle CSA	1,760,727	2,077,492	2,359,127	2,640,662
Area Total	2,298,686	2,648,955	2,968,072	3,287,074
North Carolina	9,572,454	10,424,250	11,263,964	12,094,161

Counties in the Triangle CSA are in italics.

Source: NCOSBM, 2010

2.17.4 Race and Ethnicity

Historically, North Carolina was characterized by a large White population, substantial Black population, and very small population of other minority groups. Currently, the population of North Carolina is primarily White (73.9 percent) with Black representing the largest minority (21.6 percent). Warren and Vance counties have populations where Black is the largest racial group (Census 2010, NCOSMB 2010).

Recent economic growth centered in the Triangle, however, has changed the ethnic makeup of the region. The Hispanic population has boomed in the region, experiencing high growth rates over the past two decades. Likewise, the growth in the Asian population has outpaced the general population growth (Census 2010, NCOSMB 2010).

2.17.5 Age and Gender

Age and gender statistics in the Lake Falls region are generally close to the State and national averages. There is a noticeable spike in the number of 18 to 24 year olds in the Triangle CSA, which can be attributed to several universities being located within the area (Appendix J, Figure 10). The distribution of men and women in the region was fairly even, at 48.6 and 51.4 percent, respectively (Census 2010, NCOSMB 2010).

2.17.6 Education

The Triangle CSA is notable for a high level of education obtained by much of the population. Orange County has the highest level of educational obtainment, with 51.5 percent of the population holding a Bachelor’s degree or higher. The high levels of educational attainment can be attributed to the presence of many high-tech industries, many hospitals and medical facilities, and higher learning institutions located throughout the Triangle CSA (Census 2010, NCOSMB 2010).

2.18 Economic Characteristics

The U.S. Department of Commerce divides the Triangle area into two Metropolitan Areas: the Durham-Chapel Hill Metropolitan Area and the Raleigh-Cary Metropolitan Area. In 2006, the current dollar (2008 dollars) gross domestic product for the Durham-Chapel Hill Metropolitan Area was over \$28.8 billion. The Raleigh-Cary Metropolitan Area current dollar (2008 dollars) gross domestic product was over \$48.0 billion. Between 2005 and 2007, these metropolitan areas experienced real gross domestic product growth above 4 percent. This growth declined, however, in 2008 due to the prevailing global recession and subsequently slow economic recovery (Table 7) (Department of Commerce 2010).

Table 7: Percent Change in the Real Gross Domestic Product for the Durham-Chapel Hill and Raleigh-Cary Metropolitan Areas

Durham-Chapel Hill Metropolitan Area						
	2005	2006	2007	2008	2009	2010
Percent change, real gross domestic product (%)	4.2	11.7	9.2	1.1	4.0	7.3
Raleigh-Cary Metropolitan Area						
	2005	2006	2007	2008		
Percent change, real gross domestic product (%)	6.0	6.9	4.4	1.9	1.4	5.8

Source: Department of Commerce 2010, 2011

The City of Raleigh is the capitol of North Carolina; therefore the State government is one of the major employers in the Falls Lake region. Other major employers with over 10,000 employees include Duke University and Medical Center, the University of North Carolina, Wake County Public School System, and IBM (Wake County 2009b). Many other high tech jobs in the region are concentrated at the Research Triangle Park, which hosts over 170 companies that employ more than 52,000 people (Research Triangle Park 2012).

The presence of many high tech jobs and an educated work force also is apparent in examination of the median incomes throughout the zone of influence. Incomes in the Triangle CSA are notably higher than the surrounding areas. Table 8 provides income data for the counties, cities, and towns immediately surrounding the project.

Since 2000, the Triangle CSA typically had unemployment rates below the North Carolina and United States average. This is likely influenced by the high number of employers in the Triangle CSA and the educated work force. These figures are illustrated in Table 9.

Table 8: Income Data

Locality	Median Household		
	Income (2006-2010)	Per Capita Income (2010 \$)	Population Below Poverty Level (%)
Town of Cary	\$89,542	\$41,700	5.0
Town of Chapel Hill	\$52,785	\$33,710	22.2
Chatham County	\$56,038	\$29,991	12.2
Durham County	\$49,894	\$27,503	16.1
City of Durham	\$46,972	\$26,725	17.9
Franklin County	\$43,710	\$21,331	15.0
Harnett County	\$42,853	\$19,274	16.5
Johnston County	\$49,745	\$22,437	15.1
Orange County	\$52,981	\$33,912	16.3
Person County	\$44,668	\$21,848	16.0
City of Raleigh	\$52,219	\$30,709	14.6
Wake County	\$63,770	\$32,592	9.7
Town of Wake Forest	\$69,222	\$31,185	7.5
State Average	\$45,570	\$24,745	15.5

Source: Census 2010

Table 9: Average Annual Unemployment Rates

Metropolitan Area	Annual Average Unemployment Rate, Percentage of Workforce											
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Durham-Chapel Hill Metropolitan Statistical Area	2.9	4.3	5.5	5.4	4.4	4.3	3.9	3.9	4.8	7.8	7.7	7.6
Raleigh-Cary Metropolitan Statistical Area	2.5	4.1	5.7	5.4	4.4	4.2	3.7	3.6	4.9	8.7	8.7	8.2
North Carolina	3.7	5.6	6.6	6.5	5.5	5.3	4.8	4.8	6.3	10.5	10.9	10.5
United States	4.0	4.7	5.8	6.0	5.5	5.1	4.6	4.6	5.8	9.3	9.6	9.0

Source: Department of Labor 2012

To estimate the economic impact from the recreation related spending at locations like Falls Lake USACE, in collaboration with Michigan State University, developed the Recreation Economic Assessment System (REAS). The REAS is an economic input-output model that was developed for USACE projects based on recreation visits and a set of economic ratios and multipliers for a region. Without recent survey data to justify making any specific adjustments to the user inputs, the REAS estimates that recreation visitors to Falls Lake spent an estimated \$35.6 million on trips within 30 miles of the project. Of this spending, 64 percent was captured by the local economy yielding \$22.8 million in direct sales to tourism related firms. These sales generated \$8.3 million in direct personal income and supported 317 direct jobs. With multiplier effects visitor spending resulted in \$35 million total sales, \$12.7 million in total personal income and supported 431 jobs (USACE 2010a).

2.19 Real Estate

USACE real estate acquisition guidance directed the acquisition of all lands below an elevation designated as necessary to safeguard against the effects of wave action, bank erosion and soil saturation, and to permit flooding when necessary. As such, in almost all cases, USACE owns all the lands within five feet above the flood control pool (elevation 264.8 feet msl) and 300 feet horizontally, whichever is greater. The final acquisition boundary consists of short tangent lengths closely aligned with and as parallel as possible to the guide acquisition contour. All land meeting the above mentioned criteria, as well as additional land purchased for recreation, was acquired by fee title, except for minor easement areas.

Approximately 38,200 total acres of land were acquired for project purposes. Of the total acreage, approximately 26,750 were specifically acquired to meet the project operations purposes. The remaining 11,450 acres were acquired as Separable Recreation lands required for access to operation lands and to ensure appropriate space for recreational facilities around the reservoir. Land acquisition for Separable Recreation lands was based on a preliminary Master Plan completed in 1968. Table 10 lists the acreage USACE acquired in the surrounding counties to develop Falls Lake.

Table 10: Distribution of Project Lands Within the Surrounding Counties*

	Durham	Granville	Wake	Total
Fee Land	14,116.97	5,452.45	18,522.04	38,091.46
Easement	8.59	97.31	79.26	185.16
Total	14,125.56	5,549.76	18,601.30	38,276.62

* - Based on USACE real estate segment maps, final audit dated January 2000. Includes flowage and road easements

The purchase of all Separable Recreation lands was completed through a 50-50 cost share with North Carolina. Nearly all project lands, except those associated with the operation of the dam, are leased and administered by North Carolina through a lease comprising an estimated 38,000 acres. In turn, North Carolina subleases lands to Wake County, the North Carolina Botanical Garden Foundation, and the City of Raleigh. The City of

Raleigh also leases land directly from USACE as part of the Forest Ridge Park and a canoe launch downstream of the Falls Lake Dam.

2.20 Accessibility

Falls Lake is less than a 20 minute drive from the cities of Durham and Raleigh. Some of the primary roads accessing these cities cross or border the reservoir. Interstate 85 crosses the upper portion of the lake between Durham and the Town of Butner. In addition, NC Highway 98 provides east-west access between Durham and Wake Forest/North Raleigh across the project and NC Highway 50 crosses north-south roughly through the mid-point of the reservoir. A number of State-maintained roads cross over the reservoir, as well. Access to recreation areas is provided by a network of State and County roads. Access to specific locations within the project is discussed on the individual “site sheets” included Section 7.0 of this Master Plan.

2.21 Interpretation

Interpretive programming at Falls Lake has been developed by USACE, NCDPR, the North Carolina Botanical Garden Foundation, Wake County, and will be included in the City of Raleigh’s Forest Ridge Park. USACE interpretive programs are based out of the USACE Visitor Assistance Center. The center provides brochures, facility maps, health and safety information, information on project regulations, and some educational and wildlife interpretive displays. USACE also operates a number of interpretive programs designed to educate the public (with most programs oriented toward children) on the project purposes. Current program titles include: Online Junior Ranger Program, Talon Tales, Water Safety Programs, Camouflage Colors, Water Quality Program, Makin’ Tracks, Skulls ‘n Skins, Life on the Edge (endangered species native to North Carolina), and Long Leaf Pines.

NCDPR operates a visitor center on the south side of the reservoir where NC 50 bisects the reservoir. In addition to the visitor center, NCDPR has developed structured interpretation programs in the following areas:

Water-Based Recreation and Safety: Falls Lake provides many recreational opportunities such as fishing, sailing, boating, water-skiing, and swimming. Educational programs incorporated into these activities stress water safety and stewardship. Program content balances the need to providing these recreational opportunities to an expanding urban population, while maintaining the quality of the resource. Balancing quality of life with quality of the environment is a central theme in environmental education.

Fish and Wildlife Habitats: A comparison of the macroinvertebrates and fish species in the Eno River with those in Falls Lake shows how a dramatic change in habitat can affect animal populations. Today, reproduction in Falls Lake ensures an adequate population of largemouth bass, bluegill, catfish, and crappie. Artificial reefs and underwater fish shelters have been constructed to support both game and nongame fish in the lake. Terrestrial habitat improvements include brush piles for

wildlife shelters, tree thinning for bald eagle management, nest boxes for wood ducks and bluebirds, and food plots with native plants. The Environmental Education Learning Experience for Falls Lake also focuses on wildlife habitats, biological communities, and human impacts on these communities.

History of the Falls Lake Project: Prior to 1978, flooding of the Neuse River caused extensive damage to public and private properties including roadways, railroads, industrial sites, and farm lands. The Falls Lake Project was developed to control damaging floods and supply a source of water for surrounding communities. Interpretive program content under this theme strives to educate visitors on the benefits of the lake by providing flood control and a dependable water supply, while simultaneously offering many recreational opportunities.

Wake County also provides educational opportunities at Blue Jay Point County Park. Facilities at the park include the Blue Jay Center for Environmental Education, garden and study pond, and overnight lodge. The education center hosts classes and exhibits on the water cycle, Neuse River basin, Falls Lake watershed, drinking water supplies, and local natural habitats and ecology.

At Penny's Bend State Nature Preserve, the North Carolina Botanical Garden Foundation provides interpretive programs include guided nature walks, day camps, and other programs focused on the natural environment and history of the site as a mill (Eno River Association 2012).

In addition, the Master Plan for the Forest Ridge Park includes plans for interpretive trails and displays focused on environmental themes (Raleigh 2006).

2.22 Recreation Facilities

USACE provides and manages recreation facilities on the lands it actively manages at Falls Lake. The area immediately surrounding the Visitor Assistance Center, dam, and tailrace includes restrooms, picnic tables, playground equipment, hiking trails, bank fishing access, and trail access to hunters using the adjacent game lands. A complete listing of the recreational sites and facilities available at Falls Lake is included in Table F-2 in Appendix F, with a more thorough review of each site in Section 7.3.

2.22.1 North Carolina Division of Parks and Recreation

NCDPR operates the majority of developed recreation facilities at Falls Lake as part of the North Carolina State Parks System.. Collectively, these facilities comprise the Falls Lake State Recreation Area (SRA). NCDPR operates a total of eight developed areas around the reservoir, with most of the facilities concentrated in the middle sections of the reservoir. Facilities provide amenities for camping (walk-in, RV, vehicle; some with electric and water hook ups), swim beaches, picnic areas, hiking trails, community building, boat ramps, playgrounds, and mountain biking trails. These facilities are discussed in greater detail in Section 7.3. A complete listing of the recreational sites and facilities available at Falls Lake is included in Table F-2 in Appendix F.

2.22.2 North Carolina Wildlife Resources Commission

Most of the undeveloped lands within Falls Lake are included in NCWRC's Butner-Falls of Neuse Game Land. NCWRC provides four boat ramps at Upper Barton, Ledge Rock, Hickory Hill and Eno River. The boat ramp sites consist of parking areas (paved and unpaved), courtesy docks, and lake access.

In addition to the lake surface area, NCWRC manages hunting within the wildlife areas that comprise the Butner-Falls of Neuse Game Lands within the project. These lands include 12 waterfowl sub-impoundments, around the lake. The sub-impoundments were constructed as part of a mitigation agreement between USACE and USFWS to replace the habitat and hunting opportunities that were lost when the Neuse River floodplain was flooded to create the reservoir. NCWRC lands are multiuse areas open to both the hunting and non-hunting public for purposes of recreation, hunting, trapping, wildlife observation, hiking and mountain biking (on designated trails), and bank fishing. The Falls Lake Trail, part of the Mountains-to-Sea State Trail, crosses through NCWRC and NCDPR-managed lands along the southern shore of Falls Lake, from the Falls Lake dam to Penny's Bend Nature Preserve. These facilities are discussed in greater detail in Section 7.3. A complete listing of the recreational sites and facilities available at Falls Lake is included in Table F-2 in Appendix F.

2.22.3 Local Government Facilities

Wake County subleases approximately 244 acres from North Carolina for Blue Jay Point County Park which is located between Lower Barton and Upper Barton Creeks on the southeast area of the lake. Wake County Parks, Recreation, and Open Space's mission at the park is to offer environmental education programming in a natural setting. The park provides approximately three acres of dedicated open space for play fields, playgrounds, an environmental education center, and an overnight lodge. Additionally, the park provides hiking trails, picnic areas, fishing opportunities and demonstration gardens and ponds associated with their education center. These facilities are discussed in greater detail in Section 7.3.3.

The City of Raleigh operates a canoe launch just downstream of the USACE Tailrace Access Area. The site provides vehicle parking and access to the Falls of Neuse River below the dam. The City also has leased land from North Carolina and USACE for future development of Forest Ridge Park, discussed in greater detail in Section 7.3.12 of this Master Plan.

2.22.4 Other Facilities

Rolling View Marina is the only commercial marina at the lake and is operated under sublease from North Carolina. The marina provides boat docking, repair services, fuel, and snacks to the visiting public. The marina is directly adjacent to the Rolling View Recreation Area just west of NC 50. The marina has about 200 slips and a public boat ramp. The site is discussed in greater detail in Section 7.3.5 of this Master Plan.

The North Carolina Botanical Garden Foundation subleases 84 acres from North Carolina for operation and management of Penny's Bend Nature Preserve. The site is located on a

peninsula, bounded on three sides by the Eno River as it flows downstream toward Falls Lake. It supports rare plant species, distinctive plant communities, and human sculpted open space. The site is discussed in greater detail in Section 7.3.6 of this Master Plan.

2.23 Recreation Activities and Needs

Visitation at Falls Lake is reported as individual visits recorded from traffic counts. A visit is considered any person visiting project lands or waters for any portion of an hour per day. The 2011 visitation to the project was approximately 1,566,692 visits. From USACE Visitation Estimation and Reporting System (VERS) this equates to 7,020,757 visitor hours for the year. Table F-4 in Appendix F shows the annual visitation to the project since 1999 (USACE 2011).

When compared to the much larger John H. Kerr Reservoir (1,668,257 visits in 2011), the difference in visitation between the two is modest. This suggests that Falls Lake absorbs much of the recreational demand from the City of Raleigh. The high rate of growth experienced in and around the City of Raleigh presents concerns related to overcrowding or exceeding the carrying capacity of the resources at Falls Lake. The lack of recent visitor survey data makes it difficult to draw conclusions related to crowding or carrying capacity. One area that has been documented and addressed is recreational motor boating. The results of a 2000 study led USACE and its managing partners to impose a moratorium on any new development that adds motor boating capacity to the reservoir. The results of this study are discussed in greater detail in Section 7.1 of this document.

Recreational activities in the region are documented in the 2009-2013 North Carolina State Comprehensive Outdoor Recreation Plan (SCORP). The SCORP lists the top 100 activities North Carolina residents participated in during the most recent year. The most popular activity identified by the SCORP was walking for pleasure, with 82 percent of North Carolina residents participating (NCDPR 2009). The top ten recreation activities reported in the SCORP are listed below from highest to lowest levels of participation.

- | | |
|------------------------------------|-------------------------|
| 1) Walking for pleasure | 6) Visit nature centers |
| 2) Family gathering | 7) Sightseeing |
| 3) Gardening or landscaping | 8) Picnicking |
| 4) Driving for pleasure | 9) Attend sports events |
| 5) View/photograph natural scenery | 10) Visit a beach |

Nine of the ten activities are made available to the public at different locations within Falls Lake, with sporting events being outside of the purposes and policies of USACE and its management partners at Falls Lake.

In addition to identifying the most popular activities within the State, the SCORP includes a ranking of each County in North Carolina based on the number of recreational facilities it provides for its population. For the purposes of the ranking, population was measured by the projected population density for 2010. The ranking is then based on the number of County residents per recreational facility offered. Durham County was ranked third, out of the 100 North Carolina counties, for 2010 population density. The County

ranked 84th for State and Federal park acres and 80th for trail miles. Granville County was ranked 49th for 2010 population density. The County ranked 91st for State and Federal park acres and 60th for trail miles. Finally, Wake County ranked second in 2010 population density. The County ranked 72nd in State and Federal park acres and 43rd in trail miles (NCDPR 2009). During the scoping effort that was a part of the master planning process, representatives from the City of Creedmoor, the City and County of Durham, Wake County, the Town of Wake Forest, and the City of Raleigh indicated that they sought to develop additional parks and/or trails within or near Falls Lake in the future to help meet the needs of their residents. These jurisdictions also noted the value of the undeveloped lands within the project. Representatives from the Town of Butner and Granville County indicated that the undeveloped lands in Falls Lake were of the highest value for their residents. Plans for future recreational development by these localities in and around the project are included in their respective comprehensive, open space, or recreational plans.

2.24 Visitation Profile

As noted above in Section 2.23, the 2011 visitation to the project was approximately 1.5 million. Falls Lake provides an abundance of public lands and recreation opportunities to an ever increasing population and expanding municipal influences. Given the growth in suburban land in the region, use of undeveloped lands within Falls Lake for hunting and non-consumptive recreation activities (e.g., hiking, mountain biking, wildlife viewing, etc.) is increasing. The growth in pedestrian-based trail use is another area of increasing use in the region. The sections below address how visitors at Falls Lake participate in some of the most popular activities identified in the SCORP.

Fishing

Fishing is one of the most popular activities pursued by visitors at Falls Lake. Anglers often pursue bass, bluegill, catfish and crappie. Artificial reefs and underwater fish shelters, maintained by NCWRC, help support game and non-game fish. USACE estimated visitor data suggests that there were approximately 599,910 angling visits in 2011, which comprised about 38 percent of the overall visitation (USACE 2011).

Hunting

USACE estimated visitor data identified approximately 59,702 hunting visits in 2011, which comprised about four percent of the overall visitation (USACE 2011). Although NCWRC doesn't track the number of visitors to game lands, these lands are considered a significant resource to hunters in the area.

Camping

In 2011, USACE visitor data estimated 47,449 visits participating in overnight camping activities (three percent of overall visitation) (USACE 2011). Overnight stays generate more economic impacts to the local economy than day use-activities. Camping is available at Rolling View, Shinleaf, B.W. Wells (group reservations only) and Holly Point (NCDPR 2010). Overnight stays at Falls Lake are not as popular as the day-use activities.

Boating

Boating is one of the most popular activities at Falls Lake. USACE estimated almost 329,754 visits in this activity mix, which accounts for 21 percent of the overall mix (USACE 2011). The only marina at the project is located at Rolling View. Highway 50, Rolling View, Beaverdam, Hickory Hill, Ledge Rock, Eno River, and Barton Creek have boat launching facilities and, during the spring and summer months, are very popular with the boater user group. Table F-3 in Appendix F shows the elevations at which the boat ramps end. As noted above, USACE and its partners have adopted a moratorium on increasing motor boat access to the reservoir, based on the high level of use and the effects of crowding on visitor experiences.

Swimming

In 2011, USACE visitor data identified an estimated 248,915 visits for swimming. This accounted for nearly 16 percent of the overall visitation mix (USACE 2011). Sandling Beach, Rolling View, and Beaverdam offer sandy swim beaches at Falls Lake for day users. Holly Point offers two swim areas for campers only. All of these sites provide modern bathhouses with restrooms and changing facilities.

Trails

Hiking and biking opportunities exist throughout Falls Lake project lands. NCDPR visitation activity estimates show approximately two percent of the visits are for hiking activities. This figure is likely much higher if data were available for the NCWRC managed game lands, where a greater portion of the project's trail network exists. The increasing residential development surrounding the project has increased demand for these facilities. USACE provides three short (less than 1.5 miles) trails around the dam and Tailrace Access Area. The Falls Lake Trail was constructed and maintained by the volunteer group, the Friends of the Mountains-to-Sea Trail. The trail starts at the Tailrace Access Area and continues for a total of 60 miles past Interstate 85 to the Eno River at Penny's Bend Nature Preserve. In addition to these trails, NCDPR operates a total of 12 hiking trails and Wake County has over five miles of trails at the Blue Jay Point County Park. Associated with the long distance trails, there has been increased demand for the establishment of additional low-impact designated camping spots. The dedicated mountain bike trail on the project is the 13-mile mountain bike trail at Beaverdam Recreation Area. NCWRC currently has a Memorandum of Agreement with Triangle Off Road Cyclists that provides an 8.8 mile mountain bike trail at the Sycamore Point management area. Given the dispersed nature of this activity and the trail resources within Falls Lake, the number of trail users is likely greatly underestimated.

Picnicking

In 2011, USACE visitor data identified an estimated 247,416 visits for picnicking. This accounted for nearly 16 percent of the overall visitation mix (USACE 2011). Picnicking in a natural setting also is a popular activity that is easily incorporated into other activities to Falls Lake. There are several recreation areas that provide picnic facilities. Beaverdam and Sandling Beach provide large, group picnic shelters, while Highway 50 and Rolling View provide more family picnic table settings.

2.25 Related Recreational, Historical, and Cultural Areas

The Piedmont region of North Carolina contains a wide range of natural environments which meet a variety of recreational purposes. In addition, the region has a long and rich history of human activity. Many of these natural and historic areas have been conserved and made available for public use through State parks, game lands, historic monuments, or other public recreation areas.

Falls Lake is one of many areas in the region that contains natural and cultural resources. As noted above, its proximity to the City of Raleigh makes it a popular destination for visitors. In addition to Falls Lake, area residents have many similar locations to choose from, including other State parks, regional County parks, game lands and national forests. Table F-5 in Appendix F lists the notable Federal and State lands within a 60 mile radius of the project, as well as the local (e.g., County or City) parks of more than 100 acres. Many of these locations also are depicted on Appendix J, Figure 11.

In addition to the regional scale recreation opportunities at more developed facilities, game lands are important resources to the hunting user group. The game lands at Falls Lake provide over 22,000 acres of public land for hunting and wildlife viewing opportunities; a significant amount of land in close proximity to urban populations. Table F-6 in Appendix F lists public game lands, other than the Butner-Falls of Neuse Game Land, that are available for hunting within 60 miles of the project.

2.26 Pertinent Public Laws

Civil Authority. Unless otherwise provided by Federal law or regulation, State and local laws and ordinances apply on Falls Lake project lands and waters, unless those laws and ordinances interfere with a Federal purpose. Enforcement of State and local laws and ordinances will be handled by the appropriate agencies, with the support of USACE.

USACE Authority. Rules and regulations governing public use of water resources development projects administered by USACE are contained in Title 36, Part 327 of the Code of Federal Regulations. Persons designated by the District Engineer have the authority to issue citations for violations of rules and regulations governing public use of USACE water resource projects. If a citation is issued, the person charged with the violation may be required to pay a forfeiture amount or appear before a U.S. Magistrate for trial.

Federal Authority. A number of Federal public laws and Executive Orders pertain to authorization of the project, present and future development, and operation of project lands. A listing of Federal laws that guide the management of Falls Lake is included in Appendix I.

2.27 Management Plans

In accordance with ER 1130-2-550 and EP 1130-2-550, a Master Plan should establish broad management guidelines and policies which will form the basis for preparing a number of detailed management plans. Currently, Falls Lake is operating under the plans included in the *Falls Lake Operational Management Plan* (USACE 1994). The OMP generally describes natural resource and park management conditions and objectives, as well as specific plans for achieving these objectives. These plans are listed on Table 11, with a general description of their content and date of most recent update. In addition, partner agencies have developed site-specific management plans.

2.28 Summary

The preceding discussion of the physical, natural, historic, and socioeconomic resources identified the following important implications for the use, management, and development of resources at Falls Lake. The table below summarizes these discussions and identifies issues to be addressed in this Master Plan update.

Table 11: Falls Lake Management Plans

Management Plan	Description	Last Update
Forest	Documents existing and desired forest conditions	1994
Wildlife	Documents known and probable wildlife species.	1994
Aquatic Resources	Documents existing and desired water quality and aquatic habitat conditions.	1994
Park Management	Develops a five year plan for management of wildlife lands and recreation facilities.	1994
Safety	Identifies safety concerns, responsibilities, and management techniques.	1994
Security	Identifies security actions, concerns, and responsibilities throughout Falls Lake.	2003
Visitor Assistance	Identifies authority, activities, and responsibility for managing visitor activities	1994
Lakeshore Management	Provides authority and direction to address encroachments on the lake or lakeshore.	1994
Outgrants	Identifies responsibilities for providing and managing special events and permits.	1994
Maintenance	Identifies responsibilities, standards, and procedures for maintaining facilities.	1994
Interpretation	Identifies interpretive resources and provides direction on their best use.	1994
Cultural Resources	Provides direction for management, protection, and interpretation of these resources.	1994
Special Programs	Identifies special programs and provides guidance for administering them.	1994

Table 12: Summary of Factors Influencing Resource Management and Development at Falls Lake

Resource	Summary
Reservoir	Falls Lake includes approximately 12,400 acres of water and an additional 25,600 acres of surrounding project lands. USACE actively manages a small portion of these lands. The remaining acreage is leased to North Carolina. The State has extended subleases to Wake County, the City of Raleigh, and the North Carolina Botanical Garden Foundation.
Lake Operation	USACE follows a standard guide curve to account for seasonal changes in precipitation. Water management strategies are geared to provide flood control and other project purposes.
Hydrology and Ground Water	Like many reservoirs, the movement of water into, through, and out of the project lands is influenced by regional and site specific conditions, including annual and seasonal precipitation patterns and the geology and landforms.
Sedimentation	Falls Lake was designed to absorb certain levels of sedimentation. Formal surveys suggest there is ample sediment storage remaining in the reservoir.
Surface Water Quality	The quality of surface water within the reservoir is influenced by conditions throughout its watershed, including land use patterns and the presence of pollution sources. Despite water quality concerns throughout the watershed, water quality in the reservoir allows for all forms of recreational use to continue.
Geology, Topography, and Soils	Physical development and changing natural conditions have altered previously documented soils and topography. In most cases, these changes have not affected the current or future use of project lands.
Climate	The regional climate has influenced the development and management of Falls Lake, including the precipitation and inflows, water levels in the reservoir, as well as the recreational opportunities offered at the project.
Vegetation Resources	Vegetation resources within project lands are influenced by regional and site specific conditions, including climate, water supply and quality, soils, and topography. Increasing levels of invasive species and infestations across the region is a developing management concern at Falls Lake.
Fish and Wildlife Resources	Enhancing fish and wildlife resources within project lands is one of the Falls Lake project purposes. Since the 1981 Master Plan, the managing partners have continued efforts to enhance aquatic and terrestrial habitat at the project.
Rare and Endangered Species and Communities	Within Durham, Granville, and Wake counties, five Federally-listed species are known to exist (USFWS 2010). These species, along with the State-listed species that exist within the project, are strongly influenced by the presence of floodplains, wetlands, and surrounding development pressures.
Mineral and Timber Resources	Currently there are no mineral harvesting activities within the project boundaries. Timber harvesting is accomplished in accordance with project purposes of recreation and wildlife enhancement. In the future, these activities could be expanded.
Land Use	Adjacent to the project lands, suburban development and agriculture are the predominant land uses, with pockets of single family residential development concentrated around the boundaries of the reservoir.
Borrow Areas and Utilities	During the construction process for Falls Lake, borrow areas were developed to accumulate the soil necessary to complete the earthen dam. Currently, there are no active borrow areas within the project lands. Utilities run through various parts of the project, providing service to individual sites and the surrounding region.
Paleontology	There are no known paleontological resources beneath project lands at Falls Lake.

Table 12: Summary of Factors Influencing Resource Management and Development at Falls Lake

Resource	Summary
Cultural Resources	Many of the existing cultural resources within the project boundary were damaged or lost before Federal regulations were enacted to protect them. Existing resources play an important role in the history and interpretation of project lands, with three listed in and 34 deemed eligible for listing in the National Register.
Visual Quality	The steep slopes, mature vegetation, and clear water that comprise Falls Lake highlight the visual quality around the reservoir. The lack of development on the project lands enhances this visual quality. Residential development and shoreline stabilization efforts have resulted in increased human presence on and adjacent to project lands.
Demographics	In 2010, North Carolina had an estimated population of just over 9,535,483. This ranks North Carolina as the 10th most populous of the 50 states and the District of Columbia. The Triangle CSA comprises over 85 percent of the population within the zone of influence. Wake, Durham, and Johnston counties are the most populous of those in the Triangle CSA and make up nearly 62 percent of the population within Falls Lake area. Adjusting to and providing for these growing populations, while maintaining its mission at Falls Lake, is a constant challenge for USACE and its partners.
Economic Characteristics	In 2010, the median household income in North Carolina was \$45,570. Median household incomes in the towns and counties surrounding Falls Lake ranged from \$42,853 to \$89,542 in the Town of Cary. This variation in such a rapidly growing region illustrates the need for USACE and its partners to provide for a wide-range of income levels.
Real Estate	Construction of the reservoir required USACE to purchase lands to protect property associated with the authorized purposes including operation for flood damage reduction. Monitoring these lands and permitting the use of these lands requires a great investment of time and resources by USACE.
Accessibility	Falls Lake is less than 20 minutes from the cities of Durham and Raleigh and, as such, is crossed and bounded by a number of roads. Interstate 85 crosses the upper portion of the lake between Durham and Butner. NC Highway 98 provides east-west access between Durham and Wake Forest/North Raleigh, while NC Highway 50 crosses north-south roughly through the mid-point of the reservoir.
Interpretation	Interpretive programming at Falls Lake has been developed by USACE and NCDPR. Each agency has its own visitor center that provides educational materials and is the base for many of the educational and interpretive programs provided at the project. Wake County also provides education opportunities at the Blue Jay Point County Park environmental education center which has classroom space and education resources. Coordinating and expanding these programs is at the forefront of each agency's mission at Falls Lake.
Recreation Facilities	Recreation opportunities at the project include biking, boating, camping, fishing, hiking, hunting, picnicking, and swimming. Maintaining high quality recreational experiences is one of the primary purposes of Falls Lake.
Recreation Activities and Needs	Recreational facilities at Falls Lake currently meet the most popular recreational activities highlighted in the SCORP. In some cases, such as with motorized boating, the resources at Falls Lake have met their carrying capacity to support certain recreational activities. Monitoring regional demands and the ability of the Falls Lake resources to meet these needs will allow USACE, North Carolina, and the other management partners to provide natural resource-based recreational opportunities in the future.
Visitation Profile	Visitation to Falls Lake and other regional points of interest is fueled primarily by recreational activities. USACE and North Carolina strive to meet this demand at Falls Lake while remaining consistent with its other purposes.
Related Recreational, Historical, and Cultural Areas	Falls Lake is one of many areas that provide a wealth of both land- and water-based recreation opportunities in the region. Located within one of the most rapidly growing areas in North Carolina, its role in the region is greatly enhanced.

3.0 Management Issues

This section provides an overview of the key administrative, social, and environmental factors that influence and constrain present and future options for use, management, and development at Falls Lake. This information supplements the discussion in Section 2.0. Considered together with the Resource Objectives presented in Section 6.0, these factors determine the most appropriate uses of project lands.

3.1 Adapting to Regional Growth

As discussed earlier in this document, the region surrounding Falls Lake has experienced high levels of growth and development compared to other portions of North Carolina. This growth has increased the demand for and value of outdoor recreation. The Land Classifications, Recommended Future Uses, and Resource Objectives presented in this Master Plan will provide USACE, North Carolina, and the other management partners with a tool for planning balanced recreational development on project lands. The specific details for new developments are beyond the scope of this Master Plan and will be addressed on a case-by-case basis as needs and/or opportunities arise.

Regional growth has and will continue to result in increased demand for lands adjacent to the project. The increasing number of residential properties, as well as the associated infrastructure, results in visual and physical encroachments on project lands. The Land Classifications, Resource Objectives, and Recommended Future Uses for project lands attempt to address these impacts through enhanced management to buffer project lands from surrounding development. Future updates to the Falls Lake OMP will further develop this strategy.

3.2 Changing Environmental Conditions

Like much of the surrounding region, Falls Lake continues to experience changes in its natural resource conditions. These changes include the effects of global climate change, which continue to alter the composition of forest and wildlife populations in and around project lands and could continue to do so (EPA 2010). Many of the activities and facilities that exist within the project boundary were designed to take advantage of the surrounding natural conditions. Changing conditions could affect the use of existing facilities or the need for future recreational sites. The Land Classifications in this Master Plan seek to protect sensitive environmental areas that are most susceptible to change, by directing future development into other areas and providing recommendations for the management of existing developments. In addition to the Master Plan, the Falls Lake Forest Management Plan will further address these areas and changing forest conditions.

Another changing environmental condition is the increasing spread of invasive species throughout the region. The spread of invasive species is the result of regional development, global climate change, changing atmospheric conditions, and increased movement of people and materials through different regions (Dukes and Mooney 1999). The spread of hemlock woolly adelgid (*Adelges tsugae*) across the western portion of the State is one example of this phenomenon. Such an event can result in temporary or permanent closure of select project lands, reduction or loss of vegetation and habitat within the project, and changes in aesthetic

values within the project. Future updates to USACE natural resource management plans and the OMP will allow USACE and its partners to continue to adapt and respond to these conditions.

3.3 Managing for High Pool and Low Pool Levels

Management of any reservoir requires the consideration of high and low pool conditions to meet the many purposes of a specific project. At Falls Lake, purposes such as flood damage reduction are prioritized ahead of recreation. In some cases, this may result in recreational facilities being inaccessible or unusable due to high or low water levels. The Resource Plan portion of this document identifies locations where future recreational facilities could be developed. The design of these facilities should take into account the pool level fluctuations that occur in Falls Lake. The management of these fluctuations is beyond the scope of this Master Plan but is addressed in the Falls Lake Water Control Plan (USACE 1990).

3.4 Balancing User Needs

USACE, North Carolina, and the other management partners serve a large variety of user groups at Falls Lake. These groups use the project for hiking, boating, mountain biking, fishing, wildlife viewing, hunting, trapping, and camping. As visitation has grown and the population within the region has increased, USACE, North Carolina, and the other management partners have increased their efforts to provide balanced recreational opportunities. This Master Plan provides additional direction, through updated Land Classifications and Resource Objectives that will designate project lands for specific uses. The Resource Plan portion of the document also provides guidance on providing appropriate facilities for different user groups. The implementation of this guidance, however, will come through future development plans.

3.5 Addressing Unauthorized and Inappropriate Use

Unauthorized and inappropriate use occurs whenever visitors engage in activities that are not appropriate for the given area of the project, are in conflict with regulations by the given management agency, or violate the law. Some of these inappropriate uses are addressed in this Master Plan, by updating Land Classifications to define more appropriate use of project lands or by recommendations to address growing trends.

3.6 Lessee Coordination

USACE does not actively manage the majority of project lands at Falls Lake. Although this reduces the amount of staff and funding USACE requires for day-to-day operation at the reservoir, it creates a special set of circumstances through which USACE must operate to achieve its mission and goals at Falls Lake. Similarly, the State and local agencies that operate within the project conduct day-to-day operations on land that is not owned by their agency. The Land Classifications, Resource Objectives, and other policies included in this Master Plan represent the continued collaboration between USACE and North Carolina to successfully manage the resources and meet each agency's purposes, goals, and objectives.

4.0 Public Involvement and Coordination

In 2009, USACE and North Carolina initiated the planning process to update the 1981 Falls Lake Master Plan. The planning process involved Federal, State, and local agencies; national and local groups; local businesses; and private citizens.

4.1 Public Scoping Meetings and Comments

During the initial stages of the planning process, USACE held two public open houses on January 26, 2010 at Durant Nature Park's Campbell Lodge in the City of Raleigh and January 27, 2010 at the Durham East Regional Library. Prior to the open houses, announcements were sent to individuals, organizations, and agencies on the Falls Lake mailing list. Announcements also were posted in local newspapers, on USACE web sites, and announced on local television and radio stations.

The open house style allowed guests to come and go in a timeframe that suited their schedules. The open house format also allowed members of the planning team to interact with their guests, to answer questions about the planning process, and to solicit input that would help guide the master planning process. A public comment period was held from the date of the mailings (January 6, 2010) until 30 days following the open houses. Comments could be submitted in writing, via email, or on a USACE web site during the comment period. All written comments received during this period were considered during the master planning process. While not all of the subjects raised during the comment period can be addressed in the master planning process, the information obtained during the comment period greatly informed the master planning process. The comments received during this initial scoping period and during the public review of this document are included in Appendix E and accompanied by responses from USACE and North Carolina.

4.2 Agency Scoping Meetings

As part of the effort to update the Falls Lake Master Plan, USACE held an agency meeting to solicit additional input on the master planning process. USACE invited representatives from Federal and State agencies in North Carolina, with jurisdiction or interest in the resources at Falls Lake, along with representatives from local counties and towns, to a meeting at the Falls Lake Visitor Assistance Center on January 23, 2009. During the meeting, the planning team presented an overview of the master planning process, discussed existing plans and resources concerns, and solicited comment and input from the attendees. While not all of the subjects raised by these agencies are within the scope of the Master Plan, the information obtained during the comment period greatly informed the master planning process. The GIS data obtained from the meeting attendees also was a valuable addition to the Master Plan. Along with comments received from the public, comments received from the agencies during the initial scoping period and during the public review of this document are included in Appendix E and accompanied by responses from USACE and North Carolina.

Many of the local representatives that attended this agency meeting suggested that USACE and North Carolina include them throughout the master planning process. In response to this request, USACE and North Carolina scheduled meetings in late 2011 and early 2012 with representatives from the City of Creedmoor, the Town of Butner, the Town of Wake Forest, the City of Raleigh, Durham City and County, Granville County, and Wake County. During these meetings, representatives from USACE and North Carolina updated local officials on the master planning process, presented different options for the classification of project lands, and solicited further input from the attendees. Input received during these meetings was used to make some of the final decisions on the Land Classifications, Recommended Future Uses, and Resource Objectives that are presented in this Master Plan.

4.3 Public Review and Comment on the Draft Master Plan/PEA

The Master Plan/PEA was distributed to the Falls Lake distribution list included in Appendix D. The document also was available for public review on the USACE web site and at the USACE Visitor Assistance Center, Durham County East Regional Library, and Wake County North Regional Library.

5.0 Land Allocation and Classification

All project lands at Falls Lake were acquired fee simple or under easement to support authorized project purposes. The purposes for Falls Lake, as authorized by Congress, are flood damage reduction, water supply, downstream water quality, fish and wildlife enhancement, and recreation.

5.1 Land Allocation

Land allocation is the identification and documentation of lands at USACE projects in accordance with the authorized purposes for which they were acquired. There are four primary land allocation categories applicable to USACE projects; however, lands at Falls Lake were purchased under only two of these allocations: Project Operations and Separable Recreation (Appendix J, Figure 18).

Project Operations lands are those lands acquired to provide safe and efficient operation of the project for its authorized purposes. These project purposes include flood damage reduction, water supply, downstream water quality, fish and wildlife enhancement, and recreation. Approximately 34,737 acres are included in the Project Operations allocation. It should be noted that this acreage includes all of the lands that were needed to operate the reservoir.

Additional lands were acquired outside the acquisition policy for Project Operations lands for the purpose of supporting recreation at Falls Lake. The purchase of these Separable Recreation lands was completed through a 50-50 cost share with North Carolina. Land acquisition for these Separable Recreation lands was based on a preliminary Master Plan completed in 1968. The 1968 Master Plan acquisition policy identified the management areas available for recreational development. Each management area was then analyzed for suitability in terms of such land use planning factors as vegetative cover, vehicular accessibility, relationship to the reservoir, and budget constraints. The analysis was subjective yet uniformly applied so that each site's recreation development potential was relative to the other sites. Approximately 3,453 acres are included in the Separable Recreation allocation.

Although the lands were purchased and allocated to meet different purposes, allocation categories are important to acquisition rather than management. In numerous cases, lands allocated for Project Operations and Separable Recreation have been combined into individual management areas. Therefore, this Master Plan focuses primarily on Land Classifications instead of Land Allocations. These classifications are discussed in the following section.

5.2 Land Classifications

All project lands are classified to provide for development and resource management consistent with authorized project purposes and other Federal regulations. The classification process refines the land allocations to fully define the management and use of project lands and considers public preferences and needs, legislative authority,

regional and project-specific resource requirements, and suitability. Management and use of the lands assigned to each Land Classification are discussed in the following section. The individual management areas included in each of the classifications are listed in Table 13 and shown on Appendix J, Figures 12-14. Additional information on each management area is presented in Section 7.2 and 7.3 of this Master Plan. Acreages presented throughout this Master Plan are based on GIS data and not official USACE real estate information. The GIS data is useful for planning purposes; however, formal subleases must rely on the official property descriptions contained in the real estate information.

5.2.1 Project Operations

This classification includes lands required for the dam and associated structures, Visitor Assistance Center, maintenance compounds, and other areas that are used by USACE to operate and maintain Falls Lake. Project Operations also includes lands used by North Carolina and its lessees to maintain operations at their respective management areas. When compatible with operational requirements, these lands may be used for Recreation and Multiple Resource Management, as well. Approximately 374 acres of land at Falls Lake are classified as Project Operations.

There are several unique locations within the project that are classified as Project Operations, based on the role they serve. These sites are often associated with the larger management area that they are adjacent too; however, for the purposes of the Master Plan they are removed from the discussion of these sites. These unique Project Operations sites are listed in Table 14 along with the acreage included in this classification and a brief description of their role in the given agency's operation. These sites also are illustrated on Appendix J, Figures 12 –17. The Visitor Assistance Center and Tailrace Access Area are described in Section 7.3 of the Master Plan, as they also provide recreational opportunities.

5.2.2 Recreation

Recreation lands are designated for intensive levels of recreational use to accommodate and support the preferences and needs of visitors within the capabilities of the natural resource base. They include lands on which existing activities are located and allow for developed public recreation facilities, concession development, and high density or high impact recreational use. Low density recreation and wildlife management activities compatible with intensive recreation use are acceptable. At Falls Lake, Recreation lands include lands managed by USACE, North Carolina, and the other management partners. Given the progress of the plans for the City of Raleigh's park at Forest Ridge, that management area was included in the Recreation Land Classification. Approximately 3,630 acres of land are classified as Recreation at Falls Lake.

Table 13: Land Classification Acreages for Management Areas

Site (Site #)	Project Operations	Recreation	Multiple Resource Management	Site (Site #)	Project Operations	Recreation	Multiple Resource Management
B.W. Wells (7.3.11)		480	107	Loblolly Point (7.2.4)			126
Beaverdam (7.3.9)		856	315	Neuse Bend Point (7.2.2)			397
Blue Jay Point County Park (7.3.3)	17	244		Neuse River Greenway and Canoe Launch (7.3.13)		3.9	
Bluff Point (7.2.9)			90	Penny's Bend Nature Preserve (7.3.6)			84
Butner-Falls of Neuse Game Land (7.3.2)	5	66	15,264	Plantation Point (7.2.8)			241
Cardinal Point (7.2.11)			106	Quail Roost (7.2.6)			467
Cedar Point (7.2.3)			214	Redwood Point (7.2.10)			193
Creedmoor Peninsula (7.2.15)			185	Rocky Branch Point (7.2.18)			222
Falls Lake Visitor Assistance Center (7.3.1)	159	34	53	Rolling View (7.3.5)		778	15
Forest Ridge (7.3.12)		522		Sandling Beach (7.3.7)		563	
Hackamore Point (7.2.14)			131	Shinleaf (7.3.4)		307	
Hickory Bend (7.2.5)			209	Stoney Hill Point (7.2.19)			251
Highway 50 (7.3.8)		62		Sycamore Point (7.2.17)			1,134
Holly Point (7.3.10)		491		Tailrace Access Area (7.3.14)	24		
Honeycutt Creek (7.2.1)			427	Three Creeks Point (7.2.20)			61
Horse Creek Peninsula (7.2.21)			182	Tri-County Access (7.2.13)			598
Interstate 85 Overlook (7.2.12)			87	Wehadkee Point (7.2.7)			645
				Woodpecker Ridge (7.2.16)			479

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Table 14: Unique Locations Classified as Project Operations

Location	Acreage	Project Operations Role
Beaverdam	3	Dam structure separates portion of the lake from the main body of the reservoir
City of Raleigh Water Intake	3	Contains infrastructure used for City's water supply
NCDPR Management Center	156	Offices and maintenance facilities used to support NCDPR management activities
NCDPR Yorkshire Center	7	Offices used to support agency operations throughout North Carolina
Wake County Waste Collection Site	3	Area used to support County's waste collection operation

5.2.3 Environmentally Sensitive

This classification consists of areas where certain physical, ecological, cultural, or aesthetic features have been identified as especially sensitive to adverse environmental impacts. Development of facilities on lands within this classification is normally limited or prohibited to ensure that the sensitive areas are not impacted. Given the protection that must be provided to these resources, project lands are not identified in this document with this Land Classification. Sensitive resources, however, are identified in the GIS database that accompanies this Master Plan, along with other data and reports, to ensure the appropriate level of protection and consideration are provided under current and future management.

5.2.4 Multiple Resource Management

This classification, which contains approximately 21,196 acres, includes lands managed for one or more of the following subclassifications:

Recreation-Low Density: These lands are designated for dispersed and/or low impact recreation use. Development of facilities on these lands is limited. Emphasis is on providing opportunities for non-motorized activities such as hiking, biking, fishing, hunting, trapping, sight-seeing, or nature study. Some limited facilities are permitted, including trails, parking areas and vehicle controls, as well as primitive camping and picnic facilities.

Wildlife Management: These lands are designated specifically for wildlife management, although all project lands are managed for fish and wildlife enhancement in conjunction with other land uses. Wildlife management lands are actively managed or enhanced to create valuable habitat suitable for game and/or non-game species. These activities are conducted as identified by the managing agency's forest and wildlife management plans.

Wildlife lands are available for dispersed uses such as sightseeing, wildlife viewing, nature study, hiking, and biking. Consumptive uses of wildlife, including hunting,

fishing, and trapping, are encouraged when compatible with the wildlife objectives for a given area and with Federal and State fish and wildlife management regulations.

Vegetation Management: Management activities in these areas focus on the protection and enhancement of forest resources and vegetative cover. USACE, North Carolina, and the other management partners conduct active vegetation management activities, such as timber harvesting, regeneration activities, and prescribed burning to promote forest health, protect water quality, improve aesthetics, and enhance wildlife habitat. These activities are conducted as identified by the managing agency's forest and wildlife management plans.

Inactive and/or Future Recreation Areas: This sub-classification consists of lands for which recreation areas are either currently in the planning stages, are held in an interim status for future recreation possibilities, or lands that contain existing recreation areas that have been temporarily closed. Falls Lake contains a number of these lands. The lands are managed for multiple purposes including wildlife and vegetation management and low density recreation until if and when they are developed as recreation areas.

Given the interdependence and overlap of the first three of these subclassifications, the Multiple Resource category has not been further subdivided, except to identify future recreation areas. The subdivisions are more clearly identified by the Recommended Future Uses, illustrated on Appendix J, Figures 15-17, which identify the preferred use for project lands in the future. All agencies operating at Falls Lake manage lands in the Multiple Resource Management classification.

5.2.5 Mitigation Lands

This classification includes those lands specifically designated to offset or mitigate for habitat losses associated with the development of a USACE project. During the planning, design, and construction of Falls Lake, USACE and USFWS came to an agreement on the amount of land that would need to be set aside for waterfowl impoundments and permanent wildlife management to mitigate for the loss of hunter man-days as a result of the construction of the project. The proposed series of green tree and diked waterfowl subimpoundments were designed to provide 860 acres of optimum waterfowl habitat and additional hunting opportunity. General management of these impoundments is outlined in DM 33 dated 20 May 1986, revised 20 August 1986 (USACE 1994). The agreement between USACE and USFWS did not specify specific locations within the project; therefore, no lands were acquired solely for mitigation. As such, this Master Plan does not apply the Land Classification of Mitigation Lands.

5.2.6 Easement Lands

Easement lands were acquired for a specific purpose and do not convey the same rights of ownership to USACE as other lands. Easement lands at Falls Lake include flowage easements and road easements. Flowage easements consist of lands for which USACE did not acquire fee title but did acquire (1) the right to enter onto the property in connection with the operation of Falls Lake and (2) the right to flood the property to meet the purposes of the project. Road easements were acquired to provide USACE and

managing partners with access to project lands that otherwise would be inaccessible. There are approximately 183 acres under easement.

Management of easement lands is performed in strict accordance with the terms and conditions of the easement acquired for the parcel of land. While these lands are outlined and discussed in this Master Plan, their specific locations and boundaries are defined by USACE Real Estate documents.

5.2.7 Rationale for Land Classifications

In most cases, the Land Classifications presented in this Master Plan, as well as the Recommended Future Uses, are consistent with the Land Classifications and policies included in the 1981 Master Plan. This consistency highlights the unvarying basis for Land Classification decisions. The intent of the land classification process is to fully utilize project lands in accordance with authorized project purposes, consideration of public desires, and regional and project specific resource requirements and capabilities. USACE and North Carolina seek to maintain a balance between high and low intensity recreational options at Falls Lake, while also providing for future management partners. Given the high rate of growth experienced in the region, and documented in Sections 2.17 and 2.18 of this Master Plan, there will continue to be a need for such development at Falls Lake. This need was emphasized in the comments received during the public open houses held in 2010 and the agency meetings held in 2010, 2011, and 2012, which are discussed in greater detail in Section 4.0 of this Master Plan.

USACE and North Carolina also recognize the need to continue to classify select lands as Project Operations to support their missions at Falls Lake. Lands included in this classification were carefully selected to support the management agencies at Falls Lake while not interfering with the public's use and enjoyment of Falls Lake.

In order to update the Master Plan and meet the current Land Classification definitions, maps included in the 1981 Master Plan were reviewed and translated to the new definitions. Table 15 provides an illustration of how the 1981 definitions translate to those used in this document.

In some cases, small changes were made to account for new development around the project. These changes ranged from new parking lots to new parks (Blue Jay Point and Forest Ridge). Such changes resulted in lands that were classified as Wildlife Management or Low Density Use being reclassified as Recreation. In most cases, however, the overall intent of how a specific management area was to be used was not changed. Therefore, the "site sheets" included in Sections 7.2 and 7.3 of this Master Plan make reference to this section of the document. In locations where changes were made from this rationale, a specific explanation is included on the site sheet.

Table 15: Conversion Between 1981 and 2012 Land Classifications

1981	2012
Operation – Natural Area	Multiple Resource Management
Operation – Recreation Intensive Use	Recreation
Operation – Recreation and Wildlife Low Density Use	Multiple Resource Management
Operation – Recreation Low Density Use	Multiple Resource Management
Operation – Wildlife Management/Reserve Forest Land	Multiple Resource Management
Project Operations	Project Operations
Separable Recreation*	Recreation or Multiple Resource Management

* Separable Recreation is a Land Allocation that was displayed with Land Classifications in the 1981 Master Plan. For comparison purposes, it is presented in this table.

6.0 Resource Objectives

Resource objectives are clearly written policy statements, specific to a project, that specify attainable management goals for of natural and man-made resource development and/or management. They must be consistent with authorized project purposes, Federal laws and directives, regional needs, resource capabilities, and expressed public desires.

Specific Resource Objectives were developed for each of the following issues:

- Access
- Aesthetics
- Cultural Resources
- Fish and Wildlife
- Forestry
- Land Use Planning/Management
- Natural Resources
- Project Operations
- Recreation
- Safety
- Water Quality

These Resource Objectives developed for Falls Lake are summarized in Table 16.

These overall objectives provide a consolidation of the information presented in the previous chapters of this Master Plan. The Resource Objectives will be met, either wholly or partially, within the Falls Lake project area by agencies involved in active management of specific areas.

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Table 16: Falls Lake Resource Objectives

Project Issues / Resource Topics	Resource Objectives
Access	<ul style="list-style-type: none"> • Provide public access to project lands and waters for recreational use, except where sensitive resources or public safety require restrictions. • Continue to prohibit private exclusive use of project lands or facilities. • Ensure appropriate access is available before new management areas are developed. • Provide facilities that are accessible within the requirements of the Americans with Disabilities Act (ADA).
Aesthetics	<ul style="list-style-type: none"> • Promote land management practices that will conserve and promote regionally representative natural landscapes and utilize native plant species. • Blend manmade features into the natural landscape and the existing architecture. • Site new facilities on project lands to reduce their visual impacts on lake and recreation area users. • Maintain visual buffers of natural vegetation along the shoreline to screen developments from lake users. • Screen parking areas and other utilitarian features from the lake and major recreation areas (essential shoreline development, such as beaches, boat ramps, or fishing piers are exempt from this requirement). • Retain and enhance natural visual buffers between the project and surrounding land uses. • Manage aesthetics and require an aesthetic assessment for land use request reviews.
Cultural Resources	<ul style="list-style-type: none"> • Protect known significant cultural resources. • Conduct archaeological review and survey as appropriate for land disturbing activities in areas not previously surveyed and/or cleared. • Enhance public awareness and appreciation of cultural resources through means such as interpretive programs to benefit visitors' understanding, while preserving and monitoring the resources' integrity.
Fish and Wildlife	<ul style="list-style-type: none"> • Ensure that future land disturbing activities will not negatively impact the fish and wildlife resources within Falls Lake. • Sustain and enhance plant and animal populations to ensure the continued public enjoyment of both consumptive and non-consumptive uses. • Protect and enhance rare, threatened, and endangered species of plants and animals, as well as important habitats. • Provide diverse cover types and succession stages of vegetation utilizing native vegetation to enhance native wildlife populations. • Provide trail opportunities for multiple user groups in conjunction with other local and regional trail systems. • Employ good stewardship practices, such as the use of soil conservation measures. • Accommodate and support consumptive uses of wildlife, including hunting, fishing, and trapping, when compatible.
Forestry	<ul style="list-style-type: none"> • Manage forest resources to ensure healthy and diverse forests. • Use balanced forest management plans to improve wildlife habitat, aesthetics, forest health and vigor; reduce the risks of wildfire, insect and disease infestations; and maintain a variety of cover types and tree species. • Retain thinning, regeneration harvests, and prescribed burns as tools for achieving desired wildlife and forest management objectives. • Use interpretive programs to increase visitor awareness and understanding of forest management practices.
Land Use Planning and Management	<ul style="list-style-type: none"> • Explore alternatives to using public lands for right-of-way requests for utility or road projects that would cross project lands. • Minimize and mitigate impacts to natural, cultural, and manmade resources, if public lands must be used for right-of-way requests. • Work with local officials to prevent conflicts that can arise from close proximity of legitimate usages of project lands (such as hunting or other recreational uses) and adjoining private development.
Natural Resources	<ul style="list-style-type: none"> • Actively manage natural resources for multiple uses wherever possible, with emphasis on enhancing and protecting environmental quality. • Increase visitor awareness of impacts caused by misuse of natural resources through improved public participation programs, media information programs, and interpretive activities. • Employ professionals in the fields of recreation, biology, forestry, landscape architecture, ecology, and related sciences to implement and monitor resource management programs.

Table 16: Falls Lake Resource Objectives	
Project Issues / Resource Topics	Resource Objectives
Project Operations	<ul style="list-style-type: none"> • Balance authorized project purposes where they may conflict. • Promote understanding of project operations and multipurpose operations.
Recreation	<ul style="list-style-type: none"> • Optimize recreational development on the land resources within the project boundary while maintaining or improving the environmentally sustainable resources. • Provide recreational uses that are natural-resources-dependent (both land and water oriented), and that provide users the opportunities to enjoy and learn about those resources. • Provide open space and natural resources-based outdoor recreational opportunities and developments. • Increase opportunities for trail users, bank and pier anglers, and non-consumptive wildlife observers. • Site recreational facilities in areas with environmental features suitable for the specific use. • Provide recreational facilities and programs for people with disabilities in accordance with ADA provisions. • Regularly monitor recreational resources to ensure the recreational experience, environmental quality, and public safety are maintained. • Adjust recreation management practices when indicators identify adverse effects, management practices will be adjusted to protect the quality of the resources. • Accommodate and support consumptive uses of wildlife, including hunting, fishing, and trapping, when compatible.
Safety	<ul style="list-style-type: none"> • Implement active safety management programs tailored to their management areas and the demographic profile of their visitors. • Evaluate recreational facilities and programs for risk management factors and develop appropriate safety features and programs. • Enforce existing regulations and continue cooperation between law enforcement agencies. • Develop interpretive programs and handout materials or signage about potential hazards at the given management area or for the project as a whole.
Water Quality	<ul style="list-style-type: none"> • Provide appropriate downstream flow to support healthy aquatic habitats. • Comply with Falls Lake rules and assist neighboring communities in meeting the requirements of the regulations. • Protect riparian buffers to maintain their nutrient removal functions.

7.0 Resource Plan

The Resource Plan sets guidelines and policies for management and development of all project lands. These guidelines and policies are based on the Resource Objectives described in Section 6.0 of this Master Plan. The first section of the Resource Plan discusses future recreational development considerations at the remaining undeveloped recreational areas. The second section lists the undeveloped sites around the reservoir that have a Land Classification of Multiple Resource Management and have a Recommended Future Use of Recreation. The third section covers existing management areas, their Land Classification, Recommended Future Use, and a brief description of the existing resources at each site.

7.1 Future Recreational Development

This section of the document discusses the issues that must be considered when future recreational development is proposed at Falls Lake. Because future development must be totally paid for by a sponsor, no attempt is made to specify particular activities or locations. The Master Plan and accompanying PEA, however, provide a programmatic approach to allow these plans to move forward. The PEA addressing the impacts of the implementation of the Master Plan is included in Appendix D of this Master Plan.

Since the publication of the 1981 Master Plan, trends and demands in outdoor recreation have changed. These changes have been highlighted in the SCORP, as discussed in Section 2.23. While trends and demands will continue to change, it is important to document the current recreational demands at Falls Lake. These demands will be considered when investigating future development at the sites listed in Section 7.2 or expanding offerings at existing sites described in Section 7.3.

It also is important to identify activities that are approaching or have exceeded their carrying capacity (See Section 7.1.5) at Falls Lake. One of these activities is motorized boating. In 2000, a recreational boating study was completed by Colorado State University researchers under contract with USACE. The purposes of the study included documenting current use of the lake, determining boater perceptions of their visits, and identifying the nature and magnitude of boating conflicts. The study found that boater experiences were being negatively impacted at peak periods of use by the high level of motor boat traffic on the reservoir. Based on these findings, USACE and North Carolina agreed to establish a moratorium on any new development that adds motor boating capacity to the reservoir. Additional motor boat usage during peak periods should not be encouraged. Accordingly, no additional marinas, motor boat launch areas, or motor boat trailer parking will be permitted on project lands. Additional launch lanes to existing boat ramp areas may be considered to relieve crowding at the launch/take out sites.

Carrying capacity is discussed below, along with other future recreation considerations, and should be taken into account when planning future developments at existing or planned facilities to avoid similar conditions.

7.1.1 Regional Recreational Role

USACE owns a majority of the public open space in the Research Triangle area of North Carolina. Included in this public land is Falls Lake, which fills an environmental and recreational niche that is important to regional sustainability of native plant and animal species, as well as overall quality of life for residents of the region.

The role of Falls Lake in the regional recreational spectrum will continue to be focused on providing open space, wildlife habitat, and natural resource-based outdoor recreational opportunities. Developing and providing facilities that are most appropriate for urban and suburban parks, such as sports fields and golf courses, are outside the mission of USACE and North Carolina for the project. Future development within the project will be natural resources dependent (both land- and water-oriented) that protects the open space character of the project, and provides users the opportunities to enjoy and learn about those resources.

7.1.2 Environmental Considerations

Future development will be based on sound environmental planning that minimizes adverse effects on natural and cultural resources. Development will be placed in areas of suitable soil, slope, and vegetation that avoid negative impacts and protect resources, reduce soil erosion, and protect against sedimentation of project waters. To assist in planning development, the GIS geodatabase that accompanies this Master Plan may be updated and expanded where necessary. The data can then be queried to help identify the most suitable areas for specific types of development.

7.1.3 Cost Sharing

USACE and North Carolina entered into a 50-50 cost-sharing agreement for the cost of lands allocated as Separable Recreation and for the cost of initial development of recreation facilities, which has been completed. A copy of the prime lease between USACE and North Carolina is included in Appendix B. North Carolina may provide additional facilities and services necessary to meet public demand and within carrying capacity, either directly or through sublease agreements with third parties.

7.1.4 Subleases

Subleases are subject to the terms and conditions of the prime lease and the approved Master Plan. Clear lines of responsibility for review and approval of sublease applications have been defined in the OMP and are included in Appendix G of this Master Plan. Updates or changes to this protocol should be documented in this Master Plan to provide all interested parties with easy access to the defined review process. All sublease requests are subject to review for consistency with project purposes, policies, and Resource Objectives.

7.1.5 Carrying Capacity

The National Park Service defines carrying capacity as “the level and type of visitor use that can be accommodated while sustaining the desired resource and social conditions that complement the purposes of the park units and their management objectives” (NPS 2006). The goal of determining carrying capacity is to maintain and improve the quality

of diverse recreational opportunities while preserving or improving the natural resource base.

Part of the USACE mission statement refers to its responsibility to “manage and conserve natural resources, consistent with ecosystem management principles, while providing quality outdoor recreational experiences to meet the needs of present and future generations.” Therefore, consideration of carrying capacity is essential to protect the quality of the environment and the quality of the experience.

Although the 1981 Master Plan developed specific use targets to define the carrying capacity at different management areas within Falls Lake, there are no specific numbers or metrics to determine carrying capacity. Rather, it is more useful to define carrying capacity as a desired set of conditions for which to manage. Monitoring and measurement of the appropriate resource and social indicators replaces the measurement of maximum use. Both visitors and managing agencies determine desirable conditions. Providing for diverse visitor preferences and needs depends on four factors: 1) Use patterns – what recreational activities occur and where? 2) Preferences – what recreational experiences do visitors seek and what attributes contribute to those experiences? 3) Perceptions – how do visitors feel about present conditions? 4) Impact – what impact will it have on other user groups and on surrounding resources.

Focusing on these desired conditions requires managers to monitor use, resource conditions, trends, and visitor perceptions. The intent of management should be to prevent deterioration of the desired conditions. If the desired resource and social conditions are found to be deteriorating, management practices must be implemented to correct the problems.

7.2 Potential Future Recreation Areas

The 1981 Master Plan identified 20 potential future recreation areas within Falls Lake. These sites were not included in initial development plans but were selected for future development based on environmental suitability, accessibility, and projected future demand. Development has taken place at one of these areas (Blue Jay Point) and another site (Forest Ridge) is in the final phases of the planning and compliance process. At Blue Jay Point, Wake County operates a park that focuses on environmental education and low intensity recreational opportunities. Local groups use some of the open playing fields at the site to host youth athletic events, as well. Forest Ridge is being developed by the City of Raleigh as a park that will support a wide range of recreational opportunities.

In addition to the development of these two locations, other sites that were previously identified as suitable for future recreation have been renamed, combined with other management areas, or set aside for low intensity recreation and wildlife management. The decision to remove some of these sites from consideration for future recreational development was based on the quality of habitat that has developed in these locations over the last 30 years, the interest in conserving contiguous blocks of wildlife habitat, the growing demand for undeveloped lands in the Triangle Area of North Carolina, as well as

changes in conditions around the project that have made sites inaccessible or less desirable for future recreational development.

Those sites that continue to be set aside for future recreational development are described in the sections below and have received a Land Classification of Multiple Resource Management (Appendix J, Figures 12-14) and a Recommended Future Use of Recreation, Low density Recreation, and Wildlife Management (Appendix J, Figures 15-17). The Recommended Future Use of Recreation recognizes the potential for future development at the given location, while the Low density Recreation and Wildlife Management recommendations allow North Carolina to continue to manage the areas as game lands. In total, these sites cover an estimated 6,750 acres (over 25 percent of the project).

The sites described on the following pages are identified as potential future recreational areas for development by North Carolina agencies or local governments. The environmental factors discussed in the following site descriptions are the most obvious known factors at the time of this plan's development. Additional onsite inspections and more in-depth investigations, including future NEPA compliance, may reveal other factors that may affect site development. Actual boundaries of the sites may be adjusted based on approved site development plans. Site names also may change as requested by development sponsors.

With the exception of Woodpecker Ridge, which is managed by the NCDPR, NCWRC has been assigned with managing these sites, until they are subleased and developed. NCWRC actively manages each site to support its forest and wildlife management goals, as well as providing low density recreational opportunities.

7.2.1 Honeycutt Creek

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Honeycutt Creek is located on the southern shore of Falls Lake, just west of the Falls Lake Dam and Visitor Assistance Center. The site is accessible from Raven Ridge Road.

Description: Honeycutt Creek is a 427-acre site. There are steep slopes at the water's edge which prevent easy accessibility to the site from water. The land is formed by flat upland ridges with deeply incised areas where erosion has occurred. Much of the terrain slopes 15 percent or greater, particularly at the water's edge. Soils are predominantly suitable for recreation development with a third of the site having soils susceptible to compaction and erosion. Vegetative cover is predominantly upland hardwoods. USACE data indicates that there are known archaeological resources within the site and it is located within the range of threatened and endangered species.

7.2.2 Neuse Bend Point

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Neuse Bend Point is located on the southern shore of Falls Lake, north of Honeycutt Creek and west of the Falls Lake Dam and Visitor Assistance Center. The site is accessible from Possum Track Road.

Description: Neuse Bend Point is a 397-acre site that is adjacent to the City of Raleigh's water intake station (See Section 5.2.1). Throughout much of the site, there are steep slopes at the water's edge which prevent easy access to the site from water. The land is formed by flat upland ridges with deeply incised areas where erosion has occurred. Much of the terrain slopes 15 percent or greater, particularly at the water's edge. Soils are predominantly suitable for recreation development with a third of the site having soils susceptible to compaction and erosion. Vegetative cover is predominantly a mix of upland hardwoods and pines. USACE data indicates that there are known archaeological resources within the site and it is located within the range of threatened and endangered species.

7.2.3 Cedar Point

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Cedar Point is located on the southern shore of Falls Lake, between Cedar Creek Wildlife Area and Loblolly Point. The site is accessible from Possum Track Road.

Description: Cedar Point is a 214-acre site. The land is formed by an upland ridge of medium width with very steep slopes (25 percent or greater) at the water's edge. Forest cover consists of hardwoods along the shore and mixed pine and hardwood that line the roads and utility corridors in the western portions of the site. The soils are suitable for most recreation activities throughout the site; however, they will be susceptible to erosion and compaction as a result of recreation development. USACE data indicates that there are known archaeological resources within the site and it is located within the range of threatened and endangered species.

7.2.4 Loblolly Point

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Loblolly Point is located on the southern shore of Falls Lake, between Cedar Point and Lower Barton Creek. The site is accessible from Bayleaf Church Road (2003).

Description: Loblolly Point is a 126-acre site adjacent to NCDPR's Yorkshire Center (see Section 5.2.1). The land is formed by an upland ridge of medium width with very steep slopes (25 percent or greater) at the water's edge. Forest cover consists of mixed pine and hardwood. The soils are suitable for most recreation activities throughout the site; however, they will be susceptible to erosion and compaction as a result of recreation development. USACE data indicates that there are known archaeological resources within the site and it is located within the range of threatened and endangered species.

7.2.5 Hickory Bend

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Hickory Bend is located on the southern shore of Falls Lake, across the lake from B.W. Wells. Access to the site is provided by NC 98 that runs along its southern border. Several residential developments also border the site to the south.

Description: Hickory Bend is a 209-acre site that is covered with thick forest cover. A variety of small peninsulas create small coves across the site. This site has very steep slopes at the water's edge. Soils are adequate for most recreation uses and the existing vegetation is a mix of pines and hardwoods. USACE data indicates that there are known archaeological resources within the site and it is located within the range of threatened and endangered species.

7.2.6 Quail Roost

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Quail Roost is located on the southern shore of Falls Lake, west of Shinleaf. It is located along NC 50, before the highway crosses the reservoir.

Description: Quail Roost is a 467-acre site. A medium sized cove defines a large portion of the site's shoreline. Most of the site is heavily forested with a mix of pines and hardwoods. Slopes are moderate, although some areas along the water's edge are excessive greater than 15 percent). Soils on the site are suitable for recreation activities. USACE data indicates that there are known archaeological resources within the site.

7.2.7 Wehadkee Point

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Wehadkee Point is located along the south shore of Falls Lake, across the water from Rolling View Marina. Access to the site is provided by NC 98 and NC 50 via Old Creedmoor Road.

Description: Wehadkee Point is a 645-acre heavily wooded site. The shoreline of the site is defined by a number of peninsulas and narrow coves. The existing vegetation is mainly pine and hardwood forests, with some clearings created to support utility easements. Two fifths of the site contains slopes in excess of 15 percent. The soils are variable, ranging from very good to very poor for most recreation uses. This site is along the eastern edge of the Jonesboro Fault. USACE data indicates that there are known archaeological resources and significant natural resources within the site.

7.2.8 Plantation Point

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document. However, the area identified as supporting future Recreation development has been reduced from the footprint identified in the 1981 Master Plan. During the development of the 1981 Master Plan, plans were in place to acquire additional project lands around Plantation Point that would provide appropriate access options for future recreational development. However, those lands were not acquired. Therefore, there is only a small portion of the overall site that could be developed to provide appropriate access.

Location: Plantation Point is located west of Rolling View. The western portion of the site is accessible by Santee Road (1804) and the eastern portion of the site is accessible via Baptist Road.

Description: Plantation Point is a 241-acre site. The soils on this site are very sensitive to recreation development and are part of the Deep River/Durham Triassic Basin soil types. Much of the site is comprised mixed pine and hardwood stands and has slopes of less than 15 percent. Slopes along the shoreline, however exceed 25 percent in some areas. USACE data indicates that there are known archaeological resources and significant natural resources within the site and it is located within the range of threatened and endangered species.

7.2.9 Bluff Point

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Bluff Point is located across the lake from Hackamore Point. The site is accessible by Shaw Road (1804).

Description: Bluff Point is a 90-acre site. The site contains slopes of less than 15 percent in the southeast portions, but a high bluff exists on the north shore adjacent to the river channel. Vegetation at the site is a mix of pine and hardwoods that vary in density. The soil types are sensitive to intensive recreation use and will erode and compact to the detriment of the recreation development if not handled properly. USACE data indicates that there are known archaeological resources and significant natural resources within the site and it is located within the range of threatened and endangered species. Therefore, future development of this site may need to be limited to low density recreational developments.

7.2.10 Redwood Point

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Redwood Point is located on the southern shore of the reservoir, just east of Cardinal Point. The site is bisected by Cheek Road (1800/1801).

Description: Redwood Point is a 193-acre site. Vegetation within the site is defined by open fields that are surrounded and bisected by mixed pine and hardwood stands. Slopes at the site are less than 15 percent at the water's edge. The soils are those of the Triassic Basin and will be sensitive to recreation development. USACE data indicates that there are known archaeological resources and significant natural resources within the site.

7.2.11 Cardinal Point

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Cardinal Point Recreation Area is located on the southern shore of Falls Lake, west of Redwood Point. It is located on Redwood Road (1607).

Description: Cardinal Point is a 106-acre site divided into mixed pine forest stands and open fields. Slopes are less than 15 percent at the water's edge. USACE data indicates that there are known archaeological resources and significant natural resources within the site.

7.2.12 Interstate 85 Overlook

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: The Interstate 85 Overlook is located on the western portion of the reservoir. The site is located on a land mass adjacent to the north end of the interstate as it crosses the reservoir.

Description: The Interstate 85 Overlook is an 87-acre site. Most of the vegetation at the site is hardwood. Small clearings exist across the site, including in the vicinity of two ponds that occur in the western and eastern ends of the site. Slopes are relatively flat (0-5 percent slope) near the water's edge with soils highly sensitive to erosion and compaction. An existing homesite was converted into office space and most recently used by NCWRC to support regional operations; however, the building will likely be demolished in the near future. The 1981 Master Plan recognized the limited development potential of the site and recommended it be used as a future overlook. USACE data indicates that there are known significant natural resources within the site and it is located within the range of threatened and endangered species.

7.2.13 Tri-County Access

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: The Tri-County Access is located on the north shore of the reservoir, adjacent to Hackamore Point. The site is accessible from Olive Grove Church Road (1403) and Old Weaver Trail (1901).

Description: Tri-County Access is a 598-acre site. Vegetative cover at the site is a mix of pines and hardwoods. Numerous clearings occur across the site, including a relatively wide utility corridor. Generally, the slope at the water's edge is ranges from 0-10 percent. Historically, the site was used for farmland and the soils are very sensitive to recreation development. USACE data indicates that there are known archaeological resources within the site and it is located within the range of threatened and endangered species.

7.2.14 Hackamore Point

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document. However, the area identified as supporting future Recreation development has been reduced from the footprint identified in the 1981 Master Plan. Since the 1981 Master Plan, the development and use of Ledge Rock boat ramp has led USACE and North Carolina to remove the potential for future recreational development from the portion of Hackamore Point that is located south of the boat ramp. This step was taken to buffer the boat ramp from surrounding areas and prevent future intrusion in the natural setting that surrounds Ledge Rock. This area has a Recommended Future Use of Low Density Recreation and Wildlife Management.

Location: Hackamore Point is located on a peninsula along the north shore the reservoir. Access to the eastern side of the peninsula is available via Old Weaver Trail (1901).

Description: Hackamore Point is a 131-acre site. Thick hardwood forest stands comprise the vegetative cover, with a few clearings located in the inland portion of the site. Given its location in the Triassic Basin, the soils at the site are sensitive to recreation development with moderate limitations for foundations. USACE data indicates that there are known archaeological resources and significant natural resources within the site.

7.2.15 Creedmoor Peninsula

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Creedmoor Peninsula is located on a peninsula along the north shore the reservoir and is adjacent to Ledge Creek. Limited access to the eastern side of the peninsula is available via Old Weaver Trail (1901).

Description: Creedmoor Peninsula is a 185-acre site. Vegetation is defined by hardwood forest stands, with small clearings scattered across the site. The soils at the site are sensitive to recreation development with moderate limitations for foundations. USACE data does not note the presence of known archaeological resources, significant natural resources , or threatened and endangered species within the site.

7.2.16 Woodpecker Ridge

Management Agency: State of North Carolina – managed by NCDPR

Land Classification: Multiple Resource Management

Recommended Future Use: Low Density Recreation and Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Woodpecker Ridge is located along the north shore of Falls Lake, south of Sandling Beach and adjacent to NC 50. Access to the site is provided by NC 50.

Description: Woodpecker Ridge is a 479-acre heavily wooded site. The forest stands included in the site are some of the highest quality within the project boundary. A mix of pine and hardwood stands cover the site, with several small clearings scattered across the site. The site was included in the original acreage assigned to NCDPR; however, it has not been developed as a recreation area. Initial intent for the site was for habitat and intensive forest management to retain the then existing population of Red Cockaded Woodpeckers. Although red-cockaded woodpeckers are no longer found at Falls Lake and are unlikely to recolonize, managing this area for an open canopy pine stand with well-developed herbaceous understory through timber thinning and controlled burning would benefit all of the other species associated with this habitat that still are found in the area. The remnant cavity trees could be retained and protected during controlled burning for interpretive purposes. USACE data indicates that there are known archaeological resources and significant natural resources within the site and it is located within the range of threatened and endangered species.

7.2.17 Sycamore Point

Management Agency: State of North Carolina – management split between NCWRC and NCDPR

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Sycamore Point is located along the north shore of Falls Lake, along the eastern border of Beaverdam. Access to the site is provided by Old Weaver Trail and New Light Road.

Description: Sycamore Point is a 1,134-acre site that contains the General James Mangum House and Cemetery. The site, which is on the National Register, has been used to house NCDPR park rangers. The vegetative cover for this site is a mix of pine and hardwood. Nearly three-fourths of this site has slopes greater than 15 percent and very steep slopes at the water's edge. The only exception is around the Mangum House where the slopes range from 0-5 percent. The Jonesboro Fault comes through this site and is the dividing line between the areas of steep slopes and the flatter areas. The soils are very sensitive to recreation development, and in conjunction with the steep slopes, this site has major limitations for extensive high density recreation uses. USACE data indicates that there are known archaeological resources and significant natural resources within the site and it is located within the range of threatened and endangered species.

7.2.18 Rocky Branch Point

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Rocky Branch Point is located on the north shore of the reservoir, adjacent to NC 98 on both the north and south sides of the highway. Access to the site is provided by NC 98.

Description: Rocky Branch Point is a 222-acre site. Vegetation at the site is dominated by thick stands of pines and hardwoods. Slopes range from 5-25 percent with excessively steep slopes along the water's edge. Soils on the site are good for most recreational activities. USACE data indicates that there are known archaeological resources within the site and it is located within the range of threatened and endangered species.

7.2.19 Stoney Hill Point

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Stoney Hill Point is located on the north shore the reservoir, west of Three Creeks Point and north of Forest Ridge. Access to the site is provided by Bayleaf Church Road (2003) and Choplin Road (2004).

Description: Stoney Hill Point is a 251-acre site. The site is predominantly covered in mixed pines and hardwoods. Soils are suitable for recreational use, but excessive (+25 percent) slopes along the water's edge will limit access to the lake. USACE data indicates that there are known archaeological resources within the site.

7.2.20 Three Creeks Point

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Three Creeks Point is located on the north shore the reservoir, between Stoney Hill Point and Water Fork Creek Wildlife Area. Access to the site is provided by Old NC 98 (1967).

Description: Three Creeks Point is a 61-acre site. The site is covered in mixed pine and hardwoods. Soils are suitable for recreation development, but slopes are excessive in areas. USACE data indicates that there are known archaeological resources within the site.

7.2.21 Horse Creek Peninsula

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management

Recommended Future Use: Recreation, Low Density Recreation, and
Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Horse Creek Peninsula is located on the northeast shore the reservoir, due north of Forest Ridge and the Falls Lake Dam. Access to the site is provided by NC 98.

Description: Horse Creek Peninsula is a 182-acre site. Existing vegetation includes hardwoods and pines. The majority of the site has slopes of 5-15 percent, but small areas along the water's edge range from 0-5 percent slopes to 25 percent or greater slopes. The soils are good for all recreation activities. USACE data indicates that there are known archaeological resources within the site.

7.3 Existing Recreation

In addition to the 21 management areas set aside for future recreational development (Section 7.2) 13 already have been developed to support varying levels of recreation. Existing developed recreation areas occupy about 5,253 acres at Falls Lake (approximately 20 percent of the project lands). This includes lands around the Visitor Assistance Center, dam, and tailrace that are classified as Project Operations but support recreational activities, as well. The remainder of lands are given a Land Classification and Recommended Future Use of Recreation to allow for their continued use and development (Table 13 and Appendix J, Figures 12-17). In some cases, lands classified as Project Operations also may be used for recreational purposes, as long as it does not interfere with their primary purpose. These lands are described in this section, along with the developed recreational lands.

The remaining existing recreation site is the Butner-Falls of Neuse Game Land. The site is managed by NCWRC for low intensity recreation and/or wildlife management. The lands permanently managed by NCWRC as part of the game land cover approximately 15,431 acres at Falls Lake (approximately 60 percent of the project lands). These lands are given a Land Classification of Multiple Resource Management and, in some cases, Recreation. The Recreation Land Classification applies to specific areas intensively used for boat ramps or other developed activities. The Recommended Future Uses of Low Intensity Recreation, Wildlife, and/or Recreation allow for these current activities to continue in the future.

The remaining 270 acres (one percent of the project) are spread across two sites: the Falls Lake Visitor Assistance Center and the Tailrace Access Area. These areas are given the Land Classification of Project Operations to allow for management activities by USACE. Additional areas classified as Project Operations are discussed in Section 5.2.1 of this document.

7.3.1 Falls Lake Dam and Visitor Assistance Center

Management Agency: USACE

Land Classification: Project Operations, Multiple Resource Management, Recreation

Recommended Future Use: Project Operations, Low Density Recreation, Recreation

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: The Falls Lake Dam and Visitor Assistance Center is located on the far eastern end of the project. The site is located south of Forest Ridge and east of Honeycutt Creek. Access to the site is provided by Falls of Neuse Road and project roads.

Description: The Falls Lake Dam and Visitor Assistance Center includes an estimated 246 acres - divided into 159 acres of Project Operations lands, 53 acres of Multiple Resource Management lands, and 34 acres of Recreation lands. A parking area is located at the entrance to the site, providing after-hours access to visitors on foot. The tree-lined entrance road connects the Visitor Assistance Center and the road to the Falls Lake dam. USACE maintains several picnic tables around the Visitor Assistance Center. The Visitor Assistance Center has a number of displays and materials on water safety and the natural resources found on project lands. The Falls Lake Trail runs through the site, providing views of the lake and access to project lands to the west. The site also includes the dam, which is open for pedestrian and vehicular access. The dam provides wide ranging views of the reservoir and includes picnic areas at both ends of the structure and also a small playground. To facilitate visitor use of the park, USACE maintains restrooms, informational signs, benches, and trash cans. Facilities at the site that are for operational use only include a one-lane boat ramp, maintenance area, and storage compound. Vegetation at the site consists of pine and hardwood stands, and open fields, as well as maintained lawns. USACE data indicates that there are known archaeological resources within the site and it is located within the range of threatened and endangered species.

7.3.2 Butner-Falls of Neuse Game Land

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Multiple Resource Management, Recreation, Project Operations

Recommended Future Use: Wildlife Management, Low Density Recreation,
Recreation, and Project Operations

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: The Butner-Falls of Neuse Game Land is a large unit managed by NCWRC that includes lands within the Falls Lake boundary. The largest contiguous area of game lands is west of Interstate 85. Additional game lands occur east of Interstate 85, and include smaller tracts along the tributaries of the reservoir. Access to these lands is provided by numerous highways and secondary roads.

Description: For the purposes of the Master Plan, the Butner-Falls of Neuse Game Land includes those lands that are managed on a permanent basis by NCWRC. This includes an estimated 15,335 acres of lands within the Falls Lake boundary. Additional lands managed by NCWRC (and considered for their purposes as “Butner-Falls of Neuse Game Land”) exist outside the Falls Lake boundary.

The portion of the Butner-Falls of Neuse Game Land located within the Falls Lake boundary is comprised of 19 smaller wildlife areas. These areas are classified as Multiple Resource Management and include:

Beaverdam Creek	1,811 acres	Lick Creek	751 acres
Cedar Creek	135 acres	Little Ledge Creek	313 acres
Cozart	512 acres	Little Lick Creek	737 acres
Ellerbee Creek	1,967 acres	Lower Barton Creek	185 acres
Eno River	1,611 acres	New Light Creek	816 acres
Flat River	1,467 acres	Northside	639 acres
Hickory Hill	305 acres	Panther Creek	337 acres
Horse Creek	76 acres	Upper Barton Creek	478 acres
Knapp of Reeds	2,239 acres	Water Fork Creek	136 acres
Ledge Creek	754 acres		

These areas are managed to provide habitat for different wildlife species and low density recreation opportunities. To meet its habitat goals, NCWRC manages 12 subimpoundments within the wildlife areas:

Beaverdam	Highway 98
Bluff	Knapp of Reeds
Brickhouse Road (Upper and Lower)	Little River
Butner Depot	Patterson Road
Flat River (A1, A, and B)	

NCWRC also maintains boat ramps within the Butner-Falls of Neuse Game Land. These sites are described on the following pages. Vegetation within the Game Land is varied, given its relatively large size. Pine and hardwood stands exist in some areas, while others are maintained as open fields or subimpoundments. USACE data indicates that there are known archaeological resources, exemplary or unique communities, and significant natural resources within the site and it is located within the range of threatened and endangered species.

7.3.2.1 Eno River Boat Ramp

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Recreation

Recommended Future Use: Recreation

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: The Eno River Boat Ramp is located at the western end of the project, upstream of where the river reaches the main body of the reservoir. Access to the site is provided by a gravel road that connects to Red Mill Road.

Description: The Eno River Boat Ramp is a 15-acre site that consists of a single boat ramp and a parking lot. The parking lot has 35 marked spaces, most of which are large enough for a vehicle and a boat trailer. A complete listing of the boat ramps provided at the project is included in Appendix F, Table F-3.

7.3.2.2 Hickory Hill Boat Ramp

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Recreation

Recommended Future Use: Recreation

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: The Hickory Hill Boat Ramp is located at the western end of the reservoir, between Panther Creek Wildlife Area and Hickory Hill Wildlife Area. Access to the site is provided by a number of local roads.

Description: The Hickory Hill Boat Ramp is a 37-acre site that consists of a ramp area with three launching lanes, a courtesy dock, and a parking lot. The parking lot has 104 marked spaces, most of which are large enough for a vehicle and a boat trailer. A portion of the Falls Lake Trail travels through the Hickory Hill Boat Ramp site. A complete listing of the boat ramps provided at the project is included in Appendix F, Table F-3.

7.3.2.3 Ledge Rock Boat Ramp

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Recreation

Recommended Future Use: Recreation

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: The Ledge Rock Boat Ramp is located along the north shore of the reservoir, north of Hackamore Point and south of Creedmoor Peninsula. Access to the site is provided by a number of local roads.

Description: The Ledge Rock Boat Ramp is a 57-acre site that consists of a three-lane boat ramp with two courtesy docks and a parking lot. The parking lot has approximately 100 marked spaces, all of which are large enough for a vehicle and a boat trailer. Additional paved space is available to facilitate the use of the boat ramps and to allow for vehicles with trailers to easily loop through the parking lot. An undeveloped grass field, between the parking lot and the road, provides overflow parking during busy weekend and summer days. A complete listing of the boat ramps provided at the project is included in Appendix F Table F-3.

7.3.2.4 Upper Barton Boat Ramp

Management Agency: State of North Carolina – managed by NCWRC

Land Classification: Recreation

Recommended Future Use: Recreation

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: The Upper Barton Boat Ramp is located along the southern shore of the reservoir, north of Upper Barton Creek Wildlife Area and south of Hickory Bend. Access to the site is provided by Six Forks Road.

Description: The Upper Barton Boat Ramp is a 14-acre site that consists of a ramp with four launching lanes, two courtesy docks, and a separate “T”-shaped dock for securing boats that are already in the water. The parking lot has 93 marked spaces, most of which are large enough for a vehicle and a boat trailer. A large loop road provides access through the site. A large gravel lot in the upper end of the loop road serves as overflow parking during busy weekend and summer days. The Falls Lake Trail crosses through the upper gravel lot. A complete listing of the boat ramps provided at the project is included in Appendix F, Table F-3.

7.3.3 Blue Jay Point County Park

Management Agency: State of North Carolina – subleased to Wake County

Land Classification: Recreation and Project Operations

Recommended Future Use: Recreation and Project Operations

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Blue Jay Point County Park is located near the southeast end of the reservoir. The NC 98 Bridge is north of the site and the Upper Barton Boat Ramp is located to the northwest. The peninsula that contains the park is accessible via Six Forks Road (S.R. 1005) and Pleasant Union Church Road (S.R. 1847).

Description: Blue Jay Point County Park is a 244-acre park that is managed by Wake County, through a sublease with North Carolina. The acreage is divided into 244 acres of Recreation lands and 17 acres of Project Operations lands. The site consists of a mix of open fields and forested areas. Access to the site is provided by a paved entrance road that leads to the Blue Jay Center for Environmental Education at the center of the peninsula. From this point, park roads branch off towards the northeast end of the peninsula, providing access to the lodge, playing fields, and playground. The park's trail system extends along the length of the shoreline, with small spurs connecting the trails and providing access to and from the core of the park. The Falls Lake Trail passes through the site and is included in the County's trail network. To facilitate visitor use of the park, the County maintains restrooms, informational signs, benches, trash cans, and security lighting. Vegetation at the site is a mix of pines and hardwoods and includes some open fields and mowed areas. USACE data indicates that there are known archaeological resources within the site and it is located within the range of threatened and endangered species.

7.3.4 Shinleaf

Management Agency: State of North Carolina – managed by NCDPR

Land Classification: Recreation

Recommended Future Use: Recreation

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Shinleaf is located on the south shore in the eastern half of the reservoir. The site is located across the lake from B.W. Wells. Access to Shinleaf is provided by New Light Road (1907).

Description: Shinleaf is a heavily wooded 307-acre site maintained by NCDPR. Access to the site is provided by a paved entrance road that terminates in a large parking lot adjacent to waterborne restroom and shower facilities. Access to primitive group campsites is by gravel road on the southeastern side of the peninsula. The western portion of the peninsula houses the individual primitive sites and is accessed by foot along an additional gravel path. Vault toilets are provided at select locations near the campsites, and a cleared area of shoreline allows for easy canoe and kayak launching. In addition the Falls Lake Trail crosses the entrance road near the parking lot allowing hikers a place to camp for the night. Vegetation at the site is a mix of pines and hardwoods. Clearings exist around existing development. USACE data indicates that there are known archaeological resources within the site and it is located within the range of threatened and endangered species.

7.3.5 Rolling View

Management Agency: State of North Carolina – managed by NCDPR

Land Classification: Recreation and Multiple Resource Management

Recommended Future Use: Recreation, Low Intensity Recreation, and Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Rolling View is located on the southern shore of Falls Lake, across the lake from Sandling Beach. It is the western most point of the Falls Lake SRA. Access to the site is provided from NC 98 via Baptist Road (1807).

Description: Rolling View is a 793-acre site – with 778 acres of Recreation lands and 15 acres of Multiple Resource Management lands. Although much of the site is developed, it retains a thick forest cover across two peninsulas. The southern peninsula is subleased to a private concessionaire and contains the only marina at Falls Lake. Access to the northern peninsula begins at an entrance station. Park roads and a hiking trail provide access from this point to the three clusters of development located on the peninsula. In addition, the Falls Lake Trail crosses through the site near the entrance station.

The eastern cluster includes family campsites, an amphitheater, a fishing pier, as well as parking lots and comfort stations. The western cluster includes a fishing pier, a swim beach, picnic shelters, parking lots, and comfort stations. The northern cluster includes a community building, comfort stations, a boat beach, a four lane boat ramp with courtesy dock, picnic shelters, and parking lots. Vegetation at the site is a mix of pines and hardwoods. The Falls Lake Trail passes through the recreation area and there is a trailhead just outside the gate for day user access. Clearings exist around existing development. USACE data indicates that there are known archaeological resources and significant natural resources within the site and it is located within the range of threatened and endangered species.

7.3.6 Penny's Bend Nature Preserve

Management Agency: State of North Carolina – subleased to North Carolina Botanical Garden Foundation

Land Classification: Multiple Resource Management

Recommended Future Use: Wildlife Management, Low Intensity Recreation, Ecologically Sensitive

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Penny's Bend Nature Preserve is located along the far western boundary of the project. The site sits on the southwest corner of the Butner-Falls of Neuse Game Land along the Eno River. Access to the site is provided by Old Oxford Road (1004).

Description: Penny's Bend Nature Preserve is an 84-acre site that consists of forested area and open fields that line the Eno River. The mesic and alluvial forests on the west-facing slope of the Preserve have a high diversity of tree species and an abundant display of spring wildflowers. The uplands, once used to graze horses and cattle, are now an open field with scattered red cedars, providing a view of the slopes surrounding the bend of the river. The remains of the historic Cameron's Mill, built in 1836, are located on the eastern border of the Preserve. Vegetation at the site consists of the pine and hardwood stands that are common throughout the project, as well as open fields that all provide habitat for many unique species. This recreation area provides the northernmost access point to the Falls Lake Trail. USACE data indicates that there are known archaeological resources and significant natural resources within the site and it is located within the range of threatened and endangered species.

7.3.7 Sandling Beach

Management Agency: State of North Carolina – managed by NCDPR

Land Classification: Recreation

Recommended Future Use: Recreation

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Sandling Beach is located on the north shore of Falls Lake, west of Beaverdam. It is located along NC 50..

Description: Sandling Beach is a 563-acre site. Access to the site is provided by a park road that begins at Highway 50 and passes through an entrance station before continuing into the site. The road branches in several locations, providing access to picnic shelters, fishing areas, a swim beach, and a boat beach. Parking lots and restrooms are located in close proximity to these features. The Woodland Nature Trail runs along the site's northern boundary. Vegetation at the site is comprised primarily of hardwoods. Clearings exist around existing development. USACE data indicates that there are known archaeological resources within the site and it is located within the range of threatened and endangered species.

7.3.8 Highway 50

Management Agency: State of North Carolina – managed by NCDPR

Land Classification: Recreation

Recommended Future Use: Recreation

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Highway 50 is located on the north shore of Falls Lake, immediately south of Beaverdam. Access to the site is provided by NC 50.

Description: Highway 50 is a 62-acre site. The relatively small site is fully developed to provide a variety of day-use activities. An access road initiates at the entrance station and provides access to different parking locations within the site. The access road terminates at the six-lane boat ramp with two courtesy docks, adjacent restroom facility and large parking lot for boat trailers. The additional parking areas provide access via formal foot trails to picnic areas, restrooms, fishing areas, and a courtesy dock. One of the fishing areas is located on the Beaverdam Lake dam, which separates the main body of the reservoir from Beaverdam Lake. Vegetation at the site is comprised primarily of hardwoods. Clearings exist around existing development. USACE data indicates that there are known archaeological resources within the site and it is located within the range of threatened and endangered species.

7.3.9 Beaverdam

Management Agency: State of North Carolina – managed by NCDPR

Land Classification: Recreation Multiple Resource Management

Recommended Future Use: Recreation, Low Intensity Recreation, and Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Beaverdam is located on the north shore of Falls Lake, along Beaverdam Lake. Access is provided by NC 50 on the western side of the site.

Description: Beaverdam is a 1,171-acre site – divided into 856 acres of Recreation lands and 315 acres of Multiple Resource Management lands. The site is adjacent to the dam that it shares its name with, which is described in Section 5.2.1. Higher intensity development within the site is confined to two small peninsulas in the southeast portion of the site. Access to both of these areas is provided by park roads that begin at the entrance station. The northern peninsula includes group picnic shelters, restrooms, and a fishing pier. A looped park road provides access to all of these sites. Formal foot paths provide access from the road to the individual locations.

The southern peninsula is more densely developed than the north. It contains group picnic shelters, restrooms, a playground, a swim beach, a fishing pier, and a boat ramp for launching non-gasoline powered boats. Gas powered watercraft are not allowed on Beaverdam Lake. Parking lots are located adjacent to each of these facilities providing direct access. In addition, 13 miles of mountain bike trails traverse through the northwestern portion of the site flanking either side of the access road near the entrance station. Vegetation at the site is comprised primarily of hardwoods. Clearings exist around existing development. USACE data indicates that there are known archaeological resources within the site and it is located within the range of threatened and endangered species.

7.3.10 Holly Point

Management Agency: State of North Carolina – managed by NCDPR

Land Classification: Recreation

Recommended Future Use: Recreation

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Holly Point is located on the north shore of Falls Lake, just west of Shinleaf and B.W. Wells. Access to the site is provided by New Light Road (1907) and is restricted to registered campers.

Description: Holly Point is a 491-acre site. An access road initiates at the entrance station and provides access to the northern and southern halves of the developed portion of the site. The developed areas remain heavily forested, with approximately 160 campsites. The southern half of the site includes single and double water and electric camp sites and single and double non-electric camp sites. A swim beach and several wash houses are located throughout the site to service campers. This half of the site also has a boat ramp, courtesy dock, and amphitheater. The northern half of the site contains additional single and double water and electric sites, and single non-electric sites. This half also has a swim beach, several washhouses, and the Holly Point Trail, which provides pedestrian access across the entire site. Vegetation at the site is comprised of pine and hardwood stands. Clearings exist around existing development. USACE data indicates that there are known archaeological resources within the site and it is located within the range of threatened and endangered species.

7.3.11 B.W. Wells

Management Agency: State of North Carolina – managed by NCDPR

Land Classification: Recreation and Multiple Resource Management

Recommended Future Use: Recreation, Low Intensity Recreation, and Wildlife Management

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: B.W. Wells is located in the eastern end of NCDPR managed lands, across the lake from Shinleaf and Holly Point. Direct access to the site is provided by Bent Road which connects to NC 98 via Stony Hill Road (1917) and Bud Morris Road.

Description: B.W. Wells is a 587-acre site – with 480 acres of Recreation lands and 107 acres of Multiple Resource Management lands. Access to site is provided by the project road that begins at the dead end of Bent Road (S.R. 1919) and splits to travel south to the developed recreation areas and straight to access the historic B.W. Wells property. In the developed recreation area, two large parking lots and wash-houses serve the group camp sites located in the site. Some of these camp sites provide waterfront locations, while others are set back from the shoreline. In addition to the camp sites, B.W. Wells includes an amphitheater, boat ramp, and a loop trail.

The BW Wells homesite (Rockcliff Farm) is on the National Register of Historic Places and is accessed by traveling straight down the site's access road. It includes the homestead, workshop, and several other outbuildings that used to be owned by the botanist and artist B.W. Wells. Vegetation at the site is comprised of hardwood and pine stands. Clearings exist around existing development. USACE data indicates that there are known archaeological resources and significant natural heritage areas within the site and it is located within the range of threatened and endangered species.

7.3.12 Forest Ridge

Management Agency: State of North Carolina – subleased to the City of Raleigh
USACE – leased to the City of Raleigh

Land Classification: Recreation

Recommended Future Use: Recreation

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: Forest Ridge is located just north of the Falls Lake dam. Access to the site is provided by Old NC 98.

Description: Forest Ridge is a 522-acre site. Vegetative cover is primarily mixed hardwood and pine, with some hardwood stands at the tip of the peninsula. The soils are suitable for recreational development, although there are areas on the southern shore with development limitations. Slopes are excessive along the water's edge, affording good views of the lake. The City of Raleigh is currently in the final planning and permitting stages before assuming management of the site and beginning development of a new park. Current phased plans include single-track mountain bike trails, hiking trails, a low-ropes course, an Environmental Education and Meeting center, paved greenway trails, picnic sites, and water access for fishing and launching paddle craft where appropriate. Vegetation at the site is comprised primarily of hardwoods, although pine stands and open fields also occur within the site. USACE data indicates that there are known archaeological resources within the site and it is located within the range of threatened and endangered species.

7.3.13 Neuse River Greenway and Canoe Launch

Management Agency: USACE – Leased to City of Raleigh

Land Classification: Recreation

Recommended Future Use: Recreation

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: The Neuse River Greenway and Canoe Launch is located at the far southeastern end of the project, below the dam. The site is accessible by Falls of Neuse Road.

Description: The Neuse River Greenway and Canoe Launch is a 3.9-acre site located below Falls Lake Dam and just downstream of the Tailrace Access Area. There is access to the Neuse River Greenway here as well as a small canoe put-in area. The day-use activities are supported by a paved entrance road and parking lot. There have been discussions about developing a whitewater park in Greenway/Canoe Launch area. That facility is proposed to be under the administration of the City of Raleigh and has gone through initial planning stages including public input sessions. Currently the project is awaiting funding so it may move forward with the permitting process in cooperation with State and Federal regulations. Vegetation at the site is primarily bottomland hard woods. Clearings exist around the existing developments. USACE data indicates that there are known archaeological resources within 1500 feet of the site and is located within the range of threatened and endangered species.

7.3.14 Tailrace Access Area

Management Agency: USACE

Land Classification: Project Operations

Recommended Future Use: Project Operations

Rationale: The rationale for this Land Classification and Recommended Future Use is consistent with the description provided in Section 5.2.7 of this document.

Location: The Tailrace Access Area is located at the far southeastern end of the project, below the dam. The site is accessible by Falls of Neuse Road.

Description: The Tailrace Access Area is a 24-acre site located at the base of Falls Lake dam. The site is located on lands that were developed in association with the dam's tailrace. As such, all of the lands included in the site are either paved or previously disturbed. To support recreational opportunities, USACE has developed infrastructure to support bank fishing and picnicking at the site. The fishing and picnic opportunities are supported by a small parking lot, restroom, and informational signs about the site and the surrounding project lands. The Falls Lake Trail begins at this site and travels 60 miles along the southern shore of Falls Lake to Penny's Bend State Nature Preserve. The site also provides a trailhead for the Neuse River Greenway. Vegetation at the site is comprised primarily of hardwoods. Clearings exist around existing development. USACE data indicates that there are known archaeological resources within the site and it is located within the range of threatened and endangered species.

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8.0 Environmental Operating Principles

In 2003, USACE adopted seven Environmental Operating Principles (EOPs). In 2012 the EOPs were “reinvigorated” by USACE. The purpose of the EOPs is to integrate natural resource laws, values, and sound environmental practices into USACE decision making. The following sections explain how the Falls Lake Master Plan fulfills all seven EOPs.

#1: Foster Sustainability as a way of life throughout the organization.

USACE, North Carolina, and the other management partners continue to work collaboratively with other Federal, State, and local agencies and groups to propose development plans that maintain a healthy, diverse and sustainable environment at Falls Lake. USACE also has coordinated with these groups to develop, manage, and monitor resources at the reservoir. For example, USACE works with NCWRC to monitor and manage fisheries and game species population numbers and habitat conditions.

The policies and management strategies proposed in this Master Plan are intended to maintain a healthy, diverse, and sustainable environment at Falls Lake. Any future development will be guided by the Land Classification Resource Objectives that provide protection to the natural, physical, and historic resources throughout the project.

#2: Proactively consider environmental consequences of all Corps activities and act accordingly.

In the Master Plan, USACE and North Carolina consider the relationships between human activities and the natural environment. The impact of these relationships is examined in Section 2.0 of this Master Plan and considered in the development of Land Classifications and the Resource Plan presented earlier in this document. The PEA, included in Appendix D, considers the environmental consequences of adopting the Master Plan. Specific actions that are undertaken to implement the Master Plan will undergo similar environmental analysis.

#3: Create mutually supporting economic and environmentally sustainable solutions.

Through this Master Plan, USACE, North Carolina, and the other management partners seek balance and synergy between economic development and natural systems by focusing development activities in specific areas around the lake. This strategy balances human uses and natural resources. Any planned development would require appropriate NEPA compliance and environmental reviews to ensure balance between the human and natural environment is maintained.

#4: Continue to meet our corporate responsibility and accountability under the law for activities undertaken by the Corps, which may impact human and natural environments.

This Master Plan and associated PEA fulfills the requirements of NEPA, which establishes a policy to “...encourage productive and enjoyable harmony between man and his environment; promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; enrich the understanding of ecological systems and natural resources important to the Nation ...”

The Master Plan and associated PEA fulfills NEPA by:

- Describing the existing environmental conditions (Section 2.0) and environmental consequences associated with the Preferred Alternative on (but not limited to) the following resources: water quality, vegetation, fish and wildlife, threatened and endangered species, cultural resources, and socioeconomic resources;
- Examining a No Action Alternative; and,
- Identifying and comparing the incremental and cumulative effects of the Preferred Alternative and the No Action Alternative.

The Master Plan also is in compliance with other applicable environmental and cultural resource laws and Executive Orders, as described in Appendix I. These include the Clean Water Act, Endangered Species Act, and Archaeological Resources Protection Act among others.

USACE and North Carolina also accept responsibility and accountability for following Federal laws in regard to future activities undertaken to implement the Master Plan. Future implementation of the Master Plan will require USACE and North Carolina to follow the steps outlined in Section 10.0. Staff also will follow procedures in the OMP and relevant resource plans in order to comply with State and Federal regulations. In addition, proposals designed to implement this Master Plan must be accompanied by an Environmental Assessment (EA) or Environmental Impact Statement (EIS) prior to interdisciplinary review and development. The review would follow the review process outlined in Appendix G of this Master Plan and result in USACE and North Carolina issuing a decision document and declaration of land availability.

#5: Consider the environment in employing a risk management and systems approach throughout life cycles of projects and programs.

The cumulative impacts associated with this Master Plan are evaluated in the PEA included in Appendix D of this document. This Master Plan is not expected to contribute to significant cumulative impacts. Furthermore, the PEA that is a part of this Master Plan, as well as the recommendations included in Section 10.0 of this document, commit USACE and North Carolina to continued coordination with regulatory agencies and updates to the plan to allow any cumulative impacts to be mitigated with the best available science and technology.

#6: Leverage scientific, economic and social knowledge to understand the environmental context and effects of Corps actions in a collaborative manner.

Completion of the master planning process helps build an integrated, scientific, economic, and social knowledge base of Falls Lake. Section 2.0 of this document includes new information on project resources and the economic and social conditions around the project. USACE also has worked with other agencies and organizations to develop a GIS database of data pertaining to project lands. This data was used to inform the master planning process and present graphic information in this document. Maintaining and updating this database in the future will allow USACE, North Carolina, and the other management partners to manage the project effectively, educate the public and listen to stakeholders, and share in the information exchange with other agencies and groups.

#7: Employ an open, transparent process that respects views of individuals and groups interested in Corps activities.

USACE and North Carolina have been proactive in seeking the views of individuals, groups, and agencies interested in the Falls Lake Master Plan. As documented in Section 4.0, USACE and North Carolina have distributed mailings on the master planning process and held scoping meetings at key locations around the project. USACE recorded all comments presented at the scoping meetings and those submitted during the scoping period and incorporated changes to the document where appropriate. Responses to these comments, as well as those received following the public review of this document, will be incorporated into the Final Master Plan. Responses to these comments from USACE and North Carolina are included in Appendix E.

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9.0 Conclusions

Falls Lake is operated by USACE, North Carolina, and the other management partners and includes approximately 12,400 acres of open water and an additional 25,600 acres of surrounding land near North Carolina's Triangle Area, which includes the cities of Raleigh and Durham, as well as Wake, Durham, and Granville counties.

At Falls Lake, the diverse recreational, natural and cultural resources, as well as the proximity to population centers and the growing suburban influences all combine to make the project a major asset to the Triangle Region. The locations of natural, cultural, and physical resources, as well as the missions of USACE, North Carolina, and the other management partners, have influenced the distribution of developed management areas around the reservoir. Currently, most developed lands are located in the central and eastern portions of the reservoir. The western end of the project is dominated by game lands and undeveloped lands. This distribution and limited level of development allows Falls Lake to maintain a relatively undisturbed natural environment within the growing region.

This Master Plan presents a programmatic approach for the management of the recreational, natural, and cultural resources at Falls Lake. Preparation of this plan required (1) an appraisal of the natural and cultural resource conditions of the project and the surrounding region, and (2) an examination of environmental and administrative constraints and influences. The plan includes the classification of project lands, Recommended Future Uses, and Resource Objectives for the entire project.

Extensive Federal, State, and local agency coordination and citizen involvement was incorporated in all aspects of the master planning process. Planning for the development, conservation, or enhancement of project resources will continue to be coordinated through other governmental agencies and special interest groups to ensure the efficient and timely implementation of the Resource Objectives.

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10.0 Recommendations

It is recommended that this Master Plan be closely followed in managing the resources at Falls Lake. The policies and objectives within this Master Plan are consistent with authorized project purposes and resource capabilities and accommodate Federal, State, and local needs. They represent sound stewardship of resources and will result in increased opportunities for public enjoyment of outdoor recreation activities.

10.1 Using the Master Plan

This Master Plan serves two primary purposes that are equal in importance. First, it is the primary management document for the project and provides direction for many of the other plans that guide the management of Falls Lake. This Master Plan sets the stage for the update of many of USACE and North Carolina's resource management plans. The Resource Objectives contained in this Master Plan can serve as a basis for developing plans to manage resources within the project boundary. The Resource Objectives approved in this plan can serve as a basis for developing more specific management plans at the project. Regular updates to the Master Plan, discussed in Section 10.2, will allow the project to maintain updated resource management plans, as well.

The document also serves as a land use tool, since this Master Plan provides USACE, North Carolina, the other management partners, and the public with the current Land Classification, Recommended Future Use, and Resource Objectives applied to project lands. The current classification of project lands (Appendix J, Figure 12-14) allows USACE, North Carolina, the other management partners, and the public to visually evaluate the distribution of uses of project lands. The Recommended Future Uses (Appendix J, Figure 15-17) identify the long-term intent for project lands. This illustration aids in the identification of undeveloped management areas that are suitable for the development. Maintaining an up-to-date Master Plan will allow USACE and North Carolina to respond effectively to development plans made internally or by outside parties.

The process for reviewing and approving the future development of these undeveloped management areas was established in the 1994 OMP. This Master Plan restates the commitment made by USACE and North Carolina to this process, which is described in Appendix G. Future updates to this process will be reflected in the Falls Lake OMP and in revisions to Appendix G.

10.2 Updating the Master Plan

This policy-based Master Plan, along with the accompanying PEA and GIS database, provides USACE, North Carolina, and the other management partners with a "living" management document. This living document sets goals and objectives but does not establish concrete development plans, allowing flexibility in the management and development of Falls Lake within a clear policy framework.

Maintaining an up-to-date Master Plan is best accomplished through the following steps:

- Regular review of project needs and priorities;
- Annual updates to the GIS database;
- Regular review of the updates to the reports used to inform this plan (see Section 10.3);
- Regular consultation and coordination with local, State, and Federal agencies and groups with regulatory purview or interest in the management of Falls Lake;
- Review annual visitation statistics included in Appendix F. Sites with spikes in visitation or regular high levels of use would likely hold high priority in actions taken to achieve important Resource Objectives; and,
- Review tables included in Appendix F and update as appropriate.

A review of the Master Plan should include the following:

- Identifying resource conditions that have changed and require documentation in Section 2.0;
- Reviewing the issues described in Section 3.0 and noting changes in the manner in which these issues are addressed or other issues that have arisen over the last year;
- Updating public involvement efforts that included or were focused on the Master Plan;
- Reviewing the Resource Objectives and Development Needs to identify priorities or changes in management strategy; and,
- Review annual visitation statistics included in Appendix F. Sites with spikes in visitation or regular high levels of use would likely hold high priority in actions taken to achieve important Resource Objectives and Development Needs.

These annual reviews will help prepare for a general revision of the Master Plan that should occur every five years. Each five year update will be accompanied by the appropriate NEPA documentation. The five-year revision may be as simple as updating the Resource Objectives; however, it may be as complex as changing Land Classifications presented in this Master Plan. The process through which the plan is updated should follow standard USACE and North Carolina approval protocols.

The information obtained during regular revisions of this Master Plan also will serve to benefit other activities at the project. Data may be applied to updating a specific resource management plan, improving educational programs, or informing project staff about relevant issues.

10.3 Including Others in the Master Planning Process

This Master Plan emphasizes the need for consultation and coordination with regulatory agencies prior to implementing elements of the Master Plan. Coordination also may occur in updating the Master Plan and obtaining additional data sources to inform the plan.

In some cases, coordination with other government agencies is required by regulation. The regulatory requirements applicable to implementing any action at Falls Lake are generally outlined in Appendix I. In all cases, however, coordination with the appropriate groups and agencies prior to implementing an action will ensure a well informed plan that avoids unnecessary impacts to project resources. Such an approach also streamlines the review and approval process with regulatory agencies. Table 17 lists the Federal and State agencies that would be included in the consultation process for a proposed project at Falls Lake. The table also lists the resources included in each agency's purview. It should be noted that similar agencies and groups exist at the local level and also should be included in the planning process. Further agency consultation and coordination is critical to the success of this policy-based, programmatic document and associated PEA.

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Table 17: Federal and State Agencies Included in Regular Consultation Process

	Federal Agencies							State Agencies							
	Advisory Council on Historic Preservation	Federal Highway Administration	U.S. Coast Guard	U.S. Army Corps of Engineers	U.S. Department of Agriculture	U.S. Environmental Protection Agency	U.S. Fish and Wildlife Service	North Carolina Department of Cultural Resources	North Carolina Department of Transportation	North Carolina Division of Coastal Management	North Carolina Division of Land Management	North Carolina Division of Waste Management	North Carolina Division of Water Resources	North Carolina Division of Water Quality	North Carolina Natural Heritage Program
Cultural Resources	X							X							
Erosion and Sediment Control				X							X				
Ground Water													X		
Hazardous Materials						X						X			
Navigable Waters			X	X											
Rare, Threatened & Endangered Species							X								X
Soils					X						X				
Transportation		X							X						
Water Resources				X		X				X			X	X	
Wetlands				X			X			X				X	

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This document was prepared by EEE Consulting, Inc. and the Louis Berger Group, Inc. with input and review from USACE staff at Falls Lake and Wilmington District office, as well as the North Carolina Division of Water Resources, North Carolina Wildlife Resources Commission, and the North Carolina Division of Parks and Recreation.

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11.2 Glossary

A

Acre-foot. The volume of water, 43,560 cubic feet, which will cover an area of one acre to a depth of one foot.

Aquifer. A layer of underground sand, gravel, or permeable rock in which water collects. Aquifers may lie close to the surface or at great depths. Aquifers can be hundreds of miles long and wide or narrow, shallow veins running through rock. When the water source becomes of significant size, it is termed an aquifer, especially when drilling into the rock allows the tapping of the aquifer for use in crop irrigation and animals as well as human use.

B

Bedrock. The solid rock layer beneath sand or silt.

Biodiversity. The number and variety of organisms found within a specified geographic region.

Borrow pit/area. An area from which earth is taken to be used in the construction of an embankment.

C

Conservation pool. The area dedicated to water storage. Water stored below the conservation pool elevation may be used for any of the USACE's non-flood control purposes.

D

Dam. A barrier built, usually across a watercourse, for impounding or diverting the flow of water.

Day-use. Day-use activities including picnicking, hiking, swimming, boating, photography. Generally, the term includes any activity that does not include overnight camping. Day-use sites are locations that provide specific facilities to support these activities.

Drawdown. Releasing water to lower the reservoir elevation. Drawdowns are used for energy production or to create additional space in the reservoir to hold back floodwaters; to reduce the cross-sectional area of the reservoir, increasing the current to aid downstream fish passage; and to expose normally submerged structures for maintenance.

E

Earth fill dam. A dam built of gravel, earth, broken rock, sand, or silt, and usually containing an impervious clay core or facing.

Endangered/threatened species. Any species of plant or animal in danger of extinction through all or a significant part of its range [16 USC 1532 (6)].

F

Fee lands. Land that the U.S. Government owns outright in fee simple title.

Fish consumption advisory. Caution about the amount/type of fish that you eat and how it is filleted/prepared. The North Carolina Department of Health and Human Services is responsible for issuing such advisories around the reservoir.

Floodplain. Land along a river that experiences occasional flooding when the river overflows its banks.

100-year, 500-year flood zones. Areas where the probability of being inundated is once in 100 years or 500 years.

G

Geographic Information Systems (GIS). A computer program that integrates hardware, software, and data for capturing, managing, analyzing, and displaying all forms of geographically referenced information.

Ground water. Water contained within a defined subterranean structure, i.e. sand or gravel formations.

H

Habitat. An area that provides some portion of the requirements for the life history of a given species.

Hydroelectric power. The process of generating electricity by harnessing the power of moving water.

Hydrology. The scientific study of the waters of the earth, especially with relation to the effects of precipitation and evaporation upon the occurrence and character of water in streams, lakes, and on or below the land surface.

I

Impaired water body. A water body (i.e., stream reaches, lakes, water body segments) with chronic or recurring monitored violations of the applicable numeric and/or narrative water quality criteria.

Impervious surface. Constructed surfaces - rooftops, sidewalks, roads, and parking lots - covered by impenetrable materials such as asphalt, concrete, brick, and stone.

Interpretation. Activities or media designed to help people understand, appreciate, enjoy, and care for the natural and cultural environment.

Invasive species. Species that are not native to the area, and whose presence may be harmful to native species.

M

Mean sea level (msl). A point of reference to measure lake elevation. It refers to the elevation of the ocean halfway between high and low tide. Lake elevations are measured in feet above mean sea level.

Mitigation. Any action designed to avoid, minimize, reduce, rectify, compensate for, or eliminate adverse impacts of a Preferred Alternative.

Municipal water system. A water system that has at least five service connections or which regularly serves 25 individuals for 60 days; also called a public water system

N

National Register of Historic Places (National Register). A comprehensive list of districts, sites, buildings, and structures of national, regional, State, and local significance in American history, architecture, archaeology, engineering, and culture. The list is maintained by the National Park Service under the authority of the National Historic Preservation Act of 1966.

Normal pool. See Conservation Pool.

P

Paleontology. The study of life in past geologic time.

Peninsula. An elongated body of land nearly surrounded by water and connected to a larger body of land by a neck or isthmus.

Physiographic Province. A region of which all parts are similar in geologic structure and climate and which has consequently had a unified geomorphic history; a region whose patterns of relief features or landforms differs significantly from that of adjacent regions.

Primitive camp site. Camp site with no electricity, water, or sewage hook-ups. These sites usually provide a camping pad, picnic table, and grill/fire pit.

Programmatic Environmental Assessment (PEA). A NEPA document that evaluates typical actions that may occur as the result of the implementation of a general plan. Because the details of these specific actions are not known at the time the PEA is developed, the document provides general impact analysis and commits the Federal agency to additional NEPA analysis and agency consultation.

R

Reservoir. An impoundment for water storage either above or below the ground.

River basin. The portion of land drained by a river and its tributaries.

S

Scoping. Early consultation with interested and affected members of the public, as well as with staff and other Federal, State, and local agencies having regulatory or planning responsibilities to identify issues to be considered in a plan.

Sedimentation. The depositing or formation of soil and rock particles carried by moving water.

Spillway. Dams without floodgates are designed with an area called a spillway that allows water to flow freely over it during floods. A controlled spillway has floodgates.

Surface water. Water above the surface of the ground, such as a lake or river. The term is used to distinguish it from ground water.

T

Tailrace. The canal or channel that carries water away from the dam.

Threatened and endangered species. Plants and animals that are listed by the U.S. Fish and Wildlife Service or State government as being offered protection under the Endangered Species Act or State law.

W

Water supply pool. The space within the reservoir reserved for water supply.

Watershed. A region or area over which water flows into a particular, lake, reservoir, stream, or river; a drainage basin.

Wetland. Areas saturated or inundated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil. Wetlands generally include swamps, marshes, bogs, and similar areas [33 CFR 328.3(b)].

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**APPENDIX A
PERTINENT DATA**

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**FALLS LAKE PROJECT
NEUSE RIVER BASIN, NC**

PERTINENT DATA

Location of Dam

At Latitude 35° 56' 28", Longitude 78° 35' 00" NAD83; in Wake County, NC, about 10 miles north of Raleigh, NC; 235 river miles above the mouth of the Neuse River; 145 river miles above Kinston, NC; 100 river miles above Goldsboro, NC; 57 river miles upstream from Smithfield, NC; and 33 river miles upstream of Clayton, NC.

Purpose

For flood damage reduction, water supply, recreation, fish and wildlife enhancement, and augmentation of low flows for purposes of pollution abatement and water-quality control in the Neuse River Basin.

Key Stream Gaging Locations

**Drainage Area*
(square miles)**

Eno River at Hillsborough, NC	66
Eno River near Durham, NC	141
Little River near Orange Factory, NC	78
Little River at Fairintosh, NC	99
Ellerbe Creek near Gorham, NC	22
Flat River at Bahama, NC	149
Flat River at Dam near Bahama, NC	168
Beaverdam Creek at Dam near Creedmoor, NC	53
Falls Lake above Dam near Falls, NC	771
Neuse River near Falls, NC	771
Neuse River near Clayton, NC	1,150
Neuse River at Smithfield, NC	1,206
Neuse River near Goldsboro, NC	2,399
Neuse River at Kinston, NC	2,692
Neuse River near Fort Barnwell, NC	3,900

*Drainage Areas are 2009 data from US Geological Survey

Falls Lake Geographic Coverage

Counties affected	Wake, Durham, Granville
Length at elevation 250 ft-NGVD29 (miles)	
Along Neuse River	24
Along Eno River	4
Along Flat River	3
Length of shoreline at elev. 250 ft-NGVD29 (miles)	175

Physical and Operational Reservoir Elevations **Feet-NGVD29**

Top of Falls Dam	291.5
Top of Falls Dam with Jersey Barrier (installed 1995)	approx. 294.5
Base of Falls Dam	200.0
Spillway crest (raised from 264.0 ft-NGVD29 in 1995)	264.8
Spillway design flood	287.6
Standard project flood	271.3
Top of flood pool (spillway crest)	264.8
Top of conservation pool (guide curve) *	251.5
Bottom of conservation pool	236.5
Maximum recorded pool (1 Oct 1999 following Hurricane Floyd)	264.34
Minimum recorded pool (25 December 2007)	241.51

Upper clearing limit 251.1
 Elevation of guide acquisition line: 264.0 plus 300 ft horizontally or 5 ft vertically to elev. 269
 (whichever encompasses the most area)

* Guide curve elevation raised from 250.1 ft-NGVD29 to 251.5 ft-NGVD29 in January 2000.

Falls Lake Storage Volumes* **Inches of Runoff** **Acre-Feet**

Spillway design flood (elev. 287.6)	-	1,040,347
Standard project flood (elev. 271.3)	-	508,425
Top of flood pool (elev. 264.8)	-	352,577
Top of conservation pool (elev. 251.5)	-	131,395
Bottom of conservation pool (elev. 236.5)	-	25,070
Uncontrolled flood storage (elev. 264.8-287.6)	16.61	687,770
Controlled flood storage (elev. 251.5-264.8)	5.38	221,182
Conservation storage (elev. 236.5-251.5)	2.59	106,322
Water Supply Storage	-	45,000
Water Quality Storage	-	61,322
Sedimentation storage (below elev. 236.5)	0.61	25,070

Falls Lake Surface Areas * **Acres**

Spillway design flood (elev. 287.6)	38,811
Standard project flood (elev. 271.3)	26,443
Top of flood pool (elev. 264.8)	21,427
Top of conservation pool (elev. 251.5)	12,410
Bottom of conservation pool (elev. 236.5)	2,600

*All elevations refer to feet-NGVD29

Dam and Spillway Information

Type: Earth and rock fill (zoned), with side channel uncontrolled spillway, multilevel intake structure, and oblong-shaped conduit.

Length of dam (feet)	1,915
Length of spillway crest (feet)	1,650
Width of spillway channel (feet)	120
Spillway capacity at elev. 287.6 (cubic feet per second, cfs)	44,900
Height of dam above original streambed (feet)	92.5
Freeboard (feet)	4.0
Freeboard with Jersey Barrier on Dam (feet)	approx. 7.0

Intake Tower Information

Four (4) multilevel intakes (drop inlet type)

Front – both chambers	8 ft x 8 ft, invert elev. 231 ft-NGVD29
Sides – both chambers	8 ft x 8 ft, invert elev. 241 ft-NGVD29

Two (2) conduit intakes (service gates) 8.5 ft wide x 19 ft high
invert elev. 200 ft-NGVD29

Two (2) piggyback gates (one per service gate) 1 ft x 1 ft, invert elev. 208.75 ft-NGVD29

Conduit Information

Shape	oblong
Conduit length (feet)	272.5
Conduit equivalent circular diameter (feet)	17.4
Exit invert elevation (ft- NGVD29)	198.0
Maximum discharge at elev. 251.5 ft-NGVD29 (cfs)	approx. 10,000

Stilling Basin Information

Minimum width (feet)	15.0
Maximum width (feet)	55.0
Length (feet)	222.6
Bottom elevation (ft-NGVD29)	185.4
End sill elevation (ft-NGVD29)	188.4

Spillway Design Flood Information

Total average rainfall (inches)	23.80
Initial loss (inches)	0.70
Average infiltration rate (inches per hour)	0.04
Total storm runoff (inches)	21.18
Peak inflow to full reservoir (cfs)	322,700
Regulated peak outflow (cfs)	58,700

Standard Project Flood Information

Maximum estimated inflow (cfs)	153,500
Maximum estimated outflow (cfs)	18,600

Estimated Pre-Impoundment Streamflow at Falls Dam Site*

(cfs)

Mean discharge for period of record (60 years)	765
Minimum Streamflow	
Instantaneous (30 September 1932)	5
Daily (30 September 1932)	5
Monthly (September 1932)	18
Maximum Streamflow	
Instantaneous (18 September 1945)	23,300
Monthly (September 1945)	4,257

* Permanent impoundment began 13 Jan 1983; reached original guide curve elevation, 250.1 ft, on 7 Dec 1983.

Post-Impoundment Inflow* and Outflow at Falls Dam (since December 1983)

(cfs)

Mean Inflow for period of record (1983 - 2008)	672
Minimum Inflow:	
Monthly (June 2002)	-66
Maximum Inflow:	
Highest instantaneous (6 Sept. 1996 – Hurricane Fran)	approx. 101,000
Monthly (September 1999 – Hurricane Floyd)	5,421

*Reported inflows are based on computed “net” inflows that account for evaporative losses.

Mean Outflow for period of record (1983 - 2008)	605
Minimum Outflow:	
Daily (4 March 2008)	27
Monthly (March 2008)	30
Maximum Outflow:	
Daily (16 September 1996)	7,422
Monthly (March 1998)	4,090

Tailwater Level Information (post-regulation by Falls)*

Spillway design flood (58,700 cfs, ft-NGVD29)	210.1
Standard project flood (18,600 cfs, ft-NGVD29)	205.6
Maximum (7,650 cfs - 16 September 1996, ft-NGVD29)	202.7
Minimum (19 cfs - 7 April 2008, ft-NGVD29)	195.3

*Measured at Neuse River near Falls stream gage (USGS No. 02087183; gage datum 194.69 ft-NGVD29).

Downstream Neuse River Channel Information

Bankfull discharge for downstream reaches (cfs)	4,000-8,000
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**APPENDIX B
FALLS LAKE PRIME LEASE**

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DEPARTMENT OF THE ARMY
LEASE
FOR PUBLIC PARK, RECREATIONAL, AND FISH AND WILDLIFE PURPOSES
FALLS LAKE

LEASE NO. DACW21-1-81-2614

THE SECRETARY OF THE ARMY, under authority of Section 4 of the Act of Congress approved 22 December 1944, as amended (16 U.S.C. 460d), and the Federal Water Project Recreation Act, 79 Stat. 214 (16 U.S.C. 460L-12), and pursuant to a contract entered into on 15 August 1972, by and between the United States of America and THE STATE OF NORTH CAROLINA (hereinafter referred to as the Contract), hereby grants to the STATE OF NORTH CAROLINA acting by and through the NORTH CAROLINA DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT (hereinafter referred to as the State) a lease for a period of fifty (50) years commencing on 1 October 1983 and ending on 30 September 2033 to use and occupy approximately 38,680 acres of land and water areas under the primary jurisdiction of the Department of the Army (hereinafter referred to as the Government) in the Falls Lake Project Area, hereinafter referred to as the premises, as shown on Exhibit "A," attached hereto and made a part hereof, for public park, recreational, fish, wildlife and other natural resources management purposes.

THIS LEASE is granted subject to the following conditions:

1. The State shall conform to such regulations as the Secretary of the Army may issue to govern the public use of the project area, and shall comply with the provisions of the above-cited Acts of Congress. The State and the Government shall administer the lands herein granted in accordance with the "Division of Responsibilities for the Falls Lake" between the State of North Carolina and the U.S. Army Corps of Engineers, designated as Exhibit "C," attached hereto and by this reference made a part hereof. Said Division of Responsibilities may be modified or supplemented by mutual agreement in writing between the State and the District Engineer, U.S. Army Corps of Engineers, Wilmington District, hereinafter referred to as the District Engineer. The State may make and enforce such regulations as are necessary and within its legal authority, in exercising the privileges granted in this lease, provided that such regulations are not inconsistent with those issued by the Secretary of the Army or with provisions of the above-cited Acts of Congress.

2. The State agrees to administer the land and water areas included in the lease for recreation and fish and wildlife purposes and to bear the costs of operation, maintenance, and replacement of all facilities and improvements on the premises at the commencement of this lease or added during its term. The State agrees to administer the land and water areas included in each recreation site after notification by the District Engineer that such recreation site is available for useful operation. The District Engineer shall provide advance notice to the State of the availability date for each recreation site in order for the State to budget operating funds and make administrative arrangements. The State shall administer all other lands and water areas included in this lease as of the commencement date of this lease. As used in this lease, the term "replacement" shall be construed to mean the replacement in whole or in part of any structure or improvement so worn or damaged by any cause as to no longer adequately serve its designed function

with normal maintenance. The State shall prepare and be guided by an Annual Plan of Operation and Maintenance in furtherance of the Plan of Recreation Development and Management (Master Plan) adopted pursuant to Article 2.c. of the contract and by this reference made a part hereof. During the month of January each year, the parties shall agree on the Annual Plan which shall include, but is not limited to, the following:

a. A brief summary of plans for management activities to be undertaken by the State including improvements and other facilities to be constructed thereon in accordance with the contract.

b. A brief report of the management, maintenance and development accomplishments of the lessee for the preceding year.

c. Significant modifications of policies or procedures which have developed or are to be applied.

d. Minor modifications to the Plan of Recreation Development and Management (major modifications to be accomplished by amendment of the Plan).

e. Fish, wildlife and forestry work plans.

3. In addition to the fees and charges authorized under the provisions of Article 5 of the contract, the State and its sublessees may conduct such revenue producing activities as are within the scope of Article 4 of the contract. All monies received by the State from operations conducted on the premises including, but not limited to, parking fees, rental or other considerations received from its concessionaires may be utilized by the State for the administration, maintenance, operation and development of the premises. Any such monies not so utilized or programmed for utilization shall be paid to the Government at the end of each 5-year period. The first 5-year period is to begin on the date of the execution of this lease by the Government. The State will reserve at least one area at which access to the waters and shores or the lake may be reached without imposition of fees of any kind. No facilities need be provided at this area by the State, but normal maintenance and clean-up will be provided.

4. Upon the completion of initial construction, the parties hereto shall cause to be made an inventory of all improvements constructed in whole or in part with Federal funds under the terms of the contract and title to such improvements shall at all times vest in the United States in accordance with Article 2.f., of the contract. From time to time, there shall be added to said inventory such additional improvements as may be constructed pursuant to the aforesaid contract. Certain types of "Additional Facilities," including, but not limited to, restaurants, lodges, golf courses, cabins, clubhouses, overnight or vacation type structures, stables, marinas, swimming pools, commissaries, chairlifts and such similar revenue producing facilities constructed under the authority of Article 4 of the contract shall not be added to this inventory and title to such improvements shall vest in the State or its sublessees. The inventory of improvements shall include descriptions and drawings sufficient to permit their identification and condition, and to replace them, if required, during the term or on the expiration or termination of this lease. Said inventory and all amendments thereto shall be approved in writing by authorized representatives of the

parties hereto, and shall thereupon become a part of this lease as if originally annexed.

5. The State may grant permits and licenses, and sublease all or portions of the premises for purposes which are consistent with the terms and conditions of this lease and with the recreation development, fish and wildlife and other management plans for the operation of this project. All such grants shall state that they are granted subject to the provisions of this lease. The terms and conditions of permits, licenses, and subleases granted by the State shall first be approved by the District Engineer in writing. In order to protect the investments of sublessees, the District Engineer is authorized to approve subleases which require the Government to continue to honor such parts of the subleases which may be necessary to assure the continuation of the subleased activities upon a default which would result in a revocation of the prime lease under Condition 13 hereof.

6. The State shall establish and maintain adequate records and accounts and render annual statements of receipts and expenditures to the District Engineer, except for annual or weekly entrance fees which also are honored at other recreational areas operated by the State. The District Engineer shall have the right to perform audits of the State's records and accounts, and to require the State to audit the records and accounts of sublessees, and furnish the District Engineer a copy of the results of such an audit.

7. Rates and prices charged by the State and/or its concessionaires for accommodations, food and services furnished or sold to the public shall be reasonable and comparable to rates and prices charged for similar goods and services by others in the community and B. Everett Jordan and John H. Kerr Lakes. During the month of January each year, the State shall submit to the District Engineer lists of all rates and prices (except packaged goods) proposed for the year, and furnish justification for any proposed rate or price change. No further action will be taken unless the District Engineer finds items that are priced excessively. If items are found to be priced excessively, the District Engineer will establish prices comparable to prices charged for the same goods or services as other businesses within the same geographic area and will notify the State of the established prices. Where no change in a previously approved price list is proposed, a letter stating that the previous year's list will remain in effect for the coming year will be acceptable. The State shall post the schedule of rates and prices in conspicuous places on the premises at all times.

8. The right is reserved to the Government, its officers, agents and employees to enter upon the premises at any time to make inspections concerning the operation and maintenance of the lands and facilities provided hereunder, and for any purpose necessary or convenient in connection with river and harbor and flood control work, to flood the premises when necessary, and/or to make any other use of the land as may be necessary in connection with public navigation and flood control, and the State shall have no claim for damages of any character on account thereof against the United States or any agent, officer, or employee thereof.

9. The United States shall not be responsible for damages to property or injuries to persons which may arise from or be incident to the exercise of the privileges herein granted, or for damages to the property of the State, or for damages to the property or injuries to the person of the State's

officers, agents, servants, employees or others who may be on the premises at their invitation or the invitation of any one of them, arising from or incident to the flooding of the premises by the Government, or flooding from any other cause, or arising from or incident to any other Governmental activities, and the State shall hold the United States harmless from any and all such claims, to the extent authorized by the North Carolina Tort Claims Act, Chapter 143, Section 291 et. seq., of the General Statutes of North Carolina, not including damages due to the fault or negligence of the United States or its contractors.

10. The State and its concessionaires shall not discriminate against any person or persons because of age, race, creed, color, sex, or national origin in the conduct of its operations hereunder. The State has furnished as part of the Contract an assurance that it will comply with Title VI of the Civil Rights Act of 1964 (78 Stat. 241) and Department of Defense Directive 5500.11 issued pursuant thereto and published in Part 300 of Title 32, Code of Federal Regulations, and shall require all concessionaires to supply like assurances. The Assurance of Compliance is attached as Exhibit "B."

11. This lease is subject to all existing easements and easements subsequently granted, for roadways, and utilities and for other purposes located or to be located on the premises, provided that the proposed grant of any easement will be coordinated with the State and easements will not be granted which will, in the opinion of the District Engineer, interfere with developments, present or proposed, by the State.

12. Within the limits of their respective legal powers, the parties to this lease shall protect the project against pollution of its water. The State shall comply promptly with any regulations, conditions or instructions affecting the activity hereby authorized if and when issued by Environmental Protection Agency and/or a state, interstate or local governmental water pollution control agency having jurisdiction to abate or prevent water pollution. Such regulations, conditions, or instructions in effect or prescribed by the Environmental Protection Agency, state, interstate or local governmental agency are hereby made a condition of this lease.

13. This lease may be revoked by the Secretary of the Army in the event the State violates any of the terms and conditions of this lease and continues and persists therein for thirty (30) days after notice thereof, in writing, by the District Engineer. Such a termination shall not derogate or diminish such other remedies in law as may be available to the Government, and in no way shall it act to relieve the State of its responsibilities and obligations under the Contract. In lieu of revocation, the District Engineer, in his discretion, upon a finding that a violation constitutes a health or safety hazard may suspend the use of that operation or facility until such deficiency is rectified.

14. On or before the date of expiration of this lease, the State shall vacate the premises, remove its property therefrom, and restore the premises to a condition satisfactory to the District Engineer. If, however, this lease is revoked, the State shall vacate the premises, remove its property therefrom, and restore the premises as aforesaid within such time as the Secretary of the Army may designate. In either event, if the State shall fail or neglect to remove its property and so restore the premises, then its property shall become the property of the United States without compensation

therefor and no claim for damages against the United States or its officers or agents shall be created by or made on account thereof.

15. All notices to be given pursuant to this lease shall be addressed, if to the State, to STATE OF NORTH CAROLINA, DEPARTMENT OF NATURAL RESOURCES AND COMMUNITY DEVELOPMENT, P.O. Box 27687, Raleigh, North Carolina 27611, if to the Government, to DISTRICT ENGINEER, U.S. ARMY CORPS OF ENGINEERS, WILMINGTON DISTRICT, Post Office Box 1890, Wilmington, North Carolina, 28402, or as may, from time to time, be directed by the parties. Notice shall be deemed to have been duly given if and when inclosed in a properly sealed envelope or wrapper, addressed as aforesaid and deposited postage prepaid, in a post office or branch post office regularly maintained by the United States Government.

16. All buildings constructed on the lease premises for human habitation must have a floor elevation of 264 m.s.l. or higher.

17. The State shall not permit gambling on the premises or install or operate, or permit to be installed or operated thereon, any device which, in the opinion of the District Engineer, is contrary to good morals or is otherwise objectionable; or sell, store or dispense, or permit the sale, storage or dispensing of any intoxicating beverages on the premises not specifically authorized in writing by the District Engineer; or use the premises or permit them to be used for any illegal or immoral business or purpose; there shall not be carried on or permitted upon the premises any activity which would constitute a nuisance.

18. The Government consents to State construction, operation and maintenance of a road or street and appurtenances thereto over, across, in and upon the lands outlined in green on attached Exhibit "A," over which the United States holds a road right-of-way easement, subject to existing easements for public roads and highways, public utilities and pipelines.

19. The utility lines which serve the premises shall be shown on the Plan of Recreation Development and Management and approved in writing by the District Engineer or his designated representative prior to commencement of construction. After Government approval, the State may authorize utility companies to construct, operate, and maintain said utility lines, which serve only the premises, as an adjunct to the service contract.

20. It shall be the responsibility of the District Engineer to continue the program of archaeological survey, testing, mitigation, and preservation activities, set forth in the Memorandum of Agreement dated November 2, 1978, between the U.S. Army Corps of Engineers, the North Carolina State Historic Preservation Officer, and the Advisory Council on Historic Preservation. The aforementioned Memorandum of Agreement shall be maintained in the official records of the District Engineer. The District Engineer shall insure that appropriate inventory, evaluation, mitigation, or preservation activities are accomplished prior to recreational development, construction, or other ground disturbing activities. The State, within the limits of its legal authority, shall assist the District Engineer in the preservation and protection of significant archaeological resources located on the premises. The State shall be responsible for coordinating with the District Engineer any activities which may substantially alter, damage, or result in the destruction of significant archaeological resources or archaeological resources which have

not been previously identified by the District Engineer. The State shall immediately notify the District Engineer of all findings of archaeological resources and shall protect these resources from further disturbance until notified by the District Engineer that proper clearance has been obtained from both the North Carolina State Historic Preservation Officer and the Advisory Council on Historic Preservation.

It shall be the responsibility of the District Engineer to maintain and rehabilitate the General Mangum House, a property listed on the National Register of Historic Places, in accordance with the standards set forth in the above referenced Memorandum of Agreement prior to the State assuming any responsibility for or control of the property. After rehabilitation of the Mangum House, the State shall assume management and maintenance responsibility for said property in accordance with the standards set forth in the above mentioned Memorandum of Agreement and shall be responsible for coordinating with the District Engineer any activities which may substantially alter, damage, or result in the destruction of said property.

21. The State shall not cause harm or damage to any species or their critical habitats which have been classified as threatened or endangered pursuant to the Endangered Species Act of 1973 and amendments thereto; and the State shall immediately notify the District Engineer of all initial reported sightings of said threatened or endangered species.

22. Any reference herein to the District Engineer shall be deemed to also include his authorized representative.

23. The State shall prepare and, upon approval of the District Engineer, implement plans and programs for effective forest management of the premises pursuant to Article 7 of the Contract. The proceeds derived from timber harvesting accomplished in accordance with the approved Forest Management Plan and timber harvesting accomplished to clear approved construction sites may be used by the State to offset maintenance and operation costs incurred pursuant to this lease. The balance of the proceeds not so used, shall be paid to the United States of America at the expiration of each 5-year period. The first 5-year period is to begin on the date of the execution of this lease by the Government.

24. The State shall administer this lease in accordance with the provisions of Title 36, Code of Federal Regulations, chapter 3, part 327.

25. All structures shall be constructed and landscaping accomplished in accordance with plans approved by the District Engineer prior to commencement of construction. The State shall keep the premises in good order and in a clean, sanitary, and safe condition, and shall at all times maintain all structures and equipment in a condition satisfactory to the District Engineer.

26. The State shall require its concessionaires and sublessees to obtain from an insurance company licensed in the State and acceptable to the Government, liability or indemnity insurance providing for minimum limits of \$500,000 per person in any one claim, and an aggregate limit of \$1,000,000 for any number of persons or claims arising from any one incident with respect to bodily injuries or death resulting therefrom, and \$100,000 for damage to property suffered or alleged to have been suffered by any person or

persons resulting from the operations under any agreement between the State and its concessionaires and sublessees.

27. The State shall operate and maintain the dam and spillway structure, situated within the Beaverdam Creek area as shown in orange on the attached Exhibit "A" in accord with the following requirements.

a. The State shall operate and maintain the entire dam and spillway structure.

b. The State shall operate and maintain the intake gates and hoists in operative condition.

c. The State shall provide an operator to open the gates periodically (bimonthly) for testing and extreme droughts.

d. The State shall maintain all multilevel intake gates in the closed position in order for the Beaverdam Creek Reservoir to fluctuate with the Falls Lake above elevation 249 feet m.s.l., the spillway crest elevation of Beaverdam Creek Dam. In a critical dry period when water stored in the Beaverdam Creek Reservoir is needed to meet water supply and low flow requirements, the District Engineer may require the State to partially or completely open the intake gates whenever the Falls Lake level drops below elevation 240 feet m.s.l.

e. The right is reserved to the Government, its officers, agents, and employees to enter upon the dam and related structures to make inspections concerning its operation and maintenance and to assume complete control and operation of the dam and related structures when, in the opinion of the District Engineer, emergency conditions exist or for any other purpose as may be necessary in connection with public navigation and flood control, and the State shall have no claim for damages of any character on account thereof against the United States or any officer, agent, or employee thereof.

f. The State shall operate and maintain the dam and related structures in a manner subordinate to and consistent with the Government's operation of the Falls Lake Project and shall be subject to such rules, regulations or directives as may be prescribed by the District Engineer. The District Engineer shall assist the State in the preparation of a maintenance and operations manual for the dam, spillway, intake gates, hoists, and appurtenant facilities and shall assist the State in the instruction and training of State personnel in connection with said work. Any alterations or modifications to the dam and related structures and its operation thereof are subject to the approval of the District Engineer.

28. Upon the expiration of this lease, this lease may be extended by mutual agreement for an additional period, provided, however, that nothing herein shall be construed as obligating either the Government or the State to enter into an extension of this lease beyond the term herein provided.

29. It is understood that nothing herein shall obligate the State to act in any manner in violation of the statutes or constitution of North Carolina, provided, however, that this condition shall in no way act to relieve the State of its legal responsibilities and obligations under the contract and this lease.

IN WITNESS WHEREOF I have hereunto set my hand by direction of the Assistant Secretary of the Army (IL & FM) this 8th day of February, 1984.

Signed and sealed in the presence of:

Burt D. Bishop
Judge High

Gordon M. Hobbs

Gordon M. Hobbs
Assistant for Real Property
OASA (IL&FM)

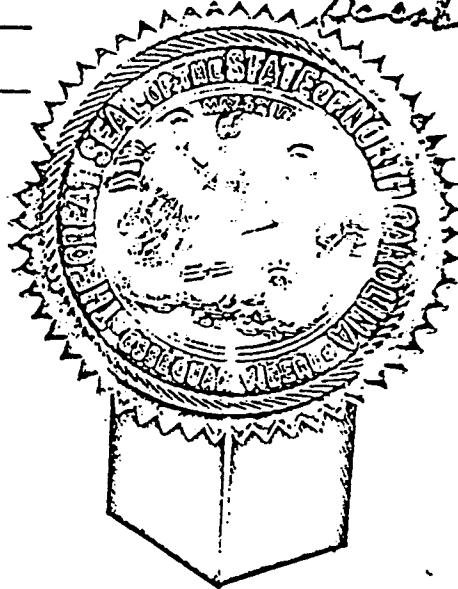
THIS LEASE is also executed by the State this 30th day of November, 1983.

THE STATE OF NORTH CAROLINA

By: [Signature]
Title: Governor

attest: [Signature]
Secretary of State

(Seal) Signed and sealed in the presence of:



STATE OF NORTH CAROLINA

COUNTY OF WAKE

I, Denise P. Ellis, a Notary Public in and for the County and State aforesaid, do hereby certify that JAMES B. HUNT, JR. Governor of the State of North Carolina, and THAD EURE, Secretary of State of State of North Carolina, personally came before me this day and being by me duly sworn says each for himself that he knows the Great Seal of the State of North Carolina and that the seal affixed to the foregoing instrument is the Great Seal of the State; that JAMES B. HUNT, JR., Governor of said State, and THAD EURE, Secretary of State, subscribed their names thereto, all by virtue of a resolution of the Council of State; and that said instrument is the act and deed of the State of North Carolina.

IN WITNESS WHEREOF, I have hereunto set my hand and Notarial Seal, this the 30 day of November, 1983.

Denise P. Ellis
Notary Public

My Commission Expires:

11-8-88

ASSURANCE OF COMPLIANCE WITH THE DEPARTMENT OF DEFENSE DIRECTIVE UNDER TITLE VI OF THE CIVIL RIGHTS ACT OF 1964

State of North Carolina (hereinafter called "Applicant-Recipient")
(Name of Applicant-Recipient)

HEREBY AGREES THAT it will comply with title VI of the Civil Rights Act of 1964 (P.L. 88-352) and all requirements imposed by or pursuant to the Directive of the Department of Defense (32 CFR Part 300, issued as Department of Defense Directive 5500.11, December 28, 1964) issued pursuant to that title, to the end that, in accordance with title VI of that Act and the Directive, no person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Applicant-Recipient receives Federal financial assistance from Dept. of the Army
(Component of the

Department) and HEREBY GIVES ASSURANCE THAT it will immediately take any measures necessary to effectuate this agreement.

If any real property or structure thereon is provided or improved with the aid of Federal financial assistance extended to the Applicant-Recipient by this Dept. of the Army, assurance shall obligate the Applicant-Recipient, (Component of the Department) or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits. If any personal property is so provided, this assurance shall obligate the Applicant-Recipient for the period during which it retains ownership or possession of the property. In all other cases, this assurance shall obligate the Applicant-Recipient for the period during which the Federal financial assistance is extended to it by Dept. of the Army.
(Component of the Department)

THIS ASSURANCE is given in consideration of and for the purpose of obtaining any and all Federal grants, loans, contracts, property, discounts or other Federal financial assistance extended after the date hereof to the Applicant-Recipient by the Department, including installment payments after such date on account of arrangements for Federal financial assistance which were approved before such date. The Applicant-Recipient recognizes and agrees that such Federal financial assistance will be extended in reliance on the representations and agreements made in this assurance, and that the United States shall have the right to seek judicial enforcement of this assurance. This assurance is binding on the Applicant-Recipient, its successors, transferees, and assignees, and the person or persons whose signatures appear below are authorized to sign this assurance on behalf of the Applicant-Recipient.

Dated 9-23-83

STATE OF NORTH CAROLINA
(Applicant-Recipient)

By

[Signature]
(BY THE GOVERNOR OF THE STATE OF NORTH CAROLINA)

Governor

attest
[Signature]
State Capitol Building

[Signature]
Raleigh, North Carolina
(Applicant-Recipient's Mailing Address)

ACKNOWLEDGMENT

COMMONWEALTH OF VIRGINIA)
) ss'
COUNTY OF ARLINGTON)

BEFORE ME, a Notary Public in and for the Commonwealth of Virginia,
County of Arlington, personally appeared, GORDON M. HOBBS,
to me known to be the identical person and officer whose name is
subscribed to the foregoing instrument and acknowledged to me that he
executed the said instrument in the capacity therein stated for the
purposes therein expressed as the act and deed of the United States of
America.

GIVEN under my hand and seal, this 8th day of FEBRUARY,
1984.



NOTARY PUBLIC

W. R. Cabell, Notary Public at Large
Commonwealth of Virginia
County of Arlington
My Commission Expires April 3, 1987

(SEAL)
My Commission Expires:

DIVISION OF RESPONSIBILITIES FOR FALLS LAKE

Lease No. DACW21-1-81-2614

FALLS LAKE

	<u>Responsible Agency</u>	
	<u>Corps</u>	<u>State</u>
<u>PLANNING AND DESIGN FUNCTION</u>		
1. Planning and Design Activities		
Master Plan	JR	JR
Feature DM's	JR	JR
Plans and Specs.	JR	JR
Master Plan Updated		
Consultant Selection	JR	JR
Approval of M.P.	JR	JR
Approval of D.M.'s	JR	JR
Approval of P. & S.	JR	JR
Approval of M.P. Updates	JR	JR
Approval of Subleases	A/M/r	PR
<u>CONSTRUCTION FUNCTION</u>		
2. Construction Activities		
Project Construction	PR	A
Contract Administration	PR	A
Inspection	PR	A
Acceptance	PR	A
"As Built" Modify MP	PR	A
<u>OPERATIONAL FUNCTION (OPERATIONS, MAINTENANCE, REPLACEMENT, AND REAL ESTATE)</u>		
3. Forest Management Activities (All Areas)		
Forest Mgt. Plan Execution	M	PR
Fire Suppression	A	PR
Incidental Tree Removal and Replacement	JR	JR
Major Tree Removal (Timber Harvesting)	A/M/r	PR
Reforestation	A/M/r	PR
FMP Preparation	A/M/r	PR
Annual Work Plan	A/M/r	PR
Plan Approvals	PR	A
Reports	JR	JR

	<u>Responsible Agency</u>	
	<u>Corps State</u>	
4. Mosquito Control Activities (All Lands)		
Mosquito Control Plan Execution	PR	A/M
Drainage Improvements (Initial)	PR	A/M
Drainage Improvements (Future)	PR	A/M
Mosquito Control Plan	PR	A
M.C.P Approval	PR	r
Annual Reports	PR	A
5. Water Quality Control Activities (All Lands)		
Aquatic Weed Control	PR	A/r
Monitoring Water Quality in Impoundment	A/M/r	PR
6. Encroachments (All Lands) Boundary Lines		
Boundary Inspections	PR	A
Appraisals of Timber Encroachments	PR	A
Surveying of Building Encroachments	PR	
Periodic Reestab. and Remarking Boundary	PR	
Reporting of Encroachments	PR	A
Encroachment Prevention Program	PR	A/M
Resolution of Encroachments	PR	A
7. Fish and Wildlife Activities (All Lands)		
Devel. F&WL Mgt. Plan	JR	JR
Endangered Species Mgt.	PR	A
F&WL Mgt. Plan Execution	A/M/r	PR
Devel. Annual Work Plan	A/M/r	PR
Reports	A/M/r	PR
8. Shoreline Maintenance (Developed Recreation Areas)		
Periodic Removal of Driftwood and Debris	M	PR*
Rebrushing	M	PR*
Stump Removal	M	PR*
Control of Major Erosion	PR	M

*After 2 full years of impoundment.

Responsible
Agency

Corps State

8A. Shoreline Maintenance (All Other Areas)

Period of Removal of Driftwood and Debris	PR	A/M
Rebrushing	PR	A/M
Stump Removal	PR	A/M
Control of Erosion	PR	A/M

9. Safety Administration (All Areas Except Damsite)

Prepare Safety Plan	A/M/r	PR
Water Safety Education	A/M/r	PR
Patrol Waters	A/M/r	PR
Operate and Maintain Designated Swim Areas	A/M/r	PR
Establish Safety Rules at Designated Swim Areas	A/M/r	PR
Provide Safety Equipment at Designated Swim Areas	A/M/r	PR
Monitor and Correct Safety Hazards on Lands	A/M/r	PR
Reports	A/M/r	PR

10. Recreation Site Management Activities

Maintain and/or Replace Roads	A/M/r	PR
Maintain and/or Replace Rec. Facilities	A/M/r	PR
Trash Collection	A/M/r	PR
Maintain Toilet and Shower Buildings	A/M/r	PR
Mowing	A/M/r	PR
Maintain Structures Adaptable to Project Use	A/M/r	PR
Maintain Piers and Bulkheads	A/M/r	PR
Visitor Centers and Personnel	A/M/r	PR
Maintain Visitors Centers	A/M/r	PR
Visitor Control	A/M/r	PR
Law Enforcement	A/M/r	PR
Maintain Water Supply Sources	A/M/r	PR
Maintain or Monitor Wastewater Treatment	A/M/r	PR
Maintain or Replace Signs, Markers, and Buoys	A/M/r	PR
Reports and Statistics of Rec. Use and Costs	A/M/r	PR

11. Land Management Activities (Damsite Areas)

Maintain or Replace Roads	PR
Const. Minor Fac. and Roads	PR
Trash Collection	PR
Maintain Reservoir Mgt. Fac.	PR
Mowing	PR
Maintain Piers and Bulkheads	PR

	<u>Responsible Agency</u>	
	<u>Corps</u>	<u>State</u>
Dam Operation	PR	
Dam Maintenance	PR	
Maintain or Replace Signs or Markers	PR	
Reports and Statistics	PR	
O&M Budget Preparation	PR	
12. Archeological and Historical Management	PR	A/r
13. Maintain Boat Launch Ramps		
(a) Recreational Sites		PR
(b) Operational Area/Not included in Lease Premises	PR	
(c) Public Safety and Convenience		PR
14. Use Allocation of Reservoir Waters (Water Allocation Plan)	JR	JR
Use Allocation Enforcement		PR

CODE:

- PR - Primary Responsibility. The agency having primary responsibility is that agency accountable to insure that all functions of a given task are fully implemented. If the agency with secondary responsibility fails or declines to participate, the primary agency may complete the task unilaterally.
- JR - Joint Responsibility. Both agencies are equally accountable/responsible for the functions required to insure full implementation of a given task.
- A - Assist. Agency with "assist" responsibility will be provided an opportunity to participate in the activity of a given task prior to the finalization of the task. To "assist" should not automatically impose a monetary burden on the assisting agency. However, it is active participation upon request of the agency having primary responsibility.
- M - Monitor. To monitor is to remain aware of the activities comprising a given task to insure fulfillment of the other agency's responsibilities. This should not be interpreted to mean detailed inspection of activities on a regular schedule, but it is passive participation, without having to be requested, at the discretion of the monitoring agency.
- r - Review and Approve. This means to survey or inspect the document or instrument for accuracy and content with the power to veto/disapprove the document/action for cause.

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**APPENDIX C
USACE SIX-STEP PLANNING PROCESS**

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The U.S. Army Corps of Engineers Planning Process

The planning process is a structured approach to problem solving. Although ideally, the process starts with Step 1 (identifying problems and opportunities) and proceeds sequentially through the other steps, ending in Step 6 (selecting a plan), but planning can begin with any step. Because the process can begin anywhere, it is an iterative process - as more information is acquired and developed, some of the previous steps may be reiterated. The six steps of the planning process are shown below and are described as follows:

Identifying Problems and Opportunities

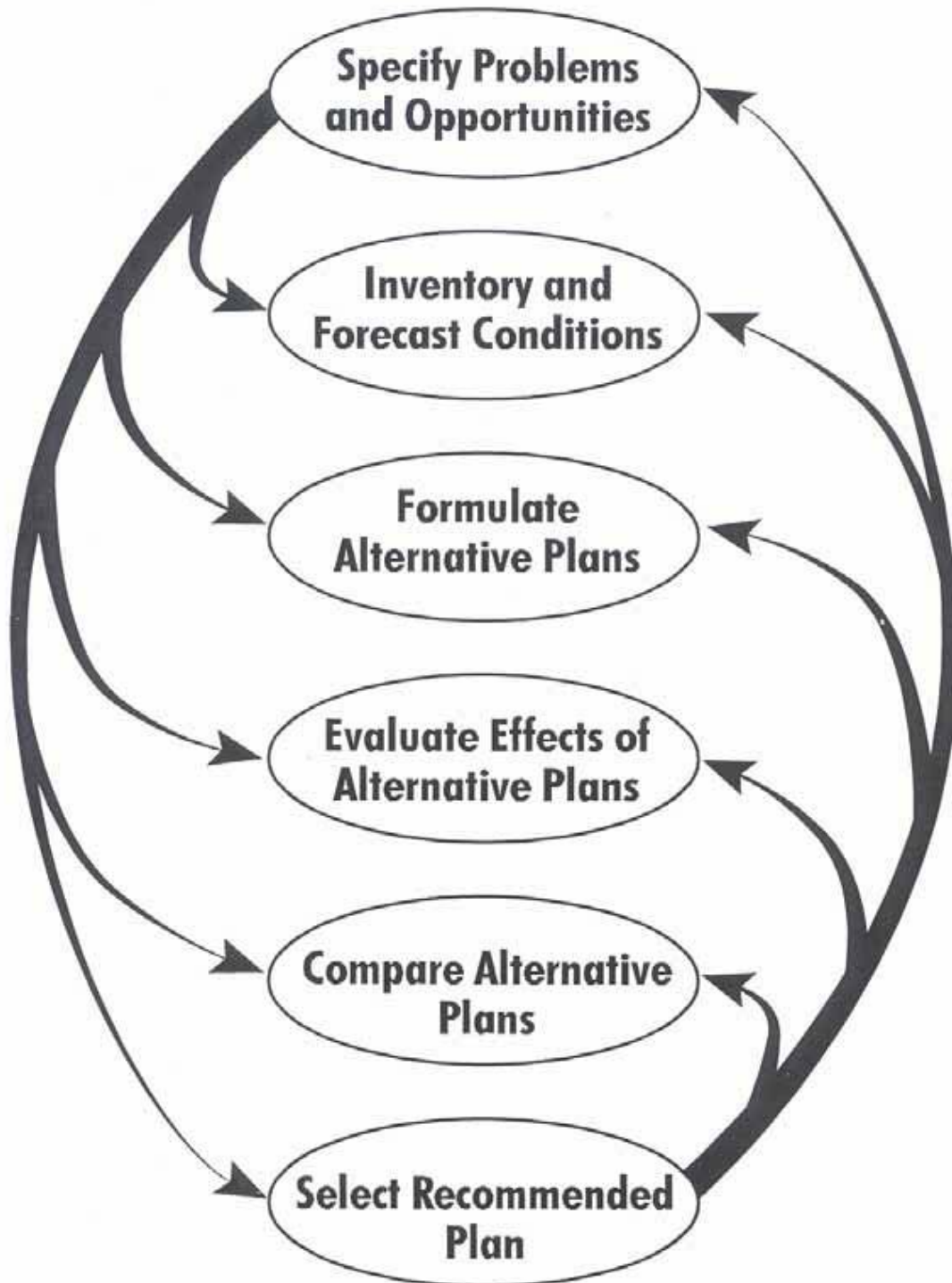
This is the most important step in the planning process. Once the problems and opportunities are described, the next task is to define the objectives and constraints that will guide efforts to solve those problems and achieve those opportunities. Problems are existing, negative conditions, whereas opportunities focus on desirable, future conditions. Objectives are statements that describe the results you want to get by solving the problems and taking care of the opportunities you identified. Constraints are statements about things you want to avoid doing, or things you cannot change, while meeting your objectives.

Inventorizing and Forecasting Conditions

This is the information gathering step. Inventories and forecasts are generally concerned with the historic, existing, and future conditions of resources that will be affected by solutions to the problems. These resources may be natural, economic, or social. They will help to shape the plans to be considered, or they will be affected, intentionally or unintentionally, by one or more of the plans to be considered.

Formulating Alternative Plans

Plan formulation is the process of identifying specific solutions to achieve planning objectives while avoiding constraints so as to solve the problems and realize the opportunities that got the investigation started. Solutions consist of alternative plans built from management measures. A management measure is a feature or an activity that can be implemented at a specific geographic site to address one or more planning objectives.



Evaluating Alternative Plans

The evaluation step considers what difference each plan can make. The difference is quantified by comparing without project and with project conditions to identify the effects of alternative plans. The essential purpose of the evaluation step is to determine whether or not a formulated plan is worthy of further consideration.

Comparing Alternative Plans

In this step, the plans that qualified for further consideration are compared to come up with the best plan. Whereas in the previous evaluation step the effects of each plan were assessed individually, in the comparison step the important effects across all plans are assessed. The purpose of plan comparison is to identify the most important effects, and to compare the plans against one another across those effects. Ideally, the comparison will conclude with a ranking of plans or some identification of advantages and disadvantages of each plan for use by decision makers.

Selecting a Plan

This is the big decision making step. The first choice is always to do nothing. Planners have the burden of demonstrating that any plan that is recommended is better than doing nothing. The second choice is to select the plan that is required by law or policy, and the third choice is to do something else. Regardless of the choice, those who do the choosing must have good reasons for the final selection.

Source: U.S. Army Corps of Engineers. 1997. Planning Primer. Institute for Water Resources Report 97-R-15.

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**APPENDIX D
PROGRAMMATIC ENVIRONMENTAL ASSESSMENT (PEA)
AND
FINDING OF NO SIGNIFICANT IMPACT (FONSI)**

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**U.S. Army Corps
of Engineers
WILMINGTON DISTRICT**

Finding of No Significant Impact

Implementation of Master Plan for Falls Lake

May 2013

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Finding of No Significant Impact

**Implementation of Master Plan
for
Falls Lake**

May 2013

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1.0 Introduction

The National Environmental Policy Act of 1969, as amended, (NEPA), requires consideration of the environmental impacts for Federal actions. The proposed action and the environmental impacts of the proposed action were addressed in the attached Programmatic Environmental Assessment (PEA) for the Implementation of Master Plan for Falls Lake, dated November 2012.

Based on the information contained in the PEA, we believe the Selected Action will not significantly affect the quality of the human environment and an Environmental Impact Statement (EIS) will not be required. Accordingly, this FONSI has been prepared pursuant to NEPA in accordance with the Council on Environmental Quality (CEQ) regulations as contained in 40 CFR 1500 to 1508, which directs Federal agencies on how to implement the provisions of NEPA.

2.0 Background

Falls Lake (the project) is operated by the U.S. Army Corps of Engineers (USACE) and includes the Falls Lake dam, approximately 12,400 acres of open water, and approximately 25,600 acres of surrounding land. This land includes the Falls Lake State Recreation Area, portions of the Butner-Falls of Neuse Game Land, as well as lands subleased to local governments. Most of the project lands are leased and managed by the State of North Carolina (North Carolina). The North Carolina Division of Parks and Recreation (NCDPR) and North Carolina Wildlife Resources Commission (NCWRC) handle the day-to-day operation of the majority of project lands on behalf of the State. USACE and North Carolina are assisted by other management partners at Falls Lake, including the City of Raleigh, Wake County, and the North Carolina Botanical Garden Foundation. Future cooperation and development at the project by other agencies and groups could result in additional partners being involved in the management of Falls Lake.

To facilitate the management and use of these lands, USACE and North Carolina maintain a Master Plan for the project. The 1981 Master Plan included a series of construction projects for the different sites located within the project boundary. Over the last 30 years, many of these construction projects have either been completed or are not thought to be not the best use of project resources. Over that time, USACE also has updated its policies directing the development and implementation of Master Plans. This includes updating the Land Classifications used to define project lands, as well as shifting from a construction-based to a policy-based document. In order to meet these new directives and comply with USACE policy that requires regular updates to a Master Plan, USACE and North Carolina will implement a new Master Plan at Falls Lake.

3.0 Alternatives

Development of the alternatives to update the Falls Lake Master Plan began in 2009. USACE and its partners embarked upon an extensive data collection effort that included coordination with Federal, State, and local agencies, as well as institutions and groups with knowledge of the project resources. In January 2010, USACE hosted two open houses to solicit public input on the planning process. Additional agency meetings were held in December 2011 and January 2012 to solicit additional input from the local governments. The comments received during these meetings and comment periods were used to inform the master planning process and will be included in Appendix D of the Final Master Plan. Additional information on the agency and public scoping processes involved in the Master Plan is included in Section 4.0 of the Master Plan.

Over the following year, USACE and North Carolina worked to develop options for classifying project lands and identifying Resource Objectives and Recommended Future Uses for project lands. The data collection, public comments, and findings of the planning team revealed that there was only one action alternative that would meet the purpose, need, and objectives of the master planning process. Based on these needs, the PEA identified one action alternative, the adoption of the Master Plan, which is USACE's Selected Action. The PEA also analyzed a No Action Alternative.

3.1 Selected Action – Adoption of the Master Plan

The policy-based Master Plan described in the attached PEA is USACE's Selected Action. Under the Selected Action, USACE and North Carolina will adopt the proposed Master Plan for Falls Lake. This will allow the project to comply with the most recent USACE Land Classifications and regulations on maintaining an up-to-date Master Plan. It also will present USACE, North Carolina, and the other management partners with a programmatic management tool for the project.

The primary element of the Selected Action is the new Land Classifications that will be applied to project lands. The existing and proposed Land Classification acreages are presented in Table FONSI 1.

The primary change in the Land Classifications presented in the 1981 Master Plan and the proposed Master Plan is the way low intensity/undeveloped lands are addressed. In the 1981 Master Plan, there were five Land Classifications (Recreation Low Density Use, Natural Area, Wildlife Management/Reserve Forest Land/ Recreation and Wildlife Low Density Use, and Separable Recreation) used to describe different lands that will be consolidated under the Multiple Resource Management Land Classification in the proposed Master Plan. As a result, more of the project lands are classified as Recreation or Multiple Resource Management than would have been under the 1981 Master Plan. In addition, the Land Classifications included in the proposed Master Plan no longer reference the Land Allocations (Project Operations and Separable Recreation).

Table FONSI 1: Current and Proposed Land Classifications

Land Classification	Acreage	
	1981 Master Plan	Proposed Master Plan
Easement	183	183
Multiple Resource Management	N/A	21,196
Operation – Natural Area	120	N/A
Operation – Recreation Intensive Use	10,951	N/A
Operation – Recreation Low Density Use	818	N/A
Operation – Recreation and Wildlife Low Density Use	804	
Operation – Wildlife Management/Reserve Forest Land	12,199	N/A
Project Operations	308	374
Recreation	N/A	3,630
Total	25,383	25,383

Notes: Acreages are for planning purposes only.
 1981 Master Plan acreages based on present day GIS measurements of management areas.
 Water area not included in acreage calculations.
 N/A means not applicable. This classification not used for the indicated Master Plan.

The definitions included in the proposed Master Plan are listed below.

Project Operations: This classification includes lands required for the dam and associated structures, Visitor Assistance Center, maintenance compounds, and other areas that are used by USACE to operate and maintain Falls Lake. Project Operations also includes lands used by North Carolina and its lessees to maintain operations at their respective management areas.

Recreation: These lands are designated for intensive levels of recreational use to accommodate and support the preferences and needs of project visitors within the capabilities of the natural resource base.

Multiple Resource Management: This classification includes lands managed for one or more of the following subclassifications: low density recreation, wildlife management, vegetation management, and future/inactive recreation.

The inconsistency in total acreage listed in Table FONSI 1 is based on the technology used for each plan. In either case, acreages presented in a Master Plan are for planning purposes only (official acreages are maintained by USACE Real Estate Division). The different Land Classifications used in the two Master Plans make a direct comparison. Table FONSI 2 shows how the 1981 Master Plan Land Classifications have translated into the proposed Master Plan.

Table FONSI 2: Conversion of Land Classifications between 1981 Master Plan and proposed Master Plan

Existing Land Classifications	Proposed Master Plan
Operation – Recreation Intensive Use	Recreation
Operation – Recreation and Wildlife Low Density Use	Multiple Resource Management
Operation – Recreation Low Density Use	Multiple Resource Management
Operation – Wildlife Management/Reserve Forest Land	Multiple Resource Management
Project Operations	Project Operations
Separable Recreation*	Recreation or Multiple Resource Management

* Separable Recreation is a Land Allocation that was displayed with Land Classifications in the 1981 Master Plan. For comparison purposes, it is presented in this table.

The proposed Land Classifications will be accompanied by Recommended Future Uses of project lands and Resource Objectives. Recommended Future Uses may indicate that the current Land Classification should be carried forward in the future, such as an existing recreation or operations site. The Recommended Future Use also may identify the specific use of lands generally classified as Multiple Resource Management. Such a recommendation could direct USACE and North Carolina to continue to provide for wildlife management opportunities or to identify a developed recreation use for the site. Resource Objectives identify how USACE and North Carolina would like to see project lands managed and the goals they have for the future uses of these lands.

The policy-based nature of the Selected Action will allow USACE and North Carolina to update the Master Plan as it is implemented. Updates will document completed actions and refocus the management of the given site. These updates could be made by USACE and North Carolina staff at Falls Lake, as they are most involved in the day-to-day management of the project. Updates also could include changes in Land Classifications. This level of update will involve coordination with USACE Wilmington District Office.

3.2 Alternatives Considered

The PEA also considered a No Action Alternative. Under the No Action Alternative, an updated Master Plan would not be approved for Falls Lake and USACE would fail to comply with its own regulations at Falls Lake. The 1981 Master Plan would continue to provide the only source of comprehensive management guidance and philosophy. Information provided in the 1981 plan is out of date and no longer adequately addresses the needs of USACE, North Carolina, the other management partners, or the visitors at Falls Lake. Furthermore, the 1981 Master Plan does not include revised Land Classifications.

Under the direction of the 1981 Master Plan, USACE, North Carolina, and the other management partners would continue to implement the outdated development plans it prescribed. Management of the project would lack the support of an up-to-date guidance

document. The original development focused document would prevent a proactive approach to managing Falls Lake. Future major developments or resource management policies would require approval on a case-by-case basis without the benefit of evaluation in the context of an overall plan.

4.0 Impacts of the Selected Action

4.1 Summary of Environmental Resources and Impacts:

Section 5.0 of the PEA provides information on the affected environment present at Falls Lake (the project). The probable consequences (impacts and effects) of the No Action Alternative and the Preferred Alternative (Proposed Falls Lake Master Plan) on the environmental resources of the Falls Lake project area were evaluated. In the long-term, implementation of the Proposed Master Plan will result in positive effects for the natural resources of Falls Lake. The Preferred Alternative would have no long-term adverse impacts to socioeconomic characteristics (population and economy, transportation, utilities and conservation potential, or safety). The opportunity to provide future recreational opportunities, while maintaining the undeveloped lands that characterize much of the project, would still serve the community and attract tourists to the region. No adverse long-term effects would be expected. For the No Action Alternative, no project impacts would occur; however, the overall long-term benefits of the Proposed Master Plan would be forgone. Impacts to the physical environment (geology, topography, soils, floodplains, water resources, air quality, noise, cultural resources, hazardous materials, and recreation and aesthetic resources) would be similar to those described in the Preferred Alternative. Under the No Action Alternative, USACE, North Carolina, and the other management partners would continue to follow the guidance provided in the 1981 Master Plan. Therefore, any new development proposals would be based on guidance established over 30 years ago and require extensive agency coordination to ensure USACE and North Carolina's goals and objectives for the project were being met.

4.2 Facts and Conclusions Leading to the Finding of No Significant Impact (FONSI):

Based on the results of the impact analyses, it has been determined that no significant impacts would occur as a result of implementing the Proposed Master Plan. The Proposed Master Plan would not have any unavoidable adverse effects, nor would it result in the irreversible or irretrievable commitment of resources. Proceeding with the Proposed Master Plan would not significantly or adversely impact the affected environment. Additionally, no significant cumulative effects would be expected.

5.0 Environmental Commitments

The Master Plan and PEA commit to future NEPA analysis and agency consultation, as specific projects are developed under the direction of the Master Plan. If additional

environmental commitments are made as a result of the public and agency review of the Master Plan and PEA, they will be included in this section of the final FONSI.

6.0 Public and Agency Coordination

Agency and public involvement was initiated in January 2010 when USACE published notices announcing the potential project and the first public open houses. This was followed by public comment periods, agency meetings, and additional public open houses.

In December 2011 and January 2012, representatives from USACE and North Carolina traveled to the following municipalities to meet with local representatives, discuss preliminary options for Land Classifications, and present the master planning process in greater detail: Wake County, the Town of Wake Forest, the City of Creedmoor, the Town of Butner, Granville County, City of Durham, Durham County, and the City of Raleigh. The input received during these meetings was incorporated into the Master Plan.

On November 2, 2012, the Master Plan, along with the attached PEA and Draft FONSI, were made available for a 30-day public comment period on the Falls Lake web site, at the USACE Visitor Assistance Center, Durham County East Regional Library, and the Wake County North Regional Library. Public notices also were published in the Butner-Creedmoor News, the Wake Forest Weekly, the Durham Herald Sun, and the Raleigh News and Observer newspapers to announce the location and availability of the document. Copies of the document also were mailed to the regulatory agencies listed in Appendix A of the attached PEA. Correspondence was received from the following agencies and groups, as well as a number of private citizens.

Federal Agencies

- National Oceanic and Atmospheric Administration

State Agencies

- North Carolina Department of Cultural Resources, State Historic Preservation Office
- North Carolina Division of Water Quality
- North Carolina Natural Heritage Program
- North Carolina Wildlife Resources Commission

Local Communities

- City of Creedmoor Planning Department
- Durham City-County Planning
- Durham County

Groups


- Durham Open Space Committee
- Ellerbe Creek Watershed Association
- Falls Whitewater Park Committee, Inc.
- Friends of the Mountains-to-Sea Trail

Based on the comments received during the agency and public review, USACE and North Carolina elected to make a few changes to the Draft Master Plan (see Appendix D of the Master Plan). All of these changes were minor and/or editorial in nature and did not affect the analysis included in the attached PEA.

7.0 Finding of No Significant Impact

I have reviewed the PEA for the Implementation of Master Plan for Falls Lake, the information provided by interested parties, and the information contained in this Finding of No Significant Impact, and I find that the adoption of the Falls Lake Master Plan will not significantly affect the quality of the human environment. Therefore, preparation of an Environmental Impact Statement, pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969, as amended, is not required.

Date: 31 MAY 2013


Steven A. Baker
Colonel, U.S. Army
District Commander



**U.S. Army Corps
of Engineers
WILMINGTON DISTRICT**

Programmatic Environmental Assessment

Implementation of Master Plan for Falls Lake

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Executive Summary

Falls Lake (the project) is operated by the U.S. Army Corps of Engineers (USACE) and includes the Falls Lake Dam, approximately 12,400 acres of open water, and approximately 25,600 acres of surrounding land. This land includes the Falls Lake State Recreation Area, portions of the Butner-Falls of Neuse Game Land, as well as lands subleased to local governments. Most of the project lands are leased and managed by the State of North Carolina (North Carolina). The North Carolina Division of Parks and Recreation (NCDPR) and North Carolina Wildlife Resources Commission (NCWRC) handle the day-to-day operation of the majority of project lands on behalf of the State. USACE and North Carolina are assisted by other management partners at Falls Lake, including the City of Raleigh, Wake County, and the North Carolina Botanical Garden Foundation. Future cooperation and development at the project by other agencies and groups could result in additional partners being involved in the management of Falls Lake.

To facilitate the management and use of these lands, USACE and North Carolina maintain a Master Plan for the project. The 1981 Master Plan included a series of construction projects for the different management areas located within the project boundary. Over the last 30 years, many of these construction projects have either been completed or have been found to be not the best use of project resources. Over that time, USACE also has updated its policies directing the development and implementation of Master Plans. This includes updating the categories of Land Classifications used to define project lands, as well as shifting from a construction-based to a policy-based document. In order to meet these new directives and comply with USACE policy that requires regular updates to a Master Plan, USACE and North Carolina propose to adopt a new Master Plan at Falls Lake.

The proposed Master Plan is needed to provide USACE and North Carolina with an improved management tool at Falls Lake. The 1981 Master Plan is a “construction document” that provides specific direction on developing select sites and structures. The construction document does not provide a means of refining these plans or taking proactive action to react to needs that are not included in the document. Furthermore, once the elements included in the 1981 Master Plan have been constructed, there is no opportunity for USACE, North Carolina, or the other management partners to work to further improve individual sites at Falls Lake. The proposed Master Plan provides a policy approach to managing the project. This proactive approach would allow for refinement and adaptively managing the project resources. This approach also would allow USACE and North Carolina to use the updated document to manage the project into the future. The management tool includes a Geographic Information Systems (GIS) database. The database can be continually updated throughout the life of the plan to allow USACE, North Carolina, and the other management partners to take proactive management actions.

The primary element of the Preferred Alternative is the current Land Classifications that would be applied to project lands. The proposed Land Classifications would be accompanied by Recommended Future Uses of project lands and Resource Objectives. Recommended Future Uses may indicate that the current Land Classification should be carried forward in the future, such as an existing recreation or operations site. The Recommended Future Use also may identify the specific use of lands generally classified as Multiple Resource Management. Such a recommendation could direct USACE and North Carolina to continue to provide for wildlife management opportunities or to identify a developed recreation use for the site. Resource Objectives identify how USACE and North Carolina would like to see project lands managed and the goals they have for the future uses of these lands.

The policy-based nature of the Preferred Alternative would allow USACE and North Carolina to update the Master Plan as it is implemented. Updates would document completed actions and refocus the management of the given site. These updates could be made by the USACE and North Carolina staff at Falls Lake, as they are most involved in the day-to-day management of the project. Updates also could include changes in Land Classifications. This level of update would involve coordination with USACE Wilmington District Office.

This Programmatic Environmental Assessment (PEA) evaluated resources in the project area for potential effects by the proposed adoption of the Master Plan. This PEA determined that, while minor impacts would be imposed on several resource/policy areas, there would be no significant impacts from the Preferred Alternative, and that no mitigating actions or permits would be required by adoption of the Master Plan.

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ACRONYMS AND ABBREVIATIONS

CEQ	Council on Environmental Quality
CSA	Combined Statistical Area
EP	Engineer Pamphlet
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
FONSI	Finding of No Significant Impact
GIS	Geographic Information Systems
msl	mean sea level
National Register	National Register of Historic Places
NCDENR	North Carolina Department of Environment and Natural Resources
NC DPR	North Carolina Division of Parks and Recreation
NCWRC	North Carolina Wildlife Resources Commission
NEPA	National Environmental Policy Act of 1969, as amended
North Carolina	the State of North Carolina
OMP	Operational Management Plan
PEA	Programmatic Environmental Assessment
the project	Falls Lake
SHPO	State Historic Preservation Office
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

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1.0 Introduction

Falls Lake (the project) is operated by the U.S. Army Corps of Engineers (USACE) and includes the Falls Lake Dam, approximately 12,400 acres of open water, and approximately 25,600 acres of surrounding land. This land includes the Falls Lake State Recreation Area, portions of the Butner-Falls of Neuse Game Land, as well as lands leased to local governments. Most of the project lands are leased and managed by the State of North Carolina (North Carolina). The North Carolina Division of Parks and Recreation (NCDPR) and North Carolina Wildlife Resources Commission (NCWRC) handle the day-to-day operation of the majority of project lands on behalf of the State. USACE and North Carolina are assisted by other management partners at Falls Lake, including the City of Raleigh, Wake County, and the North Carolina Botanical Garden Foundation. Future cooperation and development at the project by other agencies and groups could result in additional partners being involved in the management of Falls Lake.

Falls Lake was authorized by the 89th Congress through the Flood Control Act of 1965 and the River and Harbor Act of 1965 (Public Law 89-298) as the initial unit of the comprehensive plan for the development of the water resources in the Neuse River Basin. Additional authorization for the development of public recreational facilities at power, flood control, and navigation projects comes from Section 4 of the Flood Control Act of 1944, Section 209 of the Flood Control Act of 1954, and by the Land and Water Conservation Fund Act of 1965, as amended.

The attached Master Plan provides a programmatic approach to the management of all of the lands included within the Falls Lake boundary. Therefore, for the purposes of this Programmatic Environmental Assessment (PEA), the project area includes all of the area within the reservoir boundary. This PEA addresses the proposed adoption and implementation of a Master Plan for Falls Lake. The PEA further analyzes the potential impact that implementing the Master Plan would have on the natural, cultural, and human environment. This document has been prepared in accordance with the National Environmental Policy Act of 1969, as amended (NEPA); regulations of the Council on Environmental Quality (CEQ) (40 CFR 1508.9); and USACE regulations, including Engineer Regulation 200-2-2: Procedures for Implementing NEPA.

The typical focus of NEPA compliance consists of environmental impact assessments for individual projects, rather than for long-range plans. However, application of NEPA to earlier and more strategic decisions not only meets the CEQ implementing regulations (40 CFR 1500-1508) and USACE regulations for implementing NEPA (ER 200-2-2), but allows USACE and North Carolina to begin considering the environmental consequences of their actions long before any physical activity is planned. Multiple benefits can be derived such early consideration. Effective and early NEPA integration with the master planning process can significantly increase the usefulness of the plan to the decision maker, if environmental information can be provided to the correct individuals, at the right time, and in the right form. If such utility can be realized, organizational outcomes, such as support for the project mission and NEPA compliance can be improved.

Environmental documents prepared concurrently with the Master Plan can influence and modify strategic land use decisions, whereas environmental documents prepared after the Master Plan would have little influence on strategic decisions already made.

The intention of the Master Plan is to develop Land Classifications that will guide the sustainable development of resources within the Falls Lake. It is not feasible to define the exact nature of potential impacts prior to receiving specific project proposals. Therefore, environmental consequences may be less than or may, in fact, exceed what is described in this PEA. To ensure future environmental consequences are captured and coordinated as accurately as possible, additional NEPA coordination will be conducted, as appropriate, for future projects that are the result of the proposed Master Plan.

2.0 Purpose and Need for the Master Plan

Falls Lake was authorized by the 89th Congress through the Flood Control Act of 1965 and the River and Harbor Act of 1965 (Public Law 89-298) as the initial unit of the comprehensive plan for the development of the water resources in the Neuse River Basin. The development of public recreational facilities at the project; and other power, flood control, and navigation projects; is further authorized by Section 4 of the Flood Control Act of 1944, 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.

An important purpose of the Master Plan is to allow USACE and North Carolina to meet updated regulations. Specifically, the new Master Plan complies with Engineer Pamphlet (EP) 1130-2-550 Project Operations-Recreation Operations and Maintenance Guidance and Procedures which was last updated on August 30, 2008. Included in the EP were new Land Classification categories. These categories are different than the ones used in the 1981 Falls Lake Master Plan and reflect the current direction in master planning.

The proposed Master Plan is needed to provide USACE and North Carolina with an improved management tool at Falls Lake. The 1981 Master Plan is a “construction document” that provides specific direction on developing select sites and structures. The construction document does not provide a means of refining these plans or taking proactive action to react to needs that are not included in the document. Furthermore, once the elements included in the 1981 Master Plan have been constructed, there is no direction provided for USACE, North Carolina, or the other management partners to work to further improve individual sites at Falls Lake. The proposed Master Plan provides a policy approach to managing the project. This proactive, policy approach would allow for refinement and adaptively managing project resources now and in the future. The management tool includes a Geographic Information Systems (GIS) database. The database can be continually updated throughout the life of the plan to allow USACE, North Carolina, or the other management partners to take proactive management actions and adapt existing strategies.

3.0 Alternatives

This section of the PEA describes alternatives for updating the Falls Lake Master Plan. The Preferred Alternative was designed to update existing inventories and plans, while providing a policy-based document that would provide a programmatic approach to the future management of the reservoir. This PEA examines two alternatives: the Preferred Alternative of adopting the Master Plan and a No Action Alternative.

3.1 Development of Alternatives

Development of the alternatives to update the Falls Lake Master Plan began in 2009. USACE and its partners embarked upon an extensive data collection effort that included coordination with Federal, State, and local agencies, as well as institutions and groups with knowledge of the project resources. In January 2010, USACE hosted two public open houses to solicit public input on the planning process. In February 2010, USACE hosted a meeting with representatives from Federal, State, and local agencies with a regulatory purview or interest in the resources at Falls Lake. The comments received during the open houses, the agency meeting, and the subsequent 30-day comment period were used to inform the master planning process and will be included in Appendix D of the Final Master Plan.

Over the following year, USACE, North Carolina, or the other management partners worked to develop options for classifying project lands and identifying Resource Objectives and Recommended Future Uses for these lands. The data collection, public comments, and findings of the planning team revealed that there was only one action alternative that would meet the purpose, need, and objectives of the master planning process. This alternative is the Preferred Alternative and is discussed in detail Section 3.2 of this PEA. The Preferred Alternative was selected as it would meet the need for sustainable management and conservation of natural resources within the project, while providing for current and future quality outdoor recreational needs of the public.

3.2 Preferred Alternative: Adoption of the Master Plan

The proposed policy-based Master Plan is USACE and North Carolina's Preferred Alternative. Under the Preferred Alternative, USACE and the State would adopt the proposed Master Plan for Falls Lake. This would meet regulations on maintaining an up-to-date Master Plan and provide a programmatic management tool for the project.

The primary element of the Preferred Alternative is the new Land Classifications that would be applied to project lands. The proposed Land Classifications would be accompanied by Recommended Future Uses of project lands and Resource Objectives. Recommended Future Uses may indicate that the current Land Classification should be carried forward in the future, such as an existing recreation or operations site. The Recommended Future Use also may identify the specific use of lands generally classified as Multiple Resource Management. Such a recommendation could direct USACE and North Carolina to continue to provide for wildlife management opportunities or to identify a developed recreation use for the site. Resource Objectives identify how

USACE and North Carolina would like to see project lands managed and the goals they have for the future uses of these lands. The existing and proposed Land Classification acreages are presented in Table D-1.

Table D-1: Current and Proposed Land Classifications

Land Classification	Acreage	
	1981 Master Plan	Proposed Master Plan
Easement	183	183
Multiple Resource Management	N/A	21,196
Operation – Natural Area	120	N/A
Operation – Recreation Intensive Use	10,951	N/A
Operation – Recreation Low Density Use	818	N/A
Operation – Recreation and Wildlife Low Density Use	804	
Operation – Wildlife Management/Reserve Forest Land	12,199	N/A
Project Operations	308	374
Recreation	N/A	3,630
Total	25,383	25,383

Notes: Acreages are for planning purposes only.

1981 Master Plan acreages based on present day GIS measurements of management areas.

Water area not included in acreage calculations.

N/A means not applicable. This classification not used for the indicated Master Plan .

Table D-2 Conversion of Land Classifications between 1981 Master Plan and Proposed Master Plan

Existing Land Classifications	Proposed Master Plan
Operation – Recreation Intensive Use	Recreation
Operation – Recreation and Wildlife Low Density Use	Multiple Resource Management
Operation – Recreation Low Density Use	Multiple Resource Management
Operation – Wildlife Management/Reserve Forest Land	Multiple Resource Management
Project Operations	Project Operations
Separable Recreation*	Recreation or Multiple Resource Management

* Separable Recreation is a Land Allocation that was displayed with Land Classifications in the 1981 Master Plan. For comparison purposes, it is presented in this table.

The inconsistency in total acreage listed in Table D-1 is based on the technology used for each plan. In either case, acreages presented in a Master Plan are for planning purposes only (official acreages are maintained by USACE Real Estate Division). The different Land Classifications used in the two Master Plans make a direct comparison difficult. Table D-2 shows how the existing Land Classifications have translated into the proposed Master Plan.

The primary change in the Land Classifications presented in the 1981 Master Plan and the proposed Master Plan is the way low intensity/undeveloped lands are addressed. In the 1981 Master Plan, there were five Land Classifications (Recreation Low Density Use, Natural Area, Wildlife Management/Reserve Forest Land/ Recreation and Wildlife Low Density Use, and Separable Recreation) used to describe different lands that would be consolidated under the Multiple Resource Management Land Classification in the proposed Master Plan. In addition, the Land Classifications included in the proposed Master Plan no longer reference the Land Allocations (Project Operations and Separable Recreation). As a result, more of the project lands are classified as Recreation or Multiple Resource Management than under the classifications included in the 1981 Master Plan. The definitions included in the proposed Master Plan are listed below.

Project Operations: This classification includes lands required for the dam and associated structures, Visitor Assistance Center, maintenance compounds, and other areas that are used by USACE to operate and maintain Falls Lake. Project Operations also includes lands used by North Carolina and its leasees to maintain operations at their respective management areas.

Recreation: These lands are designated for intensive levels of recreational use to accommodate and support the preferences and needs of project visitors within the capabilities of the natural resource base.

Multiple Resource Management: This classification includes lands managed for one or more of the following subclassifications: low density recreation, wildlife management, vegetation management, and future/inactive recreation.

The policy-based nature of the Preferred Alternative would allow USACE and North Carolina to update the Master Plan. Updates would document completed actions and refocus the management of the given site. These updates could be made by the Falls Lake staff, as they are most involved in the day-to-day management of the project. Updates also could include changes in Land Classifications. This level of update would involve coordination with USACE Wilmington District Office.

3.3 No Action Alternative

Inclusion of the No Action Alternative is prescribed by CEQ regulations and serves as the benchmark against which Federal actions can be evaluated. Under the No Action Alternative, a new Master Plan would not be approved for Falls Lake and USACE would not meet its goal of regular update to the document. The 1981 Master Plan would continue to provide the only source of comprehensive management guidance and

philosophy. Information provided in the 1981 plan is out of date and no longer adequately addresses the needs of USACE, North Carolina, the other management partners, or the visitors at Falls Lake. Furthermore, the 1981 Master Plan does not include the revised Land Classifications.

Under the direction of the 1981 Master Plan, management of the project would lack the support of an up-to-date guidance document. The original development focused document would prevent a proactive approach to managing Falls Lake. Future major developments or resource management policies would require approval on a case-by-case basis without the benefit of evaluation in the context of an overall plan.

3.4 Alternatives Considered but Eliminated

During the Master Planning process, a variety of different Land Classifications, Resource Objectives, and Recommended Future Uses were considered by USACE and North Carolina for Falls Lake. These different elements were refined or revised to best meet the missions, purposes, goals, and objectives of USACE, the State, and the other management partners at Falls Lake. The result of these refinements and revisions is illustrated in the Preferred Alternative.

4.0 Affected Environment

This section of the PEA describes the physical, natural, and human environments in and around the project area.

4.1 Physical Environment

4.1.1 Geology, Topography, and Soils

The portion of the project west of River Mile 10 near NC 50 is underlain by Triassic-age rocks that were deposited in a graben or rift basin that formed within the older crystalline bedrock as the North American plate separated from the Europe and African plates approximately 220 million years ago. This rift basin, referred to as the Durham Triassic Basin, extends from the South Carolina border to central Granville County, and is one of multiple rift basins through the mid-Atlantic states. The sedimentary rocks of the Durham Triassic Basin consist of complexly interbedded conglomerates, sandstones, siltstones, and claystones that have been locally intruded by diabase igneous rocks, are less resistant to erosion than the crystalline rocks to the east and west. Prior to construction of Falls Lake, the Neuse River had cut a wide floodplain with relatively low topographic relief through the Durham Basin. Hence, this area of Falls Lake is characterized by a greater width, shallower depths, and a more subdued shoreline than the portion of Falls Lake east of River Mile 10.

East of River Mile 10, Falls Lake is underlain by meta-igneous and meta-volcanic rocks of the Raleigh Belt including dense, moderately fractured gneisses, gabbros, granodiorites, and diorites. These rocks are hard and more resistant to erosion than the Durham Basin rocks. Therefore, the lake in this area is relatively narrow and deep, with significantly steeper shorelines (North Carolina Geological Survey 1985).

Previous project planning divided topography on project lands into four categories: gentle slopes (0-5 percent), moderate slopes (5-15 percent), steep slopes (15-25 percent), and very steep slopes (over 25 percent). These categories continue to be applicable in defining the topography at Falls Lake and the types of development that may be supported on different slopes.

The soils found within the boundaries of Falls Lake are related to the underlying geologic parent material. In the upper portion of the lake (west of River Mile 10), the bottom lands are characterized by poorly drained silty clay loam to somewhat poorly drained silt loam alluvial flood plain soils. Upland soils in this portion of the lake are typified by sandy clay loam soils. These soils (Creedmoor, Mayodan, and Pinkerton) are principally derived from Triassic-age sedimentary rocks. Many of these soils are hydric and have some development limitations due to low permeability and moderate to high shrink swell potential. In the upper reaches of a few tributaries, Iredell and Picture soils have formed on the underlying diabase dikes. These soils typically have significant development limitations due to high shrink swell potential. In the lower part of the watershed, the uplands contain soils which are derived from the underlying deeply weathered metamorphic rocks. These soils vary in texture but are generally well drained with few

development limitations (NRCS 2006). Additional discussion of geology, topography, and soils is included in Section 2.6 of the Master Plan

Specific agency consultation for physical resources is discussed in Section 10.0 of the Master Plan. Soils and topography are regulated by standards and laws included in the North Carolina Erosion and Sediment Control Planning and Design Manual. The manual provides guidance on designing, implementing and monitoring erosion and sediment controls and stormwater management measures. The North Carolina Division of Land Management and USACE are responsible for approving these measures prior to future development projects.

4.1.2 Floodplains

The 100-year floodplain elevation within the project boundary is at 262 feet msl relative to NAVD 88. In order to meet the missions of USACE, North Carolina, and the other management partners at Falls Lake, many developed sites and facilities are located within the floodplain. Most of these structures have been designed to withstand and not interfere with the conveyance of floodwaters. This is important, as periodically it becomes necessary for these lands to be flooded to achieve USACE's flood damage reduction purpose at Falls Lake.

Other features in the floodplain include the dam and shoreline stabilization structures. The dam was designed to impede floodwaters. The shoreline stabilization structures were installed to protect the shoreline from erosion. Although these features alter the wave action along a select portion of the project shoreline, they do not alter the conveyance of floodwaters through the project.

Specific agency consultation for physical resources is discussed in Section 10.0 of the Master Plan. Floodplains are defined and regulated by the Federal Emergency Management Agency (FEMA) and mapped on Flood Insurance Rate Maps (FIRM). Local municipalities planning offices also may play a role in defining floodplains and regulating their use. In the case of Falls Lake, USACE works directly with FEMA to define and protect floodplains within the project boundary. All actions occurring within floodplains must be consistent with Executive Order 11988: Floodplain Management, and related USACE policy.

4.1.3 Water Resources

Located in the Upper Neuse River Basin, Falls Lake is designed to maintain a normal pool elevation of approximately 251.5 feet msl. At this elevation, Falls Lake is approximately 22 miles long with an estimated 245 miles of shoreline. This equates to about 12,400 acres of open water surface area.

The North Carolina Division of Water Quality publishes data on water quality throughout the State in its 303(d) Impaired Waters Assessment. The most current 303(d) list available for North Carolina was completed in 2012. The report identifies portions of the Flat River, Ellerbe Creek, Knap of Reeds Creek, Lick Creek, and Little Lick Creek as they empty into the reservoir, as well as the reservoir itself, as being impaired for

supporting aquatic life. This means that these bodies of water do not meet the national water quality criteria established in the Clean Water Act (NCDWQ 2012).

Within the project boundary, water quality is influenced by the different land uses. Flowage Easements retain characteristics that allow them to absorb stormwater during flood events. Existing Low Density lands also retain these natural characteristics, as development is limited. Areas developed to support intensive recreation or project operations, however, have higher potential for stormwater runoff to accumulate pollutants and accelerate over impervious surfaces and compacted soils. Additional information on surface water quality is included in Section 2.5 of the Master Plan.

During the construction of the reservoir, an allocation of 25,073 acre-feet below the elevation 236.5 feet msl was designated for sediment accumulation and storage. This area was designated based on the predicted levels of erosion from the lands surrounding Falls Lake and its tributaries (USACE 1981). Since the publication of the previous Master Plan, a formal sediment survey has been completed at Falls Lake. The survey found that sediment storage within Falls Lake was more than adequate at that time and there was no need to increase storage (USACE 1997). Additional information on sedimentation is included in Section 2.4 of the Master Plan.

Ground water recharge in the Piedmont province varies depending on soil and rock types, topography, and seasonal precipitation and evapotranspiration rates. Most of the ground water recharge occurs in upland areas. Ground water recharge is generally estimated to range from 10 to 20 percent of mean annual precipitation. In general, ground water recharge in the Carolina Slate and Raleigh Belts is higher than in the Durham Triassic Basin due to the coarser, more permeable nature of soils in these terranes. The availability of ground water to water supply wells is primarily dependent on the occurrence and connectivity of water bearing fractures. Therefore, well yields are highly variable depending on the number and water bearing properties of the fractures intersected by the well. Well yields may vary from less than two to over 50 gallons per minute (USGS 1997, Heath 1984, LeGrand 1967). Additional discussion on ground water is included in Section 2.3.2 of the Master Plan.

Since the previous Master Plan, there have been a few new drinking water wells installed within the Falls Lake boundary. Project lands and facilities at Falls Lake, however, are not connected to municipal systems and continue to rely on well water. Additional information on utilities is included in Section 2.13 of the Master Plan.

Specific agency consultation for physical resources is discussed in Section 10.0 of the Master Plan. Water quality is regulated by Section 401 and 404 of the Clean Water Act. A Section 401 Water Quality Certification documents compliance with Federal and State water quality standards. Section 404 regulates activities within Waters of the U.S., which includes Falls Lake and its surrounding tributaries. In addition to maintaining compliance with Sections 401, 402, and 404 of the Clean Water Act, future development would follow direction provided by Executive Order 11990: Protection of Wetlands, and related USACE regulations. These laws fall under the purview of the North Carolina Division of

Water Resources, the North Carolina Division of Coastal Management, the North Carolina Division of Water Quality, the U.S. Coast Guard, and the U.S. Environmental Protection Agency (EPA). Executive Order 13514: Federal Leadership in Environmental, Energy, and Economic Performance provides further guidance on implementing these regulations.

4.1.4 Air Quality

Falls Lake is located in North Carolina's "Triangle Area", which includes the cities of Raleigh and Durham, as well as Wake, Durham, and Granville counties. The Raleigh-Durham area, which includes Durham and Wake counties, is considered a moderate nonattainment area for carbon monoxide. The region is an attainment area for all other Federal air quality standards (EPA 2011). Despite being in compliance with these standards, portions of the region are subjected to temporary impacts to air quality as a result of activities like large-scale construction projects.

Air quality within the project boundary is influenced by exhaust from motor vehicles and boats, the use of grills and fire pits, and other regional activities (such as large-scale construction projects). The large open area that is created by the reservoir allows for strong breezes to blow through the project. These breezes can rapidly reduce and/or eliminate any localized air quality concerns caused by these pollutants.

Lands currently classified for Recreation or Project Operations have the greatest potential to produce actions that may influence air quality. More specifically, the developed lands within these classifications include the heaviest concentrations of motor vehicle exhaust and building emissions within the project boundary. The undeveloped and Multiple Resource Management areas have limited impacts to air quality. Impacts in these areas are confined to short-term effects from forestry or construction actions.

Specific agency consultation for physical resources is discussed in Section 10.0 of the Master Plan. Air quality is regulated by Clean Air Act and implemented by the EPA and the North Carolina Department of Environment and Natural Resources (NCDENR). Air quality standards are defined in the National Ambient Air Quality Standards. Actions which result in increased emissions may require a permit issued by NCDENR. Executive Order 13514: Federal Leadership in Environmental, Energy, and Economic Performance provides further guidance on implementing these regulations.

4.1.5 Noise

The Raleigh-Durham region of North Carolina is highly developed with continual growth occurring throughout the area. As such, obtrusive noise sources are common. Within Falls Lake, there are few obtrusive sources of noise. Primarily, noise sources are vehicles traveling local or project roads and boat engines on the water. Occasional public events that may include amplified voices or music also occur. Sensitive noise receptors adjacent to and within the proposed project area include camping areas, park visitors, and the wildlife communities throughout the project. Some private residences are located just beyond the project boundary, as well.

Lands currently classified for intensive use or operations have the greatest potential to create noise within the project boundary. The developed lands within these classifications include the heaviest concentrations of motor vehicles and recreational activities that produce varying levels of noise. The undeveloped areas within the project have limited noise sources. Impacts in these areas are confined to short-term effects from forestry, construction actions, or hunting.

Specific agency consultation for physical resources is discussed in Section 10.0 of the Master Plan. Noise ordinances and regulations are developed and enforced by individual municipalities. These ordinances restrict the level of noise that can exist in certain areas and/or the time of day that they can exist.

4.1.6 Cultural Resources

Background research, including consultation with USACE archaeologists and the North Carolina State Historic Preservation Office (SHPO), identified a total of 1,128 previously recorded archaeological sites within the boundary of the Falls Lake. Of these sites, a total of 34 archaeological sites are determined eligible for inclusion in the National Register of Historic Places (National Register). Three properties, James Mangum House, Rock Cliff Farm, and Fairtosh, are listed on the National Register and within the boundary of the project, while another, Falls of Neuse Manufacturing Company, is located just outside. In the 1981 Master Plan, Fairtosh is listed as the Bennehan-Cameron Plantation Historic District and includes 6,000 acres with one-third of the plantation on reservoir property. The Falls of Neuse Manufacturing Company property had two elements (dam and raceway) that were within the reservoir boundary. These structures were destroyed during the construction of the Falls Lake Dam. Additional information on cultural resources is included in Section 2.15 of the Master Plan.

Specific agency consultation for cultural resources is discussed in Section 10.0 of the Master Plan. The National Historic Preservation Act, the Antiquities Act, and the Reservoir Salvage Act regulate how cultural resources must be documented and preserved. Section 106 of the National Historic Preservation Act provides specific direction to Federal agencies on protecting these resources. The North Carolina SHPO is responsible for documenting and managing cultural resources within the State and determining compliance with Section 106. Executive Order 11593: Protection and Enhancement of the Cultural Environment provides additional direction.

4.1.7 Hazardous Materials

The EPA's Envirofacts web site lists 151 EPA-regulated facilities within close proximity to Falls Lake (EPA 2012). Given the level of ongoing development in the region surrounding Falls Lake, it is difficult to accurately identify all of the potential hazardous materials that may exist within or adjacent to the project boundary. Federal law requires site-specific due diligence on a case-by-case basis before development can take place.

Specific agency consultation for physical resources is discussed in Section 10.0 of the Master Plan. Hazardous materials are regulated by the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act, Oil Pollution Act, Toxic Substances Control Act, and related guidelines established by USACE and North Carolina. Any change in the storage or use of hazardous materials must comply with these regulations. The EPA and NCDENR are responsible for ensuring compliance with these regulations.

4.1.8 Recreation and Aesthetic Resources

In addition to the lands associated with operation of the dam, USACE also provides and manages recreation facilities, including the Visitor Assistance Center which overlooks the lake in front of the dam and the Tailrace Access Area below the dam. Additional lands are directly leased to the City of Raleigh at Forest Ridge. The remainder of the lands are leased to North Carolina, who in turn subleases select areas.

NCDPR operates the majority of developed recreation facilities as the Falls Lake State Recreation Area. NCDPR operates a total of eight developed areas around the reservoir, with most of the facilities concentrated in the middle of the reservoir. Facilities include camp sites (walk-in, RV, vehicle, and some with electric hook ups), swim beaches, picnic areas, hiking trails, community buildings, boat ramps, and playgrounds.

NCWRC manages the Butner-Falls of Neuse Game Land. In total, the Butner-Falls of Neuse Game Land includes 40,899 acres. This includes approximately 15,431 acres of lands within the Falls Lake boundary. NCWRC also manages undeveloped recreation lands on an interim basis. The agency provides four boat ramps at Falls Lake which are sites with parking areas, courtesy docks and lake and hunter access. NCWRC boat ramps include Upper Barton, Ledge Rock, Hickory Hill and Eno River.

Wake County subleases approximately 244 acres for Blue Jay Point County Park which is located between Lower Barton and Upper Barton Creeks on the southeast end of the reservoir. Wake County offers environmental education programming in a natural setting at the park. The park also provides approximately three acres of dedicated open space for play fields, playgrounds, an environmental education center, and an overnight lodge. Additionally, the park provides hiking trails, picnic areas, fishing opportunities, and demonstration gardens and ponds associated with their education center.

The City of Raleigh operates a canoe launch adjacent to the Tailrace Access Area. The site provides simple access to the Falls of Neuse River below the dam and includes parking and access to the Neuse River Greenway. The City also leases land for Forest Ridge Park north of the dam, as well as land for a water intake pumping station located west of the dam.

The North Carolina Botanical Garden Foundation subleases 84-acres for operation and management of Penny's Bend Nature Preserve. The site is located on a peninsula, bounded on three sides by the Eno River as it flows downstream toward Falls Lake. It

supports rare plant species, distinctive types of forest, and human sculpted open space. More specific descriptions of these areas are located in Section 7.3 of the Master Plan.

Specific agency consultation for physical resources is discussed in Section 10.0 of the Master Plan. Recreational development on project lands is managed by USACE policy, including ER 1130-2-550: Project Operations – Recreation Operations and Maintenance Guidance and Procedures, and similar regulations enacted by North Carolina and local governments.

4.2 Natural Resources

4.2.1 Vegetation

Since the publication of the previous Master Plan, USACE has updated its timber survey of project lands. Table D-3 summarizes the distribution of timber stand types on project lands. Along with management actions described above, changes to the previously documented vegetative communities also may be influenced by development outside the project boundaries. This development has fragmented forests that were once viable ecological communities, and has changed the forest management priorities at Falls Lake. In some cases, this has led foresters to focus efforts on maintaining forested areas that were considered less desirable in the previous Master Plan.

	Percentage of Project Lands (%)*	Estimate Acreages
Bottomland Hardwood	31	7,533
Pine	21	5,101
Hardwood - Pine	19	4,622
Old Field	17	4,178
Upland Hardwood	7	1,609
Marsh	4	1,075
Developed	2	494
Total	100	24,611

* Approximate percentage above conservation pool as of 1981. Changes in forest cover that have occurred are related primarily to forest and wildlife management activities.

Vegetation resources also are discussed in Section 2.8 of the Master Plan. Specific agency consultation for natural resources is discussed in Section 10.0 of the Master Plan. The clearing of vegetation is regulated by many of the same laws and regulations that apply to soil and topography. These laws are included in the North Carolina Erosion and Sediment Control Planning and Design Manual. The manual provides guidance on designing, implementing and monitoring erosion and sediment controls and stormwater management measures. The North Carolina Division of Land Management and USACE are responsible for approving these measures. Management of rare, threatened, and endangered species is discussed in Section 4.2.3 of this PEA.

4.2.2 Fish and Wildlife

The previous Master Plan, and other surveys, have noted viable habitat for a variety of waterfowl, other birds, mammals, amphibians, and reptiles. Since the previous Master Plan, increasing levels of urbanization around the project have impacted some of these species by limiting available habitat. This development, however, has made the relatively undeveloped lands at Falls Lake more important habitat in the region and increasingly valuable to native species. To document changes in wildlife populations, NCWRC conducts regular inventories of fish and wildlife resources within Falls Lake. In 1999, 2005, 2007, 2009, and 2011, NCWRC collected largemouth bass from the lake to determine trends in size. The results of this study found that, although the reservoir supports a quality fishery, the fish are relatively small (less than 16 inches). Continued sampling will allow NCWRC to make further adjustments to the creel limits to keep the population in balance (NCWRC 2012a).

Since 2000, NCWRC has collected crappie from the reservoir every other year to determine size and population trends. The studies indicated that the population is slightly overcrowded. This has resulted in the fish showing slowed growth, reduced weights, and large numbers in specific age groups. These findings led NCWRC to recommend that the fishery continue to be harvested without restrictions (NCWRC 2012b). Similar studies have not been performed on wildlife species, although NCWRC maintains records on the number of game species harvested in different regions of the State.

The value of the Falls Lake project lands to fish and wildlife has been further enhanced through the work by USACE, NCWRC, and other partners to develop the wildlife areas, natural areas, and impoundments located throughout the project lands. These areas were designed to meet USACE's purpose of enhancing fish and wildlife habitat, as well as providing recreational opportunities for wildlife viewing or hunting. The success of these areas has resulted in notable increases in wildlife population levels documented during the previous Master Plan. Additional information on fish and wildlife resources is included in Section 2.9 of the Master Plan.

Specific agency consultation for natural resources is discussed in Section 10.0 of the Master Plan. The U.S. Fish and Wildlife Service (USFWS) is one agency responsible for fish and wildlife protection, and has management authority under the U.S. Fish and Wildlife Coordination Act and subsequent regulations. Hunting and fishing of game species at Falls Lake is regulated by NCWRC. Permits and/or licenses are issued to manage populations of different species. Management of rare, threatened, and endangered species is discussed below in Section 4.2.3.

4.2.3 Threatened and Endangered Species

The last survey of species within the Falls Lake boundary occurred in 1986. The survey was conducted by the North Carolina Natural Heritage Program to identify special status species or habitats. The survey identified 13 plant species of special significance, including two populations of smooth coneflower (Table 4 in the Master Plan). While much of the project lands are characteristic of the Piedmont region of North Carolina, several unique features also occur. These features, or natural areas, support many of the

species found on project lands, including the coneflower. Many of these natural areas, such as the remaining alluvial forests on private lands, are being threatened or destroyed by increasing regional development. The 1986 survey identified and documented 13 Registered Natural Areas within the project boundary ranging from 0.5 to nearly 700 acres (USACE 1994). Additional information on rare and endangered species and communities is included in Section 2.10 of the Master Plan.

Specific agency consultation for natural resources is discussed in Section 10.0 of the Master Plan. Rare, threatened, and endangered species are defined and protected under the Federal and State Endangered Species Acts. Additional protection is provided by specific legislation, such as the Bald Eagle Protection Act. These laws set limits on the types of actions that can occur within habitat that supports these species. The laws and regulations also define the permitting or mitigation process that must occur to offset impacts to rare, threatened, or endangered species. The North Carolina Natural Heritage Program and USFWS are responsible for implementing these laws and ensuring appropriate compliance.

4.2.4 Wetlands

Wetlands are lands that are wet at least part of the year due to either saturated soils or standing water. Wetlands include a variety of natural systems, such as marshes, swamps, and bottomland hardwoods (NCDENR 2012). Wetlands are known to exist within all Land Classifications at Falls Lake. The mapping of wetlands is very generalized; therefore, proposed development requires wetland determination on a site-by-site basis.

Specific agency consultation for wetland resources is discussed in Section 10.0 of the Master Plan. Wetlands are regulated under Section 401 and 404 of the Clean Water Act. A Section 401 Water Quality Certification ensures compliance with water quality standards. Section 404 regulates activities within Waters of the U.S., which includes Falls Lake and its surrounding tributaries. Further direction is provided by Executive Order 11990: Protection of Wetlands and related USACE regulations. The North Carolina Division of Coastal Management, the North Carolina Division of Water Quality, the U.S. Fish and Wildlife Service, and USACE are responsible for these regulations.

4.3 Socioeconomic Characteristics

4.3.1 Population and Economy

Falls Lake is situated within an area commonly referred to as the Triangle. The U.S. Census Bureau's designation for this region is the Raleigh-Durham-Cary Combined Statistical Area (CSA), or the Triangle CSA. The Triangle CSA is made up of Chatham, Durham, Franklin, Harnett, Johnston, Orange, Person, and Wake counties and includes the cities of Raleigh, Durham, Chapel Hill, Cary, and Wake Forest.

According to the 2010 Census, North Carolina had an estimated population of 9,535,483. This statistic is more than 18 percent greater than the North Carolina population recorded by the 2000 Census (Census 2010). Much of this growth is attributed to the Triangle CSA which had a population growth rate of over 41 percent between 2000 and 2010. This

represents the fourth highest rate of growth by a metropolitan statistical area throughout the country (Census 2011). Table D-4 lists the population of each County within the CSA, the percent of the population under five years of age, median household income, per capita income, and percent of the population below the poverty level. Additional discussion on demographics is included in Section 2.17 of the Master Plan.

Table D-4: Population and Economic Data

Locality	Population (2010)	Population Under 5 Years of Age (%)	Median Household Income (2006-2010)	Per Capita Income (2010 \$)	Population Below Poverty Level (%)
Town of Cary	135,234	7.0	\$89,542	\$41,700	5.0
Town of Chapel Hill	57,233	4.2	\$52,785	\$33,710	22.2
Chatham County	63,505	6.2	\$56,038	\$29,991	12.2
Durham County	267,587	7.4	\$49,894	\$27,503	16.1
City of Durham	228,330	7.7	\$46,972	\$26,725	17.9
Franklin County	60,619	6.6	\$43,710	\$21,331	15.0
Harnett County	114,678	8.1	\$42,853	\$19,274	16.5
Johnston County	168,878	7.6	\$49,745	\$22,437	15.1
Orange County	133,801	5.1	\$52,981	\$33,912	16.3
Person County	39,464	6.0	\$44,668	\$21,848	16.0
City of Raleigh	403,892	7.2	\$52,219	\$30,709	14.6
Wake County	900,993	7.3	\$63,770	\$32,592	9.7
Town of Wake Forest	30,117	9.2	\$69,222	\$31,185	7.5
State Average	9,535,483	6.6	\$45,570	\$24,745	15.5

Source: Census 2010

Within the general vicinity of Falls Lake, land use patterns represent a mixture of residences and business activity, with more undeveloped lands located west of the project. Within Falls Lake, land uses were planned through the 1981 Master Plan. These land uses are focused on recreational facilities and wildlife management areas. Land use is discussed in greater detail in Section 2.12 of the Master Plan.

Specific agency consultation for socioeconomic resources is discussed in Section 10.0 of the Master Plan. Laws and regulations that apply to these resources include Executive Order 13045: Protection of Children from Environmental Health Risks and Safety Risks, Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low income Populations, and related USACE, State, and local regulations. The EPA, USACE, and State and local agencies are responsible for ensuring compliance with these regulations.

4.3.2 Transportation

Located less than 20 minutes from the cities of Durham and Raleigh, Falls Lake is crossed and bounded by a number of roads. Interstate 85 crosses the upper portion of the lake between the City of Durham and the Town of Butner. NC Highway 98 provides east-west access between the City of Durham and Wake Forest/North Raleigh, while NC Highway 50 crosses north-south roughly through the mid-point of the reservoir. Access to specific locations within the project is provided by a network of State and local roads.

Within the project boundary, a mix of paved and unpaved roads, parking lots, and trails provide access to different sites. Internal access also is provided by regional trails, such as the Falls Lake Trail, and other trails developed and maintained by USACE, North Carolina, and other management partners. Transportation within the project also is facilitated by the existing marina and numerous boat ramps.

Developed roads and parking lots exist on lands classified for project operations and intensive use in the 1981 Master Plan. These roads and parking lots are confined to areas that support developed recreational sites. The undeveloped portions of the project have limited transportation infrastructure. Trails run throughout the project and provide access to certain portions of these lands. Access to Flowage Easements is controlled by the individual property owner, with USACE retaining the right to enter these lands for inspection purposes. Accessibility is discussed in greater detail in Section 2.20 of the Master Plan.

Specific agency consultation for physical resources is discussed in Section 10.0 of the Master Plan. The transportation system is managed and regulated by the North Carolina Department of Transportation. Improvements on project lands fall under the jurisdiction of USACE and Federal Highway Administration. Further guidance is provided by Executive Order 13148: Greening the Government Through Leadership in Environmental Management, and related USACE regulations.

4.3.3 Utilities and Conservation Potential

Utilities in the Triangle CSA are provided by public and private sources. The City of Raleigh maintains a water intake near the dam that supplies a large portion of the region's drinking water. Potable water within the project boundary is provided by individual wells and septic systems. Private companies provide electricity to project lands, as well as electricity, water and gas service to surrounding residential and commercial customers.

The Public Service Company of North Carolina owns and operates a natural gas pipeline in a utility fill adjacent to and parallel with the fill section of the Interstate 85 crossing of the Lake. High voltage overhead power lines cross project waters near the NC 98 Bridge, Little Lick Creek, Ellerbe Creek, and near Mile Marker 14. Distribution lines feed electricity to locations around the lake. The Town of Butner's wastewater treatment plant is located near the Brickhouse Road Wildlife Area on Knapp of Reeds Creek. Additional information on utilities is included in Section 2.13 of the Master Plan.

Specific agency consultation for physical resources is discussed in Section 10.0 of the Master Plan. Utility developments within the region are the responsibility of local municipalities. USACE works with these municipalities to coordinate improvements on project lands. These actions are guided by Federal directives, such as Executive Order 13148: Greening the Government Through Leadership in Environmental Management and related USACE and North Carolina regulations.

4.3.4 Safety

USACE, North Carolina, and other management partners work to ensure a safe and enjoyable experience for all visitors at Falls Lake. Safety at Falls Lake is maintained through a variety of different mechanisms. The Falls Lake Safety Plan, included in the Operations Management Plan, identifies safety concerns, responsibilities, and management techniques for different environments at the project. Management agencies have similar plans to direct staff at specific locations within the project.

To promote general visitor safety, bulletin boards are posted throughout the different recreation sites with information on water safety, trail use, and hunting. Some of the educational programs provided at Falls Lake also are focused on safety, including a strong focus on water safety.

Specific agency consultation for physical resources is discussed in Section 10.0 of the Master Plan. Safety within project lands is the responsibility of USACE, North Carolina, and other management partners, with the assistance of local emergency services.

5.0 Environmental Consequences

This section of the PEA describes the environmental consequences associated with the alternatives presented in Section 3.0. NEPA requires consideration of context, intensity, and duration of adverse and beneficial impacts (direct, indirect, and cumulative) and measures to mitigate for impacts. These elements are considered in the following impact analysis.

Use of the proposed Master Plan would help define the approval process for future actions affecting project lands, depending on whether the actions are 1) specifically included in the Master Plan, 2) not included in the Master Plan, but consistent with the Plan, or 3) not included and not consistent with the recommendations, objectives and policies stated in the document (see Figure D-1). For actions that are identified in the Master Plan, the approval process would still require adequate NEPA consideration prior to initiating construction.

It is important to note that this PEA assesses the impacts of adopting the Land Classifications included in the proposed Master Plan but not the Recommended Future Uses. The proposed Master Plan consists of the Land Classifications, Resource Objectives, or other specifically stated policies. The Recommended Future Uses identify opportunities for changes in Land Classification, should suitable development proposals be received. However, because of the wide variety of possible uses that could be proposed, an additional evaluation to determine consistency with the stated site objectives would be required. Therefore, changes of Land Classifications to accommodate the Recommended Future Use would require an additional NEPA analysis to evaluate the expected impacts of the specific proposed change in use.

Written requests for new recreation development within the State of North Carolina's lease area at Falls Lake should be routed through the North Carolina Division of Water Resources (NCDWR) before being submitted to the USACE, Operations Project Manager. Applicants should coordinate with both the USACE and NCDWR and the entity managing the area prior to submitting a written request. For future development proposals designed to implement this Master Plan, USACE and North Carolina must determine if they are consistent with the Master Plan's policies. The first step in determining consistency would be to evaluate if the land classification for the location of the Preferred Alternative is appropriate (Figure D-1). Proposals will also be evaluated in accordance with USACE Non-recreation Outgrant Policy (USACE 2009a) and ER 1130-2-550, Section 14, Recreation Outgrant Policy for Outgranted Corps Lands (USACE 2009b). The request should include information identified in the Applicant Information Form, included in Appendix G of the Master Plan.

5.1 Impacts of the Preferred Alternative

Under the Preferred Alternative, USACE and North Carolina would adopt the new Master Plan for Falls Lake. Along with adopting the policies and direction included in the plan, USACE and the State would approve the Land Classifications included in the plan. In general, the proposed Land Classifications maintains the amount of project land available to support intensive use. This land is classified as Multiple Resource Management to allow for interim management activities to focus on wildlife management.

There would be no impact to easement lands. The laws and policies that address USACE jurisdiction over these lands are referenced in the proposed Master Plan; however, the document does not propose any change to these procedures. Any change that could be made is outside the scope of the master planning process.

Under the Preferred Alternative, the majority of project lands would be classified as Multiple Resource Management (Appendix J, Figures 12-14 in the Master Plan). Any sizable impacts to the physical environment (geology, topography, soils, floodplains, water resources, air quality, noise cultural resources, hazardous materials, and recreation and aesthetic resources) would be limited through adherence to the Resource Objectives presented in the Master Plan. Such impacts also would be accompanied by additional NEPA analysis.

Like the physical environment, impacts to natural resources (vegetation, fish and wildlife, threatened and endangered species, and wetlands) would be limited through adherence to the Resource Objectives presented in the Master Plan. Such impacts also would be accompanied by additional NEPA analysis.

The Preferred Alternative would have no long-term adverse impacts to socioeconomic characteristics (population and economy, transportation, utilities and conservation potential, or safety). The opportunity to provide future recreational opportunities, while maintaining the undeveloped lands that characterize much of the project, would still serve the community and attract tourists to the region. The proposed Land Classifications would maintain the existing level of recreational activity and allows future development that may attract visitors with an interest in the undeveloped lands around the reservoir. Short-term adverse impacts may occur during construction activities, but the proposed Master Plan recognizes the need for growth of local community services (roads and utilities) to support project developments. This would serve to minimize any measurable permanent adverse impacts. Any development would be consistent with the Resource Objectives presented in the Master Plan and be evaluated by additional NEPA analysis.

5.2 No Action Alternative

Under the No Action Alternative, USACE and North Carolina would not adopt a new Master Plan for Falls Lake. This would result in the majority of the project being classified as Intensive Use, with limited tracts set aside for low intensity recreation. This does not mean that all of the lands within the project boundary would be developed, but

future development would be considered appropriate on a greater expanse of project lands. The No Action Alternative also would result in noncompliance with current USACE regulations and guidance related to Master Plans.

Like the Preferred Alternative, there would be no change to the management of easement lands. The laws and policies that address USACE jurisdiction over these lands would remain in effect. Any change would require action by the USACE Real Estate office.

Impacts to the physical environment (geology, topography, soils, floodplains, water resources, air quality, noise, cultural resources, hazardous materials, and recreation and aesthetic resources) would be similar to those described in the Preferred Alternative. Under the No Action Alternative, USACE, North Carolina, and the other management partners would continue to follow the guidance provided in the 1981 Master Plan. Therefore, any new development proposals would be based on guidance established over 30 years ago and require extensive agency coordination to ensure USACE and North Carolina's goals and objectives for the project were being met. Any future development would remain consistent with the regulations described in Section 4.1.1 through 4.1.8.

Impacts to natural resources (vegetation, fish and wildlife, threatened and endangered species, and wetlands) also would be similar to those described in the Preferred Alternative and would require the same level of consultation discussed above. Any development also would be consistent with the regulations described in Sections 4.2.1 through 4.2.4 of this PEA.

The No Action Alternative would have the same type of impacts to socioeconomic characteristics (population and economy, transportation, utilities and conservation potential, or safety) that would occur under the Preferred Alternative. Any development would be consistent with the regulations described in Sections 4.3.1 through 4.3.4 of this PEA.

5.3 Unavoidable Adverse Impacts of the Preferred Alternative

Implementation of the Preferred Alternative should not result in unavoidable adverse impacts to any or all of the resources analyzed in this PEA. The Resource Objectives and direction on agency coordination would help the USACE and North Carolina avoid, offset, and mitigate any such impacts, and identify future mitigation techniques as the impacts become more apparent and science and technology provide new means of addressing them. Any anticipated impact is considered minor and localized and would not have significant long-term adverse impacts to project resources.

5.4 Cumulative Impacts

The CEQ regulations that implement NEPA require assessment of cumulative impacts in the decision making process for Federal projects. Cumulative impacts are defined as impacts which result when the impact of the Preferred Alternative is added to the impacts of other present and reasonably foreseeable future actions, regardless of what

agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7). The cumulative impacts associated with the Preferred Alternative and the No Action Alternative are described below.

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts of activities in and around Falls Lake. Past actions include the construction and operation of the reservoir, the recreation sites surrounding the reservoir, as well as residential, commercial, and industrial facilities throughout the region. All of these developments have had varying levels of adverse impacts on the physical and natural resources in the region. Many of these developments, however, have had beneficial impacts on the region's socioeconomic resources. In addition, many of the historic impacts have been offset throughout the years by the resource stewardship efforts of USACE, North Carolina, and other management partners.

The most notable past action is the development of Falls Lake. This change created new natural and physical conditions, which, through careful management by USACE, North Carolina, and other management partners, have created new and successful habitats and other natural resource conditions. The construction of the project also had an impact on cultural resources. Impacts to cultural resources were coordinated with the North Carolina SHPO. This coordination included appropriate research and documentation of cultural resources, which are discussed in greater detail in Section 2.15 of the Master Plan. Since that time, USACE, North Carolina, and other management partners have worked to preserve, protect, and document cultural resources within the project boundary. USACE, North Carolina, and other management partners also have brought a wide variety of high quality recreational opportunities to the reservoir.

Existing and future actions also contribute to the cumulative impacts in and around the reservoir. Existing and future actions include the operation of project facilities, the construction and operation of future recreational sites, the development of other nearby recreation sites, as well as residential, commercial, and industrial development throughout the region. Continued project operations would result in the sustained maintenance and development of recreational facilities. These facilities would enhance the recreational offerings made by USACE, North Carolina, and other management partners. Such developments would result in varying levels of impacts to the surrounding resources. Similarly, surrounding residential, commercial, and industrial development could result in varying levels of adverse impacts to many resources. Within the project boundary, adverse impacts would be offset through resource stewardship efforts. The programmatic approach to project management, included in this PEA and attached Master Plan, would allow for future development plans and mitigation responses to be adapted to address any adverse actions. This would allow USACE, North Carolina, and other management partners at Falls Lake to continue to reduce the contribution of its activities to regional cumulative impacts through proactive actions and adaptive resource management strategies.

The Preferred Alternative would contribute minor increments to the overall impacts past, present, and future projects have on the region, through the implementation of the Land Classifications and Resource Objectives outlined in the proposed Master Plan.

5.5 Environmental Impact Comparison of Alternatives

Table D-5 provides a brief summary and comparison of impacts to the physical and natural environment for the alternatives considered.

6.0 Executive Orders

Executive Order 11988: Floodplain Management – Both the Preferred Alternative and the No Action Alternative could involve placement of fill material in the floodplain and impact the movement of floodwaters. Neither alternative would affect the impact of floods on human safety, health and welfare.

Executive Order 11990: Protection of Wetlands – This order requires agencies to minimize the destruction, loss, or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities. Neither the Preferred Alternative nor the No Action Alternative would allow for the placement of fill material in wetlands or Waters of the U.S. without appropriate permitting and mitigation.

Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low Income Communities and Low Income Populations - The EPA defines environmental justice as the fair treatment and meaningful involvement of all people, regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment means that no group of people; including a racial, ethnic, or socioeconomic groups; should bear a disproportionate share of the negative environmental consequences of industrial, municipal, or commercial operations or the execution of Federal, State, local, or tribal programs and policies. Neither the Preferred Alternative nor the No Action Alternative would have the potential for disproportionate health or environmental effects on minorities or low income populations or communities.

Executive Order 11593: Protection and Enhancement of the Cultural Environment– All future activities would be coordinated with USACE Wilmington District Archaeologist prior to initiation of ground disturbing activities. Section 10.0 of the Master Plan also commits USACE and North Carolina to future coordination with the SHPO and other relevant local agencies before initiating any project. This could result in additional Phase I or Phase II archaeological surveys or modifications to plans and designs.

Executive Order 13045: Protection of Children from Environmental Health Risks – This order mandates Federal agencies identify and assess environmental health and safety risk that may disproportionately affect children as a result of the implementation of

Federal policies, programs, activities, and standards (63 Federal Register 19883 – 19888). Adoption of the proposed Master Plan would allow USACE to move forward with a programmatic approach to managing Falls Lake that would result in improvements that would benefit all users. None of these improvements would result in short- or long-term actions that would disproportionately affect the safety or health of children. Section 10.0 of the Master Plan commits USACE and North Carolina to evaluate any safety risk related to any proposed project at Falls Lake.

Executive Order 13186: Protection of Migratory Birds – Adoption of the proposed Master Plan would not result in any significant or adverse impacts to migratory bird species or their habitat. Section 10.0 of the Master Plan commits USACE and North Carolina to maintaining an inventory of birds identified within the project boundary and coordinate with other Federal and State agencies that monitor these species, update the Master Plan and other project management documents to reflect changes in migratory bird populations in the region, and conduct appropriate agency coordination during planning of any proposed project.

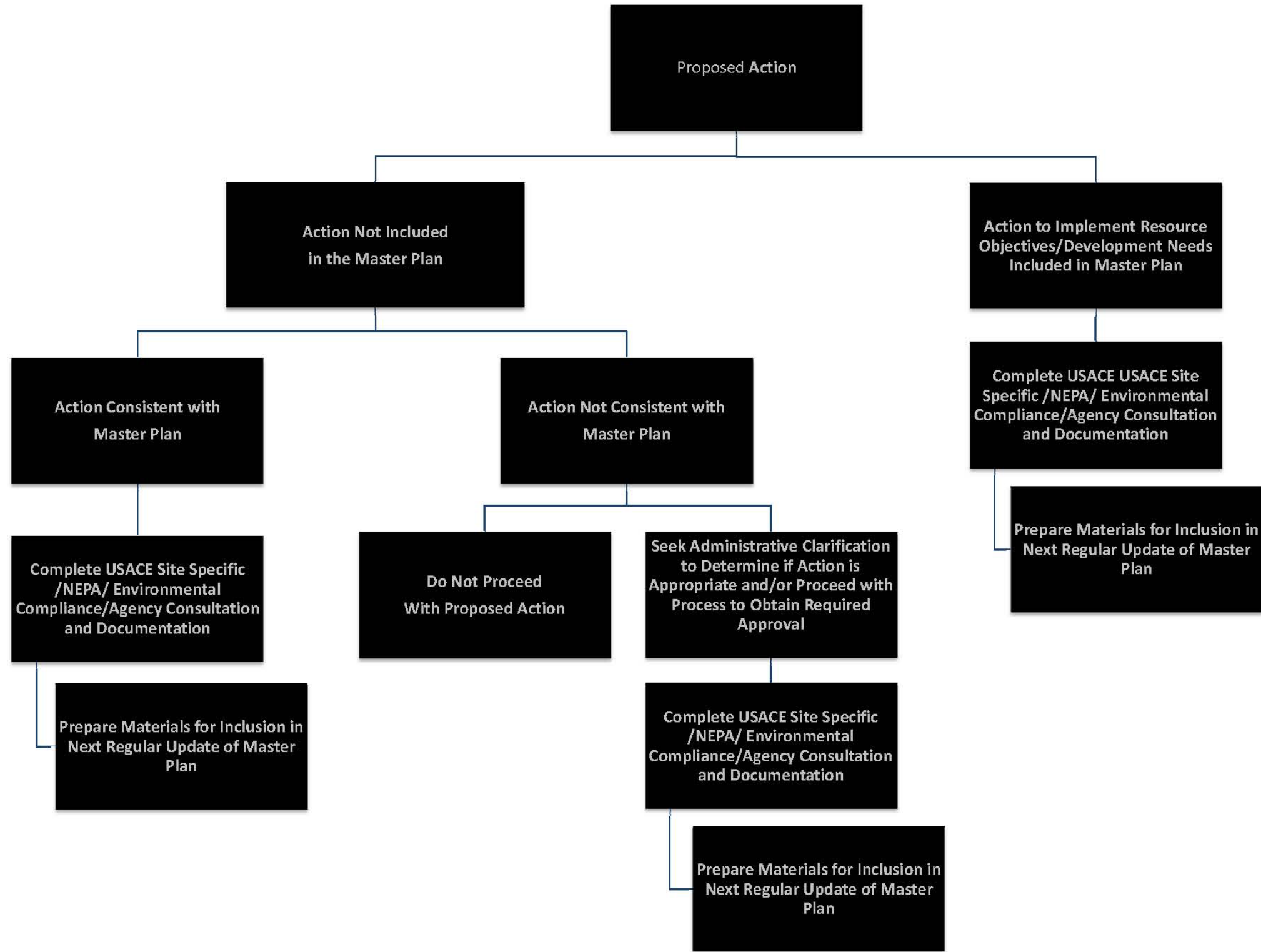
Table D-5: Environmental Impact Comparison

Resource Topic	Preferred Alternative	No Action Alternative
Geology, Topography, and Soils	Minor to moderate adverse impacts related to grading, soil compaction, and impervious surfaces from the development of intensive and low intensity recreation sites throughout much of the project.	Minor to moderate adverse impacts related to grading, soil compaction, and impervious surfaces from the development of intensive and low intensity recreation sites throughout the project.
Floodplains	No impact as structures have been and would continue to be located primarily outside the 100-year floodplain. Those structures that were within the floodplain would not interfere with floodwaters.	No impact as structures have been and would continue to be located primarily outside the 100-year floodplain. Those structures that were within the floodplain would not interfere with floodwaters.
Water Resources	Temporary and minor impacts as existing and future sites meet necessary stormwater management regulations.	Temporary and minor impacts as existing and future sites meet necessary stormwater management regulations.
Air Quality	Slight adverse impact as future development could be spread throughout the project, increasing the presence of automobile traffic and other emissions sources.	Slight adverse impact as future development could be spread throughout the project, increasing the presence of automobile traffic and other emissions sources.
Noise	Slight adverse impact as future development could be spread throughout the project, increasing the presence of automobile traffic and other noise sources.	Slight adverse impact as future development could be spread throughout the project, increasing the presence of automobile traffic and other noise sources.
Cultural Resources	Slight adverse impact as future development (intensive and low density) would avoid impacts to resources of value. Mitigation actions may be necessary.	Slight adverse impact as future development (intensive and low density) would avoid impacts to resources of value. Mitigation actions may be necessary.
Hazardous Materials	No impact as current and future hazardous materials would be stored and used as regulated.	No impact as current and future hazardous materials would be stored and used as regulated.
Recreation and Aesthetic Resources	Beneficial impact as future development would be consistent with USACE and North Carolina recreation policies. Maintains the existing level of recreational activity and allows future development.	Beneficial impact as future development would be consistent with USACE and North Carolina recreation policies. However, the construction-based 1981 Master Plan not as proactive in anticipating and responding to needs that are not included in the document.
Vegetation	Minor to moderate adverse impacts related to grading and clearing of areas to support intensive and low intensity recreation and minor to moderate beneficial impacts relating to forest management activities.	Minor to moderate adverse impacts related to grading and clearing of areas to support intensive and low intensity recreation and minor to moderate beneficial impacts relating to forest management activities.
Fish and Wildlife	Minor to moderate adverse impacts related to grading, clearing, and human presence throughout the project to support/use intensive and low intensity recreation.	Minor to moderate adverse impacts related to grading, clearing, and human presence throughout the project to support/use intensive and low intensity recreation.

Table D-5: Environmental Impact Comparison

Resource Topic	Preferred Alternative	No Action Alternative
Threatened and Endangered Species	No impact as all USACE actions at Falls Lake avoid impacts to threatened and endangered species.	No impact as all USACE actions at Falls Lake avoid impacts to threatened and endangered species.
Wetlands	No impact as all USACE actions at Falls Lake avoid impacts to wetlands.	No impact as all USACE actions at Falls Lake avoid impacts to wetlands.
Population and Economy	Minor beneficial impact as the project would maintain opportunities for future recreational development, while maintaining much of its undeveloped character and low intensity activities.	Minor beneficial impact as the project would maintain opportunities for future recreational development, while maintaining undeveloped character and low intensity activities.
Transportation	Minor beneficial impact as trail networks would be expanded and existing road networks would adequately meet the needs of the project.	Minor beneficial impact as trail networks would be expanded and existing road networks would adequately meet the needs of the project.
Utilities and Conservation Potential	Minor adverse impact as existing utilities are not in place to support intensive recreation development in many locations of the project and would require construction of new services before future development could occur.	Minor adverse impact as existing utilities are not in place to support intensive recreation development in many locations of the project and would require construction of new services before future development could occur.
Safety	Minor beneficial impact as resource objectives address safety.	No impact as actions by USACE, North Carolina, and the other management partners at Falls Lake are guided by mandatory safety plans and regulations.

Figure D-1: How the Master Plan would be Used



7.0 Public Involvement

Agency and public involvement was initiated in February 2010 when USACE published notices announcing the potential project and the first public open house. This was followed by public comment periods, agency meetings, and additional public open houses. These public involvement activities are described in greater detail in Section 4.0 of the Master Plan. This information will be expanded in the Final Master Plan to document public scoping activities during the release of the document.

Agency and public review of the proposed project will continue during the 30-day public review period for this Master Plan/PEA. The distribution of the PEA for public review is described below in Section 8.0.

8.0 List of Recipients

The PEA is being circulated for a 45-day review and comment period to numerous agencies and individuals, as listed in the Appendix of this PEA.

9.0 Point of Contact

Any comments or questions regarding this PEA should be addressed to:

Ms. Carol Banaitis
Piedmont Operations Project Manager
U.S. Army Corps of Engineers
11405 Falls of Neuse Road
Wake Forest, NC 27587
919-846-9332 Ext 226
Carol.M.Banaitis@usace.army.mil

10.0 Finding

The Preferred Alternative would not significantly impact the quality of the human environment; therefore, an Environmental Impact Statement will not be required. If this opinion is upheld following circulation of this PEA, a Finding of No Significant Impact (FONSI) will be signed and circulated.

11.0 References

Environmental Protection Agency (EPA)

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North Carolina Department of the Environment and Natural Resources (NCDENR)

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North Carolina Division of Water Quality (NCDWQ)

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North Carolina Geological Survey

- 1985 *Geologic Map of North Carolina*. Available on the Internet at: <http://www.geology.enr.state.nc.us/maps/GeologicMaps/geomaps.html>. Last accessed April 2, 2012.

North Carolina Wildlife Resources Commission (NCWRC)

- 2012a Falls Lake LMB 1999 to 2011 Data Summary.
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U.S. Army Corps of Engineers (USACE)

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PEA LIST OF RECIPIENTS

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This document is being made available for a 30-day review and comment period to the following concerned agencies and individuals.

Federal Agencies

U.S. Environmental Protection Agency
Advisory Council on Historic Preservation
National Center for Environmental Health
U.S. Department of Interior- Office of Environmental Policy and Compliance
National Marine Fisheries, Southeast Regional Office
National Marine Fisheries Service, Habitat Conservation Division
U.S. Fish and Wildlife Service – Raleigh Field Office
Federal Highway Administration
U.S. Department of Energy – Office of Environmental Policy & Compliance
U.S. Department of Housing and Urban Development
U.S. Forest Service, Southern Region
US Department Of Agriculture - National Resources Conservation Service
US Department of Health and Human Services, Centers for Disease Control and Prevention

State Agencies

North Carolina Department of Environment and Natural Resources
North Carolina Division of Water Quality
North Carolina Division of Water Resources
North Carolina Division of Parks and Recreation
North Carolina Wildlife Resources Commission
North Carolina Division of Archives and History
North Carolina Council of Governments – Triangle J and Kerr-Tar
North Carolina Department of Cultural Resources
North Carolina Department of Transportation – Environmental Planning
North Carolina Department of Administration/State Clearinghouse
North Carolina Commission of Indian Affairs
South Carolina Indian Affairs Commission
Virginia Council on Indians

Local Governments

City of Raleigh
Wake County
City of Durham
Durham County
Town of Wake Forest
Town of Butner
Town of Creedmoor
Granville County

Elected Officials

North Carolina United States Senators and Local District Congressmen
Local State Senators and Representatives

Media

The Herald Sun, Durham, NC
Butner-Creedmoor News
The News and Observer, Raleigh, NC

Conservation Groups / Recreation Groups

The Nature Conservancy, NC Chapter
National Audubon Society
National Wildlife Federation
The Wilderness Society
Environmental Defense Fund of North Carolina
Conservation Trust for North Carolina
North Carolina Land Trust
North Carolina Coastal Federation
Neuse River Foundation
Triangle Greenways Council
Friends of the Mountains-to-Sea Trail
North Carolina Horse Council
Carolina Canoe Club
Carolina Kayak Club
Triangle Off-Road Cyclist

**APPENDIX E
RESPONSE TO COMMENTS RECEIVED ON MASTER PLAN/PEA**

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During the initial scoping period and the public review of the Master Plan and associated PEA, comments were received from a number of agencies, groups, and private citizens. These comments are provided in the following sections.

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Comments Received from Agencies and Groups during the 2010 Scoping Period

E.1 Durham County

Comment: The Corps and its leaseholders should consider the needs of the variety of nature-based recreation groups within the lake's service area, such as mountain bikers, equestrians, canoeists and kayakers, and disc golf enthusiasts. These user groups should be considered stakeholders and ways found to accommodate their needs on project lands. Certain recreation uses such as disc golf and mountain biking were not common recreation activities when the original Master Plan was drafted; as a result the Master Plan update should address these activities and explore suitable locations.

Response: The policy-based Master Plan provides a high level of flexibility for U.S. Army Corps of Engineers (USACE) and the State of North Carolina (North Carolina) to accommodate future recreational needs within the region. The Land Classifications and Recommended Future Uses highlight areas where certain activities could be accommodated and the Resource Objectives set a general policy framework through which future recreational needs could be met. The development of a facility to meet one of the needs referenced in the comment would need to be undertaken by an existing management agency at Falls Lake or by a new partner through a sublease initiated through a new sublease that would be initiated through the steps outlined in Appendix G of the Master Plan. Either action would require appropriate environmental review, as well as review and approval by North Carolina and USACE.

Comment: Non-native invasive plant species should not be planted inside the Falls Lake Project Area for bank stabilization, wildlife food sources, or for other any other reason. Nonnative invasive plant species out compete our native vegetation causing known undesirable effects, harming our native environments. As is feasible, existing populations of nonnative plant species in the project area should be eradicated. In particular, efforts should be made to monitor and eradicate populations of garlic mustard before this new invasive species has had a chance to take a foothold.

Response: USACE and North Carolina share your office's concern over the spread of invasive species. Section 3.2 of the Master Plan discusses the increasing spread of invasive species throughout the region. By updating the Falls Lake Master Plan, USACE and North Carolina have established the policy framework through which the Operational Management Plan and individual natural resource management plans can be revised to better address invasive species at Falls Lake.

Comment: As the 1981 Falls Lake Master Plan predicts, the Triangle's population has grown substantially, and with it, increased demand for recreational resources and access to nature. Falls Lake is one of the largest recreational resources in the Triangle region so it is important for the Army Corps of Engineers, and its leaseholders to continue its mission of providing diverse, high quality, and nature based recreational opportunities for citizens living within the 50 mile service area defined in the Master Plan.

Response: Comment noted.

Comment: Cultural Assets: There are two-hundred and thirty-five historic and prehistoric sites and structures indicated on the original Falls Lake Master Plan which have been positively documented on Falls Lake project lands. In addition, there are fragments of known historic landscapes and areas where cultural sites are predicted to exist with moderate to high probability.

The Master Plan should provide greater specificity in management of these lands, including that no soil disturbing activity should occur in known or predicted areas of high to moderate cultural sensitivity such as historic roadways, paths, stream crossings, and structural sites. Furthermore, the Army Corps and NCWRC should solicit recommendations from the NC Office of State Archaeology, local historians, and local governments to find appropriate ways of protecting sites of high or medium sensitivity up to and including registry in the National Register of Historic Places.

Response: Greater specificity for management of historic properties is contained within the Operational Management Plan and Historic Properties Management Plan. The USACE consults with the NC State Historic Preservation Office, federally recognized tribes, and interested parties concerning management of historic properties pursuant to Sections 106 and 110 of the National Historic Preservation Act and other applicable laws, regulations, and USACE policy.

Comment: Equestrian uses are an historic rural recreational activity. Equestrian users have voiced to Durham officials that they have been shut out of the Falls Lake lands with preference given to other user groups. The Master Plan update should address this recreation use and determine policies that could guide the potential development of equestrian trails. While poorly designed or located horse trails can have an impact on water quality, there is a growing body of knowledge on how to sustainably locate, design, construct and manage equestrian trails.

Response: The policy-based Master Plan provides a high level of flexibility for U.S. Army Corps of Engineers (USACE) and the State of North Carolina (North Carolina) to accommodate future recreational needs within the region. The Land Classifications and Recommended Future Uses highlight areas where certain activities could be accommodated and the Resource Objectives set a general policy framework through which future recreational needs could be met. The development of a facility to meet one of the needs referenced in the comment would need to be undertaken by an existing

management agency at Falls Lake or by a new partner through a sublease initiated through a new sublease that would be initiated through the steps outlined in Appendix G of the Master Plan. Either action would require appropriate environmental compliance review, as well as review and approval by North Carolina and USACE.

Comment: The Durham County Falls Lake lands include a large number of Interim Management lands presently leased to the N.C. Wildlife Resources Commission. These locations provide important potential future low-impact recreation areas for Durham residents, if leased to the City of Durham or Durham County. The Falls Lake Master Plan Update should look at these sites, and the Army Corps and Consultants should engage in a dialogue with City and County officials regarding future lease opportunities. In this way, the City and County could become partners with the Army Corps to assist in meeting local recreational needs without additional management burden on the Army Corps.

Response: All of the lands referenced in the comment are leased to North Carolina by USACE and actively managed by the North Carolina Wildlife Resources Commission (NCWRC). Some small areas with the Durham County portion of Falls Lake that had been classified for interim NCWRC management in the 1981 Master Plan were reclassified in the 2012 Master Plan for long-term use as wildlife/game lands. Factors considered in this analysis included adjacent land use, increased shoreline erosion, and improved natural resource data. However, the project lands previously identified as of interest to Durham remain available to lease from North Carolina.

Representatives from USACE and North Carolina discussed these topics with members of the Durham City-County Planning office during the 2010 agency meeting, the 2010 public open houses, the 2012 public open houses, as well as a meeting held at the Durham City-County Planning Office in January 2012. To advance the plans discussed during these meetings, Durham County would need to coordinate with the State to advance its plans, following the process outlined in Appendix G of this Master Plan. Development of trail connections on Falls Lake project lands would need to be coordinated with the respective management agency and/or with North Carolina through the process outlined in Appendix G. USACE would be a participant in this process, reviewing plans and ensuring the appropriate environmental review was complete. We look forward to working with all current and potential partners to further natural resources management and recreational opportunities at Falls Lake

Comment: Durham County has at least three adopted master plans to guide decision making related to passive recreational opportunities, trails, and greenways within the Falls Lake vicinity. They are the East Durham Open Space Plan (2007), the Little River Corridor Open Space Plan (2001), and the Trails and Greenways Master Plan (2001). The Trails and Greenways Master Plan is currently under revision. Adopted plan objectives that include the Army Corps lands in Durham County, are listed below.

To ensure high quality recreational opportunities for Durham citizens, now and in the future, Durham County requests that the Army Corps of Engineers work with Durham County and the City of Durham, the North Carolina Wildlife Resources Commission, and North Carolina State Parks, to facilitate working relationships and assist Durham County in achieving its stated recreational objectives where Army Corps of Engineers land is involved.

The following plan objectives involve Falls Lake lands for successful implementation.

East Durham Open Space Plan objectives requiring access to Falls Lake lands:
(Trails and greenways are cross referenced with the Trails and Greenways Master Plan)

- Potential Lease and development of Cardinal Point I Redwood Point Park
- Potential Lease and development of Wahadkee Point Park
- Development of canoe and kayak facilities in leased park sites
- Trail Access to Falls Lake lands from private developments where appropriate
- Development of greenway and rail trails including Lick Creek Trail, Little Lick Creek Trail, Laurel Creek Trail, Chunky Pipe Trail, Martin Branch Creek Trail, and the Panther Creek Rail-Trail. The Lick Creek Trail is identified as a priority trail in the 2005 Center of the Region Enterprise Pedestrian-Bicycle-Green Space Plan, as it would serve as a direct connection to RTP.

Little River Corridor Open Space Plan objectives requiring access to Falls Lake lands:

- The Little River Plan (pg. 75) and the Trails and Greenways Plan identify the Durham to Roxboro abandoned rail line owned by Norfolk Southern as a future rail trail corridor. The Army Corps of Engineers should work with the City and County of Durham to implement the Roxboro Rail Trail should the rail line become available for purchase. This project is identified as high priority in the plan.
- The Little River Plan (pg. 64) identifies a potential canoe put-in /take out location at the Old Oxford I Little River location. The Master Plan update should take this into consideration as a future recreational amenity.

Response: USACE and North Carolina have invited staff from Durham City-County Planning to several agency and public meetings during the master planning process. In addition, on January 18, 2012, staff from USACE and the State traveled to Durham City-County Planning offices to meet with staff and discuss initial options for Land Classifications and Recommended Future Uses of project lands, as well as other goals of the master planning process. Based on input obtained from these meetings, USACE and North Carolina have assigned Cardinal Point and Wehadkee Point Recommended Future Uses of Recreation, allowing for the type of development recommended in the County's plans. Because these two sites are leased to North Carolina, Durham County would need to coordinate with the State to advance its plans, following the process outlined in Appendix G of this Master Plan. Development of any facility on Falls Lake project lands would need to be coordinated with the respective management agency and/or with North Carolina through the process outlined in Appendix G. USACE would be a participant in this process, reviewing plans and ensuring the appropriate environmental review was

complete. We look forward to working with all current and potential partners to further natural resources management and recreational opportunities at Falls Lake

Comment: The protection of the State of North Carolina Dedicated and Registered Natural Heritage Areas at Falls Lake should be a high priority. Management criteria should be developed for these sites and include objectives to enhance and promote their natural value per the Memorandum. Logging and other active land management activities should be prohibited within the Registered Areas unless it can be shown to improve the overall site conditions for which the site was registered. In addition, there are additional locations within the Falls Lake lands that are described as Significant Natural Heritage Areas, either at the County and State level, by the NC Natural Heritage Program. Preference should be given to preservation of Significant Natural Heritage Areas for their habit benefits, with recreation, hunting, and active forestry management only where compatible and non-impacting. These areas should be considered for registration and dedication as well.

Response: Protection of Natural Heritage Area resources are provided for in the Falls Lake Master Plan Update. The presence of natural areas is included in specific site descriptions and these areas will be considered as land management activities are undertaken. Management plans created in coordination with NC Natural Heritage Program are in place for registered natural areas. Activities within the natural areas are evaluated for compatibility with the values of the natural area. Activities, including forest management, are adjusted to avoid such sites as necessary.

The master planning process provided USACE and North Carolina with an opportunity to develop a Geographic Information Systems (GIS) geodatabase to graphically display and analyze data. This includes the location of Dedicated and Registered Natural Heritage Areas within and adjacent to the project. In order to protect these resources, USACE and North Carolina elected to not display or describe the specific locations of these resources in the Master Plan. This data, however, is available for future planning and decision-making. USACE and North Carolina remain committed to ensuring that these resources are protected.

Comment: The State's Natural Heritage Program has identified natural communities for the State of North Carolina, including several that are becoming less common in the piedmont. The Falls Lake lands provide an excellent opportunity to foster the natural development of high quality examples of these natural communities, and appropriate areas should be managed towards this goal.

Response: As noted in the response above, the presence of natural areas is included in specific site descriptions and these areas will be considered as land management activities are undertaken. Management plans are in place for registered natural areas. Activities within the natural areas are evaluated for compatibility with the values of the natural area. Activities are implemented to enhance the values of those natural areas

The master planning process provided USACE and North Carolina with an opportunity to develop a Geographic Information Systems (GIS) geodatabase to graphically display and analyze data. This includes the location of Dedicated and Registered Natural Heritage Areas within and adjacent to the project. In order to protect these resources, USACE and North Carolina elected to not display or describe the specific locations of these resources in the Master Plan. This data, however, is available for future planning and decision-making. USACE and North Carolina remain committed to ensuring that these resources are protected.

Comment: Element occurrences of Rare, Threatened, or Endangered (RTE) species and natural communities should be given special consideration, including consultation with the Natural Heritage Program, during the planning of habitat altering activities such as logging and prescribed burning, or the development of habitat for game species. Management goals for areas with RTE species should be developed in conjunction with the Natural Heritage Program for the long term care of these species. Logging and other land disturbing activities should only be implemented if it can be agreed that the RTE species will not be adversely impacted, or will benefit.

Response: Section 2.10 of the Falls Lake Master Plan documents that specific component of USACE and North Carolina's commitment to preserving fish and wildlife species at Falls Lake is the consideration and protection of rare and endangered species and communities. The presence of significant natural resources including the range of threatened and endangered species are included within the specific resource plan site sheets. Activities within the natural areas and areas with potential for threatened and endangered species are evaluated for compatibility with those resources. Activities, including forest management, are adjusted to avoid such sites as necessary.

Specific agency consultation for natural resources is discussed in Section 10.0 of the Master Plan. Rare, threatened, and endangered species are defined and protected under the Federal and State Endangered Species Acts. Additional protection is provided by specific legislation, such as the Bald Eagle Protection Act. These laws set limits on the types of actions that can occur within habitat that supports these species. The laws and regulations also define the permitting or mitigation process that must occur to offset impacts to rare, threatened, or endangered species. The North Carolina Natural Heritage Program and the U.S. Fish and Wildlife Service are responsible for implementing these laws and ensuring appropriate compliance.

Comment: Nongame species management in the Falls Lake Project area should be given the same priority as game species management. An inventory of nongame animal species should be conducted followed by management recommendations for protecting common non-game species and nongame species assemblages.

Response: Land managing agencies manage for both game and non-game species. However, specific management plans are outside the scope of the Master Plan. The

Master Plan provides a programmatic approach to the management of all of the lands included within the Falls Lake boundary. The Master Plan is the basic guidance document outlining the responsibilities of USACE and North Carolina pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands and associated resources. Enhancing and protecting fish and wildlife resources within project lands is a congressionally authorized project purpose at Falls Lake. Management of fish and wildlife resources is focused on the protection of native species and the promotion of game species to support recreational hunting.

Comment: Residential development has occurred throughout the entire Falls Lake Project Area as was projected in the original Master Plan. In some areas, residential development is now adjacent to game lands which, may lead to safety issues between private landowners and hunters on Army Corps land. Where private residences are adjacent to Game Lands, Wildlife Resource Commission should work to develop a policy for implementing safe hunting buffers provided internal to the Army Corps lands. If internal hunting buffers are not desired, then the Army Corps of Engineers and Wildlife Resources Commission should acquire buffer land, fee simple or through easement, to minimize future conflicts.

Response: Hunting within Falls Lake is governed by rules prescribed by the North Carolina Wildlife Resources Commission. These rules state that it is unlawful to discharge any weapon within 150 yards of any residence (located on or adjacent to game lands), game lands building, or game lands camping area (unless otherwise posted). The 150 yard provision of this rule does not apply to the use of archery equipment on Butner-Falls of Neuse game lands. USACE, North Carolina, and the other management partners are committed to abiding by and enforcing these State regulations at Falls Lake.

Comment: Some areas established as permanent gamelands may be in areas that have become urbanized, or may be too small to provide high quality or safe hunting experiences. In some cases, Durham's adopted plans may recommend recreation use through areas that are designated as permanent gamelands, such as the Panther Creek rail trail corridor. The Master Plan update provides an opportunity to analyze all the Falls Lake lands, and possibly switch some permanent game lands for interim lands in a way that both recreation and users and hunters benefit.

Response: USACE and North Carolina carefully reviewed the areas referenced in the comment when developing the Land Classifications and Recommended Future Uses. Removing "permanent" game lands from management of North Carolina Wildlife Resources Commission (NCWRC) would require changes to the lease between USACE and North Carolina. It also was determined that removing lands from NCWRC management would negate agency's efforts over the last 30 years to develop the high quality, contiguous game lands that exist within and around Falls Lake. The analysis conducted as part of the master planning process did identify a few small tracts that had been classified as "interim" in the 1981 Master Plan which were determined to be not

appropriate for future recreational development. Factors considered in this analysis included adjacent land use, increased shoreline erosion, and improved natural resource data. Overall, however, there are no measurable changes in the amount of project lands available for Durham to lease from North Carolina. Development of trails on NCWRC managed land would need to be coordinated with that agency, with review by USACE and North Carolina.

Comment: Durham County and City should be notified prior to any decision being made regarding Future Recreation Sites/Interim Gamelands being converted to Permanent Gamelands within Durham County.

Response: USACE and North Carolina appreciate Durham County and City's interest in the management of project lands at Falls Lake and will continue to work with all local communities to advance their plans at the project. All future changes to Land Classifications included in this Master Plan will be accompanied by the appropriate environmental review and agency coordination.

E.2 Durham Open Space Trails Commission

Comment: [T]he DOST Commission recommends the USACE work together with Durham City-County Planning to map and detail the planned trails, parks, and preservation sites from the EDOS and LRCOS Plan, so that the USACE can ensure the needed areas allow in the future multi-use trails or parks (including equestrian and mountain biking). For those areas where the desired parks and multi-trails will be located on what are now permanent game lands, we ask the USACE to work with the Wildlife Resources Commission, and the City/County of Durham to provide for the future lease of the areas to Durham. Additionally, given the population of equestrians in the surrounding area, DOST strongly recommends consideration be given to horse trails wherever possible throughout the area. We also urge the consultants for this project with the Corps to look at those lands that abut the boundaries of the USACE land that could be targeted for future acquisition/conservation easements by the USACE or others in order to provide greater buffers for hunting, inventory sites, recreational access, water quality and farmland conservation easements.

Response: The master planning team met with representatives from Durham City-County Planning during an agency meeting in 2010, public open houses in January 2010, a planning session at the Durham City-County Planning office in January 2012, and another set of public open houses in November 2012. USACE also received formal comments from Durham City-County Planning regarding the master planning process. Input from Durham City-County Planning led USACE and North Carolina to set aside most of the project lands within the county for future recreational development. This preserves the opportunity for Durham City-County to develop the type of recreational facilities referenced in the comment. Leasing of lands to meet these goals, would be accomplished through the process outlined in Appendix G of the Master Plan.

Construction of trail connections on lands actively managed by other agencies would be the responsibility of the respective management agency, with review and approval by USACE and North Carolina.

In regards to looking at lands outside of the Falls Lake boundaries, such an action is considered beyond the scope of the master planning process. Any effort to review the acquisition of additional land would be initiated by the USACE Real Estate Office in the Savannah District or the corresponding North Carolina office. Neither USACE nor North Carolina have any plans for land acquisition around Falls Lake.

Comment: [T]he DOST Commission recommends that the U.S. Army Corps of Engineers review together with Durham City-County Planning the area north west of Falls Lake, (including Ellerbee Creek) which is not covered by the EDOS Plan, to recommend possible sites for trails, and kayak/canoe recreation opportunities suitable to the seasonally low water levels.

Response: The master planning team met with representatives from Durham City-County Planning during an agency meeting in 2010, public open houses in January 2010, a planning session at the Durham City-County Planning office in January 2012, and another set of public open houses in November 2012. USACE also received formal comments from Durham City-County Planning regarding the master planning process. During these meetings, it was noted that the northwestern portion of the project is under the long-term management of the North Carolina Wildlife Resources Commission (NCWRC). Therefore, any developments that the Commission or other groups would like to propose in that area should be made to NCWRC. North Carolina and USACE would assist and review the proposal, as appropriate.

E.3 Ellerbe Creek Watershed Association

Comment: Include requested foot trails when such trails do not threaten sensitive ecosystems or areas. Include language allowing consideration of such trails after the plan has been adopted. In all cases, trails should be designed to minimize environmental impacts.

Response: The policy-based Master Plan does not provide specific designs for trails or any other facility. The Resource Objectives included in Chapter 6.0 of the document, however, direct USACE, North Carolina, and current and future management partners to pursue enhancing trail connections in Falls Lake in a sustainable manner.

Comment: Include a proposed Ellerbe Creek Trail from the Corps of Engineers property bordering ECWA's Glennstone Preserve (parcel 196886 in lavender on the attached map) to Falls Lake and the Army Corps of Engineers land at Penny's Bend. Although trail plans and locations are still evolving, the Ellerbe Creek Trail would link downtown

Durham to Falls Lake as follows: City of Durham constructed and proposed greenway trails > to an ECWA proposed foot trail along the Ellerbe Creek > to the Corps of Engineers land bordering ECWA's Glennstone Preserve > to Falls Lake and Penny's Bend. The proposed trail would also link downtown Durham to the Eno River watershed and trails and the state-wide MST trail.

Response: The policy-based Master Plan does not provide specific designs for trails or any other facility. The Resource Objectives included in Chapter 6.0 of the document, however, direct USACE, North Carolina, and current and future management partners to pursue enhancing trail connections in Falls Lake in a sustainable manner. Outside of the land immediately surrounding the dam and USACE Visitor Assistance Center, project lands are leased to North Carolina. Penny's Bend is operated by the North Carolina Botanical Garden under a lease with North Carolina. Any future trail development in or around Penny's Bend would need to be coordinated with these agencies, with review and approval by USACE.

Comment: Provide funding, staff and low impact facilities (foot bridges, gravel parking, portable or composting toilets, signage) for passive recreation including walking/hiking trails, wildlife viewing, and other low density recreational activities.

Response: The policy-based Master Plan does not provide specific designs or budgets for any program or facility. The Land Classifications, Recommended Future Uses, and Resource Objectives included in this Master Plan establish a framework through which the passive activities described in the comment could be developed. The decision on what recreational opportunities will be offered at a given site will be made by the respective management agency or when a new party submits a proposal to North Carolina and USACE, through the process outlined in Appendix G of the Master Plan.

Comment: Adopt a strong adaptive management approach that provides maximum protection of environmentally sensitive areas and is designed to respond to changing and unforeseen conditions (population changes, drought, flooding, climate change).

Response: This policy-based Master Plan, along with the accompanying Programmatic Environmental Assessment and Geographic Information Systems (GIS) geodatabase, provides USACE and North Carolina with a "living" management document. This living document sets goals and objectives but does not establish concrete development plans. This allows for flexibility in the management and development of Falls Lake, within a clear policy framework. This approach allows for the ability to respond to the changing and unforeseen conditions mentioned in the comment.

Comment: Use definitive language to describe practices related to the protection of undeveloped and environmentally sensitive areas, the control of exotic invasive flora, and the inclusion of low impact recreational facilities and trails.

Response: The policy-based Master Plan establishes Resource Objectives which will be met with more specific plans developed by USACE, North Carolina, and the other management partners at Falls Lake. The Master Plan has been updated in accordance with USACE policies requirements contained in Engineer Pamphlet (EP) 1130-2-550 Project Operations – Recreation Operations and Maintenance Guidance and Procedures. The guidance and procedures provide the framework, language and terminology used in the Falls Lake Master Plan. The guidance and procedures also provide that an Operational Management Plan (OMP) be prepared (updated) which describes in detail how resource objectives and concepts prescribed in the master plan will be implemented and achieved. This plan will provide the definitive language and practices, referenced in the comment, to guide the management of undeveloped and environmentally sensitive areas. Until such updates are complete, the existing OMP will be used to direct these activities.

Comment: Develop, fund, and implement a strategic plan to prevent/reduce the spread of exotic invasive plants that threaten the sustainability of Falls Lake and surrounding NCWRC gamelands. Include the following stipulations:

Implementation and control/reduction activities should include chemical eradication methods only when no other effective options are possible. Stipulate unequivocally that, in these instances, utmost care be taken regarding the type, amount, and timing of chemical applications.

Development and maintenance of an updated and prioritized list of invasive flora and options for their control. Rank the invasive exotic Garlic Mustard (*Alliaria petiolata*) as the number one threat.

Response: The policy-based Master Plan establishes Resource Objectives which will be met with more specific plans developed by USACE, North Carolina, and the other management partners at Falls Lake. This includes updating the Falls Lake Operational Management Plan (OMP) and vegetation management plans maintained by USACE, North Carolina, and other management partners. Until such updates are complete, the existing OMP and vegetation management plans will be used to direct these activities.

E.4 Friends of the Mountains-to-Sea Trail

Comment: From our observation, illegal use of ATVs and motorcycles are badly damaging natural surface trails and disturbing wildlife at Falls Lake. We would be happy to share information about where the impact seems to be most negative, and we encourage the Corps to strengthen the regulations and policing of illegal use of ATV s and motorcycles.

Response: Illegal use of ATVs and motorcycles on project lands are one of the activities considered in Section 3.5 (Addressing Unauthorized and Inappropriate Use). Any additional discussion of illegal uses and enforcement of regulations is outside the scope of the Master Plan and more appropriately addressed in the Operational Management Plan (OMP). USACE and North Carolina welcome any data collected by local groups that can assist in this effort. Enforcement of regulations on project lands is the responsibility of the respective management agency, under the direction of the OMP and agency-specific guidance.

Comment: We encourage the Corps to retain the entire Falls Lake section of the MST as hiking only. As outdoor enthusiasts, we are glad to see that the Corps opens many of its trails to mountain bikes and other recreational users. However, the MST at Falls Lake is a unique hiking opportunity because of its length, topography and natural resources. Because hikers move more slowly than any other trail user, their experience is more likely to be negatively impacted by other users. The current hiking-only designation protects that experience for local hikers and those who are exploring all of North Carolina on the MST.

Response: Specific MST requirements are outside the scope of the Master Plan. The Master Plan provides a programmatic approach to the management of all of the lands included within the Falls Lake boundary. The Master Plan is the basic guidance document outlining the responsibilities of USACE and North Carolina pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands and associated resources. Greater specificity for management of specific features and lands is the subject of the Operational Management Plan (OMP). The Falls Lake Trail is currently designated as hiking-only and there is no proposed change to this designation.

Comment: We encourage establishment of additional low-impact designated camping spots along the MST so that hikers can have a legal place to camp and enjoy this long distance trail. Presently only Rolling View SRA and Shinleaf accommodate MST hikes, and they are not conveniently spaced for most long-distance hikers and Shinleaf is often closed in the winter months. To control the impact and cost of additional camping locations, it might be possible to institute a leave-no-trace camping permit system for hikers who register at your office. This system might define strict camping rules and allow the Corps to control how many permits would be issued from Penny's Bend to the Falls Lake Dam. Several National Parks have had great success using the permit system. A few examples are the Joho Muir Trail located in California and the Wonderland Trail located at Mt Rainier. The Falls Lake Task Force would be glad to assist the Army Corps of Engineers in selection of campsites and offer volunteer support as needed.

Response: USACE and North Carolina have received numerous comments echoing these statements, during the master planning process. The Master Plan text has been revised to indicate this demand for camping.

The policy-based Master Plan provides a high level of flexibility for U.S. Army Corps of Engineers (USACE) and the State of North Carolina (North Carolina) to accommodate future recreational needs within the region. The Land Classifications and Recommended Future Uses highlight areas where certain activities could be accommodated and the Resource Objectives set a general policy framework through which future recreational needs could be met. The development of a facility to meet one of the needs referenced in the comment would need to be undertaken by an existing management agency at Falls Lake or by a new partner through a sublease initiated through a new sublease that would be initiated through the steps outlined in Appendix G of the Master Plan. Either action would require review and approval by North Carolina and USACE including an environmental compliance review.

Comment: Over the years we have seen a large portion of the "viewshed" of the MST at Falls Lake degraded due to clear cutting/ timber cuts, and our volunteers have been forced to rebuild and stabilize trail lost or eroded by timber harvests. We would like to see areas along the trail protected from timber harvest to offer hikers a more pleasant outdoor experience and to reduce trail erosion.

Response: Specific natural resources management policies are outside the scope of the Master Plan; however USACE and the State recognize the complexity of managing multi-use lands, for instance maintaining a hiking trail on lands that are actively managed. Timber harvesting and prescribed fire are valuable forest management tools that maintain and improve forest health and wildlife habitat. Impacts (both positive and adverse impacts) to the viewshed occur on actively managed lands due mostly to these forest management practices. Most of what many consider the adverse impacts are temporary and serve to create a healthier forest in the future. Land managing agencies have adjusted their management practices to minimize and/or repair damage sustained to the trail during forest management activities but this does not mean that temporary impacts do not occur. The land managing agencies recognize and appreciate the value of the MST and the volunteer hours it takes to build and maintain trails; and look forward to continuing to work with the FMST.

Comment: During trail construction, we have removed several tons of trash from Falls Lake. The large amount of trash found at Raleigh's drinking-water reservoir is disconcerting, and our volunteers would be eager to work with the Corps to remove and recycle trash regularly, particularly when we have completed trail construction to Penny's Bend.

Response: USACE and North Carolina share your concerns and considered such issues when drafting Sections 3.1 and 3.5 of the Master Plan. While the overarching policy nature of the Master Plan does not prescribe specific plans for dealing with such issues, the forthcoming update to the Falls Lake Operational Management Plan (OMP) would be an appropriate time for USACE and North Carolina to document new plans for working with the public to remove trash and reduce future pollution of project lands. In the

meantime, USACE, North Carolina, and the other management partners will continue to work with the public under the guidance of the existing OMP to address these issues.

E.5 North Carolina Horse Council

Comment: The NCHC notes that the recreation opportunities identified in the Master Plan include recreational trails, specifically equestrian trails, that would be sited on soil and slopes that could withstand trail traffic. Of the many recreational opportunities that were identified in the Master Plan, equestrian trails are the only opportunity that has not been developed in the nearly 30 years since the Plan's existence. Indeed, the NC Wildlife Resources Commission, land manager for a large portion of the reservoir lands, has since introduced specific legislation to prohibit equines from the Falls Lake gameland.

Response: The policy-based Master Plan provides a high level of flexibility for U.S. Army Corps of Engineers (USACE) and the State of North Carolina (North Carolina) to accommodate future recreational needs within the region. The Land Classifications and Recommended Future Uses highlight areas where certain activities could be accommodated and the Resource Objectives set a general policy framework through which future recreational needs could be met. The development of a facility to meet one of the needs referenced in the comment would need to be undertaken by an existing management agency at Falls Lake or by a new partner through a sublease initiated through a new sublease that would be initiated through the steps outlined in Appendix G of the Master Plan. Either action would require review and approval by North Carolina and USACE including an environmental compliance review.

Comment: Providing equine trails and facilities would contribute to the nearly 2 billion dollar equine industry and promote preservation of our equine heritage for future generations

Response: Comment noted.

Comment: The recent NC Equine Industry Study (May 2009) indicates greatest growth in the equine industry in the areas with greatest human population growth. Since 1981, the demand for equestrian trails has only increased, along with the increased human and equine growth. The combined equine population in Orange, Wake, Durham, Vance and Granville Counties is nearly 16,500; a 55% increase since 1996. Since that time, riding opportunities on private land have diminished due to development, and the only public access trails in the entire Triangle region are in southwestern Wake County (Umstead State Park and the American Tobacco Trail).

Response: Comment noted.

Comment: Rapid urbanization of the state increases the vital role that the Falls Lake reservoir lands must play, along with local government parks and recreation departments, to provide sufficient equestrian trails (and other recreation opportunities) in large scale natural settings.

Response: Comment noted.

Comment: As recommended by the Master Plan, there have been past and recent efforts of equestrian groups to form “legal entities” (e.g. non-profit organizations) that would volunteer to plan and maintain equestrian trails under agreements with land managers. There have also been efforts to change the administrative code that currently prohibits equines on Falls Lake gamelands. These efforts have been systematically denied, more recently without public input or significant dialogue among stakeholders.

Response: The policy-based Master Plan provides a high level of flexibility for U.S. Army Corps of Engineers (USACE) and the State of North Carolina (North Carolina) to accommodate future recreational needs within the region. The Land Classifications and Recommended Future Uses highlight areas where certain activities could be accommodated and the Resource Objectives set a general policy framework through which future recreational needs could be met. The development of a facility to meet one of the needs referenced in the comment would need to be undertaken by an existing management agency at Falls Lake or by a new partner through a sublease initiated through a new sublease that would be initiated through the steps outlined in Appendix G of the Master Plan. Either action would require review and approval by North Carolina and USACE including an environmental compliance review.

Comment: The NCHC asks that the US Army Corps of Engineers consider the following in the Falls Lake Master Plan update:

- Identify at least one recreation area that specifically includes an equestrian trail opportunity with a length of 8 miles or more.
- Utilize updated trail development guidance to evaluate impacts of trail usage.
- Seek and encourage partnership between equestrian groups and local parks and recreation departments and the NC Wildlife Resources Commission to develop an equestrian trail.

Response: This Master Plan does not address specific amenities that may or may not be allowed in recreation areas. The NCHC is welcome to work through a managing agency partner who is in agreement to allow bridle paths to be built and maintained on their managed areas.

E.6 North Carolina State Historic Preservation Office

Comment: As you are aware, there are many archaeological sites at Falls Lake that are in need of additional investigation and protection measures. We look forward to working

with you, your staff and your consultants on this project. The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Response: USACE and North Carolina will continue to consult with the State Historic Preservation Office, Federally recognized tribes, and interested parties concerning management of historic properties pursuant to Sections 106 and 110 of the National Historic Preservation Act and other applicable laws, regulations, USACE policy, and the Falls Lake Historic Properties Management Plan.

E.7 City of Raleigh²

Comment: Chart VII- Sightseeing Interpretive areas are available throughout the Forest Ridge peninsula including old stone foundations and scenic vistas. These are not listed in the carrying capacity chart.

Response: Such observations and illustrations are no longer a part of the USACE master planning process. Therefore, the table and figures that identified these sites in the 1981 Master Plan were not updated or included in this Master Plan.

Comment: Site #20 8-18 The Forest Ridge plate 22-sheet 2 appears to be missing from the document. Also the City of Raleigh is a possible agent to manage this site as well as others in the future.

Response: Such plates are no longer part of the USACE master planning process; therefore, no update to the referenced plate was made. Section 7.3.12 of this Master Plan discusses Forest Ridge. USACE and North Carolina chose to list the City of Raleigh as the management agency for the site, as the city has advanced far enough in the planning and permitting process that the eventual management of the site is readily foreseeable.

Comment: VIII-4 Facilities Chart. We question the need for 2 boat ramps on the Forest Ridge peninsula and would like to see no more than one for motorized boats so close to the water intake. An additional ramp for non-motorized boats would also be an option.

Response: Such recommendations are no longer part of the USACE master planning process. Resource Objectives and the project's Resource Plan are included in Sections 6.0 and 7.0 of this Master Plan, respectively, and provide direction on future recreational development that USACE and North Carolina hope to see at Falls Lake. Section 7.3.12 of the Master Plan indicates that the City of Raleigh is in the final steps of planning and permitting the proposed park and references to the city's Master Plan for the park are

² These comments were based on the City's review of the 1981 Master Plan

included in the document. It should also be noted that, based on a study conducted in 2000, USACE and North Carolina have agreed to establish a moratorium on any new development that adds motor boating capacity to the reservoir (see Section 7.1 of the Master Plan).

Comment: Table IV. Currently no water/sewer demand is proposed in the Forest Ridge Peninsula and we believe it will be required to provide the recreational elements listed in other sections.

Response: Such data is no longer included in the USACE master planning process; therefore, no updates were made to the table referenced in the comment. Ongoing coordination between the City of Raleigh, North Carolina, and USACE will identify the appropriate water and sewer needs at the planned facility and identify the necessary documentation and permitting.

Comment: Chapter VII. Population figures are out of date and should reflect the current population increases in the area of Forest Ridge Peninsula.

Response: Population figures have been updated with 2010 Census data.

Comment: Section 5.08 Wildlife D, 10. The Forest Ridge peninsula, while offering a diversity for wildlife was not found to have any significant protected species on the site. It is our belief that the ranking should be further down the ranking than 10. There are opportunities to enhance the wildlife, but with the population growth we have seen in Wake Forest and Raleigh would probably deter significant improvement.

Response: As illustrated in Figure 7 of the Master Plan, a new wildlife conservation value was applied to Falls Lake. As a result, Forest Ridge and the surrounding project lands were scored a 6.

Comment: Wildlife management between Corps management and state management seems to be unmanaged in the interim. Particularly the hunting of deer which seems to be halted yet is causing problems in the area of increased vehicular strikes. It is unclear how the management of herds is taking place around Falls Lake.

Response: Deer populations are high around the lake. There are methods of population control, the most feasible is normally controlled hunting.

E.8 Stagville Historic Foundation

Comment: I would like to request that the master plan continues to contain the elements that would investigate and preserve the natural assets that are present in the Falls Lake area. Information regarding old roadbeds and agricultural methods would greatly enhance our ability to interpret North Carolina agrarian history. We are very interested that nothing be destroyed until it has been thoroughly analyzed, mapped and documented. Then serious consideration should be made before disturbing these assets to our history.

Response: We believe that the Master Plan accomplishes the conservation goals discussed in the comment. The Master Plan provides a programmatic approach to the management of all of the lands included within the Falls Lake boundary. The Master Plan provides the basic guidance document outlining the responsibilities of USACE and North Carolina pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands and associated resources. The Master Plan is a planning document anticipating what could and should happen, with the flexibility to adapt to changing conditions over the life of the plan. Detailed management and administration functions are handled in the Operational Management Plan (OMP) and the Historic Properties Management Plan, which translate the concepts of the Master Plan into operational terms. Many historic properties within Falls Lake boundaries have been identified and sites are surveyed, at least on a very basic level prior to any land disturbing activities (including forest management).

E.9 Trading Path Association

Comment: Specifically, we ask that the Corps of Engineers and its management team perform anew in the light of new requirements Section 106 studies or their equivalent for all of the Falls Lake Project area. We call special attention to those portions of the Project in proximity to the Bennehan-Cameron properties, but also ask you to look carefully at the area of Fish Dam and all other likely cultural assets in the Project, not just those identified as such in the original studies.

Response: Historic properties at Falls Lake are managed by the USACE pursuant to Sections 106 and 110 of the National Historic Preservation Act and other applicable laws, regulations, USACE policy, and the Falls Lake Historic Properties Management Plan . As such, the Bennehan-Cameron properties, Fish Dam site, and many other historic properties have been identified, evaluated for National Register eligibility, and protected since the first cultural resource studies at Falls Lake.

Comment: There are at least five reasons why the COE and its management partners must revisit cultural inventories for the Falls Lake project. In at least one respect the original program plan remains incomplete. Specifically, in Section 5-03.1 the plan calls for a detailed cultural asset study of lands in the vicinity of the Cameron Bennehan lands,

lands in the vicinity of Stagville and "The Brick House" store on either side of the Flat River between the Eno River and Lake Michie Dam. In fact, one could include in such a study the Falls Lake lands in the Eno and Little River drainages as well because all were part and parcel of a complex of native and, later, integrated colonial businesses joined by commercial interest and marriage. No record of the study so recommended are publicly accessible and the fact that Game Lands and Falls Lake staff show no knowledge of readily visible artifacts on their lands leads to the conclusion that the study deferred was never done. Even if it was done, though, it was done inadequately by current standards and should be redone.

Response: The studies recommended in Chapter 5, Section 5-the 1981 Master Plan have been carried out. Cultural resource studies at Falls Lake to date are listed in Table F-7.

Comment: Since production of the original Master Plan technological advances allow for far more refined analysis than could be done in the 1980s. LIDAR (Light Detection and Ranging), for example, was unavailable in 1981 and is now not only generally available but also freely available. That technology, alone, makes possible low-cost identification of pre-modern infrastructure that would have virtually invisible in the 1980s.

Response: Comment noted. Many technologies have developed since the 1980's which facilitate resource conservation.

Comment: Changes in the definition of what constitutes a cultural asset have changed dramatically in the years since production of the original master plan. Section 106 processes now require inventorying of historical as well as cultural landscapes. Interestingly, in spite of radical terraforming in the impoundment areas of the Game Lands around Falls Lake, there are substantial pre-modern landscape artifacts yet visible. The National Historic Preservation Act (1966) established section 106 requirements and processes for all federally funded projects. In 1969, the National Environmental Policy Act (NEPA) opened more opportunities for the NHP A to take effect. The NEP A protects a larger amount of area of property compared to the NHP A, because it includes the environment around it, which will sometimes inherently include historic sites. In 1976, Congress extended the Section 106 review process to include buildings, archaeological sites, and other historic resources eligible for listing,. In 1980, Section 110 was added. It added further requirements for federal agencies such as the need to establish their own internally-staffed historic preservation programs.

In 1992, amendments increased protection for Native American and Native Hawaiian preservation efforts. To this list of obligations Congress added Cultural Landscape Inventories in 1991. This particular addition requires that federal stewards inventory and protect landscape features of historic or cultural importance in the same manner they are obliged to protect structures.

Response: Historic properties are managed by the USACE pursuant to Sections 106 and 110 of the National Historic Preservation Act and other applicable laws, regulations, USACE policy, and the Falls Lake Historic Properties Management Plan.

Comment: Observing that there are numerous historic landscape features visible on project lands in proximity to the Bennehan-Cameron Plantation that were not mapped at the time of the initial survey of the site; and noting that Section 5.03.1C of the original management plan called for intensive study of project lands in the vicinity of "The Bennehan-Cameron Plantation Historic District" we strongly recommend, and request that the Falls Lake Management Plan be amended to require a reassessment of this portion of the project area with emphasis placed on mapping the location of infrastructure remnants.

Response: A cultural resource inventory of the Bennehan-Cameron Plantation Historic District has been completed and was reported on by Archaeological Research Consultants in 1986 (Table F-7). Historic properties are managed by the USACE pursuant to Sections 106 and 110 of the National Historic Preservation Act and other applicable laws, regulations, USACE policy, and the Falls Lake Historic Properties Management Plan.

Comment: Inventory all historic and prehistoric landscape and view-scape assets in the project area and contiguous lands (e.g., Stagville Historic District) to emphasize continuity of artifacts in the public record relating to lands proximate to Falls Lake.

Response: The Master Plan is a programmatic document. Greater specificity for management of historic properties is contained within the Operational Management Plan and Historic Properties Management.

Comment: In cooperation with Game Lands managers, create a Volunteer Stewardship organization similar to those operating in many national parks, forests, and historic sites.

Response: USACE and North Carolina recognize the value of volunteers and would gladly entertain efforts to form this kind of organization.

E.10 Tuscarora Nation

Comment: The Tuscarora Nation received a letter from the Department of the Army, in regards to the U.S. Army Corps of Engineers update of the Falls Lake Master Plan. The Tuscarora Nation would like information on the Master Plan, thus we would be able to suggest some ideas. The Tuscarora People are very environmentally aware of preserving Mother Earth and all of Nature. We are also interested in the preserving of human remains, funerary and sacred objects , as our people lived in North Carolina many years

ago. Please keep the Tuscarora Nation updated on the progress of the Master Plan and its progress . We look forward to hearing from you in the near future.

Response: Comment noted.

Representative Public Comments Received during the 2010 Scoping Period

E.11 Adaptive Management

(1 comment received)

Comment: I strongly recommend that you apply an adaptive management approach in your planning. Improved science and unforeseen events can make even a good plan no longer appropriate or capable of achieving desired outcomes. There needs to be a mechanism built into the plan for monitoring conditions, evaluating the suitability of the plan, and modifying the plan as needed in response to changing conditions or increased knowledge. This was not done for the USACE's flood control plans from the 1960s, which are still in place in Durham with no clear way to modify it, even though the USACE no longer uses that approach and stream management science has completely invalidated it.

Response: This policy-based Master Plan, along with the accompanying Programmatic Environmental Assessment and Geographic Information System (GIS) geodatabase, provides USACE and North Carolina with a “living” management document. This living document sets goals and objectives but does not establish concrete development plans. This allows for flexibility in the management and development of Falls Lake, within a clear policy framework.

E.12 “Permanent” Gamelands

(1 comment received)

Comment: Do not redesignate as "permanent gamelands" areas on the southwest side of the Lake that are proposed for trail access in the Durham trails master plan. Instead, maintain the "interim" designation, or even better, explicitly mention these uses in the updated plan.

Response: The analysis conducted as part of the master planning process did identify a few small tracts that had been classified as "interim" in the 1981 Master Plan which were determined to be not appropriate for future recreational development. Factors considered in this analysis included adjacent land use, increased shoreline erosion, and improved natural resource data. Overall, however, there are no measurable changes in the amount of project lands available for Durham lease from North Carolina. Development of trails on NCWRC managed land would need to be coordinated with that agency, with review by North Carolina and USACE. USACE and North Carolina did not feel it was appropriate to include details related to proposed developments within the project. If and when these proposed trails are established, the Master Plan will be updated to document them with a similar level of detail as other existing facilities are described. USACE and North Carolina look forward to working with Durham to implement these plans.

E.13 Updating the Master Plan

(1 comment received)

Comment: I'm guessing the main reason for this update is the pending construction start of Raleigh's Forest Ridge Park. I have viewed the City's approved Master Plan for that facility, attended several of the MP meetings and have visited the site a few times. It is a beautiful piece of land, especially the point at the far western end.

Response: USACE policy requires regular updates to the Master Plan. Due to previous staffing and/or funding shortages, such an update had yet to be completed on the Falls Lake Master Plan.

E.14 Coordinating with Durham City-County Planning

(1 comment received)

Comment: I ask that the Falls Lake Master Plan include provisions for working closely with Durham City-County Planning to map and detail the planned trails, parks, and preservation sites, so that the USACE can ensure the needed areas are not converted from interim to permanent game lands, which could prevent the desired multi-use trails or parks from being established in the future. For those areas where the desired parks and trails will be located on what are now permanent game lands, I strongly urge the USACE to work with the Wildlife Resources Commission, and the City/County of Durham, to provide for the future lease of the areas to Durham as non-game lands.

Response: The master planning team met with representatives from Durham City-County Planning during an agency meeting in 2010, two public open houses in 2010, a planning session in January 2012, and another set of public open houses in November 2012. USACE also received formal comments from Durham City-County Planning regarding the master planning process and its relationship to the plans referenced in the comment. process. USACE and North Carolina believe that the plans the Durham City-County Planning office have in place have been properly taken into account in developing the Land Classifications and Recommended Future Uses included in the Master Plan.

Development of trails on NCWRC managed land would need to be coordinated with that agency, with review by USACE and North Carolina. USACE and the State look forward to working with Durham, through the process outlined in Appendix G of the Master Plan, to see these plans become a reality.

E.15 Invasive Species

(1 comment received)

Comment: I am writing in support of a strategic, active, ongoing plan and action to reduce and prevent the spread of exotic invasive plants that threaten the sustainability of

Falls Lake and surrounding NCWRC Game Lands. While this job is daunting, the regeneration of our woodlands and the integrity of the riparian ecosystem is threatened. The Rank 1 invasive exotic Garlic mustard (*Alliaria petiolata*) is one specific, though obviously not lone example. Not currently well known in North Carolina, Ellerbe Creek Watershed Association founder Steve Hiltner discovered Garlic mustard populations in its Durham watershed and ECWA has continued volunteer eradication efforts in Durham for nearly a decade.

Response: USACE and North Carolina share your concern over the spread of invasive species. Section 3.2 of the Master Plan notes the increasing spread of invasive species throughout the region. By updating the Falls Lake Master Plan, USACE and North Carolina have established the policy framework through which the Operational Management Plan and individual natural resource management plans can be revised to better address invasive species at Falls Lake.

E.16 Approval of Current Operation

(1 comment received)

Comment: Basically, if it's not broke don't fix it – things are very appealing as they are.

Response: Comment noted.

E.17 Equestrian Trail Riding

(4 comments received)

Comment: I would like to request that areas in the Falls Lake district be opened to equestrian trail riding. There are many riders in the Falls Lake area, and with development occurring everywhere these days, opportunities to trail ride are disappearing daily. Please open more trails to equestrian access.

Response: The policy-based Master Plan provides a high level of flexibility for U.S. Army Corps of Engineers (USACE) and the State of North Carolina (North Carolina) to accommodate future recreational needs within the region. The Land Classifications and Recommended Future Uses highlight areas where certain activities could be accommodated and the Resource Objectives set a general policy framework through which future recreational needs could be met. The development of a facility to meet one of the needs referenced in the comment would need to be undertaken by an existing management agency at Falls Lake or by a new partner through a sublease initiated through a new sublease that would be initiated through the steps outlined in Appendix G of the Master Plan. Either action would require review and approval by North Carolina and USACE including an environmental compliance review.

E.18 Ellerbee Creek Watershed Trail Connection

(94 comments received)

Comment: I am interested in having a trail developed that connects the Ellerbee Creek Watershed headwaters to the Mountain to Sea Trail at Falls Lake.

Response: USACE and North Carolina appreciate the local community's desire to expand trail opportunities on project lands and connections to other regional trails. The Land Classifications, Recommended Future Uses, and Resource Objectives included in this Master Plan establish policies and goals to allow for these developments to occur. Because USACE only actively manages a small portion of the project, most of these developments would fall on lands leased to North Carolina and actively managed by the North Carolina Division of Parks and Recreation, the North Carolina Wildlife Resources Commission (NCWRC), or other management partners. Specific plans to extend trails on project lands would require coordination with the respective management agency, environmental analysis, and review and approval by North Carolina and USACE. The development of new trails by a new lessee also would require adherence to the process outlined in Appendix G of the Master Plan. NCWRC has recommended that a process be developed to evaluate the effect increased trails would have on natural resources and other uses of the project prior to future trail development at Falls Lake. Such an analysis could be required before North Carolina and USACE approve of future trail development.

E.19 Eastern Durham Open Space Plan

(1 comment received)

Comment: Also in the EDOS Plan, and the Durham Trails Master Plan, several trails and parks are planned by Durham in the future which would cross onto Corps land. A couple of these, such as the Panther Creek Rail Trail, are intended to be multi-use trails, including bicycle and equestrian use. The eastern part of Durham has a strong heritage of horse farms and horseback riding, and this needs to be accommodated in the Falls Lake Master Plan Update. If I use the example of the Panther Creek Rail Trail, much of the land for that trail is on corps land that is currently categorized as Permanent Game Lands, leased to the Wildlife Resources Commission. As such, bicycling and equestrian use would not be permitted on the trail. The Army Corp needs to work with Durham and the WRC to change areas affected such as this to non-game lands with the ability for Durham to lease them in the future. This would also include areas such as Cardinal Point Park, and Redwood Park, where hunting close to these parks would present a hazard to recreational users. Conversely, now that Durham has set their plans for the area in the EDOS Plan, they also know which areas they will NOT be planning to use for recreation, so the Army Corps could also identify land that is currently in interim management and plan to convert it to permanent game lands.

Response: The master planning team met with representatives from Durham City-County Planning during an agency meeting in 2010, public open houses in January 2010, a

planning session at the Durham City-County Planning office in January 2012, and another set of public open houses in November 2012. USACE also received formal comments from Durham City-County Planning regarding the master planning process. Input from Durham City-County Planning led USACE and North Carolina to set aside most of the project lands within the county for future recreational development. This protects the opportunity for Durham City-County to develop the type of recreational facilities referenced in the comment. Leasing of lands to meet these goals, would be accomplished through the process outlined in Appendix G of the Master Plan. Construction of trail connections on lands actively managed by other agencies would be the responsibility of the respective management agency, with review and approval by USACE and North Carolina.

E.20 Maintain Hunting and Passive Outdoor Uses

(1 comment received)

Comment: Continue to protect large continuous tracts along the northern and north-western side of the Lake for hunting and passive outdoor uses.

Response: None of the lands that were classified as “permanent” gamelands in the 1981 Master Plan were reclassified for intensive recreational development in this Master Plan. The analysis conducted as part of the master planning process did identify a few small tracts that had been classified as "interim" in the 1981 Master Plan which were determined to be not appropriate for future recreational development. Factors considered in this analysis included adjacent land use, access limitations, increased shoreline erosion, and improved natural resources data.

E.21 Buffer Existing Land Holdings

(1 comment received)

Comment: Consider adding protection for areas that abut the protected ACE lands in order to create buffers around the existing land holdings.

Response: USACE and the State do not have plans to add to the land holdings at Falls Lake. Any added protections on surrounding private lands would be initiated by local governments, non-profits such as land trusts or the landowners themselves.

E.22 Maintain No Development

(1 comment received)

Comment: Maintain the no development around the lake.

Response: Comment noted.

E.23 Consider Single Track Mountain Bike Trails

(70 comments received)

Comment: Please consider adding single track mountain bike trails to the plan.

Response: Mountain bike trails area addressed in Section 2.22 and 2.24 of the Master Plan. As noted above, the Master Plan provides a programmatic approach to the management of all of the lands included within the Falls Lake boundary. The Master Plan is the basic guidance document outlining the responsibilities of USACE and North Carolina pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands and associated resources. Specific design and location of these trails is outside the scope of the Master Plan. USACE and the State are aware of the desire for additional mountain biking facilities. Interested parties are welcome to work through a managing agency partner who is in agreement to allow them to build and maintain bike trails on their managed areas. In addition, interested parties may pursue the lease of a management area through the process outlined in Appendix G of the Master Plan.

E.24 Law Enforcement at Hippie Beach

(3 comments received)

Comment: I recently attended the open house at the Durham East Regional Library and expressed my concerns about the small peninsula of land located on New Light Road at the intersection of Ghoston Road. This area is also situated between Holly Point and Shinleaf camping areas. The people living in the community call this area "Hippie Beach" or "Beer Beach". My main concern is the unregulated use of this area by locals. They use this area as the local party spot. During the summer months and especially on holidays there may be as many as 200 to 250 people on the beach area near New Light bridge and I have personally counted 82 cars parked along New Light Road and Ghoston Road on July 4th. The reason they tend to use this area is because this area is not controlled by NC State Parks and they can consume alcohol and use other illegal controlled substances. They cannot conduct these activities in the designated swimming areas around Falls Lake. Please consider adding this area to either Holly Point or Shinleaf parks. The rangers are constantly driving by this area and can better patrol the activity. I know they do not want this area because of the associated problems, but if it were managed properly within a short period of time there would not be a problem.

Response: USACE and North Carolina have received other comments echoing these statements during the master planning process. These activities were considered when drafting Section 3.5 of the Master Plan. While it is outside the scope of the Master Plan to take specific action to address these issues, USACE and North Carolina continue to discuss this issue. The forthcoming update to the Falls Lake Operational Management Plan will be one tool that could be used to document measures to address this issue.

E.25 Citizen Involvement in Planning and Implementation

(1 comment received)

Comment: While I believe that energy put into any future plan for Falls Lake needs to include the municipalities surrounding the watershed, an initiative incorporating both many of the volunteer and non-profit organizations inside these boundaries should weigh heavily in whatever decision making policy and rule making guidelines are eventually crafted.

Citizens should not only have the opportunity to voice their opinions on what they want but also what they can DO to help preserve land, minimize storm water runoff, increase recreational venues and mitigate spending millions of tax dollars depending on local, state and/or federal resources to fund them.

Whatever the eventual plan entails, it will be expensive to implement and almost a guarantee to be impossible to fund given the direction of our economy over the next few years. My suggestion would be to jump start some of the goals in this plan by incorporating projects, man power, studies and creative thinking that take advantage of these less expensive mechanisms to get things done. For instance, each goal for the Master Plan ought to have "Who can do it" column that might designate whether a local planning board, federal agency, state department and/or local non-profit or volunteer group can accomplish.

Given these possibilities and options, it might enable us, as a community, to participate in improving or implementing some of the details in this plan without having to wait for further governmental guidance or approval. With this said, I strongly support a "Meeting of the Minds" set of informational sessions that will include as many of these 'players' to flesh out exactly what they can do in co-operation with each other, rather than dictate down a concrete inflexible plan that we have to wait for available resources that may be long in coming, if at all over the next 5-10 years.

Response: Along with coordinating with local, state, and federal agencies, USACE and North Carolina provided opportunities for the public to contribute to the master planning process. Public open houses were held in January 2010 to initiate the planning process and in November 2012 to present the draft document. During these meetings, and the subsequent public comment periods, USACE and North Carolina received comments from approximately 10 organized groups and over 220 individuals. All of the comments received are represented in this appendix. Although the majority of these comments were focused on specific development projects that are outside of the scope of the master planning process, the public's insight was of great value to USACE and North Carolina and the comments will be added to the record to be considered in future projects, as well.

Because the Master Plan update is a policy document, implementation is achieved through the review and signature process documented on the first pages of the document and in Appendix D. Further implementation of the policies and goals outlined in the Master Plan will come through existing or future management partners working with

USACE and North Carolina. Because such actions would occur on federal land, they would be required to undergo appropriate environmental review by USACE. USACE and North Carolina appreciate the public support and interest in Falls Lake and always welcome input and support in management activities. Future development at Falls Lake will rely on partnerships between USACE, North Carolina, local governments, and non-profit groups.

E.26 Protecting Water Quality and Wildlife Habitat through Low Impact Activity

(1 comment received)

Comment: Recreational opportunities should be focused and enhanced upon low impact activities in order to protect water quality and wildlife habitat.

Response: Areas classified as Multiple Resource Management lands in the Master Plan have been identified as currently supporting and/or available to support low impact activities. Although many of these lands have Recommended Future Uses that include intensive Recreation development, the Resource Objectives and policies included in the Master Plan direct USACE, North Carolina, and current and future management partners to consider water quality, wildlife, and other natural resources in any future development. All future development also will require appropriate environmental review that will further document any potential impact to these resources and recommend appropriate avoidance or mitigation strategies.

E.27 Use of Falls Lake Mitigation Lands

(1 comment received)

Comment: I believe the Falls Lake mitigation lands should be used primarily as Game Land except for limited, public access park sites.

Response: During the planning, design, and construction of Falls Lake, USACE and the U.S. Fish and Wildlife Service (USFWS) came to an agreement on the amount of land that would need to be set aside for waterfowl impoundments and permanent wildlife management to mitigate for the loss of hunter man-days as a result of the construction of the project. The proposed series of green tree and diked waterfowl subimpoundments were designed to provide 860 acres of optimum waterfowl habitat and additional hunting opportunity. General management of these impoundments is outlined in USACE Design Memorandum 33; dated 20 May 1986, revised 20 August 1986 . The agreement between USACE and USFWS did not specify specific locations within the project; therefore, no lands were acquired solely for or classified as mitigation lands. This Master Plan classifies approximately 15,400 acres as lands that support low-intensity activities and are not suitable for park sites. This acreage includes the 860 acres of waterfowl subimpoundments that were included in the USACE/USFWS mitigation agreement.

E.28 Pedestrian Access to Seasonal Management Areas

(1 comment received)

Comment: How about allowing walkers access to more parks which are closed for the season - you don't need to open the gates but placing signs at the gates stating that walking is permitted would be nice to see.

Response: This Master Plan establishes Resource Objectives to enhance pedestrian access throughout Falls Lake. Allowing or restricting access to individual parks within the project is a decision made by each individual management agency and is based on visitor safety, available staffing, and "off-season" construction or renovation projects.

E.29 Pedestrian Access to the Water

(1 comment received)

Comment: Build some docks on the water where walking trails lead to so people can sit or fish from the bank.

Response: The Resource Objectives prescribed in this Master Plan include improving pedestrian access throughout the project and enhancing water-based, low impact recreational opportunities. Implementation of these policies will be the responsibility of the respective management agency. Such development would be reviewed by USACE and the North Carolina and required to comply with relevant federal, state, and local regulations.

E.30 Recreational Opportunities Northwest of Falls Lake

(1 comment received)

Comment: The lands surrounding the north west part of Falls Lake is not covered by the [Eastern Durham Open Space] Plan. This area should not be overlooked for recreation opportunities. The seasonal lows in this part of the lake may make it unsuitable to boating, but certainly kayak/canoe users would enjoy the "wake free" waters. Let in areas for this, in conjunction with camping / picnicking areas and some hiking trails would be ideal. Other low impact uses like a Disc Golf trail could provide recreation to users in this area.

Response: The master planning team met with representatives from Durham City-County Planning during an agency meeting in 2010, public open houses in January 2010, a planning session at the Durham City-County Planning office in January 2012, and another set of public open houses in November 2012. USACE also received formal comments from Durham City-County Planning regarding the master planning process. During these meetings, it was noted that the northwestern portion of the project is under the long-term management of the North Carolina Wildlife Resources Commission (NCWRC). Therefore, any developments that the Commission or other groups would like

to propose in that area should be made to NCWRC. North Carolina and USACE would assist and review the proposal, as appropriate.

E.31 Mountains-to-Sea Trail Viewshed

(1 comment received)

Comment: Over the years we have seen a large portion of the viewshed of the [Mountains-to-Sea Trail] at Falls Lake degraded due to clear cutting/timber cuts, and our volunteers have been forced to rebuild and stabilize trail lost or eroded by timber harvests. We would like to see areas along the trail protected from timber harvest to offer the hiker a more pleasant outdoor experience and to reduce trail erosion.

Response: Response: Specific natural resources management policies are outside the scope of the Master Plan; however USACE and the State recognize the complexity of managing multi-use lands, for instance maintaining a hiking trail on lands that are actively managed. Timber harvesting and prescribed fire are valuable forest management tools that maintain and improve forest health and wildlife habitat. Impacts (both positive and adverse impacts) to the viewshed occur on actively managed lands due mostly to these forest management practices. Most of what many consider the adverse impacts are temporary and serve to create a healthier forest in the future. Land managing agencies have adjusted their management practices to minimize and/or repair damage sustained to the trail during forest management activities but this does not mean that temporary impacts do not occur. The land managing agencies recognize and appreciate the value of the MST and the volunteer hours it takes to build and maintain trails; and look forward to continuing to work with the FMST.

E.32 Falls Lake Timbering Practices

(1 comment received)

Comment: Durham has recently worked to provide Environmental Enhancements to its Unified Development Ordinance (EEUDO). This included improving buffers and development practices to improve water quality. Further, in Durham's Eastern Durham Open Space Plan (EDOS Plan), Durham heightened protections in the critical watershed area west of falls lake. The US Army Corps of Engineers (USACE) should follow by reviewing and updating timbering practices on the Corps land. Particular attention should be paid to prohibit timbering on steep slopes, within 100 feet of a stream, or 100 feet of a view shed to trails, roads, or parks.

Response: All forestry management activities at Falls Lake adhere to the guidelines set by the Falls Lake Rules and the North Carolina Forestry Best Management Practices Manual to Protect Water Quality.

E.33 Removing and Recycling Trash

(1 comment received)

Comment: During trail construction, [the Friends of the Mountains-to-Sea Trail] have removed several tons of trash from Falls Lake. It has been amazing the amount of trash on our public lands that is the drinking water of the Triangle area. The large amount of trash found at Raleigh's drinking-water reservoir is disconcerting, and our volunteers would be eager to work with the Corps to remove and recycle trash regularly, particularly when we have completed trail construction to Penny's Bend.

Response: USACE and North Carolina share your concerns and considered such issues when drafting Sections 3.1 and 3.5 of the Master Plan. While the overarching policy nature of the Master Plan does not prescribe specific plans for dealing with such issues, the forthcoming update to the Falls Lake Operational Management Plan (OMP) would be an appropriate time for USACE and North Carolina to document new plans for working with the public to remove trash and reduce future pollution of project lands. In the meantime, USACE, North Carolina, and the other management partners will continue to work with the public under the guidance of the existing OMP to address these issues.

E.34 Water Quality

(1 comment received)

Comment: Consider water quality in your management. Contact Lisa Creasman at Conservation Trust for North Carolina to ensure that your management is contributing to the efforts of the Upper Neuse Clean Water Initiative (UNCWI).

Response: Water quality is one of the primary purposes of Falls Lake. As discussed in Section 1.3 of the Master Plan, Falls Lake has five primary purposes. While meeting these different purposes requires delicate decision-making, USACE and North Carolina will continue to ensure no actions taken to meet one purpose impair the ability to meet another.

E.35 Private Development

(1 comment received)

Comment: It would be good to keep housing away from the lake and the natural area available to hike while being close to cities is a big plus.

Response: Lands at Falls Lake were acquired for specific authorized purposes. These project purposes include flood damage reduction, water supply, downstream water quality, fish and wildlife enhancement, and recreation. Private use of Falls Lake lands for housing or other purposes is not permitted under USACE regulations

E.36 Maintaining Water Levels for Water Supply

(1 comment received)

Comment: Maintain the water in the lake so the City of Raleigh can provide water - stop letting the water out (raise the water table if need be or start the process to increase the depth of the lake).

Response: USACE recognizes the public's interest in water supply at Falls Lake and coordinates closely with the City of Raleigh regarding its water supply storage. This particular concern, however, is outside of the scope of the Master Plan. No water is released from storage in Falls Lake that is designated for water supply for the City of Raleigh. Falls Lake water releases are managed according to our Water Control Plan and are made for Flood Risk Management and downstream water quality purposes, both of which have separate storage pools in Falls Lake.

Comments Received from Local Municipalities during 2011-2012 Locality Meetings

E.37 North Carolina Forest Service

Comment: The NC Forest Service appreciates being invited to participate in the planning process for the Falls Lake Master Plan. Our agency is excited about the potential to showcase active forest management on some of the Falls Lake "interim" properties. We believe our agency offers a unique perspective and could contribute to improving the forest health of some Corps properties as evidenced by our past work at Jordan Lake. This opportunity would allow NCFS to educate area residents, landowners and the public on sustainable and environmentally sound forest practices. Prospects for species restoration (shortleaf, etc.), forest research and silviculture demonstration areas could also be possible benefits of NCFS management in the future.

- To best accomplish this type of management, we feel the ideal parcel should fit the following criteria:
- Parcel should be 400+ contiguous acres of forest land
- Parcel should not be in close proximity to dense populations of people (burning, smoke issues)
- Parcel should have adequate access for forest management activities
- Parcel should generate enough income/receipts to sustain the management activities needed on the property

Based on these characteristics, an interim property that appears suitable to promote traditional forest management is Woodpecker Ridge. There may be others that would fit our needs, but we would prefer to examine them prior to committing to future management. Again, thanks for the opportunity to participate in this process.

Response: USACE and North Carolina welcome the North Carolina Forest Service's interest in developing such a facility at Falls Lake. Discussions about this development were initiated between USACE, North Carolina Division of Water Resources, North Carolina Division of Parks and Recreation, North Carolina Wildlife Resources Commission, and the North Carolina Forest Service during the master planning process.

Specific site location for such a facility can be addressed during the Operational Management Plan (OMP) process or in future updates to the Master Plan. Areas that are classified with a future use of recreation are appropriate locations for new management partners at Falls Lake. Woodpecker Ridge is an area currently classified as multiple resource management with a future use of recreation, along with several other such areas.

Woodpecker Ridge is managed as a component of the State Parks System, as an undeveloped part of Falls Lake State Recreation Area. The Division of Parks and Recreation has indicated that they have future recreational uses for this area and will coordinate with the USACE in the planning process to increase recreational opportunities at Falls Lake.

E.38 City of Raleigh Parks & Recreation Department

Comment: There is still a concern of the piece of Forest Ridge that has been reclassified from Recreation to Project Operations. The concern is that USACE will be able to use land designated as Forest Ridge for USACE Operations Center, Office, Maintenance, etc. especially if the land use is designated as such. I guess some more clarification on “the classification has some meaning internally to USACE related to the way the land has been leased” would be helpful. Please see letter to Carol Banaitis dated February 4, 2010 from the Project Manager of Forest Ridge Park. The Proposals for Recommended Future Use of Project Lands were not issued at this time.

Response: The original boundary of the Forest Ridge area in the 1981 Master Plan limited the area to the main peninsula. During discussions about Forest Ridge, the City of Raleigh identified a proposal to extend the boundaries both south towards the Falls Lake dam and north towards NC 98 in order to allow for more facilities and trail development. USACE plans to direct lease a portion of the Forest Ridge area (Forest Ridge Park South) to the City but does not plan to lease any of its operational facilities such as the emergency spillway, tailrace, dam or areas immediately adjacent to those operational facilities. The portion of Forest Ridge in the direct lease should be designated as recreation to reflect the developed recreation nature of that area. In response to questions about the trail connections between the Neuse River Trail and Forest Ridge, USACE and the City can plan on working those connections out by modifying their lease agreement, since a portion of the trail connection is proposed to be on land that is not included in the lease. That agreement is outside the scope of the Master Plan.

Comment: There is a conflict between maps on property due east of 213 acre Hwy 50 Beaverdam future park site. This land is on the west shore of the Beaverdam sub impoundment and north of the current Beaverdam State Recreation Area facility (6.25). The Proposed Land Classification map in the presentation slides (Fig 12 and Fig 13) shows adjacent land proposed to be classified as Multiple Resource Management, which includes by definition in the same document:

- Recreation – Low Density,
- Wildlife Management General,
- Vegetative Management, and
- Inactive and/or Future Recreation Areas.

This particular land is leased to the NC Division of Parks and Recreation, it is adjacent to 213 acres co owned by the City of Raleigh and Wake County. We believe this is the appropriate classification that best matches any future uses by Raleigh and Wake County, although such use is not fully determined at this time. The Baseline Alternative and State of NC Proposal maps shows this section of the west shoreline of the Beaverdam sub impoundment as Recreation. If this is the case, the “intensive recreation activities” in the USACOE definition of Recreation may not be the best consideration from our point of view. Could you please provide some clarity?

Response: Beaverdam SRA is shown with a current and future use of Recreation in this area and it contains both developed recreation facilities such as parking lots, swim beach, boat ramps and picnic shelters, and also less developed facilities such as mountain bike trails.

E.39 Town of Wake Forest Planning

Comment: Identify Horse Creek as an area of connection to Falls Lake.

Response: Horse Creek Peninsula is described in Section 7.2.21 of the Master Plan. The Land Classification and Recommended Future Use for the area; as well as the "Access", "Land Use Planning and Management", and "Recreation" Resource Objectives provide future opportunities for connections to be made between the surrounding communities and Falls Lake via Horse Creek Peninsula. Future developments at Horse Creek Peninsula would be initiated through the process outlined in Appendix G of the Master Plan.

Comment: Use Horse Creek peninsula area for canoeing, kayaking, and primitive camping.

Response: Horse Creek Peninsula is described in Section 7.2.21 of the Master Plan. The Land Classification and Recommended Future Use for the area provide opportunities for canoeing, kayaking, and primitive camping. As a Potential Future Recreation Area, the decision on what recreational opportunities will be offered at the site will be made when a potential management agency makes a proposal to USACE and North Carolina, through the process outlined in Appendix G of the Master Plan.

Comments Received from Agencies and Groups during the 2012 Scoping Period

E.40 City of Creedmoor Planning Department

Comment: City of Creedmoor Planning Department has completed a review of the USACE plan and finds it supportive of the City's adopted "City Plan 2030"

Response: Comment noted.

E.41 Durham County Manager

Comment: We recommend that the revised Master Plan address proposed connections between the Falls Lake lands and local trails and open space planning efforts. Durham County and the City of Durham and have both adopted the East Durham Open Space Plan (2007), the Little River Corridor Open Space Master Plan (2001), and the Urban Trails and Greenways Plan (2011). These plans support the development of several trails that link the surrounding Durham community to the Army Corps lands. The Panther Creek rail trail is listed as a priority of the east Durham Open Space Plan as a link for the east Durham community urban area with the Cardinal Point proposed recreation area. This rail- trail is not mentioned in the draft Falls Lake Master Plan, and we recommend that the draft be modified to acknowledge and support this recreational trail effort. The Trails and Greenways Master Plan also supports a North Ellerbe Creek Trail that connects to the Mountains to the Sea trail through the Army Corps lands. As Durham continues to grow, these trail networks will have increasing importance as valuable, safe, off-road links from the urban areas of Durham to the rural areas around Falls Lake.

Response: The master planning team met with representatives from Durham City-County Planning during an agency meeting in 2010, public open houses in January 2010, a planning session at the Durham City-County Planning office in January 2012, and another set of public open houses in November 2012. USACE also received formal comments from Durham City-County Planning regarding the master planning process. The Land Classifications, Recommended Future Uses, and Resource Objectives included in the Master Plan provide the policy framework for these proposed developments to move forward. Because the Master Plan is a policy document, USACE and North Carolina did not feel it was appropriate to include details related to proposed developments within the project. If and when these proposed trails are established, the Master Plan will be updated to document them with a similar level of detail as other existing facilities are described. USACE and North Carolina look forward to working with Durham to implement these plans.

Comment: Durham County supports the amount of land in the draft plan classified for future recreational use, but the master plan provides no policy guidance on how decisions will be made to approve these future uses. The issue is complicated by the leasehold arrangements between the Army Corps of Engineers with the State of North Carolina. When discussing adapting to regional growth for future recreational areas, the draft plan states on p. 41, "The specific details for new developments are beyond the scope of this Master Plan and will be addressed on a case-by-case basis as needs and/or opportunities arise." The Master Plan should include the process by which sponsoring agencies can approach the Army Corps or the lease holders with their proposed recreational projects, and set policy guidelines that addresses the needs of the surrounding communities in the review criteria.

Response: As stated in Section 7.1.4 of the Master Plan, clear lines of responsibility for review and approval of sublease applications have been defined in the Falls Lake Operational Management Plan and are included in Appendix G of this Master Plan. The Applicant Information Form also is included in this Appendix, providing potential applicants with some insight into the type of information that is required by the North Carolina and USACE when considering a sublease application.

Comment: The Master Plan does not address the requests of the equestrian community in Durham nor identify areas where potential equestrian trails might be located within the project area. Equestrian use is a traditional rural activity with a public demand roughly equivalent to hunting according to the State of North Carolina's most recent Outdoor Recreation Plan, yet the draft Master Plan does not address the needs of local equestrians. This appears to be a major oversight.

Response: As noted above, the Master Plan provides a programmatic approach to the management of all of the lands included within the Falls Lake boundary. The Master Plan is the basic guidance document outlining the responsibilities of USACE and North Carolina pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands and associated resources. Specific trail requirements are outside the scope of the Master Plan and is the subject of the Operational Management Plan (OMP). USACE and the State are aware of the desire for bridle paths and interested parties are welcome to work through a managing agency partner who is in agreement to allow them to build and maintain bridle paths on their managed areas.

E.42 Durham City-County Planning

Comment: The Army Corps of Engineers and its leaseholders should consider the needs of the variety of nature-based recreation groups within the lake's service area, such as mountain bikers, equestrians, canoeists, kayakers, and disc golf enthusiasts. These user groups should be considered stakeholders and ways found to accommodate their needs on project lands. Certain recreation uses such as disc golf and mountain biking were not

common recreation activities when the original Master Plan was drafted; as a result the Master Plan update should address these activities and explore suitable locations.

Response: The policy-based Master Plan provides a high level of flexibility for USACE and North Carolina to accommodate future recreational needs within the region. The Land Classifications and Recommended Future Uses highlight areas where certain activities could be accommodated and the Resource Objectives set a general policy framework through which future recreational needs could be met. The development of a facility to meet one of the needs referenced in the comment would need to be undertaken by one of the existing management agencies at Falls Lake or through a new sublease that would be initiated through the steps outlined in Appendix G of the Master Plan. Either action would require appropriate environmental analysis, as well as review and approval by North Carolina and USACE. USACE and North Carolina look forward to working with current and future management agencies at Falls Lake to find appropriate uses of project lands.

Comment: The Durham County Falls Lake lands include a large number of Interim Management lands presently leased to the N.C. Wildlife Resources Commission. These locations provide important potential future low-impact recreation areas for Durham residents, if leased to the City of Durham or Durham County.

Response: All of the lands referenced in the comment are leased to North Carolina by USACE and actively managed by the North Carolina Wildlife Resources Commission (NCWRC). Some small areas with the Durham County portion of Falls Lake that had been classified for interim NCWRC management in the 1981 Master Plan were reclassified in the 2012 Master Plan for long-term use as wildlife/game lands. Factors considered in this analysis included adjacent land use, increased shoreline erosion, and improved natural resource data. Overall, however, those areas in which Durham has previously indicated interest are available for sublease from North Carolina.

Representatives from USACE and North Carolina discussed these topics with members of the Durham City-County Planning office during the 2010 agency meeting, the 2010 public open houses, the 2012 public open houses, as well as a meeting held at the Durham City-County Planning Office in January 2012.

Comment: [T]he Army Corps and Consultants should engage in a dialogue with City and County officials regarding future lease opportunities. In this way, the City and County could become partners with the Army Corps of Engineers to assist in meeting local recreational needs without additional management burden on the Army Corps of Engineers.

Response: The master planning team met with representatives from Durham City-County Planning during an agency meeting in 2010, two public open houses in 2010, a planning session in January 2012, and another set of public open houses in November 2012.

USACE also received formal comments from Durham City-County Planning regarding the master planning process. USACE and the State of North Carolina believe that the plans the Durham City-County Planning office have in place have been taken into account in developing the Land Classifications and Recommended Future Uses included in the Master Plan. USACE and the State look forward to working with Durham, through the process outlined in Appendix G of the Master Plan, to see these plans become a reality.

Comment: Durham has a number of users groups such as the Ellerbe Creek Association, The Horse Council and the Friends of the Mountains to Sea Trail who have an interest in how these lands develop. These groups have commented on this draft update. We hope that you will consider their comments.

Response: All comments received from agencies, elected officials, and groups have been taken into consideration and are included in this appendix of the Master Plan. Representative comments received from the public also are included. Representative comments are selected to avoid repetition and to protect the privacy of individual commenters.

Comment: As the 1981 Falls Lake Master Plan predicts, the Triangle's population has grown substantially, and with it, increased demand for recreational resources and access to nature. Falls Lake is one of the largest recreational resources in the Triangle region so it is important for the Army Corps of Engineers, and its leaseholders, to continue its mission of providing diverse, high quality, and nature based recreational opportunities for citizens living within the 50 mile service area defined in the Master Plan.

Response: This Master Plan update provides USACE and North Carolina with a "living document" that will allow for the adaptive management of project resources as the region continues to grow.

Comment: Equestrian uses are an historic rural recreational activity. Equestrian users have voiced to Durham officials that they have been shut out of the Falls Lake lands with preference given to other user groups. The Master Plan update should address this recreation use and determine policies that could guide the potential development of equestrian trails. While poorly designed or located horse trails can have an impact on water quality, there is a growing body of knowledge on how to sustainably locate, design, construct and manage equestrian trails.

Response: As noted above, the Master Plan provides a programmatic approach to the management of all of the lands included within the Falls Lake boundary. The Master Plan is the basic guidance document outlining the responsibilities of USACE and North Carolina pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands and associated resources. Specific trail requirements are outside

the scope of the Master Plan and are more appropriately addressed in the Operational Management Plan (OMP). USACE and the State are aware of the desire for bridle paths and the NCHC is welcome to work through a managing agency partner who is in agreement to allow them to build and maintain bridle paths on their managed areas.

Comment: Some areas established as permanent game lands may be in areas that have become urbanized, or may be too small to provide high quality or safe hunting experiences. In some cases, Durham's adopted plans may recommend recreation use through areas that are designated as permanent game lands, such as the Panther Creek rail trail corridor. The Master Plan update provides an opportunity to analyze all the Falls Lake lands, and possibly switch some permanent game lands for interim lands in a way that both recreation and users and hunters benefit.

Response: USACE and North Carolina carefully reviewed the areas referenced in the comment when developing the Land Classifications and Recommended Future Uses. Removing "permanent" game lands from management of North Carolina Wildlife Resources Commission (NCWRC) would require changes to the lease between USACE and North Carolina. Such a task was deemed to be beyond the scope of the master planning process. It also was determined that removing lands from NCWRC management would negate agency's efforts over the last 30 years to develop the high quality, contiguous game lands that exist within and around Falls Lake. The analysis conducted as part of the master planning process did identify a few small tracts that had been classified as "interim" in the 1981 Master Plan which were determined to be not appropriate for future recreational development. Factors considered in this analysis included adjacent land use, increased shoreline erosion, and improved natural resource data. Overall, however, there are no measurable changes in the amount of project lands available for Durham to lease from North Carolina. Development of trails on NCWRC managed land would need to be coordinated with that agency, with review by USACE and North Carolina.

Comment: Durham County and City should be notified prior to any decision being made regarding Future Recreation Sites /Interim Game lands being converted to Permanent Game lands within Durham County.

Response: The Land Classifications and Recommended Future Uses included in this Master Plan define USACE and North Carolina's decision on "interim" and "permanent" game lands. Any future conversion of "interim" to "permanent" game lands would occur in the context of a Master Plan update, an update to the Falls Lake Operational Management Plan,. All of these actions would be accompanied by appropriate environmental review.

Comment: The City and County of Durham have adopted three open space master plans to guide decision making related to passive recreational opportunities, trails, and greenways within the Falls Lake vicinity. They are the Eastern Durham Open Space Plan (2007), the Little River Corridor Open Space Plan (2001), and the 2011 (updated) Trails and Greenways Master Plan.

Adopted plan objectives that include the Army Corps of Engineers lands in Durham County, are listed below. To ensure high quality recreational opportunities for Durham citizens, now and in the future, Durham County requests that the Army Corps of Engineers work with Durham County and the City of Durham, the North Carolina Wildlife Resources Commission, and North Carolina State Parks to facilitate working relationships and assist Durham County in achieving its stated recreational objectives where Army Corps of Engineers land is involved.

The following plan objectives involve Falls Lake lands for successful implementation.

East Durham Open Space Plan objectives requiring access to Falls Lake lands:
(Trails and greenways are cross referenced with the Trails and Greenways Master Plan)

- Potential lease and development of Cardinal Point / Redwood Point Park
- Potential lease and development of Wahadkee Point Park
- Development of canoe and kayak facilities in leased park sites
- Trail access to Falls Lake lands from private developments where appropriate
- Development of greenway and rail trails including Lick Creek Trail, Little Lick Creek Trail, Laurel Creek Trail, Chunky Pipe Trail, Martin Branch Creek Trail, and the Panther Creek Rail-Trail. The Lick Creek Trail is identified as a priority trail in the 2005 Center of the Region Enterprise Pedestrian-Bicycle-Green Space Plan, as it would serve as a direct connection to Research Triangle Park.
- The Mountains to Sea Trail is an integral part of this plan and adequate consideration should be given for available campsites including integration and access to the trail as identified in Durham's 2011 adopted Trails and Greenways Master Plan.

Little River Corridor Open Space Plan objectives requiring access to Falls Lake lands:

- The Little River Plan (pg. 75) and the Trails and Greenways Plan identify the Durham to Roxboro abandoned rail line owned by Norfolk Southern as a future rail trail corridor. The Army Corps of Engineers should work with the City and County of Durham to implement the Roxboro Rail Trail should the rail line become available for purchase. This project is identified as high priority in the plan.
- The Little River Plan (pg. 64) identifies a potential canoe put-in / take out location at the Old Oxford / Little River location. The Master Plan update should take this into consideration as a future recreational amenity.

Response: USACE and North Carolina have invited staff from Durham City-County Planning to several agency and public meetings during the master planning process. In addition, on January 18, 2012, staff from USACE and the State traveled to Durham City-

County Planning offices to meet with staff and discuss initial options for Land Classifications and Recommended Future Uses of project lands, as well as other goals of the master planning process. Based on input obtained from these meetings, USACE and North Carolina have assigned Cardinal Point and Wehadkee Point Recommended Future Uses of Recreation, allowing for the type of development recommended in the County's plans. Because these two sites are leased to North Carolina, Durham County would need to coordinate with the State to advance its plans, following the process outlined in Appendix G of this Master Plan. Development of trail connections on Falls Lake project lands would need to be coordinated with the respective management agency and/or with North Carolina through the process outlined in Appendix G. USACE would be a participant in this process, reviewing plans and ensuring the appropriate environmental analysis was complete.

Comment: The protection of the State of North Carolina Dedicated and Registered Natural Heritage Areas at Falls Lake should be a high priority. Management criteria should be developed for these sites and include objectives to enhance and promote their natural value per the Memorandum. Logging and other active land management activities should be prohibited within the Registered Areas unless it can be shown to improve the overall site conditions for which the site was registered. In addition, there are additional locations within the Falls Lake lands that are described as Significant Natural Heritage Areas, either at the County or State level, by the NC Natural Heritage Program. Preference should be given to preservation of Significant Natural Heritage Areas for their habitat benefits, with recreation, hunting, and active forestry management only where compatible and non-impacting. These areas should be considered for registration and dedication as well.

Response: The master planning process provided USACE and North Carolina with an opportunity to develop a Geographic Information Systems (GIS) geodatabase to graphically display and analyze data. This includes the location of Dedicated and Registered Natural Heritage Areas within and adjacent to the project. In order to protect these resources, USACE and North Carolina elected to not display or describe the specific locations of these resources in the Master Plan. This data, however, is available for future planning and decision-making. USACE and North Carolina remain committed to ensuring that these resources are protected.

Comment: The State's Natural Heritage Program has identified natural communities for the State of North Carolina, including several that are becoming less common in the piedmont. The Falls Lake lands provide an excellent opportunity to foster the natural development of high quality examples of these natural communities, and appropriate areas should be managed towards this goal.

Response: As noted in the response above, the Geographic Information Systems (GIS) geodatabase that was developed as part of the master planning project will provide USACE and North Carolina decision-makers with valuable data related to the presence

and location of these species within the project. The Resource Objectives included in the Master Plan commit USACE, North Carolina, and the other management partners to protecting these resources.

Comment: Element occurrences of rare, threatened, or endangered (RTE) species and natural communities should be given special consideration, including consultation with the Natural Heritage Program, during the planning of habitat altering activities such as logging and prescribed burning, or the development of habitat for game species. Management goals for areas with RTE species should be developed in conjunction with the Natural Heritage Program for the long term care of these species. Logging and other land disturbing activities should only be implemented if it can be agreed that the RTE species will not be adversely impacted, or will benefit.

Response: The locations of known natural heritage sites and rare, threatened, and endangered species are compared to forest management areas prior to being carried out. If any land use activity has the potential to impact those locations, Natural Heritage Program is consulted and those activities are altered to eliminate or mitigate negative impacts. Management plans for registered natural areas have been developed in coordination with NC Natural Heritage Program.

Comment: Non-native invasive plant species should not be planted inside the Falls Lake Project Area for bank stabilization, wildlife food sources, or for other any other reason. Nonnative invasive plant species out compete our native vegetation causing known undesirable effects and harming our native environment. As is feasible, existing populations of nonnative plant species in the project area should be eradicated. In particular, efforts should be made to monitor and eradicate populations of garlic mustard before this new invasive species has had a chance to take a foothold.

Response: USACE and North Carolina share your agency's concern over the spread of invasive species. Section 3.2 of the Master Plan notes the increasing spread of invasive species throughout the region. By updating the Falls Lake Master Plan, USACE and North Carolina have established the policy framework through which the Operational Management Plan and individual natural resource management plans can be revised to better address invasive species at Falls Lake.

Comment: Nongame species management in the Falls Lake Project area should be given the same priority as game species management. An inventory of nongame animal species should be conducted followed by management recommendations for protecting common non-game species and nongame species assemblages.

Response: Land managing agencies manage for both game and non-game species. However, specific management plans are outside the scope of the Master Plan. The Master Plan provides a programmatic approach to the management of all of the lands

included within the Falls Lake boundary. The Master Plan is the basic guidance document outlining the responsibilities of USACE and North Carolina pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands and associated resources. Enhancing and protecting fish and wildlife resources within project lands is a congressionally authorized project purpose at Falls Lake. Management of fish and wildlife resources is focused on the protection of native species and the promotion of game species to support recreational fishing and hunting.

Comment: Residential development has occurred throughout the entire Falls Lake Project Area as was projected in the original Master Plan. In some areas, residential development is now adjacent to game lands, which may lead to safety issues between private landowners and hunters on Army Corps of Engineers land. Where private residences are adjacent to Game Lands, the N.C. Wildlife Resource Commission should work to develop a policy for implementing safe hunting buffers provided internal to the Army Corps of Engineers lands. If internal hunting buffers are not desired, then the Army Corps of Engineers and Wildlife Resources Commission should acquire buffer land, either as fee simple or through easement, to minimize future conflicts.

Response: Hunting within Falls Lake is governed by rules enforced by the North Carolina Wildlife Resources Commission. These rules state that it is unlawful to discharge any weapon within 150 yards of any residence (located on or adjacent to game lands), game lands building or game lands camping area (unless otherwise posted). The 150 yard provision of this rule does not apply to the use of archery equipment on Butner-Falls of Neuse game lands. USACE, North Carolina, and the other management partners are committed to abiding by and enforcing these State regulations at Falls Lake.

Comment: There are 235 historic and prehistoric sites and structures indicated on the original Falls Lake Master Plan that have been positively documented on Falls Lake project lands. In addition, there are fragments of known historic landscapes and areas where cultural sites are predicted to exist with moderate to high probability. The Master Plan should provide greater specificity in management of these lands, including that no soil disturbing activity should occur in known or predicted areas of high to moderate cultural sensitivity such as historic roadways, paths, stream crossings, and structural sites. Furthermore, the Army Corps of Engineers and NC Wildlife Resources Commission should solicit recommendations from the NC Office of State Archaeology, local historians, and local governments to find appropriate ways of protecting sites of high or medium sensitivity up to and including registry in the National Register of Historic Places.

Response: Greater specificity for management of historic properties is contained within the Falls Lake Operational Management Plan and Historic Properties Management Plan. USACE consults with the State Historic Preservation Office, Federally recognized tribes, and interested parties concerning management of historic properties pursuant to Sections

106 and 110 of the National Historic Preservation Act and other applicable laws, regulations, and USACE policy.

E.43 Durham Open Space Committee

Comment: The proposed Falls Lake Master Plan presented by the ACE for comment in November of 2012 includes the DOST commission input regarding Cardinal Point, but lacks the remaining elements from the adopted Durham plans, of considerable importance, notably:

- The Mountains to Sea Trail, which was in the 1981 Falls Lake plan, is already constructed, and is a critical trail to which other planned trails must connect on ACE lands.
- Panther Creek Rail Trail
- Ellerbe Creek Trail
- Fish Dam Road and other archeological features from the Eastern Durham Open Space Plan
- The need for equestrian use areas, including on several noted trails. Further essential elements contained in the attached documentation

Response: The master planning team met with representatives from Durham City-County Planning during an agency meeting in 2010, two public open houses in 2010, a planning session in January 2012, and another set of public open houses in November 2012. USACE also received formal comments from Durham City-County Planning regarding the master planning process and its relationship to the plans referenced in the comment. During these meetings, it was noted that unlike the 1981 Master Plan, this Master Plan is not a construction document. Therefore, USACE and North Carolina did not include plans to develop trails, facilities, or new parks in the Master Plan. When a planning process has progressed to the point where the proposed facility will be constructed in the foreseeable future, the Master Plan will be updated to accurately document the new facility. In the meantime, USACE and North Carolina look forward to working with Durham, through the process outlined in Appendix G of the Master Plan, to implement these elements of the DOST Committee's plans.

Comment: The Open Space Committee requests the ACE revisit the DOST Commission's prior resolution and accompanying documentation and work collaboratively with Durham City/County to incorporate the elements of Durham City/County Plans into the Falls Lake Master Plan.

Response: The master planning team met with representatives from Durham City-County Planning during an agency meeting in 2010, two public open houses in 2010, a planning session in January 2012, and another set of public open houses in November 2012. USACE also received formal comments from Durham City-County Planning regarding the master planning process and its relationship to the plans referenced in the comment. During these meetings, it was noted that unlike the 1981 Master Plan, this Master Plan is

not a construction document. Therefore, USACE and North Carolina did not include plans to develop trails, facilities, or new parks in the Master Plan. When a planning process has progressed to the point where the proposed facility will be constructed in the foreseeable future, the Master Plan will be updated to accurately document the new facility. In the meantime, USACE and North Carolina look forward to working with Durham, through the process outlined in Appendix G of the Master Plan, to implement these elements of the DOST Committee's plans.

E.44 Ellerbee Creek Watershed Association

Comment: The USACE did not address any of our specific concerns about the Ellerbee Creek arm of the Falls Lake lands.

Response: Responses to comments received from the Ellerbee Creek Watershed Association during the first phase of the master planning process can be found in Section E.X of this appendix.

Comment: The USACE failed to alert us of upcoming meetings and deadlines (which we only heard about days before the public open house by chance).

Response: A Public Notice announcing the availability of the draft Master Plan, the 30 day review period, and two public open houses was published in the Wake Forest Weekly and Butner-Creedmoor News newspapers on November 1, 2012 and the Durham Herald Sun and Raleigh News and Observer newspapers on November 2, 2012. Similar notifications also were posted on the USACE web site. In addition, letters were mailed to agencies and elected officials with a purview over the lands or resources that surround or lie within the Falls Lake project boundary. This level of notification is considered standard protocol for USACE planning projects.

Comment: We strongly stress the need for the Falls Lake Management Plan to address planned multiple-use trails within the Ellerbee Creek corridor, specifically the North Ellerbee Creek Trail and the Mountains to Sea Trail.

Response: The Land Classifications, Recommended Future Uses, and Resource Objectives included in the Master Plan provide the policy framework for these proposed developments to move forward. Because the Master Plan is a policy document, it was not appropriate to include details related to proposed developments within the project. If and when these proposed trails are established, the Master Plan will be updated to document them with a similar level of detail as other existing facilities are described. USACE and North Carolina look forward to working with the Ellerbee Creek Watershed Association to implement these plans.

Comment: We strongly stress the need for the Falls Lake Management Plan to address consideration and management of exotic and invasive plant species, including garlic mustard, *Alliaria petiolata*.

Response: USACE and the State of North Carolina share your group's concern over the spread of invasive species. Section 3.2 of the Master Plan notes the increasing spread of invasive species throughout the region. By updating the Falls Lake Master Plan, USACE and North Carolina have established the policy framework through which the Operational Management Plan (OMP) and individual natural resource management plans can be revised to better address invasive species at Falls Lake. Until these plans are revised, the existing OMP and resource management plans will serve as guidance on addressing invasive species within the Falls Lake boundary.

Comment: We strongly stress the need for the Falls Lake Management Plan to address potential for increased recreational use of Corps land within the Ellerbe Creek watershed, recognizing the continued need to manage deer populations.

Response: The Land Classifications and Recommended Future Uses included in the Master Plan identify those areas within the project that may be developed in the future to support recreational facilities. The Resource Objectives provide a general policy framework through which such development may occur; however, future development also would be analyzed to assess the impact of the specific proposal on the surrounding resources. By updating the Falls Lake Master Plan, USACE and North Carolina have established the policy framework through which the Operational Management Plan (OMP) and individual natural resource management plans can be revised to better address the deer population at Falls Lake. Until these plans are revised, the existing OMP and resource management plans will serve as guidance on addressing deer and other wildlife species within the Falls Lake boundary.

Comment: We strongly stress the need for the Falls Lake Management Plan to address potential for Fish Dam Road and other significant archaeological features.

Response: Greater specificity for management of historic properties is contained within the Falls Lake Operational Management Plan and Historic Properties Management Plan. USACE consults with the State Historic Preservation Office, Federally recognized tribes, and interested parties concerning management of historic properties pursuant to Sections 106 and 110 of the National Historic Preservation Act and other applicable laws, regulations, and USACE policy.

E.45 Falls Whitewater Park Committee, Inc.

Comment: The current draft of the master plan has largely underemphasized the great deal of work and accompanying public interest in the Falls Whitewater Park planning that

has occurred since the last publication of the plan. The Falls Whitewater Park Committee (FWWPC), Inc. in cooperation with the City of Raleigh Parks and Recreation Dept. has conducted extensive planning, hydrologic studies and landscaping design related to this project which is intricately linked with the Falls Lake management area. These plans have been presented before and approved by the Raleigh City Council through a series of public hearings by the Council. The Falls Whitewater Committee, Inc. has entered a fundraising phase in its own process and has developed and submitted an economics benefit analysis that demonstrates significant potential public benefit of the park facility. (More info at www.fallswhitewaterpark.org).

Response: The text of the Master Plan has been edited to include the Neuse River Greenway and Canoe Launch. This edit will replace the existing text for the Tailrace Access Area (formerly Section 7.3.13 and now Section 7.3.14. The revised text includes discussion a whitewater park in Greenway/Canoe Launch area.

Comment: The Falls Whitewater Park Committee would like to add, as comment to current operational water release strategies of the Falls Dam, that we hope that further consideration can be made to release schedules and events that would greatly enhance recreational whitewater paddling recreational and educational opportunities, particularly in the context of the planned City of Raleigh whitewater park upon which those releases will be completely dependent. The Committee would appreciate consideration of release schedules that would maximize the days per year that useful flows would be achieved, enabling a valuable economic and recreational opportunity for the area.

Response: Falls Lake water releases are managed according to our Water Control Plan and are made only for Flood Risk Management and downstream water quality. Recreational releases are not congressionally authorized at Falls Lake; however, under normal operations there are releases that are beneficial to downstream paddlers.

Comment: We also believe that existing uses of the tail race and downstream areas by private paddlers and commercial users are under-represented by the plan. The tail race area is currently used year-round by whitewater paddlers when dam releases approach or exceed 1,000 cfs. The Corps of Engineers has been very cooperative in the past in working with and accommodating this use and we encourage future recognition and accommodation of this use and users.

Relying on consistent minimum water release from the dam, a Wake Forest outfitter, Paddle Creek, operates a canoe and kayak livery service from the City canoe launch area downstream of the dam and the section of the Neuse River down to near Milburnie dam. Paddle Creek estimates serving between 4,000 and 5,000 people per year using this resource.

Response: USACE and the North Carolina recognize the commercial and recreational uses of the Neuse River downstream of the dam.

E.46 Friends of the Mountains-to-Sea Trail

Comment: Work with the land managing agencies and FMST to establish primitive camp sites at intervals of 12 to 15 miles.

Response: The policy-based Master Plan provides a high level of flexibility for USACE and North Carolina to accommodate future recreational needs within the region. The Land Classifications and Recommended Future Uses highlight areas where certain activities could be accommodated and the Resource Objectives set a general policy framework through which future recreational needs could be met. The development of a facility to meet one of the needs referenced in the comment would need to be undertaken by an existing management agency at Falls Lake or by a new partner through a sublease initiated through a new sublease that would be initiated through the steps outlined in Appendix G of the Master Plan. Either action would require review and approval by North Carolina and USACE including an environmental compliance review.

Comment: Encourage NCDOT to design new and repaired bridge crossings to increase safety for pedestrian

Response: Friends of the Mountains-to-Sea Trail have been included in meetings between USACE, North Carolina, and the North Carolina Department of Transportation (DOT) to discuss the narrow bridges that cross several creeks at Falls Lake. DOT has guidelines and priorities, including those at Falls Lake, which are outside the scope of the Master Plan and USACE management.

Comment: Encourage the conversion of the trestle bridge over the Eno River near Penny's Bend on the inactive Norfolk Southern railroad line into a pedestrian bridge for the Mountains-to-Sea Trail at Falls Lake.

Response: USACE and North Carolina would welcome and gladly participate in such discussions.

Comment: Maintain the scenic beauty of the trail by discouraging land disturbing activities within the viewshed

Response: Response: Specific natural resources management policies are outside the scope of the Master Plan; however USACE and the State recognize the complexity of managing multi-use lands, for instance maintaining a hiking trail on lands that are actively managed. Timber harvesting and prescribed fire are valuable forest management tools that maintain and improve forest health and wildlife habitat. Impacts (both positive and adverse impacts) to the viewshed occur on actively managed lands due mostly to these forest management practices. Most of what many consider the adverse impacts are temporary and serve to create a healthier forest in the future. Land managing

agencies have adjusted their management practices to minimize and/or repair damage sustained to the trail during forest management activities but this does not mean that temporary impacts do not occur. The land managing agencies recognize and appreciate the value of the MST and the volunteer hours it takes to build and maintain trails; and look forward to continuing to work with the FMST.

Comment: Retain the trail for pedestrian use only.

Response: Specific MST requirements are outside the scope of the Master Plan. The Master Plan provides a programmatic approach to the management of all of the lands included within the Falls Lake boundary. The Master Plan is the basic guidance document outlining the responsibilities of USACE and North Carolina pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands and associated resources. Greater specificity for management of specific features and lands is the subject of the Operational Management Plan (OMP). The Falls Lake Trail is currently designated as hiking-only and there is no proposed change to this designation.

Comment: Continue to support FMST's efforts to promote the trail with appropriate signs, blazes and educational materials in kiosks, the visitor's center and events at Falls Lake.

Response: USACE and North Carolina recognize and are thankful for the FMST volunteers who have planned, built, and maintained the NCMST at Falls Lake. We currently have agreements in place with FMST to demonstrate our continued support of the trail and work together on mutually beneficial projects.

Comment: Provide lumber and other materials needed by volunteers for routine repair of existing bridges, kiosks and boardwalk(s).

Response: Funding and supplies for operations and maintenance are outside the scope of the Master Plan.

E.47 National Oceanic and Atmospheric Administration

Comment: When it deems feasible, the Wilmington District has worked with the North Carolina Wildlife Resources Commission and U.S. Fish and Wildlife Service to provide downstream flow releases during spring months in order to benefit spawning runs of anadromous fishes. These water releases support anadromous fishes and their habitats, and NMFS requests these releases be given a high priority during development of the Falls Lake Operational Management Plan. The importance of these releases will become even greater should efforts to remove the Milburnie Dam move forward. Removal of this

dam would restore 15 miles of the Neuse River to free-flowing status and allow American shad, hickory shad, and striped bass access to the remaining historical spawning grounds below Falls of the Neuse Dam. In addition to benefiting anadromous fishes, removal of the Milburnie Dam would benefit the resident migratory species, such as gizzard shad and several species of redhorse.

Response: USACE and North Carolina remain committed to working with the U.S. Fish and Wildlife Service and other agencies in meeting the Water Quality and Fish and Wildlife Enhancement purposes at Falls Lake (Section 1.3.3 of the Master Plan). Wilmington District Water Management staff will continue to use its discretion to manage spring flood releases to benefit spawning runs of anadromous fishes to the extent practicable.

E.48 North Carolina Department of Cultural Resources State Historic Preservation Office

Comment: As noted in the draft master plan, there are 1,128 recorded archaeological sites within the Falls Lake boundary, thirty-four of which have been determined eligible for inclusion in the National Register of Historic Places. The policy approach to managing the land and the seven environmental operating principles discussed in the documents are a good basis for sound management of the natural and cultural resources present within the project boundary. After review of the Programmatic Environmental Assessment (PEA) we concur that a Finding of No Significant Impact (FONSI) is appropriate for the Master Plan. We look forward to future consultation with the USACE Wilmington District archaeologist on specific projects, as most of the areas identified as future recreation areas contain previously recorded archaeological sites.

Response: USACE and the North Carolina management partners look forward to further consultation with your office as the policies prescribed in the Master Plan are implemented at Falls Lake.

Comment: The preliminary master plan correctly states that the following properties listed in the National Register of Historic Places-Rock Cliff Farm, the James Mangum House, Fairintosh Plantation, and Falls of the Neuse Manufacturing Company-are located, in whole or in part, within the Falls Lake boundary. We also note that the Bennahan-Cameron Historic District and Truss Bridge 28 (on a previous alignment of Old Oxford Road, located just west of the intersection with Cassam Road) have each been determined eligible for listing in the National Register.

Response: Comment noted.

Comment: Please keep in mind, additional historic properties outside of the Falls Lake boundary may be within the Area of Potential Effect for federal undertakings; any effects

on such properties must be taken into account in accordance with Section 106 of the National Historic Preservation Act. For up-to-date locations of historic properties, please see our GIS website: <http://gis.ncdcr.gov/hpoweb/>.

Response: Comment Noted. We understand under Section 106 of the National Historic Preservation Act, that the Federal Agency involved in the undertaking shall determine the Area of Potential Effects as defined in 800.16(d). This determination may not be limited to the project boundaries.

E.49 North Carolina Division of Water Quality

Comment: Several areas of the document incorrectly state that the most current 303(d) list was completed in 2010. The most recent 303(d) listing of impaired waters was completed in August 2012 and can be found at: http://portal.ncdenr.org/c/document_library/get_file?uuid=41297d6f-4ab1-4225-b218-ec507aa2435a&groupId=38364. Falls Lake is not on the current 303(d) list for chlorophyll a. While it is still listed as impaired, it is now listed in category 4b on the 305(b) list and not the 303(d) list. Please update the Master Plan accordingly.

Response: The Final Master Plan has been updated to include the most recent data.

Comment: The Corps should incorporate additional information concerning the protection of water quality of Falls Lake since it and its tributaries carry primary surface water classifications of Water Supply "WS-". As such, the Falls Lake watershed is subject to certain land use and land development restrictions per the Water Supply Watershed Protection Act (N.C. General Statute 143-214.5). All local governments that have land use jurisdiction within a water supply watershed must adopt and implement watershed protection ordinances per N.C.G.S. 143-214.5 and Rules 15A NCAC 02B .0100 and .0200. State and federal development projects within the water supply watershed must also comply with these Rules.

Response: Appendix I updated to reflect USACE and North Carolina's commitment to these regulations.

Comment: DWQ recommends that the Corps expand its discussion on Best Management Practices in regards to existing and new development in the watershed.

Response: The policy-based nature of the Master Plan does not lend itself to discussion of specific Best Management Practices (BMPs) in regards to existing and new development. The Water Quality Resource Objectives included in Section 6.0 of the Master Plan commit USACE, North Carolina, and the other management partners to complying with all regulations referenced in the previous comment and implementing appropriate BMPs at facilities within Falls Lake. The specific details of future BMPs will be included in site specific design plans will be provided to appropriate regulatory agencies for review and comment.

E.50 North Carolina Natural Heritage Program

Comment: The Natural Heritage Program supports the proposed revisions to the Master Plan, in particular the continued support for the protection of rare species, exemplary natural communities, and sensitive natural areas. The Program has previously worked with the Corps of Engineers to identify these elements of conservation concern located on the Falls Lake Project lands and would be glad to participate in updating this information, including assisting with conducting new surveys. As mentioned in the document (p. 18), the last survey of special status species or habitats on project lands was conducted in 1986. With all the changes occurring within the adjoining lands, as well as habitat improvements within the Project lands themselves, there is a significant possibility that some elements may have been lost but others gained.

Response: Available data on elements of conservation concern were taken into account while establishing the Land Classifications and Recommended Future Uses included in the Master Plan. This data has been incorporated into the Master Plan Geographic Information System (GIS) geodatabase to inform future decision-making at the project. The specific locations of sensitive resources; however, were withheld from the Master Plan to protect elements of conservation concern at Falls Lake. USACE and North Carolina look forward to continuing to work with the Natural Heritage Program to revise this data and maintain an accurate database of resources within the project.

Comment: In this context, we strongly support the goal stated in the Plan (p. ES-2) that coordination with other agencies and the public should be an integral part of the master planning process and that an interdisciplinary team approach should be taken in the development, reevaluation, and supplementation or updating of Master Plans. We would be glad to participate in this process in any way we can.

Response: As part of the master planning process, USACE and North Carolina held two public open houses in January 2010; a meeting with local, state, and federal agencies in January 2010; a series of meetings with local planning departments in December 2011 and January 2012; and two more public open houses in November 2012. Each of these events included a 30-day comment period to solicit additional input from the public and/or agency representatives. The master planning team consisted of staff from USACE Falls Lake, USACE Wilmington District office; the North Carolina Division of Water Resources, the North Carolina Division of Parks and Recreation, and the North Carolina Wildlife Resources Commission. The members of the team brought a wide array of technical and professional experience to the master planning process. USACE and North Carolina look forward to continuing to work with the Natural Heritage Program to maintain an up-to-date Master Plan and natural resource data to allow for informed decision-making at the project.

Comment: We agree strongly with the need expressed in the plan for management of the project to adapt to regional growth (Section 3.1). Much of the adjoining lands has already been developed and there is ever increasing pressure to continue that trend. Within this region, the Falls Lake Project lands contain some of the last remaining large blocks of wildlife habitat. These blocks not only serve to protect wildlife populations within the Project lands themselves, but also provide connections between wildlife populations over a much greater area. One aspect of conservation we think should receive greater emphasis in the Plan is the role the Project lands play in connecting otherwise widely separated and potentially isolated populations of native species and ecosystems (the Corps' interest in maintaining contiguous blocks of wildlife habitat was briefly mentioned on p. 59). This is a role played not only by areas set aside specifically for wildlife management or as natural areas, but the entirety of the Project lands. The Corps of Engineers can help maintain landscape connectivity by reviewing all proposed uses of Project lands for consistency with this function and also by cooperating with local governments, adjoining land owners, and conservation groups to view all connected wildlife areas as an integrated system.

Response: The Land Classifications, Recommended Future Uses, and Resource Objectives presented in this Master Plan will provide USACE, North Carolina, and the other management partners with a tool for managing natural resources within Falls Lake. USACE and North Carolina are able to directly influence these resources within project boundaries; however, we are willing to cooperatively work with others to maintain landscape connectivity.

E.51 North Carolina Wildlife Resources Commission

Comment: Section 2.4, Sedimentation (p. 13): It states "The availability of storage in the sediment pool within the reservoir has led to discussions between North Carolina and USACE about the possible use of water in the sediment storage pool for temporary, emergency water supply in the event that the water supply storage in the reservoir is depleted." It should be noted that during severe droughts the water in the sediment pool would be the only habitat for aquatic life in the lake.

Response: Comment noted. During the recent exceptional drought events (2007/2008), Falls Lake was managed by the Corps, guided by consultation with interested parties such as Raleigh, downstream water users, and resource agencies. The releases from Falls Dam were reviewed and adjusted as needed. The Division of Water Quality assisted in making these decisions by doing more intensive water quality monitoring. This strategy benefited both in-reservoir water users and downstream water users and environmental interests by conserving water in Falls Lake and greatly reducing the risk of running out. The State of North Carolina and the USACE will continue this general strategy, supported by frequent stakeholder consultation. The Falls Lake Drought Contingency Plan was subsequently updated in mid-2008 to provide for increased operational flexibility during droughts, such as reductions in minimum releases from the dam and downstream water quality flow targets. During these severe drought times, water users

from the reservoir area and those downstream will be expected to mandate very strict water use restrictions.

Under the current Falls Lake Drought Contingency Plan, the Corps may implement temporary emergency reallocation of the sediment pool storage in response to a potential depletion of the conservation pool. The Wilmington District is currently pursuing USACE Headquarters approval of a temporary emergency sediment pool storage agreement that could be activated in the event of total depletion of the water supply or water quality pool. Under this agreement, the State of North Carolina would be allowed to contract for use of any water remaining in the sediment pool storage for water supply purposes, and it would be the responsibility of the State of North Carolina to determine the equitable distribution of that available water.

Comment: Section 2.22.2, North Carolina Wildlife Resources Commission (p. 32): It states "The subimpoundments were constructed as part of a mitigation agreement .. when the Neuse River floodplain was flooded to create the reservoir." It should be noted that we are concerned about future water supply in the reservoir and how it may affect pumping and flooding of impoundments located alongside the Flat River and Knapp of Reeds Creek. Alternate sources of water may be needed in the future to fulfill the mitigation agreement that provides for replacement of lost wetland habitat and hunting opportunities.

Response: USACE will continue to work with North Carolina to ensure that the mitigation agreement requirements are properly met.

Comment: Section 7.1, Future Recreational Development (p. 57): Hiking and biking trails may reach or exceed their carrying capacity in the future or adversely impact species, habitats, and other user groups. We recommend that before additional trails are constructed, a process should be developed to evaluate the effect increased trails would have on natural resources and other users of the project.

Response: USACE and North Carolina received a large number of comments regarding trail improvements or expansion during the master planning process. In order to begin to address this need, USACE and North Carolina will seek to formalize a process to assess trail carrying capacity in upcoming revisions to the Falls Lake Operational Management Plan. The impact of future trail development also will be assessed to address the impact a proposed trail may have on the surrounding resources.

The policy-based Master Plan provides a high level of flexibility for U.S. Army Corps of Engineers (USACE) and the State of North Carolina (North Carolina) to accommodate future recreational needs within the region. The Land Classifications and Recommended Future Uses highlight areas where certain activities could be accommodated and the Resource Objectives set a general policy framework through which future recreational needs could be met. The development of a facility to meet one of the needs referenced in

the comment would need to be undertaken by an existing management agency at Falls Lake or by a new partner through a sublease initiated through a new sublease that would be initiated through the steps outlined in Appendix G of the Master Plan. Either action would require review and approval by North Carolina and USACE including an environmental compliance review.

Comment: Section 7.1.5, Carrying Capacity (p. 59): It reads "Providing for diverse visitor preferences and needs depends on three factors: ... "Three" should be changed to "four".

Response: Text modified accordingly.

Comment: Section 11.3, References (p. 118): Please change "Hall, Harlen" to "Hall, Harlan".

Response: Text modified accordingly.

E.52 Triangle Greenways Council

Comment: When the Falls Lake project was authorized, land acquired, and lake constructed the "Triangle Region" was more concept and marketing slogan than a reality. The initial Master Plan reflects the much more town and rural character that existed at that time. Its policies and facility proposals anticipated the future, but the reality was that the region was not ready for rapid paced implementation. Today the southside of the COE project adjoins municipal jurisdiction, and the northside is following the trend. This thirty year evolution creates the need for a review and updating of existing policies subject to Master Plan update.

Response: The 2013 Master Plan is a "living document" that will allow USACE, North Carolina, and the other management partners to adapt their management of the project to the changing conditions and needs of the growing community. This adaptive management strategy will be accomplished in the context of the project purposes, as well as the Land Classifications, Recommended Future Uses, and Resource Objectives included in this Master Plan.

Comment: Falls Lake's location has transitioned from predominantly rural to increasingly suburban and urbanizing. This will create expectations, proposals, and pressures, which challenge the status quo.

Response: Chapter 2 of the Master Plan documents the changes that have occurred in the region since the 1981 Master Plan was published. The Land Classifications, Recommended Future Uses, and Resource Objectives USACE and North Carolina

established for the project provide direction for managing the resources at Falls Lake under these conditions.

Comment: Originally, COE lands reflected the surrounding rural character, but does that mean that they should transition to suburban/urban character public uses over time? As the region continues to urbanize, large areas of conserved natural landscape with resource-based public uses will become an increasingly scarce commodity. Its uniqueness alone will justify its protection, while the "natures services" and ecosystem functions provided should guarantee protection.

Response: The 2013 Master Plan documents the continued commitment by USACE and North Carolina to protect undeveloped open space and natural landscapes. In total, an estimated 15,400 acres have been classified as lands that support low-intensity activities and are not suitable for park sites or other intensive development. The 2013 Master Plan also reaffirms USACE and North Carolina's commitment to identify other local or State agencies to develop potential Future Recreation Areas described in Section 7.2 of the Master Plan. In doing so, USACE and North Carolina will continue to strive to maintain a balance between undisturbed and developed project lands to support the needs of the growing region.

Comment: While all policy needs cannot be predetermined, neither should they be ignored. They should at least be acknowledged in scope and implication.

Response: This policy-based Master Plan provides USACE and North Carolina with Land Classifications, Recommended Future Uses, Resource Objectives, and a geodatabase to assist in managing Falls Lake in an evolving environment. The attached Programmatic Environmental Assessment (PEA) provides a general analysis of the implications adopting the Master Plan will have on the physical, natural, cultural, and social resources within and surrounding Falls Lake.

Comment: The challenge over the next three decades is how the Falls Lake project and its facilities can best fit into the region, as it exists today and continues to be surrounded by urbanization, without compromising the primary purposes and function of the project as defined and controlled by Federal statutes.

Response: As discussed in Section 1.3 of the Master Plan, Falls Lake has five primary purposes. While meeting these different purposes requires delicate decision-making, USACE and North Carolina will continue to ensure no actions taken to meet one purpose permanently impair the ability to meet another.

Comment: The potential for a continuous and interconnected regional greenways network is a reality, but there is no single local government entity to represent the

concept. However, given the 60+/- miles of Project Level trail at Falls Lake, the COE clearly holds the keys to the future reality of a regional green ways network.

Response: USACE and North Carolina appreciate the local community's desire to expand trail opportunities on project lands and connections to other regional trails. The Land Classifications, Recommended Future Uses, and Resource Objectives included in this Master Plan establish policies and goals to allow for these developments to occur. Because USACE only actively manages a small portion of the project, most of these developments would fall on lands leased to North Carolina and actively managed by the North Carolina Division of Parks and Recreation, the North Carolina Wildlife Resources Commission (NCWRC), or other management partners. Specific plans to extend trails on project lands would require coordination with the respective management agency, appropriate environmental analysis, and review and approval by North Carolina and USACE. The development of new trails by a new lessee also would require adherence to the process outlined in Appendix G of the Master Plan. NCWRC has recommended that a process be developed to evaluate the effect increased trails would have on natural resources and other uses of the project prior to future trail development at Falls Lake. Such an analysis could be required before North Carolina and USACE approve of future trail development.

Comment: Falls Lake is increasingly becoming interconnected into the public infrastructure of surrounding local governments. This will necessitate decisions about whether, when, and how the systems/facilities will be integrated throughout the COE project. Before the next Master Plan is approved, the [Mountains-to-Sea Trail, East Coast Greenway, and Southeast High Speed Rail Corridor Trail] will have several decades to mature. Over that period the COE will have opportunities to embrace and advance the region's growing infrastructure in support of an increasingly urban population. The outstanding questions are what will the policies be and how will they evolve? For example: will the COE entertain piecemeal requests from individual local governments to interconnect their jurisdiction's greenway system trails, or will the COE require a regional request that insures collaboration among proposed regional jurisdiction managers and greater consistency /standardization for the Project Level trail that results?

Response: USACE and North Carolina recognize and embrace the role Falls Lake may play in the development of current and future trail connections in the region. The Land Classifications, Recommended Future Uses, and Resource Objectives included in this Master Plan establish policies and goals to allow for these developments to occur. Because USACE only actively manages a small portion of the project, most of these developments would fall on lands leased to North Carolina and actively managed by the North Carolina Division of Parks and Recreation, the North Carolina Wildlife Resources Commission (NCWRC), or other management partners. Specific plans to extend trails on project lands would require coordination with the respective management agency, appropriate environmental analysis, and review and approval by North Carolina and USACE. The development of new trails by a new leasee also would require adherence to the process outlined in Appendix G of the Master Plan. NCWRC has recommended that a

process be developed to evaluate the effect increased trails would have on natural resources and other uses of the project prior to future trail development at Falls Lake. Such an analysis could be required before North Carolina and USACE approve of future trail development.

Comment: Since the Falls Lake project was originally authorized, the release of its waters has been a moving target and balancing act. Maintaining water supply volume, the lake surface for recreation, flood storage capacity, and downstream flow releases were traditional considerations. To that was added minimum seasonal releases for fish and wildlife mitigation, further straining management capabilities. Applications for private hydro electric generation further complicate the equation. Now that the Whitewater Area is on the cusp of reality, serious engineering assessment and willingness to consider nontraditional management practices may be required.

Response: Falls Lake water releases are managed according to our Water Control Manual and are made only for Flood Risk Management and downstream water quality. Recreational releases are not a congressionally authorized activity at Falls Lake; however, under normal operations there are releases that are beneficial to downstream paddlers.

Comment: There is an existing fishing area within the tailrace. Part of the approval process for a Whitewater Area design and plan should be review of the compatibility of these two facilities. The preexisting facility need not be given precedence if there is significant conflict, but neither should it be eliminated without relocation to avoid the loss of a public use. The proposed facility is rather unique. Integrating it into the tailrace will be a heroic feat, given the multiple demands on the area. Finding the most advantageous combination of uses should be guided by statutory requirements and a desire to provide for the best possible combination of public uses. The Whitewater Area will be special, and hopefully it will command the extra effort to realize its greatest potential. For example: will the COE give serious consideration to refined day /night averaging of release schedules, for those months it could be allowed to optimize its potential.

Response: As is the case with any project at Falls Lake, the development of the proposed White Water Park will be accompanied by appropriate environmental analysis. This process is outlined in Appendix G of the Master Plan.

Comment: Migrating fish may become an issue if the Millburnie Dam should be removed downstream. The resulting "corralling" of these fish-runs in the tailrace area may require appropriate seasonal management responses for the Whitewater Area.

Response: The potential removal of the Millburnie Dam is outside of the scope of the master planning process. USACE and North Carolina will continue to work with Federal,

State, and local agencies, officials, and groups to ensure the Water Quality and Fish and Wildlife Enhancement purposes are met.

Representative Public Comments Received during the 2012 Scoping Period

E.53 Dam Operation

(2 comments received)

Comment: As a kayaker I have been upset with the US Army Corps of Engineers, because there is a discrepancy between the wording of the Master Plan and actual dam operation. According to the plan, "The Falls Lake Dam is currently operated to provide a normal pool elevation of 251.5 feet msl." I feel that I am marginalized as a kayaker, because I am not a primary beneficiary of the dam, but when the plan states that dam will release water at reasonable flows when the lake exceeds 251.5 feet, I expect that it will. If this is not the intention of the US ACOE, then please change the language of the plan. I am only asking for consistency.

Response: Falls Lake water releases are managed according to our Water Control Plan and are made only for Flood Risk Management and downstream water quality. Recreational releases are not congressionally authorized at Falls Lake; however, under normal operations there are releases that are beneficial to downstream paddlers.

E.54 Recommended Uses of Undeveloped Project Lands

(1 comment received)

Comment: I have not read the plan but if you're looking for different ideas for the use of the land I do have a few suggestions . How about a public rifle range try to find one of those these days in this state! Or ATV trails or horseback riding trails , more fishing areas around falls lake..

Response: The policy-based Master Plan provides a high level of flexibility for USACE and North Carolina to accommodate future recreational needs within the region. The Land Classifications and Recommended Future Uses highlight areas where certain activities could be accommodated and the Resource Objectives set a general policy framework through which future recreational needs could be met. The development of a facility to meet one of the needs referenced in the comment would need to be undertaken by an existing management agency at Falls Lake or by a new partner through a sublease initiated through the steps outlined in Appendix G of the Master Plan. Either action would require additional environmental analysis, as well as review and approval by North Carolina and USACE.

E.55 Hunter Representation

(1 comment received)

Comment: I have a concern with a sentence on page 34 of the Master Plan under the Hunting section. The sentence refers to hunters as "a traditionally underrepresented user group (Hall, 2010)." When you check the reference, it states: 2010 Hall, Harlan Personal communication between Harlan Hall, NCWRC Game Land Manager for Butner-Falls of Neuse Game Lands and Jot Splenda, Recreational Planner for the Louis Berger Group. January 26th, 2010.

This is by no means empirical data, cited research, or quantifiable statistical information. It is merely the opinion of one person and has no place in a federal agency's master plan. By this logic, disc golfers, equestrians, mountain bikers, or any number of other groups are "underrepresented" just because a member of that group says so. There are many groups who feel they are underrepresented and do not enjoy unrestricted access to the land around Falls Lake, especially since the Butner-Falls of Neuse Game Land makes up over 15,000 acres of land around the lake. In my opinion, this statement reflects a clear bias on the part of the Wildlife Resource Commission and should be removed from the plan.

Response: Text modified accordingly.

E.56 Additional Campsites

(28 comments received)

Comment: I would like to suggest that the Corps add more campsites to the Falls Lake Master Plan. Both for locals and for those hiking the MTS trail, camping along the Lake is limited.

Response: The policy-based Master Plan does not prescribe specific developments that should occur within Falls Lake. The Land Classifications, Recommended Future Uses, and Resource Objectives create a policy framework that would support enhanced camping opportunities. Development of new campsites within existing recreation sites (Section 7.3 of the Master Plan) would be initiated by the respective management agency, as well as review and approval from North Carolina and USACE. Development of new campsites in potential future recreation areas (Section 7.2 of the Master Plan) could be initiated by any interested party, through the process outlined in Appendix G of the Master Plan.

E.57 Unauthorized and Illegal Uses

(1 comment received)

Comment: Take steps to reduce vandalism and camping at the new Lick Creek Bridge.

Response: USACE and North Carolina considered such issues when drafting Section 3.5 of the Master Plan. While the overarching policy nature of the Master Plan does not prescribe specific plans for dealing with such issues, the forthcoming update to the Falls

Lake Operational Management Plan would be an appropriate time for USACE and North Carolina to document new plans for working with the public to remove trash and reduce future pollution of project lands.

E.58 Support for Whitewater Park

(4 comments received)

Comment: I would like to express my support of the proposed City of Raleigh Whitewater Park on the Neuse River below the dam...

Response: Comment noted.

E.59 Support for Forest Ridge Park

(1 comment received)

Comment: I would like to express my support of the proposed...City of Raleigh Forest Ridge Park.

Response: Comment noted.

E.60 Support for Mountain Biking

(1 comment received)

Comment: I would like to express my support of...accessible mountain biking trails.

Response: USACE and the State of North Carolina recognize the increasing popularity of mountain biking in the region. The North Carolina Wildlife Resources Commission (NCWRC) currently has a Memorandum of Agreement (MOA) with Triangle Off Road Cyclists that provides an 8.8 mile mountain bike trail located at the Sycamore Point Area. Following this MOA, NCWRC has recommended that a process be developed to evaluate the effect increased trails would have on natural resources and other users of the project, before additional trails are constructed. Because the Master Plan is an overarching policy document, identifying specific trail locations or developing the NCWRC recommended evaluation process was not included in the master planning process. The Land Classifications and Recommended Future Uses identify locations where future bike trails may be established and the Resource Objectives establish the policies that future evaluations should consider.

E.61 Improved Trails around Dam

(1 comment received)

Comment: Trails should be provided between the dam area, Neuse River Greenway Trail and the Forest Ridge Park and trails.

Response: It is outside the scope of this policy-based Master Plan to identify specific locations of future trails. Currently the NCMST travels by the dam, to the Tailrace Fishing Area below the dam, and will connect in the near future to the Neuse River Greenway. A Forest Ridge Park connection to the Neuse River Greenway is in later development phases for that park, but a footprint has yet to be determined.

**APPENDIX F
PROJECT RESOURCE DATA**

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Table F-1: Soils Located within the Falls Lake Project Boundary		
Soil Symbol	Soil Name	Hydric Soil
AaA	Altavista loam, 0 to 3 percent slopes, rarely flooded	
AfB	Altavista fine sandy loam, 0 to 6 percent slopes, rarely flooded	
AgB	Appling gravelly sandy loam, 2 to 6 percent slopes	
AgB2	Appling gravelly sandy loam, 2 to 6 percent slopes, moderately eroded	
AgC	Appling gravelly sandy loam, 6 to 10 percent slopes	
AgC2	Appling gravelly sandy loam, 6 to 10 percent slopes, moderately eroded	
AlA	Altavista silt loam, 0 to 2 percent slopes	Yes
AlB	Altavista silt loam, 2 to 6 percent slopes	Yes
ApB2	Appling sandy loam, 2 to 6 percent slopes, moderately eroded	
ApC	Appling sandy loam, 6 to 10 percent slopes	
ApC2	Appling sandy loam, 6 to 10 percent slopes, moderately eroded	
ApD	Appling sandy loam, 10 to 15 percent slopes	
AsB	Appling fine sandy loam, 2 to 6 percent slopes	
AsB2	Appling fine sandy loam, 2 to 6 percent slopes, moderately eroded	
AsC	Appling fine sandy loam, 6 to 10 percent slopes	
AsC2	Appling fine sandy loam, 6 to 10 percent slopes, moderately eroded	
AuA	Augusta fine sandy loam, 0 to 2 percent slopes, occasionally flooded	
BuB	Buncombe loamy sand, 0 to 5 percent slopes, frequently flooded	
CaB	Cecil sandy loam, 2 to 6 percent slopes	
CaC	Carbonton-Brickhaven complex, 6 to 10 percent slopes	
Cc	Cartecay and Chewacla soils	Yes
CeB	Cecil sandy loam, 2 to 6 percent slopes	
CeB2	Cecil clay loam, 2 to 6 percent slopes, moderately eroded	
CeC	Cecil sandy loam, 6 to 10 percent slopes	
CeC2	Cecil clay loam, 6 to 10 percent slopes, moderately eroded	
CeD	Cecil sandy loam, 10 to 15 percent slopes	
CfB	Cecil fine sandy loam, 2 to 6 percent slopes	
CfC	Cecil fine sandy loam, 6 to 10 percent slopes	

Table F-1: Soils Located within the Falls Lake Project Boundary

Soil Symbol	Soil Name	Hydric Soil
CfE	Cecil fine sandy loam, 10 to 25 percent slopes (Pacolet)	
CgB	Cecil gravelly sandy loam, 2 to 6 percent slopes	
CgB2	Cecil gravelly sandy loam, 2 to 6 percent slopes, moderately eroded	
CgC	Cecil gravelly sandy loam, 6 to 10 percent slopes	
CgC2	Cecil gravelly sandy loam, 6 to 10 percent slopes, moderately eroded	
Ch	Chewacla and Wehadkee soils	Yes
ChA	Chewacla and Wehadkee soils, 0 to 2 percent slopes, frequently flooded	
ClB3	Cecil clay loam, 2 to 6 percent slopes, severely eroded	
ClC3	Cecil clay loam, 6 to 10 percent slopes, severely eroded	
CmA	Chewacla sandy loam, 0 to 2 percent slopes, frequently flooded	
CnA	Colfax sandy loam, 0 to 3 percent slopes	
CoA	Congaree silt loam, 0 to 2 percent slopes, frequently flooded	
Cp	Congaree silt loam	Yes
CpA	Congaree silt loam, 0 to 2 percent slopes, frequently flooded	
CrB	Creedmoor sandy loam, 2 to 6 percent slopes	
CrB2	Creedmoor sandy loam, 2 to 6 percent slopes, moderately eroded	
CrC	Creedmoor sandy loam, 6 to 10 percent slopes	
CrC2	Creedmoor sandy loam, 6 to 10 percent slopes, moderately eroded	
CrE	Creedmoor sandy loam, 10 to 20 percent slopes	
CtB	Creedmoor silt loam, 2 to 6 percent slopes	
CtC	Creedmoor silt loam, 6 to 10 percent slopes	
DAM	Dam	
EnB	Enon loam, 2 to 6 percent slopes	
EnB2	Enon fine sandy loam, 2 to 6 percent slopes, moderately eroded	
EnC	Enon loam, 6 to 10 percent slopes	
EnC2	Enon fine sandy loam, 6 to 10 percent slopes, moderately eroded	
EnD2	Enon fine sandy loam, 10 to 15 percent slopes, moderately eroded	
FaB	Faceville sandy loam, 2 to 6 percent slopes	

Table F-1: Soils Located within the Falls Lake Project Boundary

Soil Symbol	Soil Name	Hydric Soil
FaB2	Faceville sandy loam, 2 to 6 percent slopes, moderately eroded	
GeB	Georgeville silt loam, 2 to 6 percent slopes	
GeB2	Georgeville silt loam, 2 to 6 percent slopes, moderately eroded	
GeC	Georgeville silt loam, 6 to 10 percent slopes	
GeD2	Georgeville silt loam, 10 to 15 percent slopes, moderately eroded	
GlE	Goldston slaty silt loam, 10 to 25 percent slopes	
GrB	Granville sandy loam, 2 to 6 percent slopes	
GrB2	Granville sandy loam, 2 to 6 percent slopes, moderately eroded	
GrC	Granville sandy loam, 6 to 10 percent slopes	
GrC2	Granville sandy loam, 6 to 10 percent slopes, moderately eroded	
Gu	Gullied land, clayey materials	
HeB	Helena sandy loam, 2 to 6 percent slopes	Yes
HeB2	Helena sandy loam, 2 to 6 percent slopes, moderately eroded	
HeC	Helena sandy loam, 6 to 10 percent slopes	
HeC2	Helena sandy loam, 6 to 10 percent slopes, moderately eroded	
HeD	Helena sandy loam, 10 to 15 percent slopes	
HrB	Herndon silt loam, 2 to 6 percent slopes	
HrC	Herndon silt loam, 6 to 10 percent slopes	
HrC2	Herndon silt loam, 6 to 10 percent slopes, moderately eroded	
HrD2	Herndon silt loam, 10 to 15 percent slopes, moderately eroded	
IrB	Iredell loam, 2 to 6 percent slopes	Yes
IrC	Iredell loam, 6 to 10 percent slopes	
LdB2	Lloyd loam, 2 to 6 percent slopes, moderately eroded	
LdC2	Lloyd loam, 6 to 10 percent slopes, moderately eroded	
LdD2	Lloyd loam, 10 to 15 percent slopes, moderately eroded	
LoB	Louisburg loamy sand, 2 to 6 percent slopes	
LoC	Louisburg loamy sand, 6 to 10 percent slopes	
LoD	Louisburg loamy sand, 10 to 15 percent slopes	

Table F-1: Soils Located within the Falls Lake Project Boundary

Soil Symbol	Soil Name	Hydric Soil
MaB	Mayodan sandy loam, 2 to 6 percent slopes	
MdB2	Madison sandy loam, 2 to 6 percent slopes, moderately eroded	
MdC2	Madison sandy loam, 6 to 10 percent slopes, moderately eroded	
MdD2	Madison sandy loam, 10 to 15 percent slopes, moderately eroded	
MdE2	Madison sandy loam, 15 to 25 percent slopes, moderately eroded	
MeA	Mantachie sandy loam, 0 to 2 percent slopes, rarely flooded	
MfB	Mayodan sandy loam, 2 to 6 percent slopes	
MfB2	Mayodan sandy loam, 2 to 6 percent slopes, moderately eroded	
MfC	Mayodan sandy loam, 6 to 10 percent slopes	
MfC2	Mayodan sandy loam, 6 to 10 percent slopes, moderately eroded	
MfD	Mayodan sandy loam, 10 to 15 percent slopes	
MfD2	Mayodan sandy loam, 10 to 15 percent slopes, moderately eroded	
MfE	Mayodan sandy loam, 15 to 25 percent slopes	
MuB	Mecklenburg loam, 2 to 6 percent slopes	
MuC	Mecklenburg loam, 6 to 10 percent slopes	
NaD	Nason silt loam, 10 to 15 percent slopes	
NaE	Nason silt loam, 15 to 25 percent slopes	
PaF	Pacolet sandy loam, 25 to 50 percent slopes	
PcE3	Pacolet clay loam, 10 to 20 percent slopes, severely eroded	
PfC	Pinkston fine sandy loam, 2 to 10 percent slopes	
PfE	Pinkston fine sandy loam, 10 to 25 percent slopes	
PgF	Pacolet-Gullied land complex, 4 to 25 percent slopes	
PkC	Pinkston sandy loam, 0 to 10 percent slopes	
PkF	Pinkston sandy loam, 10 to 45 percent slopes	
PnD	Pinkston loamy sand, 10 to 20 percent slopes	
PtD3	Polkton-White Store complex, 2 to 15 percent slopes, severely eroded	
Ro	Roanoke silt loam	
RoA	Roanoke loam, 0 to 2 percent slopes, occasionally flooded	

Table F-1: Soils Located within the Falls Lake Project Boundary

Soil Symbol	Soil Name	Hydric Soil
Ud	Udorthents, loamy	
UdD	Udorthents loamy, 0 to 15 percent slopes	
Ur	Urban land	
VaB2	VaB2	
W	Water	
Wh	Wahee loam, alkaline subsoil variant (Hornsboro)	Yes
WhA	Warne fine sandy loam, 0 to 2 percent slopes, occasionally flooded	
WkC	Wake-Saw-Wedowee complex, 2 to 10 percent slopes, rocky	
WkE	Wake-Wateree complex, 10 to 25 percent slopes, very rocky	
WmD	Wedowee sandy loam, 10 to 15 percent slopes	
WmE	Wedowee sandy loam, 15 to 25 percent slopes	
Wn	Wehadkee silt loam	Yes
WnA	Wehadkee silt loam, 0 to 2 percent slopes, frequently flooded	
WoA	Wehadkee and Bibb soils, 0 to 2 percent slopes, frequently flooded	
WsB	White Store sandy loam, 2 to 6 percent slopes	
WsB2	White Store sandy loam, 2 to 6 percent slopes, moderately eroded	
WsC	White Store sandy loam, 6 to 10 percent slopes	
WsC2	White Store sandy loam, 6 to 10 percent slopes, moderately eroded	
WsE	White Store sandy loam, 10 to 25 percent slopes	
WvC2	White Store clay loam, 2 to 10 percent slopes, eroded	
WvE2	White Store clay loam, 10 to 25 percent slopes, eroded	
WwC	White Store-Urban land complex, 0 to 10 percent slopes	
WwE	White Store-Urban land complex, 10 to 25 percent slopes	
WwF	Wilkes loam, 20 to 45 percent slopes	
WxE	Wilkes sandy loam, 10 to 25 percent slopes	
WyA	Worsham sandy loam, 0 to 3 percent slopes	

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Federally- and State-listed Endangered Species, Threatened Species, Species of Concern and Candidate Species in the Falls Lake Region

Durham County

Major Group	Scientific Name	Common Name	State Status	Federal Status	State Rank	Global Rank
Invertebrate Animal	<i>Alasmidonta undulata</i>	Triangle Floater	T	None	S2	G4
Invertebrate Animal	<i>Fusconaia masoni</i>	Atlantic Pigtoe	E	FSC	S1	G2
Invertebrate Animal	<i>Gomphus septima</i>	Septima's Clubtail	SR	FSC	S1S2	G2
Invertebrate Animal	<i>Lampsilis cariosa</i>	Yellow Lampmussel	E	FSC	S1	G3G4
Invertebrate Animal	<i>Lampsilis radiata</i>	Eastern Lampmussel	T	None	S1S2	G5
Invertebrate Animal	<i>Lasmigona subviridis</i>	Green Floater	E	FSC	S1	G3
Invertebrate Animal	<i>Somatogyrus virginicus</i>	Panhandle Pebblesnail	SR	FSC	S1?	G2G3
Invertebrate Animal	<i>Strophitus undulatus</i>	Creeper	T	None	S2	G5
Invertebrate Animal	<i>Villosa constricta</i>	Notched Rainbow	SC	None	S3	G3
Vascular Plant	<i>Baptisia australis var. aberrans</i>	Prairie Blue Wild Indigo	T	None	S2	G5T2
Vascular Plant	<i>Delphinium exaltatum</i>	Tall Larkspur	E-SC	FSC	S2	G3
Vascular Plant	<i>Echinacea laevigata</i>	Smooth Coneflower	E-SC	E	S1	G2G3
Vascular Plant	<i>Monotropsis odorata</i>	Sweet Pinesap	SR-T	FSC	S3	G3
Vascular Plant	<i>Rhus michauxii</i>	Michaux's Sumac	E-SC	E	S2	G2G3
Vascular Plant	<i>Ruellia humilis</i>	Low Wild-petunia	T	None	S1	G5
Vertebrate Animal	<i>Ambloplites cavifrons</i>	Roanoke Bass	SR	FSC	S2	G3
Vertebrate Animal	<i>Crotalus horridus</i>	Timber Rattlesnake	SC	None	S3	G4
Vertebrate Animal	<i>Etheostoma collis pop. 2</i>	Carolina Darter - Eastern Piedmont Population	SC	FSC	S2	G3T3Q
Vertebrate Animal	<i>Haliaeetus leucocephalus</i>	Bald Eagle	T	None	S3B,S3N	G5
Vertebrate Animal	<i>Hemidactylium scutatum</i>	Four-toed Salamander	SC	None	S3	G5
Vertebrate Animal	<i>Necturus lewisi</i>	Neuse River Waterdog	SC	None	S3	G3
Vertebrate Animal	<i>Noturus furiosus</i>	Carolina Madtom	T	FSC	S2	G2
Vertebrate Animal	<i>Picoides borealis</i>	Red-cockaded Woodpecker	E	E	S2	G3

NC NHP database updated on Friday, February 12th, 2010.
Search performed on Thursday, 8 April 2010 @ 10:40:05 EDST

Granville County

<u>Major Group</u>	<u>Scientific Name</u>	<u>Common Name</u>	<u>State Status</u>	<u>Federal Status</u>	<u>State Rank</u>	<u>Global Rank</u>
Invertebrate Animal	<i>Alasmidonta heterodon</i>	Dwarf Wedgemussel	E	E	S1	G1G2
Invertebrate Animal	<i>Alasmidonta undulata</i>	Triangle Floater	T	None	S2	G4
Invertebrate Animal	<i>Alasmidonta varicosa</i>	Brook Floater	E	FSC	S1	G3
Invertebrate Animal	<i>Elliptio lanceolata</i>	Yellow Lance	E	FSC	S1	G2G3
Invertebrate Animal	<i>Fusconaia masoni</i>	Atlantic Pigtoe	E	FSC	S1	G2
Invertebrate Animal	<i>Lampsilis cariosa</i>	Yellow Lampmussel	E	FSC	S1	G3G4
Invertebrate Animal	<i>Lampsilis radiata</i>	Eastern Lampmussel	T	None	S1S2	G5
Invertebrate Animal	<i>Lasmigona subviridis</i>	Green Floater	E	FSC	S1	G3
Invertebrate Animal	<i>Orconectes carolinensis</i>	North Carolina Spiny Crayfish	SC	None	S3	G3
Invertebrate Animal	<i>Orconectes virginienis</i>	Chowanoke Crayfish	SC	FSC	S3	G3
Invertebrate Animal	<i>Strophitus undulatus</i>	Creeper	T	None	S2	G5
Invertebrate Animal	<i>Villosa constricta</i>	Notched Rainbow	SC	None	S3	G3
Vascular Plant	<i>Acmispon helleri</i>	Carolina Birdfoot-trefoil	SR-T	FSC	S3	G3
Vascular Plant	<i>Baptisia australis var. aberrans</i>	Prairie Blue Wild Indigo	T	None	S2	G5T2
Vascular Plant	<i>Delphinium exaltatum</i>	Tall Larkspur	E-SC	FSC	S2	G3
Vascular Plant	<i>Echinacea laevigata</i>	Smooth Coneflower	E-SC	E	S1	G2G3
Vascular Plant	<i>Isoetes piedmontana</i>	Piedmont Quillwort	T	None	S2	G3
Vascular Plant	<i>Marshallia sp. 1</i>	Butner Barbara's-buttons	SR-L	FSC	S1	G1
Vascular Plant	<i>Phemeranthus sp. 1</i>	Piedmont Fameflower	E	None	S1?	G1?
Vascular Plant	<i>Portulaca smallii</i>	Small's Portulaca	T	None	S2	G3
Vascular Plant	<i>Ptilimnium nodosum</i>	Harperella	E	E	S1	G2
Vascular Plant	<i>Pycnanthemum torrei</i>	Torrey's Mountain-mint	SR-T	FSC	S1	G2
Vascular Plant	<i>Ruellia humilis</i>	Low Wild-petunia	T	None	S1	G5
Vascular Plant	<i>Scleria sp. 1</i>	Smooth-seeded Hairy Nutrush	SR-L	FSC	S1	G1
Vascular Plant	<i>Solidago ptarmicoides</i>	Prairie Goldenrod	E	None	S1	G5

Vertebrate Animal	<i>Ambloplites cavifrons</i>	Roanoke Bass	SR	FSC	S2	G3
Vertebrate Animal	<i>Ambystoma talpoideum</i>	Mole Salamander	SC	None	S2	G5
Vertebrate Animal	<i>Crotalus horridus</i>	Timber Rattlesnake	SC	None	S3	G4
Vertebrate Animal	<i>Etheostoma collis pop. 2</i>	Carolina Darter - Eastern Piedmont Population	SC	FSC	S2	G3T3Q
Vertebrate Animal	<i>Haliaeetus leucocephalus</i>	Bald Eagle	T	None	S3B,S3N	G5
Vertebrate Animal	<i>Hemidactylium scutatum</i>	Four-toed Salamander	SC	None	S3	G5
Vertebrate Animal	<i>Necturus lewisi</i>	Neuse River Waterdog	SC	None	S3	G3
Vertebrate Animal	<i>Noturus furiosus</i>	Carolina Madtom	T	FSC	S2	G2

NC NHP database updated on Friday, February 12th, 2010.
Search performed on Thursday, 8 April 2010 @ 10:49:04 EDST

Source: NCNHP 2010

Explanation of Codes:

E	Endangered	"Any species or higher taxon of plant whose continued existence as a viable component of the State's flora is determined to be in jeopardy" (GS 19B 106: 202.12). (Endangered species may not be removed from the wild except when a permit is obtained for research, propagation, or rescue which will enhance the survival of the species.)
T	Threatened	"Any resident species of plant which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (GS 19B 106:202.12). (Regulations are the same as for Endangered species.)
SC	Special Concern	"Any species of plant in North Carolina which requires monitoring but which may be collected and sold under regulations adopted under the provisions of [the Plant Protection and Conservation Act]" (GS 19B 106:202.12). (Special Concern species which are not also listed as Endangered or Threatened may be collected from the wild and sold under specific regulations. Propagated material only of Special Concern species which are also listed as Endangered or Threatened may be traded or sold under specific regulations.)

C	Candidate	<p>Species which are very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction (and sometimes also by direct exploitation or disease). These species are also either rare throughout their ranges (fewer than 100 populations total) or disjunct in North Carolina from a main range in a different part of the country or world. Also included are species which may have 20-50 populations in North Carolina, but fewer than 50 populations rangewide. These are species which have the preponderance of their distribution in North Carolina and whose fate depends largely on their conservation here. Also included are many species known to have once occurred in North Carolina but with no known extant occurrences in the state (historical or extirpated species); if these species are relocated in the state, they are likely to be listed as Endangered or Threatened. If present land use trends continue, candidate species are likely to merit listing as Endangered or Threatened.</p>
SR	Significantly Rare	<p>Species which are very rare in North Carolina, generally with 1-20 populations in the state, generally substantially reduced in numbers by habitat destruction (and sometimes also by direct exploitation or disease). These species are generally more common somewhere else in their ranges, occurring in North Carolina peripherally to their main ranges, mostly in habitats which are unusual in North Carolina. Also included are some species with 20-100 populations in North Carolina, if they also have only 50-100 populations rangewide and are declining.</p>
EX	Extirpated	Extinct
-L	Listed	<p>The range of the species is limited to North Carolina and adjacent states (endemic or near endemic). These are species which may have 20-50 populations in North Carolina, but fewer than 50 populations rangewide. The preponderance of their distribution is in North Carolina and their fate depends largely on conservation here. Also included are some species with 20-100 populations in North Carolina, if they also have only 50-100 populations rangewide and declining.</p>
-T	Throughout	<p>These species are rare throughout their ranges (fewer than 100 populations total)</p>

-D	Disjunct	The species is disjunct to North Carolina from a main range in a different part of the country or world.
-P	Peripheral	The species is at the periphery of its range in NC. These species are generally more common somewhere else in their ranges, occurring in North Carolina peripherally to their main ranges, mostly in habitats which are unusual in North Carolina.
-O	Other	The range of the species is sporadic or cannot be described by the other Significantly Rare categories
P_	Proposed	A species which has been formally proposed for listing as Endangered, Threatened, or Special Concern, but has not yet completed the legally mandated listing process.

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Table F-2: Recreation Areas and Facilities at Falls Lake

Facility	Boat Ramp	Swim Beach	Picnic Sites	Campground	Restrooms	Mt. Bike Trails	Hiking	Hunter Access	Bank Fishing Access	Visitor Information	Lodge	Electric & Water Hookups	Accessible Campsites	Group Campsites	Showers	Boat Beach	Fishing Pier	Amphitheater	Playground	Picnic Shelter	Site Manager
Beaverdam	X	X	X		X	X	X		X								X			X	NCDPR
Blue Jay Point County Park			X		X		X			X	X										Wake County
B.W. Wells	X			X	X		X							X	X			X			NCDPR
City of Raleigh Canoe Launch																					City of Raleigh
Eno River Boat Ramp	X							X													NCWRC
Falls Dam & Visitor Assistance Center			X		X		X	X	X	X									X		USACE
Tailrace Fishing Area			X		X		X	X	X												USACE
Upper Barton Boat Ramp	X							X													NCWRC
Shinleaf				X	X		X						X		X						NCDPR
Holly Point	X	X		X	X		X					X			X				X		NCDPR
NC State Parks Management Center							X			X											NCDPR
Highway 50	X		X		X		X		X												NCDPR
Sandling Beach		X	X		X		X		X							X				X	NCDPR
Rolling View Marina	X				X																Private
Rolling View	X	X	X	X	X		X		X			X	X	X	X	X	X	X	X	X	NCDPR
Ledge Rock Boat Ramp	X							X													NCWRC
Hickory Hill Boat Ramp	X							X													NCWRC
Penny's Bend State Nature Preserve							X														N.C. Botanical Garden

Source: USACE 2010

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Table F-3: Boat Ramps and Bottom Elevations at Falls Lake

Boat Ramp (manager)	Elevation (feet msl)
Beaverdam State Recreation Area (NCDPR)	242.50
B.W. Wells State Recreation Area(NCDPR)	236.00
Eno River Access Area (NCWRC)	242.00
Hickory Hill Access Area (NCWRC)	232.44
Highway 50 State Recreation Area (NCDPR)	232.48
Holly Point State Recreation Area (NCDPR)	236.00
Ledge Rock Access Area (NCWRC)	241.60
Rolling View State Recreation Area (NCDPR)	240.00
Upper Barton Creek Access Area (NCWRC)	235.30

Source: USACE 2012a

Table F-4: Falls Lake Annual Visitation

Year	Visitation
2012	1,610,294
2011	1,566,692
2010	1,304,874
2009	1,449,360
2008	1,501,192
2007	1,807,284
2006	1,726,848
2005	1,717,857
2004	1,520,357
2003	1,573,484
2002	1,611,391
2001	1,721,402
2000	2,086,464
1999	1,615,951

USACE 2012c

Table F-5: Other Federal and State Parks within 60 Miles of Falls Lake			
Name	Type	Management	Acres
Apex Community Park	Recreation	Local	160
Barber Park	Recreation	Local	134
Bryan Park	Recreation	Local	390
Bur Mil Park	Recreation	Local	160
Carl Alwin Schenck Memorial Forest	Recreation	State	328
Cedarock Park	Recreation	Local	205
Duke Forest Korstian Division	Recreation	Duke University	1,978
Fred G Bond Metro Park	Recreation	Local	243
Gibson Park	Recreation	Local	461
Guilford Courthouse NMP	Recreation	Federal	215
Guilford Mackintosh Park	Recreation	Local	288
Hagan Stone Park	Recreation	Local	409
Harris Lake County Park	Recreation	Local	614
Horseshoe Farms Park	Recreation	Local	147
John H. Kerr Dam and Reservoir	Recreation	Federal/State	100,000
Jordan Lake	Recreation	Federal/State	46,000
Keeley Park	Recreation	Regional	779
Lake Crabtree County Park	Recreation	Local	243
Lake Johnson Park	Recreation	Local	480
Lake Michael Park	Recreation	Local	134
Lake Wheeler Park	Recreation	Local	102
Lindley Park	Recreation	Local	134
NC Zoological Park	Recreation	State	1,555
Occonechee State Park	Recreation	State	2,518
Old Farm Park	Recreation	Local	320
Raven Rock State Park	Recreation	State	9,152
Regency Park	Recreation	Local	109
Roosevelt Ingham Park	Recreation	Local	934
Satterwhite State Recreation Area	Recreation	State	703
Shelley Sertoma Park	Recreation	Local	115
Southwest Park	Recreation	Local	346
Staunton River State Park	Recreation	State	6,395
Walnut Creek Park North	Recreation	Local	109
William B Umstead State Park	Recreation	State	6,109

Source: ESRI 2008

Table F-6: Named Game Lands within 60 Miles of the Project

Game Land	Archery Zone	CURE Area¹	Game Land²	Restricted Firearms Zone	Restricted Zone	Safety Zone	Waterfowl Impoundment	Total Acres
Brinkleyville			1,818					1,818
Buckhorn			491					491
Butner-Falls of Neuse	3,879		31,349			4,557	961	40,745
Chatham			2,202			521		2,723
Dick Cross (VA)			1,514					1,514
Embro			8,674					8,674
Harris	423		11,407		165	426		12,421
Hyco	1,069		3,409	184				4,662
Jordan	291		39,480			136	757	40,664
Lee			1,332					1,332
Lower Fishing Creek			1,295					1,295
Mayo			6,073			1,030		7,102
R. Wayne Bailey - Caswell	1,251	5,234	9,465		1,548		25	17,523
Sandy Creek			923					923
Shocco Creek			8,012					8,012
Tillery			3,793					3,793
Vance			323					323
White Oak Mountain (VA)			2,658					2,658
Total Acres	6,914	5,234	134,217	184	1,713	6,669	1,743	152,502

Source: NCWRC 2010a, ESRI 2008

Notes: 1. Area under the Cooperative Upland-habitat Restoration and Enhancement program 2. Defines the area as game land with no special requirements
3. Game lands in Virginia labeled with "(VA)".

Table F-7: Falls Lake Cultural Resource Investigations

Year	Investigation	Researcher(s)
1965	Appraisal of the Archaeological Resources of the New Hope Reservoir, NC	Southeast Archaeological Center, NPS and Research Laboratories of Anthropology, UNC-CH
1970	A Reconnaissance and Proposal for Archaeological Salvage in Falls Lake	Keel, B. C. and J. L. Coe
1976	Final Report of 1974 Excavation with the New Hope Reservoir	Coe, J. L
1976	An Archaeological Evaluation of the Falls of the Neuse Reservoir	Ward, Trawick and Joffre L. Coe
1978	Cultural Resources Survey and Evaluation at Falls Lake, Wake, Durham and Granville Counties, NC	Commonwealth Associates
1979	Archaeological Investigations of the Ebenezer Church and Vicinity	Soil Systems, Inc.
1980	Phase II Archaeological Investigations of Ten Specified Locales in the Falls Lake Reservoir Area, Falls Lake, NC	GAI Consultants Inc.
1981	Archaeological Investigation of the Wells Rockshelter Locality	Archaeological Resources Consultants
1981	Archaeological Survey of Ellerbe Creek Floodplain and Vicinity, Falls Lake	Archaeological Resources Consultants
1981	Documentation of Boyce Mill, Falls Reservoir Project, Wake and Durham Counties, NC	Archaeological Resources Consultants
1983	Archaeological and Historical Survey at Sandling Beach Recreation Areas, Falls Lake Project, Durham County, North Carolina	Archaeological Resources Consultants
1984	Architectural and Archaeological Investigations of the James Mangum House (National Register of Historic Places), Sycamore Point Recreation Area, Falls Lake, Wake County, North Carolina	Archaeological Resources Consultants
1985	Archaeological and Historical Survey for Knapp of Reeds Creek Diked Waterfowl Impoundment, Falls Lake	Archaeological Resources Consultants

Table F-7: Falls Lake Cultural Resource Investigations

Year	Investigation	Researcher(s)
1986	Historic Archaeological Investigations of a Proposed Septic Drainage Field Associated with the Rehabilitation of the National Register of Historic Places James A. Mangum House, Falls Lake, Wake County, NC	Thomas, Ronald and Ted Payne
1986	Archaeological Investigations of the National Register Bennehan-Cameron Plantation Historic District and the Areas of Recreation Development and Proposed Wildlife Subimpoundments at Falls Lake, Wake and Durham Counties, NC	Archaeological Resources Consultants
1987	Archaeological Survey and Testing of the Proposed Wake County Recreation Area, Blue Jay Point, Falls Lake, NC	Garrow and Associates
1988	Archaeological Survey, Site Relocation, and Site Testing Within Seven Wildlife Subimpoundments, Falls Lake Project, Durham and Granville Counties, NC	Carolina Archaeological Services
1989	Descriptions and Recommendations for Historical Sites Discovered During the ARC 1982 Survey of Falls Lake	Lewis, Richard
1989	Archaeological Data Recovery at 31Dh234, Falls Lake Project, Durham County, NC	Carolina Archaeological Services
1991	and Historical Survey of Selected Shoreline Locations in the Impact Zone of the Proposed Expansion of the Conservation Pool, Falls Lake	New South and Associates
1991	Inspection, Evaluation, and Testing of Historic Site Located at Falls Lake, Wake, Durham and Granville Counties, NC	Brockington and Associates
1992	Cultural Resources Survey, Parrish Tract, Falls Lake, Durham County, NC	Louis Berger, Inc
1993	Archaeological and Historical Survey of Reeds Creek, Falls Lake, Granville County, NC	New South and Associates
1993	Cultural Resources Survey of Woodpecker Ridge, Wake County, NC	New South and Associates

Table F-7: Falls Lake Cultural Resource Investigations

Year	Investigation	Researcher(s)
1994	Archaeological and Historical Survey Knapp of Reeds Cr., Beaverdam Cr., and Forest Ridge Peninsula, Falls Lake, Granville and Wake Counties, NC	Panamerican Consultants, Inc.
1995	Historic American Building Survey, Photographic Documentation and Architectural Documentation of the Parrish House, Falls Lake, Durham County, NC	Panamerican Consultants, Inc.
1995	Testing and Evaluation of Nine Sites Potentially Affected by Raising the Conservation Pool , Falls Lake, Durham, Granville, and Wake Counties, NC	Panamerican Consultants, Inc.
1997	Final Report of Archaeological Survey of Fall Lake Timber Management Areas, NC	New South and Associates
1998	Archaeological Survey of Falls Lake, North Carolina (Draft)	Hardlines: Design & Delineation
1999	Reassessment of Archaeological Investigations Undertaken at the Falls Lake Project, Durham, Granville, and Wake Counties, NC	Hardlines: Design & Delineation
2005	Archaeological Survey of 590 Acres within the Forest Ridge Section of Falls Lake, Wake County, NC	Panamerican Consultants, Inc.
2006	Archaeological Relocation and Phase II Reevaluation of Four Shoreline Sites at Falls Lake, Wake County, NC	Panamerican Consultants, Inc.
2007	Archaeological Data Recovery at Falls Lake Shoreline Sites 31WA772 and 31WA778, Wake County, NC	Panamerican Consultants, Inc.
2008	A Cultural Resources Assessment of the Fish Dam Ford Site (31WA1648**), Wake County, NC	Panamerican Consultants, Inc.
2008	A Phase II Cultural-Resources Survey and Evaluation of Lick Creek Farmstead (31DH708**) and Cemetery (31DH709**), Durham County, NC	Panamerican Consultants, Inc.

Table F-7: Falls Lake Cultural Resource Investigations

Year	Investigation	Researcher(s)
2011	NHPA, Cultural Resources Investigations, Technical Report No. 15, Volume 2. Section 110 Survey of 1,728 Acres at Jordan and Falls Lakes, Chatham, Durham, Granville, and Wake Counties, NC	Brockington and Associates, Inc

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**APPENDIX G
APPLICANT INFORMATION FORM AND USACE/NORTH CAROLINA REVIEW PROCESS**

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**REQUESTS FOR USE OF LAND/WATER
APPLICANT INFORMATION**

**U.S. ARMY CORPS OF ENGINEERS
WILMINGTON DISTRICT DAM AND LAKE PROJECTS**

Requests for use of Government property at Lakes under the stewardship of the US Army Corps of Engineers must be submitted in writing to the Operations Manager. An initial request should include the minimum information identified below. All requests will be evaluated through our land use request review process.

The initial submission will be evaluated in coordination with other managing agencies to determine if the proposal is appropriate for location on Government property. Additional information may be requested. Preliminary reviews may take 30 days or longer. Applicant will be notified in writing when a determination is made.

I. Minimum Information for Initial Request: Information may be submitted in an approved digital format. Applicants should coordinate with Lake staff prior to submittal.

- A. Location of proposed activity.
- B. Identify the purpose and need.
- C. Describe footprint of proposed activity including structures/facilities, dimensions, and acreage of Government property being requested.
- D. Provide justification for use of Government property. Provide information on alternative routes/locations being considered, including those off of Government property.
- E. Describe basic construction methods and alternatives.
- F. Exhibit/s (site map, survey, drawing, aerial photograph etc.) depicting proposed location relative to Government property and other significant features.
- G. State the duration for which the proposed activity is requested. Include the duration of any temporary use.
- H. Describe anticipated impacts such as removal of vegetation, ground disturbance, wetland impacts, amount of fill within the reservoir or its flood pool, activities in the floodplain, etc.
- I. Identify Applicant/Grantee/POC:
 - 1. **Applicant:** Name, address, and phone number of person/entity making request or having request made on their behalf. (The applicant is considered to be the financially responsible party.)
 - 2. **Grantee:** Identify to whom a real-estate instrument would be assigned if request were approved. (city, county, agency, utility company, etc.) Title, name, address, and phone number of person legally responsible for signing a real estate document.
 - 3. **Point of Contact (POC):** name, address, and phone number. If the POC for an action is someone other than the applicant/grantee, it is the responsibility of the applicant/grantee to coordinate with that POC working on their behalf. All information regarding a proposal will be addressed to the POC with a copy to the applicant/grantee.

II. Detailed Proposal:

If after reviewing the initial request, the Corps determines that the requested activity may be feasible and will be considered further, the information below must be provided. Additional information may be requested based on the nature of the proposed activity.

The applicant will reimburse the Government for administrative expenses incurred by the Government for review of the request for use of Government property regardless of whether the request is ultimately approved or denied. Staff will provide an estimated time for completion and cost for review upon receipt of each submittal. Applicants will be provided with an estimate prior to incurring any expense. Payment based on estimated cost will be required in advance. Funds not expended will be returned to the applicant, additional funds may be requested based on revised estimates.

An Environmental Assessment (EA) or Environmental Impact Statement (EIS) may be required. The applicant would be responsible for preparation of the EA/EIS for review and approval by the Corps.

The time required to review a request is case specific. Minimum time to process a detailed proposal is typically six months to one year depending on the complexity and scale of the proposal. Submittal of inadequate or incomplete information will delay the review.

Information may be submitted in an approved digital format. Applicant should coordinate with staff prior to submittal.

Applicant may be required to mark/flag areas in the field to facilitate review and assessment of impacts. This must be done in coordination with Lake staff. A temporary right of entry or license will be required prior to conducting any survey activities on Government property.

A. Detailed Proposal Should Include:

1. Site plan including a detailed description of the proposed facilities and basic construction methods, including alternatives.
2. Exhibit depicting the following:
 - a. Area of Government property being requested
 - b. Government property line
 - c. Elevation contours including upper guide contours and elevation intervals appropriate to the terrain.
 - d. Any structures or features that will be affected (e.g.: fences, roads, monuments, gates, intake structures, woods line, wetlands, other resources, etc.)
 - e. Portions of proposed project not on Government property
3. Acreage for proposed permanent and temporary use.
4. Narrative and table comparing impacts among alternatives.
5. Information on potential impacts to the following: Wildlife Habitat, Forest Resources, Wetlands, Endangered Species, Cultural, Historic, and Archeological Resources, Flood Storage Capacity, Fisheries, Recreation, Water Supply, Hydropower, Water Quality, Hazardous Materials, Aesthetics
6. Cubic yards of excavation and/or fill by elevation

III. Mitigation

- A. All identified adverse impacts will be mitigated. Impacts to the environment, project purposes, Government programs and facilities, and the programs and facilities of partners managing Corps lands must be addressed. The applicant will develop a mitigation plan in coordination with the Corps and other appropriate agencies/entities. The applicant will be responsible for the cost of the development of the plan and the completion of required mitigation. Mitigation will be agreed upon prior to issuance of any real estate instrument.

IV. Plan Documents

- A. If the proposed activity requires a change or supplement to Corps plan documents, the applicant would be responsible for cost associated with this process. Planning documents include the project master plan, shoreline management plan, operational management plan, and other written management plans. Cost varies based on the scope and magnitude of the proposal. An estimate would be provided prior to the applicant incurring any expense.

V. Approved Proposals

- A. Applicants will be notified in writing when a determination is made.
- B. In addition to the cost of the review process, applicants who receive authorization to use Government property will be responsible for the following expenses:
 - 1. Administrative Fees – Cost for processing and execution of all real-estate documents.
 - 2. Consideration – Rental based on market value as determined by a Government appraiser.
 - 3. Mitigation - Applicant will be responsible for all cost including planning, construction, monitoring, reporting, etc. for mitigation of identified adverse impacts.
 - 4. Timber - Value of any marketable timber based on appraisal by a Registered Government Forester.

NOTE: Cost of the above items would be based on the final acreage of an approved activity. Mitigation requirements are based on a final determination of impacts. As such, final estimates of the cost of these items cannot be provided until the final scope of a project is determined, near the end of the process.

- C. Grantee must provide a metes and bounds survey plat depicting the outgranted area; including digital survey data for incorporation into the Corps' Geographical Information System (GIS).

VI. Contact information

Falls Dam and Lake

Address:
Operations Manager
U.S. Army Corps of Engineers
Falls Lake
11405 Falls of Neuse Road
Wake Forest, NC 27587

Phone: (919) 846-9332
Fax: (919) 846-1261

B. Everett Jordan Lake

Mailing Address:
Operations Manager
U.S. Army Corps of Engineers
B. Everett Jordan Lake
PO Box 144
Moncure, North Carolina 27559

Street Address:
Jordan Lake Visitor Assistance Center
2080 Jordan Dam Road
Moncure, North Carolina 27559

Phone: 919-542-4501
Fax: 919-542-3972

John H. Kerr Dam and Reservoir

Address:
Operations Manager
U.S. Army Corps of Engineers
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**APPENDIX H
MASTER PLAN UPDATE MEMOS**

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Department of the Army
Wilmington District, Corps of Engineers
69 Darlington Avenue
Wilmington, North Carolina 28403-1343

**Falls Lake
Master Plan Update Memorandum**

Description of Change:

Justification for Change:

Page Numbers Removed from Master Plan:

Pages Added to Master Plan:

Approvals

Carol Banaitis, Piedmont Operations Project Manager Date

Daniel Brown, Chief, Lakes Branch Date

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**APPENDIX I
LAWS AND REGULATIONS**

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General Laws and Authorities

Public Law 534, 78th Congress (58 Stat. 887), 22 December 1944. Flood Control Act of 1944, as amended. This Act authorizes the construction of certain public works on rivers and harbors for flood control and other purposes. Section 4 authorizes providing facilities at reservoir areas for public use, including recreation and fish and wildlife conservation. As amended in 1962 by Section 297 of Public Law 87-874, the Act authorizes USACE to develop and maintain park and recreation facilities at all water resources projects controlled by the Secretary of the Army.

Public Law 88-578 (78 Stat. 897), 3 September 1964, Land and Water Conservation Fund Act of 1965, as amended. Planning for recreation development at USACE projects is coordinated with the appropriate states so that the plans are consistent with public needs as identified in the respective state's outdoor recreation plans.

Public Law 89-72 (79 Stat. 213), 9 July 1965, Federal Water Project Recreation Act, as amended. This Act requires that full consideration be given for recreation and fish and wildlife enhancement opportunities; that recreation planning be based on coordination of use with existing and planned Federal, State, and local recreation; and that non-Federal administration of recreation and enhancement areas be encouraged. It requires that no facilities for recreation and fish and wildlife enhancement be provided without cost sharing except those justified to serve other project purposes or as needed for public health and safety. The views of the Secretary of the Interior regarding the extent to which proposed recreation and fish and wildlife development conforms to and is in accordance with the respective state's outdoor recreation plan shall be included in any project report.

Public Law 90-483 (82 Stat. 731), 13 August 1968, Rivers and Harbors Act of 1968, as amended. This Act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and other purposes. Section 210 restricts the collection of entrance fees at USACE lakes and reservoirs after 31 March 1970 to users of highly developed facilities requiring the continuous presence of personnel. No authorization under this Act is required to implement this Master Plan, as the law specifically exempts USACE from regulation under Section 10. However, activities by other entities in waters of the U.S. at Falls Lake are regulated under Section 10. Work such as a boat dock installation or water intake line requires a Section 10 permit application; for work that includes placing fill, a joint Section 404/10 permit application can be made.

Executive Order 11644, 8 February 1972, Use of Off-Road Vehicles on Public Lands. This Executive Order establishes a uniform Federal policy regarding the use of vehicles; such as trail bikes, snowmobiles, dune buggies, and other off-road vehicles; on public lands. Section 3 provides guidance for establishing zones of use for such vehicles. This order was amended by Executive Order 11989. Currently USACE prohibits off-road vehicle use on project lands.

Public Law 99-662 (100 Stat. 4082), 17 November 1986, Water Resources Development Act of 1986. This legislation sets forth non-Federal cost-sharing requirements for all water resources projects. Section 906 of this Act supplements the responsibility and authority of the Secretary of the Army pursuant to the Fish and Wildlife Coordination Act. This section requires any mitigation for fish and wildlife losses to be undertaken or acquired before any construction of the project commences, or shall be undertaken or acquired concurrently with lands and interests in lands for project purposes. USACE will coordinate with USFWS when constructing any projects under the master plan and will address any fish and wildlife mitigation that is required before the construction of any project commences.

Environmental Quality Statutes

40 Stat. 755, 13 July 1918, Migratory Bird Treaty Act (MBTA), as amended. The MBTA of 1918 is the domestic law that affirms, or implements, the United States' commitment to four international conventions with Canada, Japan, Mexico and Russia for the protection of shared migratory bird resources. The MBTA governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts and nests. The take of all migratory birds is governed by the MBTA's regulation of taking migratory birds for educational, scientific, and recreational purposes and requiring harvest to be limited to levels that prevent overutilization. Executive Order 13186 (2001) directs executive agencies to take certain actions to implement the Act. When development proposed in the master plan is scheduled to occur, compliance with the MBTA will be considered along with environmental compliance for the specific activities.

54 Stat. 250, 8 June 1940, Bald Eagle Protection Act of 1940, as amended. This Act prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who take, possess, sell, purchase, barter, offer to sell, transport, export or import, at any time or any manner, any bald eagle . . . [or any golden eagle], alive or dead, or any part, nest, or egg thereof. The Act defines take as pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb. Individual projects proposed as a result of the master plan will adhere to the management guidelines developed by the USFWS to avoid disturbing bald eagles.

Public Law 83-566 (68 Stat. 666), 5 August 1954, Watershed Protection and Flood Prevention Act. This Act authorizes the Secretary of Agriculture to cooperate with states and other public agencies in works for flood prevention and soil conservation, as well as the conservation, development, utilization, and disposal of water. This Act imposes no requirements on USACE Civil Works projects.

Public Law 85-624 (72 Stat. 563), 12 August 1958, Fish and Wildlife Coordination Act. This law amends and renames the Fish and Wildlife Coordination Act of 10 March 1934. The 1958 Act requires that: (1) fish and wildlife conservation receive equal consideration with other features of water resources development programs; (2) proposals for work affecting any body of water be coordinated with the USFWS and State wildlife agencies; (3) recommendations of the USFWS and State wildlife agencies be given full consideration; and (4) justifiable means and measures for wildlife purposes, including mitigation measures, be adopted. It also required that adequate provisions be made for the use of project lands and waters for the conservation, maintenance, and management of wildlife resources, including their development and improvement. The Act provides that the use of project lands primarily for wildlife management by others be in accordance with a general plan approved jointly by the Department of the Army, Department of the Interior, and State wildlife agencies. When site-specific proposals are made under the Master Plan, USACE will coordinate with the USFWS, the North Carolina Department of Natural Heritage, and other relevant State and local agencies.

Public Law 86-717 (74 Stat. 817), 6 September 1960, Conservation of Forest Lands in Reservoir Areas. This law requires that USACE managed lands be developed and maintained to encourage adequate forest resources. Forest management programs must be administered to increase the value of project lands for recreation and wildlife and to promote natural ecological conditions by following accepted conservation practices.

Public Law 87-88 (75 Stat. 204), 20 July 1961, Federal Water Pollution Control Act Amendments of 1961, as amended. Section 2 (b) (1) of this Act gives USACE responsibility for water quality management of USACE reservoirs. This law was amended by the Federal Water Pollution Control Act Amendment of 1972, Public Law 92-500.

Public Law 89-80 (79 Stat. 244), 20 July 1965, Water Resources Planning Act. This Act is a congressional statement of policy to meet rapidly expanding demands for water throughout the nation. The purpose is to encourage the conservation, development, and use of water-related land resources on a comprehensive and coordinated basis by the Federal, State, and local governments; individuals; corporations; business enterprises; and others concerned. USACE held public open houses and agency meetings and invited public input on the Master Plan update and associated PEA.

Public Law 90-583 (82 Stat. 1146), 17 October 1968, Noxious Plant Control. This law provides for control of noxious weeds on land under the control of the Federal government. Resource Objectives and Development Needs for management units include the control of noxious weeds.

Public Law 91-190 (83 Stat. 852), 1 January 1970, National Environmental Policy Act of 1969, as amended. Section 101 of this Act establishes a national environmental policy. Section 102 requires that all Federal agencies shall, to the fullest extent possible, (1) use a systematic, interdisciplinary approach that integrates natural and social sciences and environmental design arts in planning and decision making; (2) study, develop, and

describe appropriate alternatives to recommend courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources; and (3) include an EIS in every recommendation or report on proposals for major Federal actions significantly affecting the quality of the human environment. A PEA and FONSI have been prepared for the proposed update to the Master Plan, as an EIS is not required.

Public Law 91-224 (84 Stat. 114), 3 April 1970, Environmental Quality Improvement Act of 1970. This Act assures that each Federal department or agency conducting or supporting public works activities which affect the environment shall implement the policies established under existing law. USACE ensures that activities at Falls Lake are in compliance with existing laws.

Public Law 91-604 (84 Stat. 1676), 31 December 1970, Clean Air Act, as amended. The purpose of this Act is to protect public health and welfare by the control of air pollution at its source, and to set forth primary and secondary National Ambient Air Quality Standards to establish criteria for states to attain, or maintain. Some temporary emission releases may occur during construction activities that are recommended under the master plan; however, air quality is not expected to be impacted to any measurable degree.

Public Law 92-500 (86 Stat. 816), 18 October 1972, The Federal Water Pollution Control Act Amendments of 1972, as amended. This law amends the Federal Water Pollution Control Act and establishes a national goal of eliminating pollutant discharges into waters of the United States. Section 404 authorizes a permit program for the disposal of dredged or fill material in the nation's waters that is to be administered by the Secretary of the Army acting through the Chief of Engineers. This law was later amended by the Clean Water Act of 1977, Public Law 95-217, to provide additional authorization to restore the Nation's water. The project is in compliance with this law. If any construction activities involve the temporary or permanent placement of dredged or fill material into any water body or wetland area at Falls Lake, a permit pursuant to Section 404 is required.

Public Law 92-574 (86 Stat. 1234), 27 October 1972, Noise Control Act, as amended. This Act establishes a national policy to promote an environment for all Americans free from noise that jeopardizes their health and welfare. Federal agencies are required to limit noise emissions to within compliance levels. Noise emission levels at sites where development was proposed in the updated Falls Lake Master Plan would increase above current levels temporarily during periods of construction; however, appropriate measures would be taken to keep the noise level within the compliance levels.

Public Law 93-205 (87 Stat. 884), 28 December 1973, Conservation, Protection, and Propagation of Endangered Species Act of 1973, as amended. This law repeals the Endangered Species Conservation Act of 1969. It also directs all Federal departments/agencies to carry out programs to conserve endangered and threatened species of fish, wildlife, and plants and to preserve the habitat of these species in consultation with the Secretary of the Interior. This Act establishes a procedure for coordination, assessment, and consultation. This Act was amended by Public Law 96-159.

Public Law 93-523 (88 Stat. 1660), 16 December 1974, Safe Drinking Water Act, as amended. This Act amends the Public Health Service Water Act to assure that the public is provided with safe drinking water. This law states that all potable water at civil works projects will meet or exceed the minimum standards required by law. This Act was amended by the Safe Drinking Water Act Amendments of 1986, Public Law 99-339 of 1986, and Public Law 104-182.

Public Law 93-629, (88 Stat. 2148), 3 January 1975, Federal Noxious Weed Act of 1974, as amended. Section 15, added to the Act in 1990, requires noxious weed control management on Federal lands and sets forth the process by which it is to be accomplished.

Executive Order 11988, 24 May 1977, Floodplain Management. This order outlines the responsibilities of Federal agencies in the role of floodplain management. Each agency shall evaluate the potential effects of actions on floodplains and should not undertake actions that directly or indirectly induce growth in the floodplain, unless there is no practical alternative. Agency regulations and operating procedures for licenses and permits should include provisions for evaluation and consideration of flood hazards. Construction of structures and facilities on floodplains must incorporate flood proofing and other accepted flood protection measures. Agencies shall attach appropriate use restrictions to property proposed for lease, easement, right-of-way, or disposal to non-Federal public or private parties.

Executive Order 11990, 24 May 1977, Protection of Wetlands. This order directs Federal agencies to provide leadership in minimizing the destruction, loss, or degradation of wetlands. Section 2 states that agencies shall avoid undertaking or assisting in new construction located in wetlands unless there is no practical alternative. Prior to construction of any facilities proposed in the Falls Lake Master Plan update, a site-specific NEPA analysis, including an assessment of potential impacts to wetlands, would be coordinated with Federal and State agencies. If a Section 404 permit is required, coordination regarding compliance with the Executive Order would be accomplished prior to permit issuance.

Public Law 95-217 (91 Stat. 1566), 27 December 1977, Clean Water Act of 1977, as amended. This Act amends the Federal Water Pollution Control Act of 1970 and extends the appropriations authorization. The Clean Water Act is a comprehensive Federal water pollution control program that has as its primary goal the reduction and control of the discharge of pollutants into the nation's navigable waters. The Clean Water Act of 1977 has been amended by the Water Quality Act of 1987, Public Law 100-4. Any action involving placement of fill in waters of the U.S. at Falls Lake by USACE or other entity, with the exception of certain minor activities as discussed in 33 CFR Part 323.4, would require a Section 404 authorization and Section 401 water quality certification.

Executive Order 12088, 13 October 1978, Federal Compliance with Pollution Control Standards. The purpose of this order is to ensure Federal compliance with applicable pollution control standards. Section 1-4, Pollution Control Plan, in which each agency was required to submit an annual plan for the control of environmental pollution to the Office of Management and Budget, was revoked by Executive Order 13148, which was revoked by Executive Order 13423.

Public Law 95-632 (92 Stat. 3751), 10 November 1978, Endangered Species Act Amendments of 1978. This law amends the Endangered Species Act Amendments of 1973. Section 7 directs agencies to conduct a biological assessment to identify threatened or endangered species that may be present in the area of any proposed project. This assessment is conducted as part of a Federal agency's compliance with the requirements of Section 102 of NEPA. USACE would conduct biological assessments on proposed projects when necessary.

Public Law 96-159 (93 Stat. 3751), 28 December 1979, Endangered Species Act of 1973, as amended. This amendment expanded the Act to protect endangered plants. This amendment requires the publishing of a summary and map when proposing land as critical habitat and requires Federal agencies to ensure projects "are not likely" to jeopardize an endangered species. In addition, it authorizes all those seeking exemptions from the Act to get permanent exemptions for a project unless a biological study indicates the project would result in the extinction of a species. USACE would ensure that any development or management activities proposed in the master plan are not likely to jeopardize an endangered species.

Public Law 96-366 (94 Stat. 1322), 29 September 1980, Fish and Wildlife Conservation Act of 1980. This law enables states to obtain funds to conduct inventories and conservation plans for nongame wildlife. It also encourages Federal departments and agencies to use their statutory and administrative authority to conserve and promote conservation in accordance with this Act. This Master Plan update promotes conservation at Falls Lake by including Resource Objectives and Development Needs that protect and enhance wildlife habitat.

Public Law 96-510 (94 Stat. 2797), 11 December 1980, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Typically CERCLA is triggered by (1) the release or substantial threat of a release of a hazardous substance into the environment; or (2) the release or substantial threat of a release of any pollutant or contaminant into the environment that presents an imminent threat to the public health and welfare. To the extent such knowledge is available, 40 CFR Part 373 requires notification of CERCLA hazardous substances in a land transfer. Compliance with this Act is required on a case-by-case basis for real estate activities such as easements, grants, etc.

Public Law 97-98 (95 Stat. 1341), 22 December 1981, Farmland Protection Policy Act. This Act instructs the Department of Agriculture, in cooperation with other departments, agencies, independent commissions and other units of the Federal government, to develop criteria for identifying the effects of Federal programs on the conversion of farmland to nonagricultural uses. The master plan does not propose any changes to agricultural land.

Public Law 99-339 (100 Stat. 642), 19 June 1986, Safe Drinking Water Act Amendments of 1986. These amendments provide further regulation regarding national primary drinking water, enforcement of these regulations, and variances and exemptions to the Act. These amendments also provide for the protection of underground sources of drinking water.

Public Law 100-4 (101 Stat. 7), 4 February 1987, Water Quality Act of 1987. This Act amends the Federal Water Pollution Control Act to not only provide for renewal of the quality of the nation's waters but also provide construction grant amendments, standards, enforcement, permits, and licenses. This Act includes more provisions for monitoring non-point source pollution (contaminants that come from many different sources).

Public Law 101-233 (103 Stat. 1968), 13 December 1989, North American Wetlands Conservation Act. This Act establishes the North American Wetlands Conservation Council (16 U.S.C. 4403) to recommend wetlands conservation projects to the Migratory Bird Conservation Commission. Section 9 of the Act addresses the restoration, management, and protection of wetlands and habitat for migratory birds on Federal lands. Federal agencies acquiring, managing, or disposing of Federal lands and waters are to cooperate with the USFWS to restore, protect, and enhance wetland ecosystems and other habitats for migratory birds, fish and wildlife on their lands, to the extent consistent with their missions and statutory authorities. Prior to construction of any facilities proposed in this Master Plan update, a site-specific NEPA analysis, including an assessment of potential impacts to wetlands, would be coordinated with Federal and State agencies.

Executive Order 12692, 7 June 1995, Recreational Fisheries. This Executive Order mandates that Federal agencies, to the extent permitted by law and where practicable, improve the quality, function, and sustainable productivity and distribution of aquatic resources for increased recreational fishing opportunities. USACE will continue to cooperate with State and local agencies to manage fisheries at Falls Lake. Many management units include a Resource Objective to provide and maintain access to Falls Lake for fishing.

Public Law 104-182 (110 Stat. 1613), 6 August 1996, Safe Drinking Water Act Amendments of 1996. These amendments strengthen protections on tap water, improve public access to tap water contaminant information, strengthen standards to protect public health from the most significant threats to safe drinking water, and provide money that communities need to upgrade drinking water systems. North Carolina enforces the amendments at public works systems throughout the State.

Executive Order 13112, 3 February 1999, Invasive Species. This Executive Order directs Federal agencies to Act to prevent the introduction of or to monitor and control invasive (non-native) species, to provide for restoration of native species, to conduct research, to promote educational activities, and to exercise care in taking actions that could promote the introduction or spread of invasive species. Resource Objectives and Development Needs for management units include the control of invasive species.

Executive Order 13195, 18 January 2001, Trails for America in the 21st Century. This Executive Order requires Federal agencies to protect, connect, promote, and assist trails of all types throughout the United States. Development of additional trails is included in the analysis and recommendations in this document.

Executive Order 13352, 26 August 2004, Facilitation of Cooperative Conservation.

This Executive Order requires that the Secretaries of the Interior, Agriculture, Commerce, and Defense and the Administrator of the Environmental Protection Agency shall carry out the programs, projects, and activities of the agency that they respectively head that implement laws relating to the environment and natural resources in a manner that: a) facilitates cooperative conservation; b) takes appropriate account of and respects the interests of persons with ownership or other legally recognized interests in land and other natural resources; c) properly accommodates local participation in Federal decision making; and d) provides that the programs, projects, and activities are consistent with protecting public health and safety. The Falls Lake office coordinates with Federal, State and local agencies and non-governmental organizations to develop, manage, and monitor resources at Falls Lake.

Executive Order 13423, 24 January 2007, Strengthening Federal Environmental, Energy, and Transportation Management.

This Executive Order requires Federal agencies to conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically and fiscally sound, integrated, continuously improving, efficient, and sustainable manner. The order sets goals in the areas of energy efficiency, acquisition, renewable energy, toxic chemical reduction, recycling, sustainable buildings, electronics stewardship, fleets, and water conservation.

Executive Order 13443, 17 Aug 2007, Facilitation of Hunting Heritage and Wildlife Conservation.

The purpose of this order is to direct Federal agencies that have programs and activities that have a measurable effect on public land management, outdoor recreation, and wildlife management, including the Department of the Interior and the Department of Agriculture, to facilitate the expansion and enhancement of hunting opportunities and the management of game species and their habitat. Resource Objectives and Development Needs for many management units at Falls Lake include providing and maintaining lake access for hunting and providing opportunities for hunting.

Cultural Resource Statutes

Public Law 59-209, 59th Congress (34 Stat. 225), 8 June 1906, The Antiquities Act.

This Act makes it a Federal offense to appropriate, excavate, injure, or destroy any antiquity, historic ruin, monument, or object of scientific interest located on lands owned or controlled by the United States without having permission from the Secretary of the department having jurisdiction thereof. Paleontological resources are regulated under this Act. USACE works with all law enforcement agencies to maintain a network of individuals that would be able to respond quickly to incidents of looting and artifact collecting.

Public Law 86-523 (74 Stat. 220), 27 June 1960, Reservoir Salvage Act, as amended.

This Act provides for (1) the preservation of historical and archaeological data that might otherwise be lost or destroyed as the result of flooding or any alteration of the terrain caused as a result of any Federal reservoir construction projects; (2) coordination with the Secretary of the Interior whenever activities may cause loss of scientific, prehistoric, or archaeological data; and (3) expenditure of funds for recovery, protection, and data preservation. This Act was amended by Public Law 93-291. Any construction proposed at Falls Lake connected to operation and maintenance of the facility is reviewed in advance by USACE Wilmington District cultural resources staff. In all cases avoidance of historic properties is the preferred alternative. When such disturbance is unavoidable, suitable protection or data recovery will be implemented as required by the Act.

Public Law 89-665 (80 Stat. 915), 15 October 1966, National Historic Preservation Act, as amended (NHPA).

This Act states a policy of preserving, restoring, and maintaining cultural resources and requires that Federal agencies (1) take into account the effect of any undertaking on any site on or eligible for the National Register; (2) afford the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on such undertaking; (3) nominate eligible properties to the National Register; (4) exercise caution in the disposal and care of Federal property that might qualify for the National Register; and (5) provide for the maintenance of Federally owned sites on the National Register. All ground-disturbing activities proposed on Falls Lake project lands are coordinated in advance with the SHPO, ACHP, and any other interested parties under Section 106 of the Act.

Executive Order 11593, 13 May 1971, Protection and Enhancement of the Cultural Environment.

Section 2 of the order outlines the responsibilities of Federal agencies in accordance with NEPA, NHPA, the Historic Sites Act of 1935, and the Antiquities Act of 1906. Section 3 outlines specific responsibilities of the Secretary of the Interior including review and comment upon Federal agency procedures submitted under this order.

Public Law 93-291 (88 Stat. 174), 24 May 1974 Preservation of Historical and Archeological Data.

This Act amends the Reservoir Salvage Act, Public Law 86-523, to provide for the preservation of historical and archaeological data (including relics and specimens), which might otherwise be lost as the result of the construction of a dam. Section 3(a) requires any Federal agency to notify the Secretary of the Interior in writing when the agency finds, or is notified in writing by an appropriate historical or archaeological authority, that its activities in connection with any Federal construction project or Federally licensed project, activity, or program may cause irreparable loss or destruction of significant scientific, prehistoric or archaeological data. Section 7(a) requires any Federal agency responsible for a construction project to assist/transfer to the Secretary of the Interior such funds as may be agreed upon, but not more than 1 percent of the total appropriated project costs. The costs of survey, recovery, analysis, and publication shall be considered non-reimbursable project costs. USACE will notify the Secretary of the Interior in writing if a USACE activity may destroy significant scientific, prehistoric, or archeological data.

Public Law 95-341 (92 Stat. 469), 11 August 1978, American Indian Religious Freedom Act of 1978. The Act protects the rights of Native Americans to exercise their traditional religions by ensuring access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites. No proposals in the updated Master Plan would adversely affect the protections offered by this Act. Access to sacred sites by tribal members would be provided.

Public Law 96-95 (93 Stat. 721), 31 October 1979, Archaeological Resources Protection Act of 1979. This Act protects archaeological resources and sites that are on public and tribal lands, and fosters increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals. It also establishes requirements for issuance of permits by the Federal land managers to excavate or remove any archaeological resource located on public or Indian lands. All persons proposing to engage in archeological excavation on Falls Lake project lands are required to apply for and obtain a permit under this Act.

Public Law 101-601 (104 Stat. 3042), 16 November 1990, Native American Graves Protection and Repatriation Act. This Act provides for the protection of Native American and Native Hawaiian cultural items. It establishes a process for the authorized removal of human remains, funerary, sacred, and other objects of cultural patrimony from sites located on land owned or controlled by the Federal government. The Act requires Federal agencies and Federally assisted museums to return specified Native American cultural items to the Federally recognized Indian tribes or Native Hawaiian groups with which they are associated. Notification of all inadvertent discoveries of such items covered by the Act is reported to the appropriate affiliated descendant or tribe in order of precedence as set by the Act. Any claims to such items are reviewed and the procedures to repatriate within the Act are followed.

Executive Order 12898, 11 February 1994, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. Federal agencies shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States. Development and management activities proposed in this Master Plan will not disproportionately impact minority or low-income populations.

Executive Order 13007, 24 May 1996, Indian Sacred Sites. This Executive Order requires that agencies avoid damage to Indian sacred sites on Federal land, and avoid blocking access to such sites for traditional religious practitioners. The Federal government gives tribes notice when an impact to a sacred site occurs.

Executive Order 13175, 6 November 2000, Consultation and Coordination with Indian Tribal Governments. This Executive Order requires regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, to strengthen the United States government-to-government relationships with Indian tribes, and to reduce the imposition of unfunded mandates upon Indian tribes. Section 3 establishes policymaking criteria when formulating and implementing policies that have tribal implications. Section 5 (a) says each agency shall have an accountable process to ensure meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications. Tribal representatives were consulted with as part of the Falls Lake Master Plan update and PEA scoping and were provided copies of the Draft Master Plan and Draft PEA for review.

Executive Order 13287, 3 March 2003, Preserve America. This Executive Order encourages Federal agencies to recognize and manage the historic properties in their ownership as assets that can support department and agency missions while contributing to the vitality and economic well-being of the Nation's communities. This Executive Order also encourages Federal agencies to seek partnerships with State, tribal, and local governments and the private sector to make more efficient and informed use of their historic, prehistoric, and other cultural resources for economic development and other recognized public benefits.

North Carolina Water Quality Statutes

Watershed Protection Act (North Carolina General Statute 142-214.5). All local governments that have land use jurisdiction within a water supply watershed must adopt and implement watershed protection ordinances per N.C.G.S. 143-214.5 and Rules 15A NCAC 02B .0100 and .0200. State and federal development projects within the water supply watershed must also comply with these Rules.

**APPENDIX J
FIGURES**

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