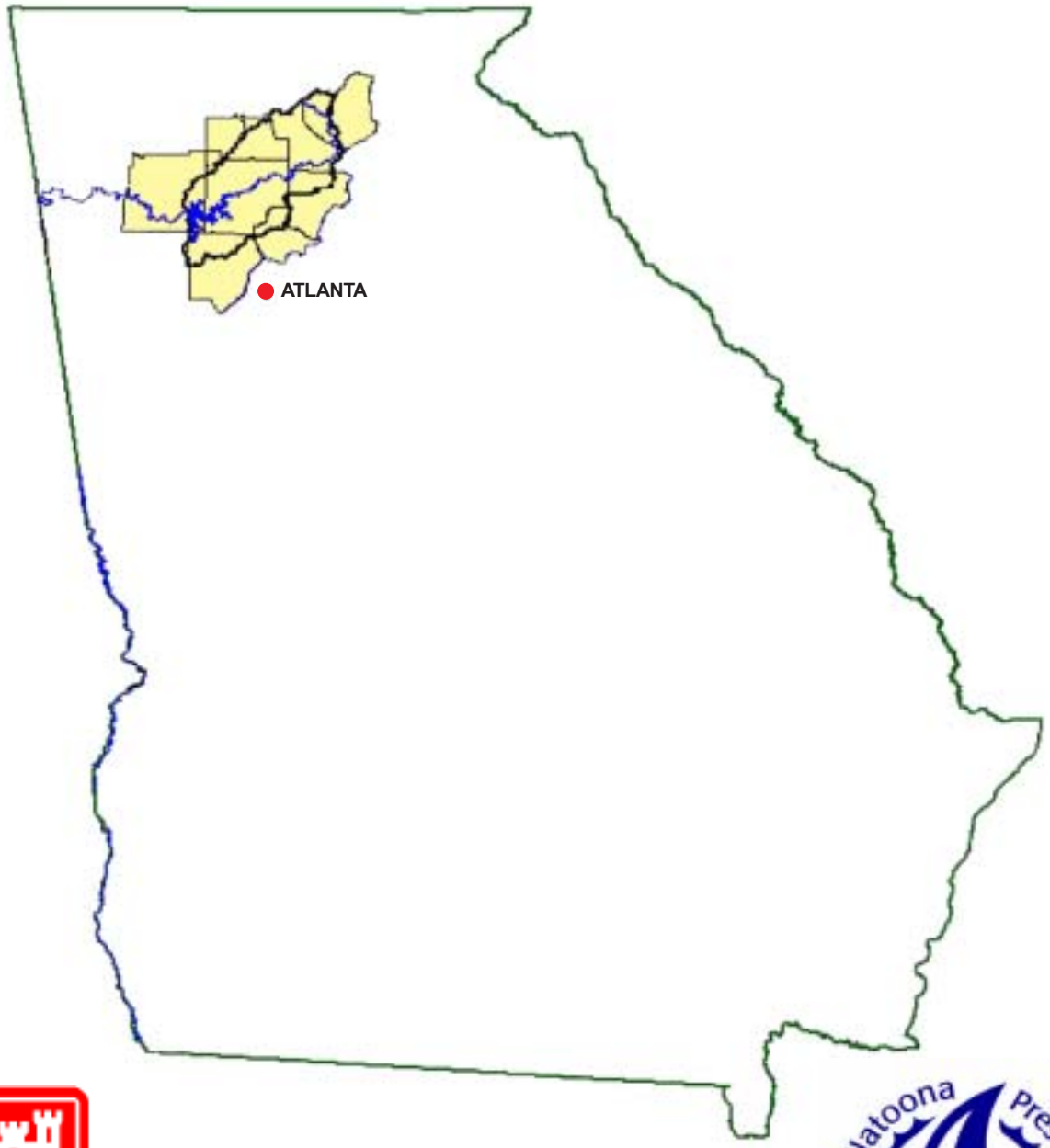
PROJECT MANAGEMENT PLAN FOR FEASIBILITY STUDY: LAKE ALLATOONA / ETOWAH RIVER WATERSHED ECOSYSTEM RESTORATION AND RESOURCE PROTECTION

LAKE ALLATOONA, GEORGIA



US Army Corps of Engineers
Mobile District

May 2002

Lake Allatoona Preservation Authority

STATEMENT OF CERTIFICATION

PROJECT MANAGEMENT PLAN

LAKE ALLATOONA/ETOWAH RIVER WATERSHED ECOSYSTEM RESTORATION AND RESOURCE PROTECTION FEASIBILITY STUDY, GEORGIA

This is to certify that the undersigned concur in the scope, structure, and cost estimate for the subject study based on FY 2001 salary levels.

L. DOUGLAS TURNEY, P.E.
Deputy District Engineer for Project Management

CURTIS M. FLAKES
Chief, Planning and Environmental Division

HAROLD M. SMITH, P.E.
Chief, Engineering Division

DONALD L. BURCHETT
Chief, Real Estate Division

WILLIAM W. FULLER
Chief, Operations and Readiness Division

JOSEPH A. GONZALES
District Counsel, Office of Counsel

ROBERT L. SUTTON, JR.
Chairman, Lake Allatoona Preservation Authority

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LAKE ALLATOONA/ETOWAH RIVER WATERSHED ECOSYSTEM RESTORATION AND RESOURCE PROTECTION FEASIBLILITY STUDY, GEORGIA

PRODUCT DELIVERY TEAM MEMBERS

This is to certify that the undersigned have participated in the development of, reviewed, and concur in the scope, structure, and cost estimate for the subject study based on FY 2001 salary levels.

RON PAPALEONI, General Manager
Lake Allatoona Preservation Authority

GLENDON L. COFFEE
Senior Planner

THOMAS SMITH, P.E.
Project Manager

JERRY D. JONES
Environmental Engineer

DAVID LUCKIE
Economist

REID S. FERRILL
Real Estate

RANDALL B. HARVEY
Hydraulic Engineer

RON L. NETTLES
Civil Engineer

JAMES E. HATHORN, JR.
Hydraulic Engineer

ROBERT A. ALLEN
Civil Engineer

CECIL L. JERNIGAN, JR.
Project Architect/Engineer

JAMES T. SHINALL
Environmental Compliance Coordinator

PROJECT MANAGEMENT PLAN

LAKE ALLATOONA/ETOWAH RIVER WATERSHED ECOSYSTEM RESTORATION AND RESOURCE PROTECTION FEASIBILITY STUDY, GEORGIA

TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

ACRONYMS

A listing of the acronyms used in this PMP is provided below.

Acronym	Title
ACHP	Advisory Council On Historic Preservation
AFB	Alternative Formulation Briefing
ASACW	Office Of The Assistant Secretary Of The Army (Civil Works)
BMP	Best Management Practice
BOD	Biological Oxygen Demand
CEFMS	Corps Of Engineers Financial Management System
CPM	Critical Path Method
CWBS	Civil Works Breakdown Structure
EA	Environmental Assessment
EC	Engineering Circular
ED	Engineering Division
EPD	Environmental Protection Division (of Georgia)
EQ	Environmental Quality
ER	Engineering Regulation
FCSA	Feasibility Cost-Sharing Agreement
FONSI	Finding Of No Significant Impact
FRC	Feasibility Review Conference
GIS	Geographic Information System
GLUT	Georgia Land Use Trends
HQUSACE	Headquarters, U.S. Army Corps of Engineers
HTRW	Hazardous/Toxic/Radiological Waste
IPMP	Initial Project Management Plan
IRCs	Issue Resolution Conferences
ITR	Independent Technical Review
IWR	Institute for Water Resources
LAPA	Lake Allatoona Preservation Authority
LCPM	Life Cycle Project Management
LERRD	Lands, Easements, Rights-Of-Way, Relocations And Disposal Areas
MFR	Memorandum For The Record
MOA	Memorandum Of Agreement
NED	National Economic Development

Acronym	Title
NEPA	National Environmental Policy Act
NER	National Environmental Restoration
NGVD	National Geodetic Vertical Datum
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
NRCS	Natural Resources Conservation Service
OBS	Organizational Breakdown Structure
OMB	Office of Management and Budget
OMRR&R	Operation, Maintenance, Repair, Replacement, and Rehabilitation
OSE	Other Social Effects
PCA	Project Cooperation Agreement
PD	Planning Division
PED	Pre-Construction Engineering And Design
PES	Project Executive Summary
PGM	Project Guidance Memorandum
PM	Project Manager
PMP	Project Management Plan
PPMD	Project And Programs Management Division
PRB	Project Review Board
PROMIS	Project Management Information System
PMP	Project Management Plan
RAM	Responsibility Assignment Matrix
RE	Real Estate Division
RED	Regional Economic Development
RES	Real Estate Supplement
ROD	Record Of Decision
SAD	South Atlantic Division
SAS	Savannah District
SCCR	Schedule And Cost Change Request
SHPO	State Historical Preservation Officer
SOF	Statement Of Findings
SOS	Scope Of Studies
TRC	Technical Review Conference
UDV	Unit Day Value
USEPA or EPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish And Wildlife Service

Acronym	Title
WBS	Work Breakdown Structure
WLRC	Washington Level Review Center

PROJECT MANAGEMENT PLAN

LAKE ALLATOONA/ETOWAH RIVER WATERSHED ECOSYSTEM RESTORATION AND RESOURCE PROTECTION FEASIBILITY STUDY, GEORGIA

SECTION 1 – OVERVIEW OF RESULTS OF RECONNAISSANCE PHASE INVESTIGATIONS

INTRODUCTION

This Project Management Plan (PMP) describes the manner in which the Feasibility Phase of the Lake Allatoona/Etowah River Watershed Ecosystem Restoration and Resource Protection Study will be conducted. The Feasibility Study was recommended by the previously completed Reconnaissance Phase investigations that determined a comprehensive plan for the watershed should be developed to address the environmental problems adversely affecting Lake Allatoona. This PMP, which will serve as the "blueprint" for the conduct of the Feasibility Study, was developed by the U.S. Army Corps of Engineers' Mobile District in cooperation with the Lake Allatoona Preservation Authority (the non-federal sponsor), and in coordination with the U.S. Environmental Protection Agency (USEPA).

The PMP describes the scope of study, schedule, and budget to accomplish the Feasibility Study tasks necessary to: (1) address shoreline erosion problems at Lake Allatoona; and (2) the environmental degradation problems that are adversely affecting the lake via the tributary drainage basins entering the lake. The PMP documents the assumptions, work tasks, level of detail necessary to accomplish the task, and work products that will be used to: (1) determine the existing and the future without project conditions; (2) formulate a range of alternatives; (3) assess the effects of the alternatives; and (4) present a clear

rationale for the selection of the plan to be recommended for implementation. This document provides:

- Detailed work task descriptions and a work breakdown structure;
- A division of responsibilities to be accomplished during the study by the Mobile District and the non-federal sponsor.
- A detailed project schedule.
- Cost summary tables.
- A quality control/internal technical review plan.

Upon certification by Headquarters, U.S. Army Corps of Engineers (HQUSACE), the Feasibility Study will be conducted at 50/50 cost-share arrangement between the federal government and the non-federal sponsor.

STUDY AUTHORITY

The Lake Allatoona/Etowah River Watershed Study was originally authorized by Section 413 of the Water Resources Development Act of 1999 (Public Law 106-53) as follows:

> **LAKE ALLATOONA, ETOWAH RIVER, AND LITTLE RIVER WATERSHED, GEORGIA.**
>
> (a) In General. – The Secretary, in cooperation with the Administrator of the Environmental Protection Agency, may carry out the following water-related environmental restoration and resource protection investigations into restoring Lake Allatoona, the Etowah River, and the Little River Watershed, Georgia:
>
> (1) LAKE ALLATOONA/ETOWAH RIVER SHORELINE RESTORATION INVESTIGATION. – Feasibility phase investigation to identify and recommend to Congress structural and non-structural measures to alleviate shore erosion and sedimentation problems along the shores of Lake Allatoona and the Etowah River.
>
> (2) LITTLE RIVER ENVIRONMENTAL RESTORATION INVESTIGATION. – Feasibility phase investigation to evaluate environmental problems and recommend environmental restoration measures (including appropriate environmental, structural and nonstructural measures) for the Little River watershed, Georgia.

The geographic scope of the study area and the environmental issues to be addressed in the study were subsequently expanded by Section 422 of the Water Resources Development Act of 2000 (PL 106-541) as follows:

> **LAKE ALLATOONA WATERSHED, GEORGIA.**
>
> (a) IN GENERAL. – The Secretary shall conduct a comprehensive study of the Lake Allatoona Watershed, Georgia, to determine the feasibility of undertaking ecosystem restoration and resource protection measures.
>
> (b) MATTERS TO BE ADDRESSED. – The study shall address streambank and shoreline erosion, sedimentation, water quality, fish and wildlife habitat degradation, and other problems relating to ecosystem restoration and resource protection in the Lake Allatoona Watershed.

STUDY AREA DESCRIPTION

Lake Allatoona in the upper Etowah River Basin is located approximately 32 miles northwest of the City of Atlanta as shown in Figure 1. Figure 2 contains a map of Lake Allatoona, while Figure 3 shows the overall watershed draining into the lake. The Lake Allatoona project was completed by the U.S. Army Corps of Engineers in 1950. The project purposes include flood control, regulation of stream flow for hydroelectric power, recreation, water supply, water quality, and fish and wildlife.

The Etowah River watershed above Allatoona Dam includes portions of nine counties: Cobb, Bartow, Cherokee, Fulton, Forsyth, Lumpkin, Dawson, Pickens, and Paulding. The Watershed spans a total area of approximately 725,940 acres, and can be divided into 12 principal subwatersheds as shown in Table 1.

PROBLEMS AND OPPORTUNITIES

Shoreline Erosion Problems. Lake Allatoona is 51 years old. The lake is operated with a seasonal drawdown for flood storage purposes in keeping with one of its principal authorized purposes. At the summer pool level of 840 NGVD, the lake has a surface area of 11,860 acres, while at the winter level of 823 NGVD, the surface area is reduced to 7,610 acres. Despite

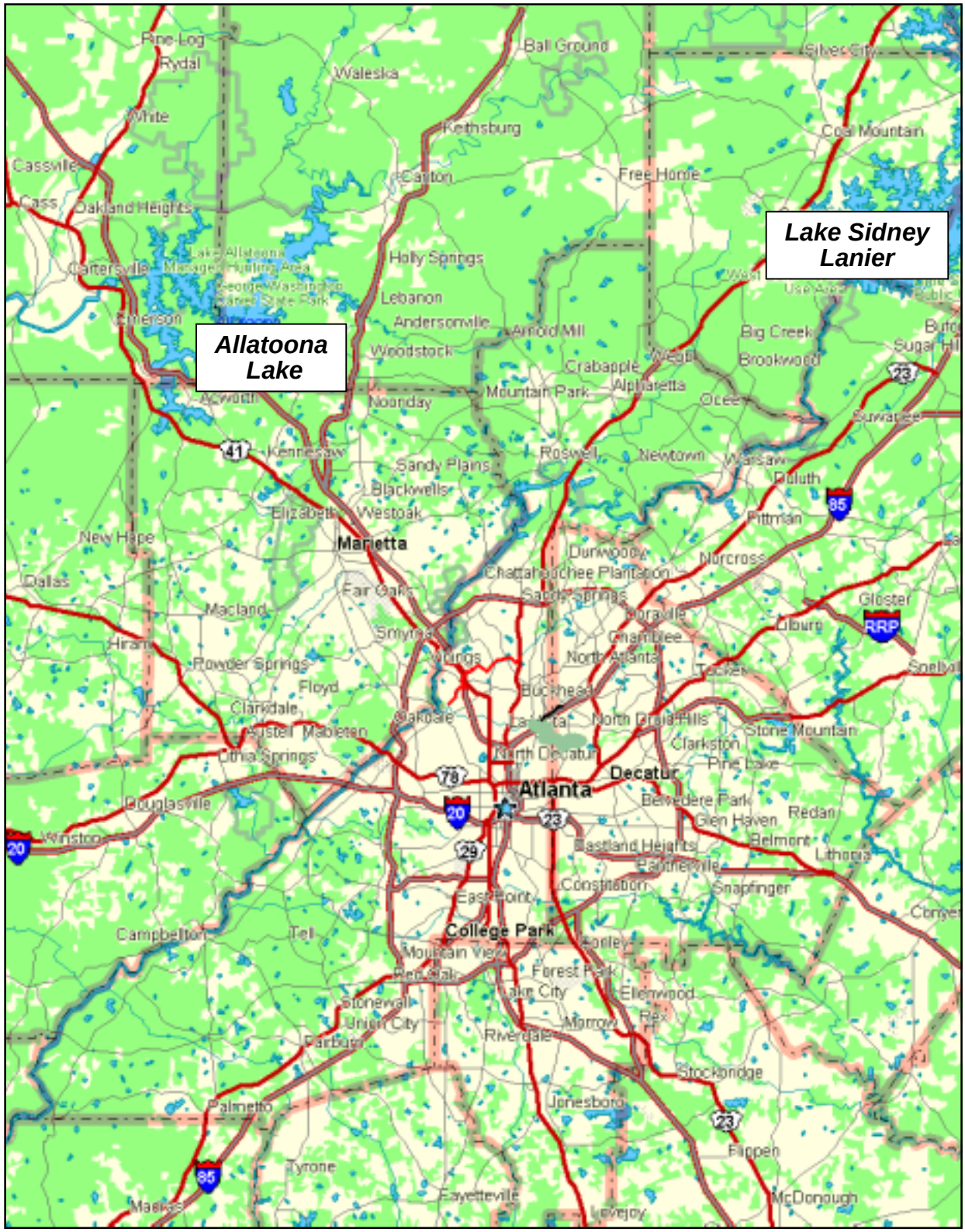


Figure 1
Relationship of Lake Allatoona to the Northwest Atlanta Metro Area

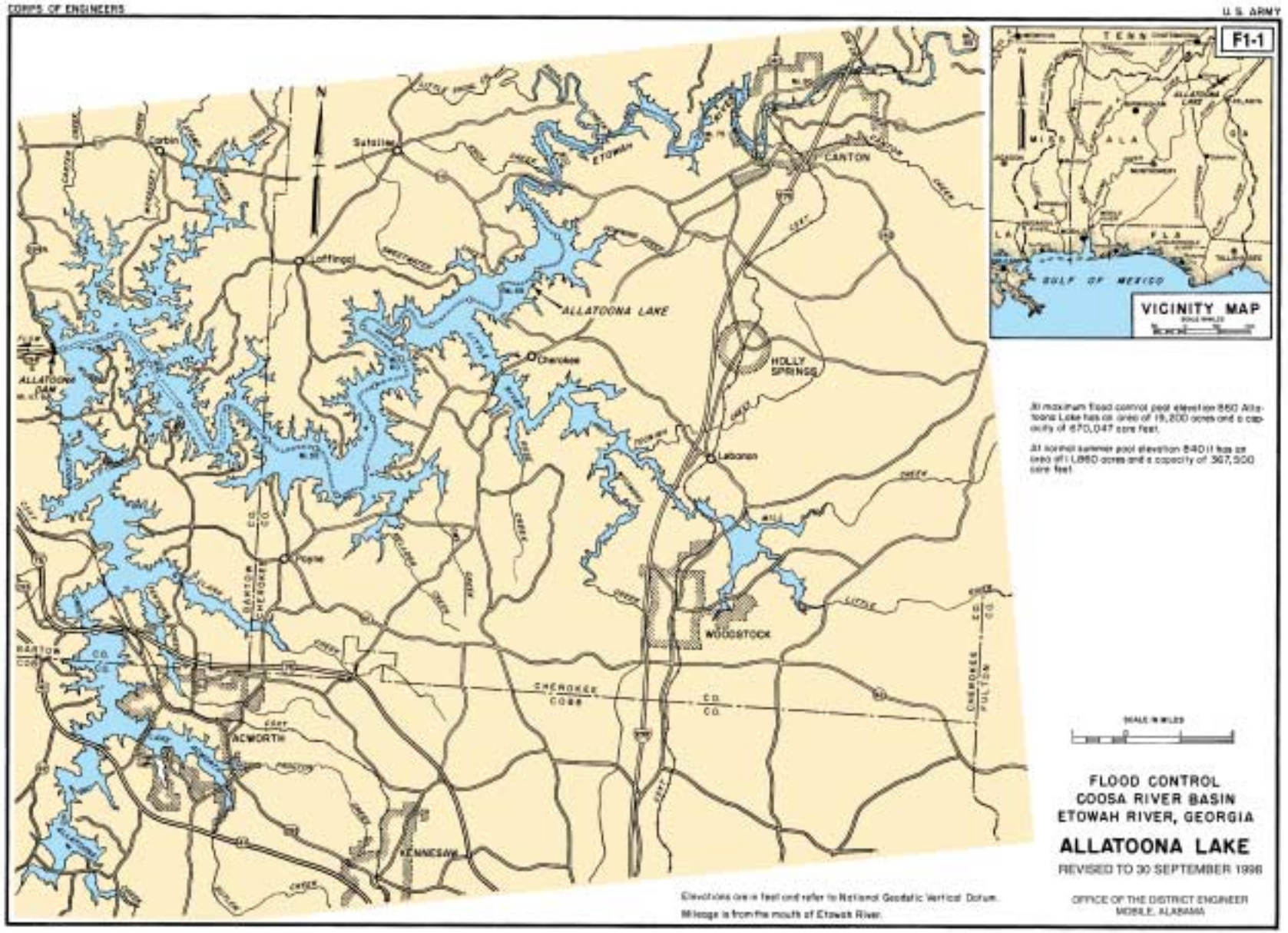
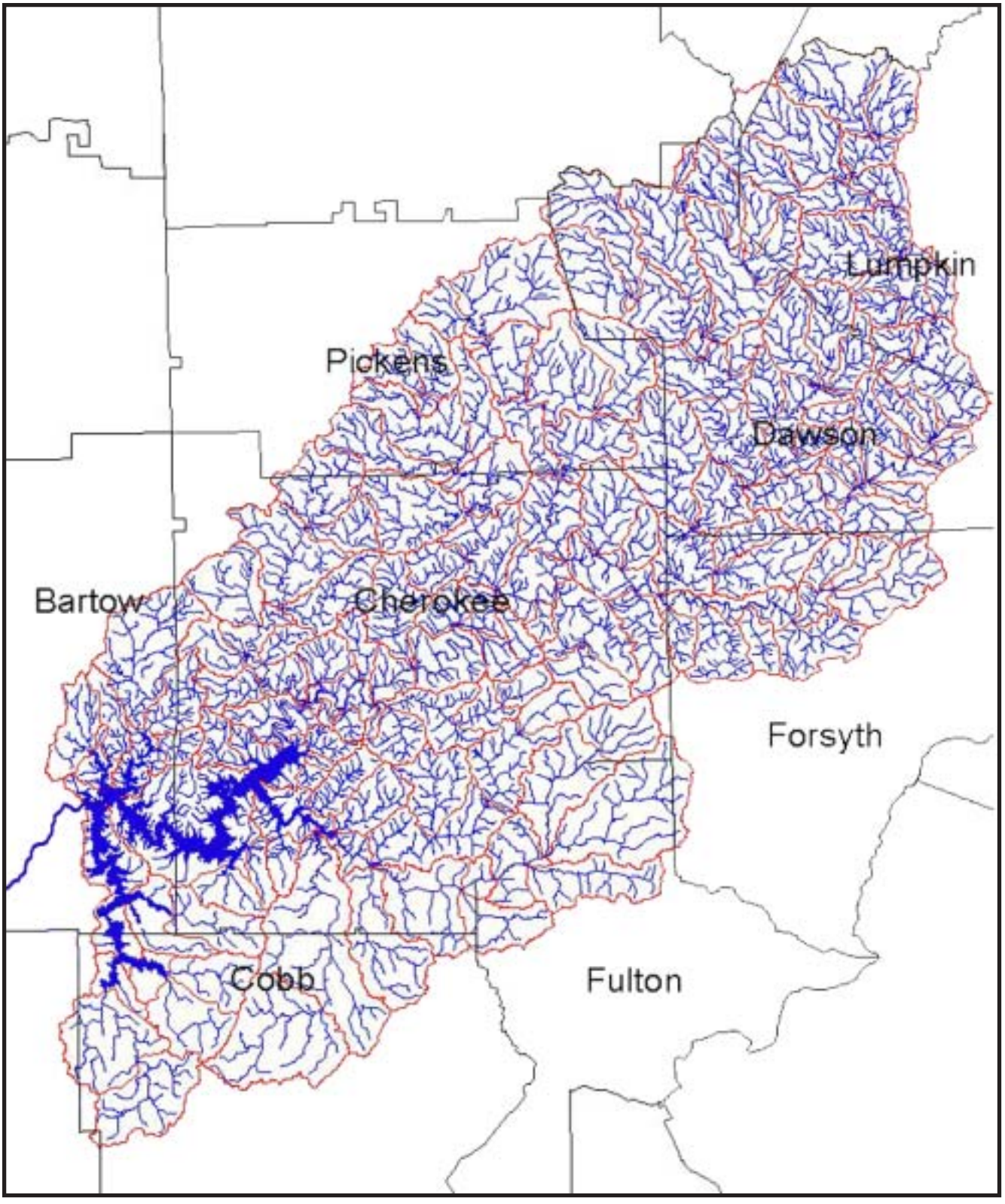


Figure 2
Allatoona Lake



LEGEND

- Counties
- Rivers and Streams
- Hydrologic Boundary

Figure 3
Lake Allatoona Watershed Study Area

the relatively small size of this multiple purpose project, the lake has a shoreline of 270 miles at the summer pool level.

Typical of multiple purpose reservoirs, the Lake Allatoona shoreline has experienced erosion over the years, with the amount and severity of erosion depending upon the location on the lake. The contributing factors are related to exposed geological features, local soil types, local topographic conditions, land use, lake level fluctuations, exposure of the shoreline to wave action and recreational boat wakes.

Table 1
Principal Subwatersheds in the Lake Allatoona Watershed

Subwatershed	County Coverage in Subwatershed	Drainage Basin (acres)	Percent of Total Watershed	Percent of Total Flow
Allatoona Creek	Cobb, Paulding	16,750	2.3	0.97
Lake Acworth	Cobb	12,480	1.7	0.32
Tanyard Creek	Cobb, Bartow	2,240	0.3	0.39
Noonday Creek	Cobb, Cherokee	32,555	4.5	3.91
Kellogg Creek	Cherokee	1,405	0.2	0.09
Owl Creek	Cherokee	1,665	0.2	0.04
Little River	Cobb, Cherokee, Fulton, Forsyth	92,630	12.8	13.27
Roland Spring Branch	Bartow	1,250	0.2	0.06
Stamp Creek	Bartow, Cherokee	11,200	1.5	1.04
Etowah River	Cherokee, Forsyth, Dawson, Pickens, Lumpkin	397,165	54.7	70.36
Shoal Creek	Bartow, Pickens	44,310	6.1	4.50
Lake Allatoona	Cobb, Cherokee, Bartow	112,290	15.5	4.58
TOTAL		725,940	100.0	** 99.53

Source: Clean Lakes Study. 1998. Prepared by A.L. Burruss Institute for Public Service, Kennesaw State University, for the U.S. Environmental Protection Agency and the Georgia Environmental Protection Division. Contract #751-290083.

** Not included are flows contributed by wastewater discharges.

Concerns have been expressed over the potential for shoreline erosion to contribute to water quality degradation within the lake; threats to the integrity of adjacent private property; loss of the narrow band of government-owned lands surrounding the lake, and diminishment of the aesthetic characteristics of the lake.

Water Quality and Habitat Degradation Problems. The Lake Allatoona/Etowah River Watershed is located within the region of north Georgia that is experiencing rapid development and population growth from the expanding Atlanta Metropolitan Area. It is this very growth that is posing a significant threat to the environmental quality of Lake Allatoona.

Lake Allatoona is an important regional recreation asset, with annual visitations that consistently rank the lake within the top five popular Corps lakes in the nation. In addition, Lake Allatoona serves as the water supply source for over 400,000 people in the region. The results of a 1999 study conducted under the USEPA's national Clean Lakes Program by the A. L. Burruss Institute of Public Service at Kennesaw State University provides a comprehensive summary of the environmental issues affecting Lake Allatoona. The Reconnaissance Phase investigations relied heavily upon the information presented in the Clean Lakes Report to identify the broad environmental issues threatening Lake Allatoona.

Population growth trends serve as an effective indicator of the rate of development and urbanization that have occurred within the Lake Allatoona/Etowah River Watershed to date, as well as the level of growth that is expected to occur into the future. Census data for the eight counties within which the Watershed is located provide an effective indicator of the growth the Watershed area has experienced over the last two decades. During the period between 1980 and 1990, population growth experienced by the individual counties ranged from 38% to 53%. The growth rate continued between 1990 and 2000, ranging from 25.7% to 123.2% within the respective Watershed counties. During this 10-year period, the average increase in population for all eight counties was 35.8%. This is compared to a total increase of 26.4% for the entire State during this same period that ranked Georgia as the fastest growing state in the southeastern United States during the 1990s. indicating the Watershed (particularly the southern portion of the watershed) is growing more rapidly than the State as a whole. The most downstream and eastern counties within the Watershed experienced the largest increases in terms of the total number of people gained. However, the more northern and western watershed counties demonstrated the largest overall percentage increases since these

counties were the most undeveloped prior to 1990. Table 2 summarizes the population changes that occurred between 1990 and 2000, along with the projected changes that are anticipated to occur by 2010.

Associated with this tremendous expansion in population has been an equally dramatic increase in urban development and the associated public infrastructure to accommodate the needs of the additional people living and working within the Watershed. This is reflected in the explosion of residential developments,

Table 2
Population Changes in Counties Containing the Lake Allatoona Watershed

County	1990	2000	Percent Change 1990-2000	2010 (Projected)	Percent Change 1990-2010 (Projected)
Cobb	447,745	607,751	35.7	725,395	62.0
Cherokee	90,204	141,903	57.3	194,017	115.1
Bartow	55,911	76,019	36.0	99,655	78.2
Fulton	648,951	816,006	25.7	860,797	32.6
Forsyth	44,083	98,407	123.2	142,630	223.5
Pickens	14,432	22,983	59.3	26,728	85.2
Dawson	9,429	15,999	69.7	22,137	134.8
Lumpkin	14,573	21,016	44.2	24,908	70.9
Total for Watershed Counties	1,325,328	1,800,084	35.8	2,096,267	58.2
State Total	6,478,216	8,186,451	26.3	-	-

particularly within Cobb, Cherokee and Bartow Counties. Forsyth County also gained numerous residential developments. In addition, numerous commercial and light industrial developments have accompanied the migration of people into these counties. These developments have resulted in an overall decrease in the number of farms and forested areas within the Etowah River Basin above Lake Allatoona as the urbanized areas have increased. It is estimated that 51% of the lower Watershed is currently developed.

Urbanization has greatly reduced the amount of land area supporting native vegetation, while multiplying the extent of impervious surface area within the Watershed. These changes have elevated surface runoff amounts, accelerated erosion rates, and increased the concentration of both point and non-point

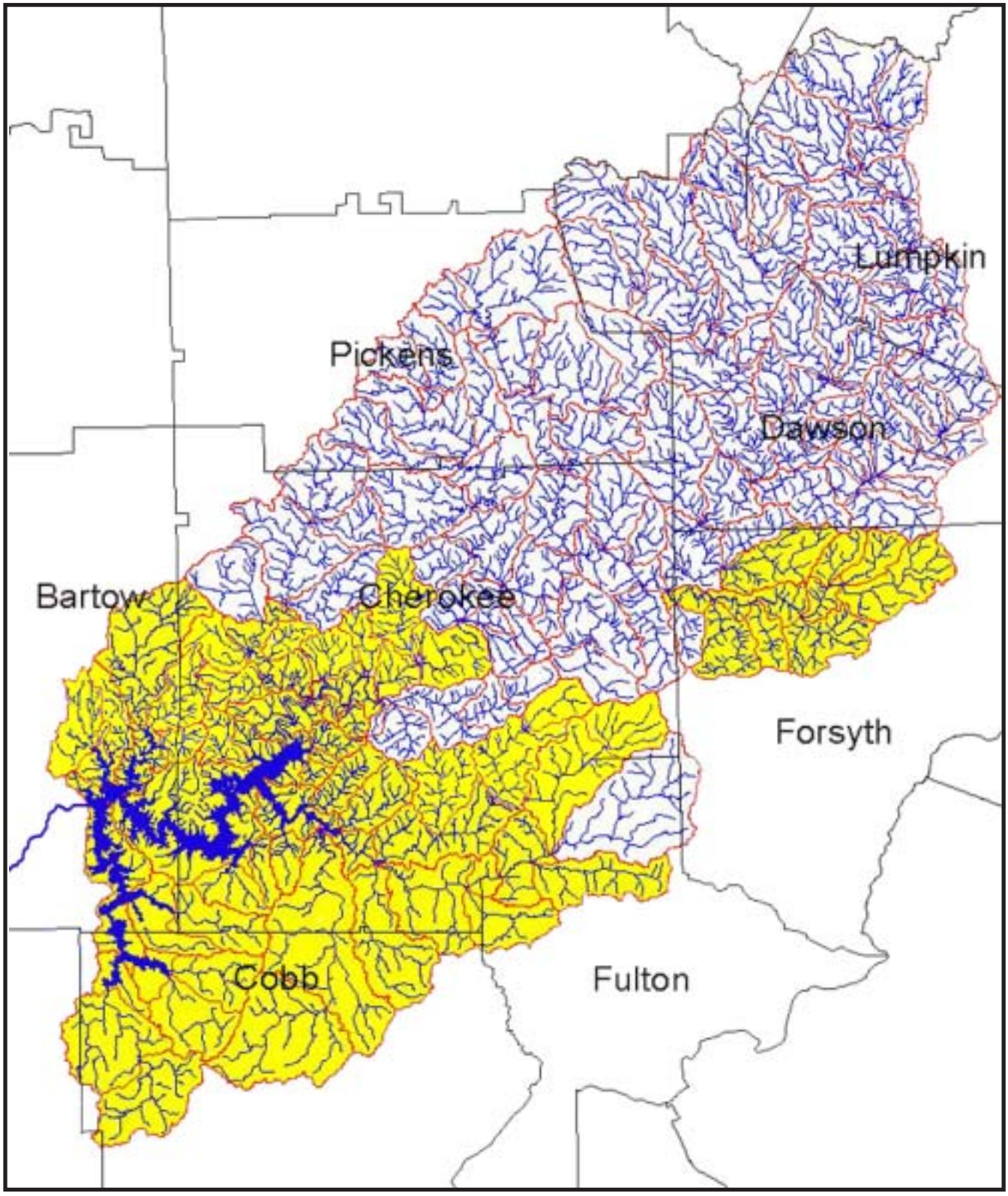
source (NPS) pollutants. As a result, the increasingly urbanized portions of the basin are contributing high concentrations of pollutant loads of total suspended sediments, phosphorus, and fecal coliforms to Lake Allatoona compared to undeveloped areas in the Watershed.

The results of the Clean Lakes Study indicate that Lake Allatoona has become significantly more eutrophic in the 1990s compared to nutrient levels observed between 1968 and 1985. More importantly, not only is the trophic level of the lake increasing, but it also appears that the rate of change may also be increasing, further compounding the eutrophication problem. Continued deterioration of the quality of the lake could hinder the long-term use of its waters for water supply and recreational use.

The 12 principal subwatersheds emptying into Lake Allatoona are not all experiencing development at the same rate. Urbanization is extremely concentrated in the southern subwatersheds within Cobb, Cherokee and Bartow Counties. Similarly, the smaller tributary streams within the northwestern portion of Forsyth County that drain into the Etowah River are also being impacted by the adverse effects of urbanization. Much of the Fulton County portion of the Watershed has been densely developed for a number of years because of its proximity to Atlanta.

Figure 4 highlights the streams within the Lake Allatoona/Etowah River Watershed that have impaired water quality. The water quality problems are directly correlated to the degree of urbanization and the larger amounts of nonpoint source (NPS) pollutants generated by the developed areas in the Watershed. For example, the Noonday Creek subwatershed contains 36% of all urban development occurring within the Lake Allatoona/Etowah River Watershed. As a result, both point and nonpoint source pollution from this drainage is a significant contributor to the tropic level of the Little River embayment of Lake Allatoona. In addition, the cross-sectional areas of the Upper Etowah River and the Little River areas within Lake Allatoona have been reduced by excessive sedimentation rates. As the level of urbanization intensifies within the Watershed, additional embayments may become impaired if erosion rates are not properly controlled.

Because of the size of the Etowah River subwatershed above Lake Allatoona (see Table 1), this drainage provides the major source of water for the lake. According to the Clean Lakes Study report, the Etowah River provides 70% of the total flow and 77% of the total phosphorus received by the lake.



LEGEND

- Counties
- Rivers and Streams
- Hydrologic Boundary
- Subwatersheds with impaired water quality

Figure 4
Subwatersheds in Lake Allatoona Study Area Having Impaired Water Quality

The subwatersheds on the south side of the lake (Allatoona Creek, Lake Acworth, Tanyard Creek, Noonday Creek, Kellogg Creek, Owl Creek) are reported to have poor water quality. Although these streams drain only 22% of the entire Lake Allatoona watershed, they contain 63% of the region's urban development. Of these subwatersheds, Noonday and Owl Creeks are reported to have the poorest water quality. By contrast, the subwatersheds draining into the northern side of the lake (Shoal Creek and Stamp Creek) are less developed and hence are characterized by better water quality.

Section 303(d) of the Federal Clean Water Act requires the states to develop a Total Maximum Daily Load (TMDL) allocation plan for water bodies determined to have limited water quality. A TMDL is a calculation of the maximum amount of a pollutant(s) impairing water quality that the water body can assimilate without exceeding state water quality standards for the designated use of a specific stream. TMDLs are the sum of the individual waste load allocations for point sources, load allocations for nonpoint sources (NPS), and a margin for safety to account for uncertainty. The EPA's and Georgia Environmental Protection Division's (EPD) mandatory duty to complete TMDLs for water quality limited stream segments stems from a 1994 law suit filed by the Sierra Club, et. al. The end result of the law suit was an agreed upon Consent Decree which established a five-year schedule for developing TMDLs in the State of Georgia. Water quality limited stream segments within the Lake Allatoona/Etowah River Wateshed are scheduled for TMDL development in 2003.

Almost 50% of the Lake Allatoona/Etowah River Watershed contains stream segments that are either 303(d) listed because of various problem contaminants, or are experiencing water quality and/or aquatic habitat degradation problems. The most common and widespread pollutants are fecal coliform bacteria, nutrients (phosphorus and nitrogen), turbidity, and sedimentation. In general, these problems are generated by nonpoint sources (NPS) resulting from urban development. The impaired stream segments are highlighted on Figure 4, while Table 3 identifies the problems by individual stream segment, the size of the respective drainage basins containing the listed stream segments, and the percentage of the impaired drainage basins within the affected counties comprising the Lake Allatoona watershed.

As of the completion of this PMP, all water quality impaired stream segments are confined to the six counties in the eastern and southern Watershed counties (Cobb, Cherokee, Bartow, Fulton, Forsyth, and Pickens) that have also experienced the greatest intensity of urban development. Cherokee and Cobb

Table 3 (Cont'd)
Identification of Water Quality Impaired Streams and Their Distribution within the Lake Allatoona Watershed

Subwatershed	HUC Name	HUC Number	Problem Pollutants 1/	Total Area (ac)	Distribution of Drainage Area by County					
					Cobb	Pickens	Cherokee	Bartow	Forsyth	Fulton
Allatoona Creek	Little Allatoona	031501040901	fecal coliforms, phosphorus, chloride, turbidity	2,260	2,260 (100%)	-	-	-	-	-
	Lower Allatoona Creek	031501040901	fecal coliforms, phosphorus, chlorides, turbidity	9,323	9,323 (100%)	-	-	-	-	-
	Upper Allatoona Creek	031501040901	fecal coliforms, phosphorus, chlorides, turbidity	8,515	8,515 (100%)	-	-	-	-	-
	Unnamed Tributary	031501040901	phosphorus, chlorides, turbidity	7,974	7,974 (100%)	-	-	-	-	-
Lake Acworth	Butler Creek	031501040902	fecal coliforms, turbidity, biota	5,987	5,987 (100%)	-	-	-	-	-
	Proctor Creek 2	031501040903	fecal coliforms, turbidity	5,016	5,016 (100%)	-	-	-	-	-
	Acworth Creek	031501040903	fecal coliforms	2,041	2,041 (100%)	-	-	-	-	-
Little River	Lower Little River	031501040804	fecal coliforms, sedimentation, phosphorus	10,462	2,181 (21%)	-	8,281 (79%)	-	-	-
	Middle Little River	031501040803	fecal coliforms, sedimentation, phosphorus	8,797	-	-	5,074 (58%)	-	-	3,723 (42%)
	Upper Little River	031501040801	fecal coliforms, sedimentation, phosphorus	8,426	-	-	8,224 (98%)	-	-	202 (2%)
	Rocky Creek	031501040804	fecal coliforms, sedimentation, phosphorus	4,265	-	-	4,265 (100%)	-	-	-
	Copper Sandy Creek	031501040803	sedimentation, phosphorus	6,795	-	-	-	-	-	6,795 (11%)
	Lower Mill Creek	031501040805	sedimentation, phosphorus	8,537	-	-	8,537 (100%)	-	-	-
	Middle Mill Creek	031501040805	sedimentation, phosphorus	6,279	-	-	6,279 (100%)	-	-	-
	Little River Tributary	031501040809	Sedimentation, phosphorus	4,346	-	-	4,346 (100%)	-	-	-
	Avery Creek	031501040805	sedimentation, phosphorus	5,782	-	-	5,782 (100%)	-	-	-

Table 3 (Cont'd)
Identification of Water Quality Impaired Streams and Their Distribution within the Lake Allatoona Watershed

Subwatershed	HUC Name	HUC Number	Problem Pollutants 1/	Total Area (ac)	Distribution of Drainage Area by County					
					Cobb	Pickens	Cherokee	Bartow	Forsyth	Fulton
	Direct Tributary	031501040809	sedimentation, phosphorus	803	-	-	803 (100%)	-	-	-
	Rubes Creek	031501040806	fecal coliforms, dissolved oxygen, conductivity, nitrogen, phosphorus	9,474	87 (1%)	-	9,387 (99%)	-	-	-
	Blankets Creek	031501040809	dissolved oxygen, nitrogen, conductivity	3,403	-	-	3,403 (100%)	-	-	-
Noonday Creek	Lower Noonday Creek	031501040808	fecal coliforms, phosphorus, conductivity, turbidity	18,322	473 (3%)	-	17,849 (97%)	-	-	-
	Upper Noonday Creek	031501040807	fecal coliforms, phosphorus, conductivity, turbidity	14,230	14,230 (100%)	-	-	-	-	-
	Little Noonday Creek	031501040808	fecal coliforms	18,369	18,369 (100%)	-				
Kellogg Creek	Kellogg Creek	031501041003	fecal coliforms, nutrients, sedimentation	1,405	-	-	1,405 (100%)	-	-	-
Owl Creek	Owl Creek	031501041004	fecal coliforms, pH	1,665	-	-	1,665 (100%)	-	-	-
Tanyard Creek	Tanyard Creek	031501040902	fecal coliforms, turbidity, biota, copper	4,887	2,443 (50%)	-	2,444 (50%)	-	-	-
Shoal Creek	Lower Shoal Creek	031501040704	fecal coliforms,	5,167	-	-	5,167 (100%)	-	-	-
	Unnamed Tributary	031501040704	fecal coliforms	41	-	-	41 (100%)	-	-	-
Etowah River	Canton Creek	031501040604	biota, sedimentation	13,278	-	-	13,278 (100%)	-	-	-
	Long Swamp Creek	031501040401	biota, sedimentation	13,889	-	13,889 (100%)	-	-	-	-
	Tributary to Petit Creek	031501040403	fecal coliforms	18,950	-	18,950 (100%)	-	-	-	-
	Squattingdown Creek	031501040304	nutrients, sedimentation	2,543	-		-	-	2,543 (100%)	-
	Settingdown	031501040304	nutrients, sedimentation	6,155	-		-	-	6,155	-

Table 3 (Cont'd)
Identification of Water Quality Impaired Streams and Their Distribution within the Lake Allatoona Watershed

Subwatershed	HUC Name	HUC Number	Problem Pollutants 1/	Total Area (ac)	Distribution of Drainage Area by County					
					Cobb	Pickens	Cherokee	Bartow	Forsyth	Fulton
	Mainstem Creek								(100%)	
	Upper Settingdown Creek	031501040304	nutrients, sedimentation	6,840	-		-	-	6,840 (100%)	-
	Unnamed Settingdown Tributary	031501040305	nutrients, sedimentation	2,370	-		-	-	2,370 (100%)	-
	Unnamed Settingdown Tributary	031501040304	nutrients, sedimentation	1,565	-		-	-	1,565 (100%)	-
	Brewton Creek	031501040303	nutrients, sedimentation	6,318	-		-	-	6,318 (100%)	-
	Thalley Creek	031501040305	nutrients, sedimentation	5,293	-		-	-	5,293 (100%)	-
	Yellow Creek 2	031501040305	nutrients, sedimentation	4,606	-		-	-	4,606 (100%)	-
	Star Creek	031501040305	nutrients, sedimentation	2,424	-		-	-	2,424 (100%)	-
	Direct Tributary 1	031501040305	nutrients, sedimentation	462	-		462 (100%)	-	-	-
Stamp Creek	Lower Stamp Creek	031501041003	fecal coliforms, sSedimentation	11,448	-		-	11,448 (100%)	-	-
Lake Allatoona	Rose Creek	031501041004	nutrients, sedimentation, fecal coliforms	2,192	-		2,192 (100%)	-	-	-
	Clark Creek	031501040903	nutrients, sedimentation, fecal coliforms	5,305	36 (1%)		5,269 (99%)	-	-	-
	Lake Allatoona North	031501041004	fecal coliforms, nutrients, sedimentation	32,889	-		18,689 (57%)	14,200 (43%)	-	-
	Lake Allatoona South	031501040904	fecal coliforms, nutrients, sedimentation	17,228	12,480 (72%)		-	4,748 (28%)	-	-
	Direct Tributary 15	031501041001	nutrients, sedimentation, fecal coliforms	398	-		398 (100%)	-	-	-
	Downing Creek	031501041001	sedimentation, phosphorus	1,712	-		1,712	-	-	-

Table 3 (Cont'd)
Identification of Water Quality Impaired Streams and Their Distribution within the Lake Allatoona Watershed

Subwatershed	HUC Name	HUC Number	Problem Pollutants 1/	Total Area (ac)	Distribution of Drainage Area by County					
					Cobb	Pickens	Cherokee	Bartow	Forsyth	Fulton
							(100%)			
	Unnamed Little River Tributary	031501040809	nutrients, sedimentation, fecal coliforms	4,247	-		4,247 (100%)	-	-	-
	Unnamed Little River Tributary	031501040809	nutrients, sedimentation, fecal coliforms	17,556	-		17,556 (100%)	-	-	-
TOTALS	-	-	-	**359,556**	**91,415 (25%)**	**32,839 (9%)**	**156,755 (44%)**	**30,396 (8%)**	**38,114 (11%)**	**10,720 (3%)**

1/ The principal pollutant(s) responsible for the streams being listed on the Georgia Environmental Protection Division's 303(d) list are highlighted in bold italics. The other streams and pollutants listed are included because prior studies and field observations indicate these streams are also experiencing water quality and/or aquatic habitat degradation.

Counties contain the largest amount of the water quality impaired drainages, at 49% and 24%, respectively. Forsyth County follows at 13%, with Bartow and Fulton Counties having 10% and 4%, respectively. Although less than 1% of the impaired drainage is located in Pickens County, with no impaired streams in Dawson and Lumpkin Counties, significant measures are needed at the local level in these counties to regulate and manage development. In the absence of such actions, streams in these northern and western Watershed counties should be expected in the near future to begin to experience the same types of urban induced water quality problems and aquatic habitat degradation that has already affected substantial portions of the lower Watershed to date.

WITHOUT-PROJECT CONDITIONS

As stated above, population growth serves as an appropriate indicator of urbanization trends for the Lake Allatoona/Etowah River Watershed. The population of the nine counties within which the Watershed is located is anticipated to continue its dramatic expansion into the future. Table 2 shows that by 2010, the population of the eight counties will increase by 58.2% over 1990 levels, with a considerable proportion of these people residing within the limits of the Lake Allatoona/Etowah River Watershed. Although the greatest increases are expected to occur in Cherokee, Forsyth and Dawson Counties, all of the counties will gain significantly in population.

The projected expansion in population will result in the conversion of increasing amounts of undeveloped areas within the Watershed into urban areas, further multiplying the amount of impervious surface areas. Thus, the potential for increased sources and rates of nonpoint source (NPS) pollution runoff will continue to threaten the quality of Lake Allatoona and the aquatic habitats within the streams draining into the lake. Increases in erosion and sedimentation, high phosphorus loadings, and elevated fecal bacteria concentrations will pose a significant threat to the trophic state of Lake Allatoona. Increased degradation of aquatic stream habitat will continue to threaten the distribution and abundance of sensitive fish species and other forms of aquatic life with restricted life history requirements.

Uncontrolled development will continue to accelerate sedimentation in Lake Allatoona and deliver high loadings of pollutants to the lake. This will result in continued water quality and aquatic habitat degradation. If left unchecked, Lake Allatoona will ultimately be transformed into a fully eutrophic lake. Furthermore, as the quality of the water within the lake continues to decline, the use of this

important resource for water supply and recreation will be impaired, thereby limiting the Corps' ability to support all authorized purposes of Lake Allatoona.

The erosion of the Lake Allatoona shoreline should continue to occur at rates representative of historic trends, with those areas most susceptible to erosion experiencing the greatest losses of shoreline. This will result in a progressive deterioration of localized aesthetic values, loss of government lands around the lake, and an intensification of threats to adjacent private property in the most severe erosion areas. The increased population growth in the region is also expected to generate an increase in recreation demand for Lake Allatoona that will translate to greater boating activities and a corresponding increase in boat wakes that will further attack the shoreline.

ALTERNATIVES TO BE CONSIDERED

The studies and evaluations to be conducted in the Feasibility Study (see individual task descriptions in the Scope of Studies) focus on three principal areas of investigation. As such, alternatives will be developed to address the following three areas of study:

- Shoreline stabilization at Lake Allatoona.
- Alternative scenarios to manage seasonal pool levels in Lake Allatoona.
- Environmental restoration and resource protection options within the Lake Allatoona/Etowah River Watershed.

Shoreline Stabilization. The 270 miles of Lake Allatoona's shoreline will be inventoried and evaluated in accordance with evaluation criteria that will be jointly developed by the Corps and the non-federal sponsor, with input provided by the interested public and regulatory agencies. The identified erosion sites will then be ranked to identify the 10 sites most warranting of corrective solutions to the erosion problems, as well as those representing a variety of erosion problem types.

It is envisioned that the types of measures that will be considered will consist of various traditional engineering structural measures including riprap, bulkheads, and hard mat surfaces. In addition, the use of bioengineering techniques will be considered where site conditions indicate such measures would have a relatively high certainty for success. The measures considered will also take advantage of

knowledge gained from the separate shoreline erosion demonstration projects being pursued by the Lake Allatoona Preservation Authority (i.e. non-federal sponsor) independent of this Feasibility Study.

In addition to the 10 selected shoreline sites that will be subjected to detailed investigations in the Feasibility Study, a manual will be developed to assist in the recognition, prevention, and correction of other erosion sites on the lake. This will allow other remedial shoreline erosion efforts to be pursued in the future by either the Corps, the non-federal sponsor, or other appropriate entities as funding becomes available by applying a consistent approach that effectively addresses shoreline erosion problems in a manner that is compatible with the aesthetic characteristics and recreational uses of Lake Allatoona, while not adversely creating problems with the lake's capability to satisfy other project purposes (i.e. flood protection, water supply, and fish and wildlife).

Management of Seasonal Pool Levels in Lake Allatoona. A comprehensive study of Allatoona Lake and its tributaries was completed in 1999 by the A.L. Burruss Institute of Public Service at Kennesaw State University. That study was funded by the Clean Lakes Program administered by the USEPA and the Georgia Environmental Protection Division, with supplemental monies provided by local governments. The Clean Lakes Study of Lake Allatoona raised the possibility that water quality parameters associated with eutrophic conditions within the lake could be improved by altering the timing, duration, and extent of annual winter drawdown. Further, the Clean Lakes Study conclusions also suggested that winter turbidity levels within the lake could be reduced by maintaining the lake at a higher pool elevation so as to reduce the exposure of winter mud flats to wave action and to surface erosion during rainfall events.

A limited evaluation of alternative pool level scenarios was conducted during the Reconnaissance Phase by using the existing CEQUAL-W2 model of Lake Allatoona. Analysis of the modified pool level scenario considered indicated that water quality conditions would not be significantly altered by modifying the "rule curve" under which the lake levels are presently managed. Nevertheless, during the Feasibility Study, the existing CEQUAL-W2 model will be updated and used to conduct a more extensive evaluation of the potential influence on water quality that could be induced by modifying the manner in which pool levels are managed.

Should this investigation indicate that water quality conditions could be improved, an economic analysis would be performed to determine the economic effect of

modifying lake level management on other project purposes such as flood protection, hydroelectric power generation, and recreation. As the information becomes available, the new Water Allocation Formula for the Alabama-Coosa-Tallapoosa Basin will also be factored into the analyses.

The views of the LAPA Scientific Advisory Committee, USEPA, the Georgia EPD, and other qualified professionals will be sought prior to undertaking this study effort.

Environmental Restoration and Resource Protection within the Lake Allatoona/Etowah River Watershed. The Reconnaissance Phase investigations greatly benefited from the Lake Allatoona Clean Lakes Study. While characterizing the environmental problems threatening Lake Allatoona, this study also recommended numerous measures to address the identified problems. Those measures were given serious consideration in the Reconnaissance Phase investigations and provided the foundation upon which the Feasibility Study will be pursued. The following summarizes corrective strategies recommended in the Clean Lakes Study report:

- Nonpoint source (NPS) pollution management strategies that reduce loading from urban runoff should be developed to prevent significant degradation within the lake.

- Priority should be given to NPS management practices to reduce coliform bacteria contamination.

- Availability of nutrients should be managed to protect the lake from increasing eutrophic conditions.

- Reduce phosphorus contributions from the Watershed and minimize activities that re-suspend phosphorus within the lake.

- Strategies to prevent eutrophication in the lake must focus on reducing the availability of phosphorus.

- Stormwater control would be effective in managing phosphorus, turbidity, and biological oxygen demand (BOD).

- NPS management strategies should focus on agricultural and forested areas that dominate the Etowah River subwatershed and which contribute most of the phosphorus load to Lake Allatoona.

- Reduction in erosion rates and loss of sediments within the Watershed would reduce the delivery of nutrients to the lake.

- Management efforts in the most constricted embayments should concentrate on improving water quality of the tributaries entering these bodies of water.

- Measures should be taken to reduce the increasing rate of discharge that is characterizing tributary streams within highly developed areas.

- Flow detention methods should be designed to retain the initial large volume of runoff from storm events.

- Strategies that detain stormwater will not only reduce sediment loads into the lake, but also reduce loads of nutrients, toxins, and pathogens.

Development of effective solutions to address the environmental problems adversely affecting Lake Allatoona will be challenging for the following reasons: (1) the large size of the Watershed study area (i.e. over 700,000 acres); (2) the numerous governmental entities within the study area (i.e. eight counties and numerous municipalities); and (3) the dramatic rate at which development trends are converting rural land to intensive urban uses. These are factors that must be carefully considered in developing sediment retention/ecosystem alternatives for evaluation and implementation within the Watershed.

Of the above three factors, the rate of land use change may pose the greatest single obstacle to developing and implementing workable plans within a reasonable timeframe to effectively reverse and arrest historic trends that are adversely affecting water quality within Lake Allatoona. This is because observations over the last 10 years clearly point out that the Watershed landscape has the potential to be dramatically altered in a relatively short span of time in response to population growth and associated urban development. Therefore, it will be particularly important to develop a reliable description of the future “without project” conditions to assure that the recommended solutions are not negated by land use changes prior to implementation.

The eventual plan that will be recommended for implementation at the conclusion of the Feasibility Study will represent a combination of structural and non-structural measures. In addition, actions will be included that must be pursued by local governments, as well as actions that can be implemented with the assistance of state and federal agencies. In short, the problems facing the Watershed study area are so widespread and varied in nature that no one measure at a specific location will provide a single solution to the environmental issues affecting Lake Allatoona. Instead, the plan that will be recommended for implementation will consist of a wide array of independent measures that can be pursued individually and in combination. To develop this plan, numerous alternative measures will be considered for application at specific site locations.

Since the Lake Allatoona/Etowah River Watershed problems are so widespread, it will be necessary to identify a strategy that can be pursued in a logical and orderly fashion so as to avoid unduly complicating the plan formulation and evaluation process and to add order to the work efforts.

Suspended solids concentrations will be used as the principal indicator to measure the effectiveness of the remedial measures considered and the environmental improvements generated. For the purposes of this Feasibility Study, suspended solids will be used as the target water quality parameter to be improved. This is because the results of numerous water quality studies conducted to date in the Lake Allatoona/Etowah River Watershed, other areas within the Metropolitan Atlanta Area, and the general scientific literature consistently identify a strong positive correlation between suspended solids and phosphorus, coliform bacteria, and other water quality contaminants, and a negative correlation with various indices of aquatic habitat quality (i.e. elevated suspended solids concentrations consistently contribute to a deterioration of aquatic habitat quality and have an adverse influence on invertebrate and fish communities). Therefore, if it is possible to reduce the concentration of suspended solids in the tributary streams of the Lake Allatoona/Etowah River Watershed, it should be possible to lower the concentrations of other water quality parameters of concern. Similarly, lowering of suspended solids loads should also result in an improvement in aquatic habitat quality. Further, since suspended solids settle when flow velocities decrease in the quieter waters of Lake Allatoona they become the sediments that create depth and volume problems within the lake's numerous embayments. In addition, closely bound to the sediments are many of the nutrients that are contributing to the increasingly eutrophic characteristics of the lake. In short, if the transport and delivery of suspended solids from the subwatersheds draining into Lake Allatoona can be

returned to levels approaching more natural conditions, it should be possible to reverse the current trend toward eutrophication and to restore the environmental health of the lake. This should allow Lake Allatoona to continue to satisfy the purposes for which it was constructed well into future.

The large size of and the spatial variation of environmental problems within the Lake Allatoona/Etowah River Watershed study area suggest that the Feasibility Study should approach the watershed problems in a phased fashion. Pursuit of the Feasibility Study investigations in a logical order is necessary to assign study resources to the most important areas of concern and to develop cost-effective solutions in a timely manner that will provide the greatest beneficial results.

- First, the 303(d) listed streams should receive initial attention. Those streams possessing the largest drainage basins; affected most by intense urbanization; and/or high pollutant loads will be considered in an order of priority to be established by the Product Delivery Team after initiation of the Feasibility Study. Further, those streams most immediate to Lake Allatoona should be evaluated in advance of those located in the upper Watershed areas. To reach consensus on the order of study, the views of the non-federal sponsor, USEPA, and the Georgia EPD will be sought at the outset of the study to rank the stream segments listed in Table 3 (representing over 295,000 acres or 41% of the watershed) in priority order of importance. Emphasis will be placed on these streams first to develop specific recommendations to correct the environmental problems impairing water quality and the aquatic habitat conditions within these streams. This means that a significant proportion of the study efforts will be devoted to addressing the most impacted subwatersheds.

- Second, efforts will be expended on inventorying and generally addressing areas of potential future concern within the remaining 430,000 acres that comprise the Lake Allatoona/Etowah River Watershed. However, because of the limitations of time and study funds and the absence of immediate environmental concerns (i.e. lack of 303(d) listed streams) these efforts will primarily concentrate on (1) inventorying potential areas/issues of concern for the future; and (2) identifying conceptual measures that could be implemented to address future potential issues.

- The above efforts will be conducted concurrently to the extent possible so as to optimize the sharing of information between the respective efforts and to enhance the ability to meet the study schedule presented in Appendix A.

Among the types of environmental restoration and resource protection measures that will be considered in the Feasibility Study are the following:

- Improve local actions to implement stormwater runoff management and construction site BMPs to control NPS pollutants at the source of generation.
- Detention of runoff to reduce instream volumes and velocities during storm events.
- Evaluation of Best Management Practices (BMPs) employed within the study area.
- Retrofitting existing BMPs.
- Identification of additional BMPs.
- Establishment of new and/or enlargement of existing stream buffers to protect riparian and stream habitat.
- Streambank stabilization.
- Grade control structures to stabilize instream channel degradation.
- Headwater sediment retention facilities.
- Mainstem sediment retention facilities.
- Off-channel sediment retention facilities.
- Establishment of artificial wetlands.
- Aquatic habitat restoration.
- Functional landscaping.
- Reforestation of riparian areas.

- Incorporation of low-impact recreation facilities.

- Increased public education/awareness.

The initial engineering investigations will narrow the field of alternatives to be considered in more detail as the Feasibility Study progresses. The range of alternatives will continue to be narrowed and individual measures will be combined to develop plans. It is envisioned that at least 50 distinct "projects" will be developed during the Feasibility Study, with some of these "projects" being comprised of combinations of one or more of the above potential measures as well as other structural and non-structural measures that may identified as the study progresses. The identified individual "projects" will be combined to form the recommended plan.

The results of coordination conducted during preparation of the PMP revealed a general opposition by environmental agencies, environmental interest groups, and LAPA's Scientific Advisory Committee to the construction of sediment retention ponds. Those sharing this position prefer that such measures be excluded altogether from consideration in the Feasibility Study as an option to address the significant sediment problems being experienced in the Watershed due to development. This position is based in large part on the belief that source controls are the most appropriate mechanism to correct the sediment and NPS pollutant problems affecting the basin and the concern that the wide scale implementation of regional stormwater detention facilities (i.e. sediment retention ponds) will result in the fragmentation of aquatic resources within the Watershed and their resulting deterioration. These concerns are valid and will be given strong weight in the development of alternative measures to address sedimentation problems. However, there may be situations within the Watershed where sediment retention ponds offer the most effective engineering and cost-efficient solution to address sedimentation issues, while posing acceptable environmental risks. Therefore, in the early stages of the Feasibility Study all available structural and non-structural options will be considered in the initial screening of measures in order to select those that offer the greatest possibilities for more detailed investigation and analysis. The Feasibility Study will also address issues related to the control of sediments and other NPS pollutants at their source of generation. However, it is envisioned that the study recommendations generated in this regard will focus on measures most appropriately implemented by local authorities and land owners/developers.

Throughout the course of the Feasibility Study, opportunities will be continuously evaluated to pursue selected small, “stand alone” projects for early implementation under Section 206 or other appropriate Continuing Authorities. This approach will be pursued when consistent with applicable Corps policy to allow quick implementation of particularly critical projects needed to protect and/or restore significant environmental resources. Among the criteria that will be considered in identifying such projects for early implementation will be threatened and endangered species, water supply sources, and other resources of environmental significance.

SECTION 2 – SCOPE OF STUDIES

INTRODUCTION

The Scope of Studies (SOS) describes the specific work tasks that will be accomplished during the Feasibility Study. The task descriptions explain what work will be done; why the identified work tasks are necessary; how the individual work products will be accomplished; and identifies the entities that will be responsible for assuring the work is accomplished (i.e. Mobile District personnel, non-Federal sponsor, contractors, the EPA, or a combination of sources). At the end of each task description an estimate is provided of the (1) number of man-days of effort required; (2) an estimate of the costs (includes labor, travel, per diem, and other related costs, but excludes contingency amounts); (3) anticipated contract costs where appropriate; and (4) the duration in weeks that would be required to complete each task. The duration estimates are used to develop the Gantt Chart schedule shown in Section 5 that depicts the relationship of the various work tasks and shows the time required to complete the individual tasks within the overall timeframe for the Feasibility Study.

The following principal activities will be accomplished during the Feasibility Study:

- Conduct engineering, economic, environmental and cultural resources investigations to support plan formulation and evaluation.

- Estimate costs and anticipated benefits to a level of detail suitable to justify project implementation.

- Comply with National Environmental Policy Act (NEPA) and other applicable federal and state environmental statutes and regulations.

- Develop recommended plan identifying all project components for implementation.

- Determine appropriate construction cost-sharing arrangements and obtain the support of the non-federal sponsor to implement the recommended plan.

- Recommend feasible projects for implementation.

Three major products will be produced during the Feasibility Study as explained below.

Feasibility Report. This product includes all activities leading to approval of the final Feasibility Report document by Headquarters, U.S. Army Corps of Engineers (HQUSACE) and the Office of the Assistant Secretary of the Army (Civil Works). The Feasibility Report will describe all of the problem identification and formulation activities conducted to identify and recommend plans of improvement. It will also include the appropriate National Environmental Policy Act (NEPA) compliance document assessing the environmental impacts attributed to the alternatives investigated. The NEPA activities will include scoping (as appropriate), preparation of the environmental document; public coordination and review and notification of findings; compliance with the Endangered Species Act, Section 106 of the National Historic Preservation Act consultations and other environmental compliance documentation; coordination of the study and results with all interested parties; and fulfillment of all internal procedural requirements. The Feasibility Study will culminate in the Notice of the Division Engineer.

Preliminary Project Cooperation Agreement (PCA) and Financing Plan. As the details of recommended plans are finalized, coordination will take place between the Mobile District and the non-federal sponsor to review the model language for the PCA for the recommended plan. Letters of intent that acknowledge the requirements of local cooperation and express good faith intent to provide the required items of local cooperation for the recommended plan will be developed by the non-federal sponsor. Preliminary Financing Plan will be developed by the non-federal sponsor describing its plan for financing the non-federal share of the cost of the recommended plan. The Mobile District will prepare an assessment of the non-federal sponsor's capability to implement the Financing Plan and will perform an Ability to Pay analysis. Coordination of the PCA model and the preliminary financing plan will be completed concurrent with the Draft Feasibility Report.

Draft Project Management Plan (PMP). As part of the Feasibility Study, a Draft PMP will be prepared, the purpose of which will be to guide all future engineering, design and construction efforts to implement the recommended plan. A baseline cost estimate for these activities will be developed and the draft PMP will address the schedule and cost of Pre-construction Engineering and

Design (PE&D) and construction activities. These activities will include preparation of plans and specifications for the construction contracts. The Draft PMP will address the development of additional products and detailed plans for successful management and implementation of the recommended plan. The Draft PMP will be completed concurrent with the Draft Feasibility Report.

Product J – Feasibility Report

The Feasibility Study phase of the U.S. Army Corps of Engineers' planning process and follows a favorable Reconnaissance Report and execution of a Feasibility Cost Sharing Agreement (FCSA) between the Department of the Army and the non-federal sponsor. The purpose of the Feasibility Study is to fully evaluate all reasonable solutions to the water resources problems identified during the Reconnaissance Phase investigations. The Feasibility Report documents the planning, engineering, design, environmental and real estate activities required to provide a basis for a decision on Federal participation in the construction of the recommended plan. The Feasibility Report is a complete decision document that presents the results of the Reconnaissance and Feasibility Phase studies and provides the basis for recommending the construction of a project and plans and specifications during the PE&D Phase.

The Feasibility Report will present recommendations for federal action. Upon approval by Corps Headquarters (HQUSACE) and the Office of the Assistant Secretary of the Army (Civil Works) (AS/CW), these recommendations will be formally transmitted to Congress to support project authorization decision.

The Feasibility Study will be accomplished through the conduct of interrelated tasks. The task descriptions reflect the entire study scope, including work to be performed by the Corps or contract services and/or by the non-Federal sponsor. The Feasibility Report represents the ultimate product that will be developed during the Feasibility Study. All of the work tasks are accomplished in support of preparing the Feasibility Report, as well as the identified sub-products that are essential to the Feasibility Report process. The following describes the work that will be performed by each task.

Sub-product JA Engineering Appendix

An Engineering Appendix will be prepared to document investigations and analyses performed of the alternatives considered and to support selection of the recommended plan presented in the Feasibility Report. The Engineering

Appendix will be prepared at a level of detail necessary to develop a defensible baseline cost estimate that addresses all pertinent cost elements, and includes adequate contingency factors. The Engineering Appendix will document the results of all of the engineering investigations conducted for the Feasibility Study, including surveying and mapping, hydrology and hydraulics studies, geotechnical investigations, structural engineering analysis, and cost estimating. The Mobile District Engineering Division will have lead responsibility for preparation of this Engineering Appendix, with significant input provided by the non-federal sponsor as indicated in Table 12. The Engineering Appendix will be scheduled for inclusion in the Draft Feasibility Report.

Task JAA – Surveys and Mapping

Work Description: Surveys and mapping will be obtained for 50 potential environmental restoration and resource protection sites at scattered locations within the Allatoona watershed and 10 shoreline erosion protection sites at Lake Allatoona. Each environmental restoration and resource protection component sites is estimated to consist of 5 acres. Each shore protection site will be about 2,500 feet in length, and surveys will extend from 100 feet shoreward to 100 feet landward of the shoreline. Basic horizontal and vertical control will be established with GPS and referenced to NGVD29 and NAD83. Iron bars with caps will be set on all POB's, PI's and POE's along section lines. The coordinate system will be identified in sub-task JAGC. Rights-of-entry from property owners will be required by written permission or verbal permission. Documentation of verbal permission will be necessary. All topographic mapping will be in Intergraph format (.dgn files) at a scale of 1 inch = 30 feet (plan and/or profiles) with 1-foot contour intervals. As shown in Table 12, the Mobile District and the non-federal sponsor will share in the development of survey information, using contract and in-house resources as appropriate. The surveys will be performed after each of the sites has been selected and the potential alternatives have been identified for evaluation.

It is assumed that surveys will be obtained for 50 environmental restoration and resource protection sites (including streambank protection options). This work could involve up to 5 individual locations of 5 acres each for each of the 50 project sites. This portion of the survey work is estimated to cost up to $300,000.

Man-days and Costs: 15 days and $10,000.

Contract Costs: $300,000.

Duration: 40 weeks.

Task JAB – Hydrology and Hydraulic Studies/Report

Work Description: A report will be prepared detailing the results of hydraulic and hydrologic (H&H) studies conducted to characterize the study area and to design and evaluate alternative plans. The Mobile District's Hydrology and Hydraulics Branch will have primary responsibility for leading the investigations of shoreline erosion problems throughout Lake Allatoona and environmental restoration and resource protection problems within the Lake Allatoona/Etowah River Watershed; for evaluation and design protection for approximately 10 shoreline erosion sites at Lake Allatoona; development of the hydrologic and hydraulic designs for approximately 50 environmental restoration and resource protection sites in the Watershed; and preparation of the technical hydrology and hydraulics report suitable for incorporation as a subsection to the Engineering Appendix. The non-federal sponsor will lead the identification and ranking of problem sites for consideration in the study. Specific subtasks are described below.

Sub-task JABA – H&H Site Visits

Sub-sub-task JABAA – Site Visits to Lake Allatoona

Work Description: Conduct site visits at Lake Allatoona to develop a general inventory of the lake's shoreline conditions and to identify the location of shoreline erosion problem areas. Areas visited during the Reconnaissance Study will be revisited to review the status of shoreline erosion. Church Point, Victoria Cottages, Fields Landing, Red Top Mountain State Park and Park Marina are among the areas to be included in the site visits at Lake Allatoona. Other areas will be determined during the study. Hand held GPS units will be used during the site visits to georeference the locations for incorporation in the GIS. During the visits, requirements for survey and mapping will be determined and an evaluation will be made of any site constraints and/or man-made structures. The EPA will participate in the site visits.

Man-days and Costs: 15 days and $13,000.

Contract Costs: 0.

Duration: 5 weeks.

Sub-sub-task JABAB – Site Visits to Watershed

Work Description: Conduct site visits of potential environmental restoration and resource protection sites and examination of Watershed problem locations. Site visits will to gather information on the 50 sites considered for potential environmental restoration and resource protection projects at scattered locations in the Watershed. Hand held GPS units will be used during the site visits to georeference the locations for incorporation in the GIS. During the visits, requirements for survey and mapping will be determined and an evaluation will be made of any site constraints and/or any man-made structures. The EPA will participate in the site visits.

Man-days and Costs: 60 days and $ 55,000.

Contract Costs: 0.

Duration: This task will occur at various times throughout the study duration.

Sub-task JABB – Without Project Conditions

Work Description: Shoreline erosion sites at Lake Allatoona and sediment runoff, erosion, and nonpoint source problems in the Watershed will be determined based on existing information and an evaluation of Watershed conditions. All available data will be reviewed and analyzed to determine the future without project conditions of the identified shoreline erosion sites and the areas within the Watershed that will be specifically addressed during the Feasibility Study. Field investigations, analytical models, the results of existing watershed assessments, and GIS information will be used to assist in the selection of the 50 environmental restoration and resource protection project sites. A detailed evaluation of the sediment load from nonpoint source generated rainfall runoff will be determined using an analytical model and extensive GIS information after the 50 environmental restoration and resource protection project sites have been identified. The specific analytical model to be used will be determined before the beginning of the Feasibility Study. For estimating purposes, it is assumed that data from the GIS (see task JAG) will be used and a rainfall runoff model will be developed in a manner similar to the development of a HEC-HMS model. The sediment loads determined from this model will also be used to evaluate and size potential alternatives considered for environmental restoration and resource protection projects. The EPA will contribute to this task.

Man-days and Costs: 60 days and $36,000.

Contract Costs: $180,000.

Duration: 20 weeks.

Sub-task JABC – Inventory, Assessment and Ranking of Lake Allatoona Shoreline Erosion Sites

Work Description. This effort will be conducted as a follow-up to the site visits described in sub-sub-task JABAA above to inventory, assess, and rank the shoreline erosion problem sites identified on Lake Allatoona using the GIS information developed by sub-sub-task JAGEB. A range of historical aerial photographs and maps will be considered to gage the severity of shoreline erosion sites and the factors causing erosion. Existing data on shoreline erosion issues and trip reports from prior site visits will be reviewed. Problem sites will be compared and selection criteria will be determined to identify the sites to be studied in detail. The assessment will consider soil types, location of adjacent structures, and other site factors of significance. This information will be used to rank erosion areas in consultation with the Product Delivery Team and the non-federal sponsor to select the 10 problem sites that will be subjected to detailed investigation in the Feasibility Study. The EPA will contribute to this task.

Man-days and Costs: 10 days and $6,400.

Contract Costs: $0.

Duration: 3 weeks.

Sub-task JABD – Evaluation of Selected Lake Allatoona Shoreline Erosion Sites

Work Description: This task will be accomplished on up to 10 shoreline erosion sites selected for detailed investigation in sub-task JABC. A coastal engineering model will be applied through the use of the Automated Coastal Engineering System module within the Coastal Engineering Design and Analysis System to evaluate potential wave conditions along the shoreline for each of the 10 erosion sites to be studied. All necessary information will be collected to create the model that will be used to evaluate at least two alternatives to protect each site

from shoreline erosion. For the appropriate sites, the evaluation of alternative measures will include bioengineering techniques that have proven to be successful under similar circumstances at other reservoirs. This analysis will also include an evaluation of alternative pool elevation management options for shoreline protection. The results of these evaluations will be documented in a report that will be incorporated into the Engineering Appendix.

Man-days and Costs: 54 days and $36,000.

Contract Costs: 0.

Duration: 24 weeks.

Sub-task JABE – Inventory, Assessment and Ranking of Watershed Environmental restoration and resource protection Sites

Work Description. This effort will be conducted as a follow-up to the site visits described in sub-sub-task JABAB above and will inventory, assess, and rank the candidate environmental restoration and resource protection sites identified within the Lake Allatoona/Etowah River Watershed using the GIS information developed by sub-sub-task JAGEB. Historical aerial photographs, maps, water quality, and other information sources will be considered to gage the severity of stream degradation and the factors causing erosion. Problem sites will be compared and selection criteria will be determined to identify the sites selected for detailed investigation. The assessment will consider land use, hydrology, stream hydraulics, soil types, real estate, potential costs and other site factors of significance. This information will be used to rank the sites in consultation with the Product Delivery Team and the non-federal sponsor to select the 50 sites that will be subjected to detailed investigation in the Feasibility Study. The non-federal sponsor will lead the identification and ranking of problem sites for consideration in the study. The Mobile District's Hydrology and Hydraulics Branch will provide technical assistance in this work. Representatives of the non-federal sponsor will also participate in this effort. The EPA will contribute to this task.

Man-days and Costs: 180 days and $140,400.

Contract Costs: $0.

Duration: 24 weeks.

Sub-task JABF – Evaluation of Alternatives for Environmental restoration and resource protection Sites

Work Description: The existing conditions will be developed for the evaluation of up to three alternatives for each of the 50 potential environmental restoration and resource protection sites located within the Watershed. Hydraulic design will be accomplished and will include establishing feature elevations, design components, and other descriptive information necessary to define the scope of the selected plans and alternatives considered. The environmental restoration and resource protection sites will be designed at appropriate locations in the Watershed determined by field investigations and with input from the non-federal sponsor and stakeholders within the Watershed. Innovative designs will be incorporated where possible. Input from the non-federal sponsor, USEPA, the US Fish and Wildlife Service, Georgia Environmental Protection Division, and other appropriate entities will be sought and considered. Models will then be used to evaluate the size of potential detention/retention ponds considered and to consider design parameters for the ecosystem restoration measures and other alternatives considered. The EPA will contribute to this task.

Man-days and Costs: 380 days and $360,000.

Contract Costs: 0.

Duration: 52 weeks.

Sub-task JABG – Coordination with GIS Data Manager

Work Description: Coordination with the GIS Manager will be performed throughout the study. The GIS data will be used to delineate the sub-basin boundaries, determine land uses, and determine other parameters needed to run the models. The GIS data will serve as an integral part of the model efforts, particularly for the environmental restoration and resource protection sites.

Man-days and Costs: 35 days and $22,400.

Contract Costs: 0.

Duration: Coordination will occur throughout the duration of the study.

Sub-task JABH – Coordination with Others

Work Description: Coordination of the H&H design for the 50 sediment retention/ecosystem sites will be conducted with environmental, geotechnical, economic, and other team members as appropriate. Coordination of the H&H design for the 10 shoreline erosion protection sites will be maintained with geotechnical team members. Coordination with other members of the Product Delivery Team and the non-federal sponsor will also be accomplished throughout the study.

Man-days and Costs: 30 days and $20,000.

Contract Costs: 0.

Duration: Coordination will occur throughout the duration of the study.

Sub-task JABI – Quantities

Work Description: Quantity estimates will be developed for the material required for construction of the sedimentation retention/ecosystem restoration site alternatives and the shoreline protection alternatives.

Man-days and Costs: 68 days and $44,000.

Contract Costs: 0.

Duration: 16 weeks.

Sub-task JABJ – H & H Reports

Work Description: An appendix documenting the methodology and results of the hydrology and hydraulic studies will be prepared. Hydraulic data will be presented in a format suitable for developing quantities and costs. An H&H appendix will be prepared for the Feasibility Report. The Mobile District's Hydrology and Hydraulics Branch will take the lead role in preparing this appendix.

Man-days and Costs: 50 days and $ 34,000.

Contract Costs: 0.

Duration: 20 weeks.

Sub-task JABK - H & H Independent Technical Review

Work Description: This task includes attending the Independent Technical Review (ITR) conference and briefing the ITR team on the preparation of the hydrology and hydraulics appendix. Responses to the ITR team's comments will be provided, and review comments incorporated in the Engineering Appendix.

Man-days and Costs: 10 days and $8,000.

Contract Costs: 0.

Duration: 3 weeks.

Sub-task JABL – Presentation of Study Results

Work Description: At the end of the study, the results will be presented to the non-federal sponsor, study area stakeholders, and other interested individuals. This will include details of the potential shoreline protection projects and potential environmental restoration and resource protection projects.

Man-days and Costs: 6 days and $5,900.

Contract Costs: 0.

Duration: This work will occur twice near the end of the study.

Task JAC – Geotechnical Studies/Report

The geotechnical effort will focus on performing subsurface investigations and geotechnical analyses as needed for the proposed design of shoreline protection and environmental restoration and resource protection sites. This will include reviewing and evaluating existing data; inspecting potential shoreline protection and environmental restoration and resource protection sites; participating in the selection of sites for shoreline erosion protection; performing rock outcrop mapping and subsurface investigations at potential shoreline protection and environmental restoration and resource protection sites; and providing

geotechnical input for the Engineering Appendix. The non-federal sponsor will take lead responsibility for collecting the geotechnical data using contracts and other sources. The Mobile District's Geotechnical, Environmental, & HTRW Branch will prepare the appropriate scopes of work and assistance in the technical oversight of the data collection. Analysis of the data will be performed by the Mobile District as an integral feature of the design process.

Sub-task JACA – Geotechnical Investigations for Shoreline Erosion Sites on Lake Allatoona

Work Description: This task includes visiting the shoreline erosion protection sites; developing a subsurface investigation plan; accomplishing the subsurface investigations; performing geotechnical design analyses; and incorporating the results of subsurface investigations and geotechnical analyses into the Engineering Appendix. For planning purposes, it is assumed that three continuously split-spooned borings and one offset boring for undisturbed samples will be made at each of 10 shoreline protection sites. Basic horizontal control for each boring will be established with GPS and referenced to NAD83 for incorporation in the GIS. Each boring will average 30 feet in depth, but will be terminated after drilling 5 feet into rock, if rock is encountered at depths shallower than 30 feet. Laboratory testing will be conducted on selected samples from the borings, including water content, Atterberg limits, gradation, visual classification and triaxial compression tests. Subsurface investigations will be performed by non-federal sponsor contractor(s). The Mobile District will specify the data sampling requirements.

Man-days and Costs: 55 days and $ 40,000.

Contract Costs: $77,100.

Duration: 24 weeks.

Sub-task JACB – Geotechnical Investigation and Study of Environmental restoration and resource protection Sites

Work Description: This task includes visiting the 50 environmental restoration and resource protection sites selected for detailed study; developing a subsurface investigation plan; accomplishing the subsurface investigations; performing geotechnical design analyses; and incorporating the results of subsurface investigations and geotechnical analyses into the Engineering

Appendix. For estimating purposes, it is assumed that 50 sites will require site visits and that 10 of the 50 sites will consider alternatives that will require borings for the alternative evaluations. Four continuously split-spooned borings will be made at each of the 10 selected sites. One offset boring for undisturbed samples will be made at each site. Basic horizontal control for each boring will be established with GPS and referenced to NAD83 for incorporation in the GIS. Each boring will average 30 feet in depth, but will be terminated after drilling 5 feet into rock, if rock is encountered at depths shallower than 30 feet. Laboratory testing will be conducted on selected samples from the borings, including water content, Atterberg limits, gradation, visual classification, consolidation and triaxial compression tests. Subsurface investigations will be performed by non-federal sponsor contractor(s). The Mobile District will specify the data sampling requirements.

Man-days and Costs: 107 days and $ 75,000.

Contract Costs: $105,400.

Duration: 32 weeks.

Sub-task JACC – Coordination with Others

Work Description: Coordination of geotechnical investigations for the appropriate 10 shoreline erosion protection sites 50 sediment retention/ecosystem sites will be conducted with the H&H and structural design team members. Coordination with other members of the Product Delivery Team will be accomplished by the non-federal sponsor throughout the collection of the geotechnical data.

Man-days and Costs: Coordination costs are included in the above sub-tasks.

Contract Costs: 0.

Duration: Coordination will occur throughout the duration of the study.

Sub-task JACD – Geotechnical Independent Technical Review

Work Description: This task includes a geotechnical engineer attending the ITR conference, briefing the ITR team on the preparation of the geotechnical portion of the Engineering Appendix, providing responses to the ITR team's

geotechnically related comments, and incorporating review comments and responses in the Engineering Appendix.

Man-days and Costs: 5 days and $ 3,300.

Contract Costs: 0.

Duration: 2 weeks.

Task JAE – Structural Engineering and Design Analysis for Environmental restoration and resource protection Sites

Structural engineering will be required in the design of many of the selected plans for the 50 sediment retention/ecosystem sites.

Sub-task JAEA – Structural Engineering Design

Work Description: This work will include preparing designs for up to 50 environmental restoration and resource protection sites with potentially 5 different types of measures requiring structural design. The basis of design will include drawings displaying the plan, profile, and typical cross sections. Quantities will be developed based on design sheets. The work will include field investigations and coordination with the non-federal sponsor and stakeholders regarding design considerations. This task will also include a determination of alternative operation and maintenance requirements. Details of the work will be discussed in a "basis of design" narrative that will be included in the Engineering Appendix. The level of detail of the design work will be sufficient to estimate the baseline cost of the selected plans. The Mobile District will be responsible for structural design efforts.

Man-days and Costs: 167 days and $ 112,000.

Contract Costs: 0.

Duration: 36 weeks.

Sub-task JAEB – Coordination with Others

Work Description: Coordination of structural design efforts for the appropriate 10 shoreline erosion protection sites 50 sediment retention/ecosystem sites will be

conducted with the H&H and geotechnical team members. Coordination with other members of the Product Delivery Team and the non-federal sponsor will also be accomplished throughout the study.

Man-days and Costs: Coordination costs are included in the above sub-tasks.

Contract Costs: 0.

Duration: Coordination will occur throughout the duration of the study.

Sub-task JAEC – Structural Design Independent Technical Review

Work Description: This task includes attending the ITR conference and briefing the ITR Team on the preparation of the structural engineering appendix. Responses to the ITR Team's comments will be provided, and review comments incorporated in the Engineering Appendix.

Man-days and Costs: 5 days and $3,300.

Contract Costs: 0.

Duration: 1 week.

Task JAG - GIS Mapping

Due to the large size of the Lake Allatoona/Etowah River Watershed and the anticipated scattered nature of the study sites that will be evaluated, it is essential that all relevant data for the study area be organized and presented in a systematic manner to facilitate the efficient conduct of the various investigations and analyses that will be conducted in the Feasibility Study. This is best accomplished by the use of a Geographic Information System (GIS).

Two separate GIS projects will be developed:

(1) A GIS will be prepared by the Mobile District Spatial Data Branch to support the Lake Allatoona shoreline erosion investigations. This GIS will concentrate on the immediate shoreline of the lake and will address a limited number of data parameters to meet the analytical needs of the shoreline erosion investigations.

(2) The existing University of Georgia Institute of Ecology's Georgia Land Use Trends (GLUT) GIS will serve as the basis for a watershed-wide database to support the evaluation of the environmental restoration and resource protection sites. This GIS will be modified for use in the Feasibility Study through a combination of Mobile District in-house efforts and contract support provided by the University of Georgia. The GIS will be used to consider existing and future land use information, soils data, erosion and sediment transport, topographic factors, rainfall, stream flow, water quality parameters, etc.

The GISs are not intended to be end-products in themselves. Instead, the GISs will serve as essential tools in the conduct of the analytical investigations to be conducted in the Feasibility Study. The GIS efforts will use available tools and data to assist in the identification of shoreline erosion sites; the location and evaluation of environmental restoration and resource protection sites; and to support the engineering and environmental investigations.

The GIS system to be used in the Feasibility Study will be based primarily upon available GIS efforts already developed for the Watershed. However, some efforts may be required to modify the existing GISs and acquire additional data layers to meet specific study needs. The centerpiece of the GIS effort will depend upon the Georgia's Land Use Trends (GLUT) analysis system developed by the Natural Resource Spatial Analysis Laboratory of the Institute of Ecology. In addition, other GIS efforts developed by Georgia Institute of Technology, Kennesaw State University, and other entities will be employed as appropriate.

The GIS will maintain a database of selected existing environmental information to support work on the Feasibility Study. The GIS will be used to generate maps included in the report, as well as serving as the mapping tool to present the results of the investigations conducted. The GIS will also serve as an essential aid in the screening, assessment, display, and evaluation of alternatives. In addition, the GIS will be used to compare "without" and "with" project outputs for the alternatives considered.

The non-federal sponsor will be primarily responsible for conducting all GIS efforts. It is envisioned at this time that the University of Georgia will provide the contract support to develop, manage, and use the GIS. A GIS Manger will be assigned within the Mobile District Hydrology and Hydraulics Branch to assist the non-federal sponsor prepare the necessary contract scope of work for this job; manage the efforts of the University of Georgia; direct the integration of other

data into the GIS system; work with the non-federal sponsor on GIS issues; and coordinate application of the GIS in the conduct of the investigations performed by the Product Delivery Team. The EPA will contribute to this task.

Sub-task JAGA – Compile Existing Information

Work Description: Identify and compile existing information and data relevant to the objectives of the Feasibility Study. This effort will involve coordination with the Product Delivery Team and the non-federal sponsor to compile an inventory of the type and availability of data throughout the Watershed to assist in the identification of the 10 lake shoreline erosion sites and the 50 potential environmental restoration and resource protection sites. Historic information will be identified and acquired. Data categories will include demographics, types of land use, water quality, hydrology, project operations, morphometric and/or bathymetric data, meteorology, recreation areas, cultural resources, shoreline structures, road networks, rights-of-way, and topography. The goal is to acquire the best available data and to facilitate rapid inclusion of these data into the GIS databases. Additional data requirements will be identified under other tasks or sub-tasks. All data will be georeferenced.

Man-days and Costs: 8 days and $5,800.

Contract Costs: $15,700.

Duration: 8 weeks.

Sub-task JAGB – Evaluate and Assess Information

Work Description: Evaluation and assessment of the data compiled in sub-task JAGA above will involve three actions.

- Identify data gaps. Data gaps may result from the lack of appropriate spatial or temporal resolution; the absence of data for particular variables of interest to the study; and/or data of unreliable quality. Since all data gaps are not critical to the successful accomplishment of the study, only those gaps that are significant to the evaluations of the environmental restoration and resource protection sites and shoreline erosion sites will be stressed.

- Evaluate and document data quality and reliability. Where appropriate, metadata should be included as a means to qualify data included in the

database. This task should also be performed as an ongoing activity to ensure that new data and information meet project expectations for quality and reliability.

- Assess and interpret data as a means to refine management issues. All data will be assessed to assist in the identification of issues relevant to the objectives of the Feasibility Study.

Man-days and Costs: 5 days and $3,600.

Contract Costs: $15,600.

Duration: 6 weeks.

Sub-task JAGC – Develop GIS Data Management Integration Plan

Work Description: This process includes defining database goals, and defining, analyzing, and assessing design alternatives. The GIS Manager will work with the Product Delivery Team and with the University of Georgia to assure that the design of the GIS database is appropriate to meet the analytical needs of the study investigations that will depend upon the GIS outputs. The GIS database design will include three major components:

- Conceptual Design. This involves specifying the theoretical framework of the GIS application requirements and specifying the end utilization of the database. The conceptual design is independent of hardware and software and could be a wish list of utilization goals.

- Logical Design. Logical design is the specification and the logical structure of the database elements determined by a particular GIS package. Designing the logical stage includes organizing tabular or attribute data, solving database management issues, normalizing tables, defining tolerances, establishing spatial and non-spatial linkage, and selecting coordinate system and map scales.

- Physical Design. Physical designs are based on the hardware and software characteristics/limitations, and require consideration of file structure; memory and disk space; access and speed; etc. Strong consideration will be given to the format of existing data sets from task JAGA and the existing University of Georgia Institute of Ecology GLUT GIS.

Man-days and Costs: 8 days and $5,800.

Contract Costs: $16,000.

Duration: 8 weeks.

Sub-task JAGD – Develop GIS Mapping Symbology Standards

Work Description: Develop symbology standards for consistent mapping of GIS outputs. For the Watershed GIS, these standards will incorporate existing GIS symbology developed by the University of Georgia and other appropriate entities already involved in GIS work within the study area.

Man-days and Costs: 15 days and $6,600.

Contract Costs: 0.

Duration: 4 weeks.

Sub-task JAGE – Collect Additional Site Specific Data

Additional data collection will be required to fill data gaps and to fully support model applications. This work will be accomplished as described below within two sub-sub-tasks.

Sub-sub-task JAGEA – Watershed Data

Work Description: For the Watershed GIS, data collection and incorporation will be accomplished under contract with the University of Georgia and will use their existing GLUT GIS. Existing data will be incorporated in the GIS, with relevant data gaps filled to the extent possible from information generated in related tasks (i.e. JDNA). The Watershed Data contained in the GIS will allow an analysis of land use and land cover in relation to pollutant problems that are degrading streams and Lake Allatoona. This effort will be managed by the non-federal sponsor and coordinated with the Mobile District's GIS manager and other members of the Product Delivery Team. The following data will be collected.

- Land use Classification – Georeferenced distribution of major land use categories (forest, wetland, agriculture, urban, residential, and

commercial/industrial). Land use cover data are shown on 1991-1993 and 1996-1998 imagery held by the University of Georgia, Institute of Ecology. Attempts will be made to obtain the most recent land use/land cover data. Efforts will be devoted to obtaining the most recent land use/land cover data available.

- Soil Type Characterization – Soil types are currently available from STATSGO. The NRCS 1:24,000 soils maps are also available for the study area. In addition, the NRCS has developed updated hardy copy county maps with more accurate information. These maps will be digitized and georeferenced according to the mapping standards developed in Task JAGD

- Meteorological Data – A partial record station is operated at Canton and a full record station is operated at Allatoona Dam. All other rain gages/weather stations will be located and available data listed with the period of record for the sub-basins considered for environmental restoration and resource protection projects. Records from gages operated by other entities such as federal, state and local agencies may also provide beneficial information.

- Topography – Land elevation data to delineate topographic conditions for the sub-basins within which environmental restoration and resource protection projects will be obtained and used to compute stream characteristics. Thirty-meter resolution data are currently available based on aerial photographic surveys. Interpretation of these data may be required for georeferencing.

- Point source pollutants and nonpoint source pollutant areas will be mapped.

- Obtain and digitize non-digital locational data for items such as water quality sampling sites, landfills/abandoned dumps and fills, rain gages, flow gages, sediment sampling sites, etc.

Man-days and Costs: 30 days and $25,000.

Contract Costs: $100,000.

Duration: 40 weeks (Portions of the GIS will be made available for use at intervals over this period.).

Sub-sub-task JAGEB – Shoreline Erosion Site Data

Work Description: This effort will be undertaken to support Sub-task JABC. The data collection effort will be directed at acquiring imagery to locate, measure, and assess shoreline erosion problem areas at Lake Allatoona. In addition, historical aerial photographs and maps will be considered to support the detection, extent and severity of shoreline erosion. Data collected should allow identification of causes of erosion, soil types, the location of adjacent structures, sites having cultural or environmental significance, and other factors that should be considered in deliberations in the selection of erosion sites warranting corrective actions. This information will be used to rank erosion areas. The information developed in this effort will be incorporated into the Lake Allatoona Shoreline Erosion GIS. The GIS will be designed for use in the Feasibility Study, and to support future efforts that may be undertaken to address shoreline erosion problems independent of this study. Development of the GIS database will be accomplished by the non-federal sponsor's contractor. Data collection specifications will be determined through coordination with the Mobile District's GIS Manager and appropriate members of the Product Delivery Team.

Man-days and Costs: 106 days and $82,000.

Contract Costs: $0.

Duration: 23 weeks.

Sub-task JAGF – Establish and Maintain a Relational Database

Work Description: This effort involves the identification of appropriate data storage structures to meet user needs, and the establishment and maintenance of a database. The resulting database will facilitate data sharing and ensure easy access to data. This work will be accomplished by the non-federal sponsor's contract and coordinated with the Mobile District GIS Manager.

Man-days and Costs: 50 days and $29,600.

Contract Costs: 0.

Duration: This task will be distributed throughout the duration of the study.

Sub-task JAGG – Coordinate with Product Delivery Team and Non-federal Sponsor

Work Description: Coordination of basic data needs for the application of the GIS will be conducted with H&H, the environmental team members, and the non-federal sponsor. In addition, shoreline erosion measurement and assessment needs will be conducted with geotechnical team members. Modeling results will be provided to the Product Delivery Team to aid in the screening, assessment, display, and evaluation of alternatives.

Man-days and Costs: 30 days and $20,000.

Contract Costs: 0.

Duration: This task will be distributed throughout the duration of the study.

Sub-task JAGH – GIS Independent Technical Review.

Work Description: This task includes attending the Independent Technical Review (ITR) conference and briefing the ITR Team on the preparation of the GIS Database. Responses to the ITR Team's comments will be provided, and review comments incorporated in the Engineering Appendix.

Man-days and Costs: 21 days and $8,800.

Contract Costs: 0.

Duration: 3 weeks.

Sub-product JB – Socioeconomics Studies/Report

The Mobile District's Economic Analysis Team will be primarily responsible for performing the socioeconomic studies in compliance with the requirements of Corps regulation ER 1105-2-100. The socioeconomic studies will be conducted to: (1) assist in problem identification; (2) identify the social and demographic characteristics and expected future trends in the affected populations; (3) quantify monetary benefits and costs of proposed solutions; and (4) demonstrate the cost-effectiveness of proposed plans. Specifically, the socioeconomic

studies will help define the problems and quantify and describe the impacts of alternatives on the National Economic Development (NED) Account. A risk-based analysis will also be conducted. Cost-effectiveness of environmental restoration and resource protection plans will be described in terms of National Environmental Restoration (NER) outputs versus NED costs. In addition, socioeconomic studies will include an ability to pay analysis and a financial analysis of the non-federal sponsor's financing capability. The results of socioeconomic studies will be presented in a Socioeconomics Appendix to the Feasibility Report. Summary results will be incorporated into the main body of the Feasibility Report and the accompanying NEPA document. Task breakdowns and descriptions appear below.

Task JBA – Economic Analysis/Report

Work performed as part of the Feasibility Study effort will include measuring the beneficial contributions to the NED account associated with the shoreline erosion protection and environmental restoration and resource protection alternatives. Feasibility level reports must document the processes used to identify project alternatives, measure the “without project” condition outputs of the affected resources, and compare these with the “with project” condition outputs to determine the optimal project alternatives. Efforts will include measuring the cost-effectiveness of the various environmental restoration and resource protection proposals considered. The Economic Analysis Report will include sufficient justification to identify the NED plan, the NER plan, and optimal tradeoff plans. The following sub-tasks must be accomplished to complete this evaluation.

Sub-task JBAA – Existing/Without Project Conditions

This sub-task involves two efforts to develop the baseline conditions against which the outputs of the considered alternatives will be evaluated.

Sub-sub-task JBAAA – Existing Conditions

Work Description: Existing and historical social, economic and demographic characteristics of the affected areas within the Lake Allatoona/Etowah River Watershed will be researched, analyzed and described. Sufficient data and information will be collected, compiled and analyzed to identify trends in population and/or land use changes. Any properties and structures identified adjacent to the 10 study sites on Lake Allatoona as being at risk to shoreline erosion problems will be identified based on available mapping and field

investigations. Property values will be estimated using the Marshall & Swift Square Foot Method. Land values will be estimated using Tax Assessor records. Data describing erosion rates and appropriate statistics describing their uncertainty will be obtained from the Hydrology & Hydraulics and Geotechnical studies. Information will be collected from prior studies documenting trends in environmental quality. Coordination will be maintained with the environmental team member to identify the key linkages between economic development and changes in environmental quality. Consensus with the Product Delivery Team will be obtained to develop the "statement" of Existing Conditions. The Existing Conditions will be coordinated with the ITR team to insure compliance with accepted economic practices and appropriate guidance.

Man-days and Costs: 10 days and $5,700.

Contract Costs: 0.

Duration: 3 weeks.

Sub-sub-task JBAAB – Without Project Conditions

Work Description: A reasonable and foreseeable forecast of future economic conditions within the study area in the absence of corrective actions will be produced, based on coordination with the Product Delivery Team, the non-federal sponsor, and the information produced in the Existing Conditions investigations. Future population levels, employment and land use will be obtained from non-federal interests if available, or produced by the Economic Analysis Team if existing data are either not available or unsuitable.

The Economist will participate in a site selection process that ranks alternative sites according to their contributions to "without project" condition effects. Effects will be measured in both NED and NER terms, with the sites having the highest combined ranking selected for further analysis. Considered sites and alternatives will be screened as this task progresses, with some being eliminated from further evaluation while others are selected for more detailed study. This process provides the justification to support the eventual recommendations to be presented in the Feasibility Report.

Linkages between the expected future "without project" conditions and federally authorized project purposes for Lake Allatoona will be described and

documented as appropriate. A description of the Future Without Project Conditions will be coordinated with the Product Delivery Team.

Man-days and Costs: 62 days and $42,100.

Contract Costs: 0.

Duration: 12 weeks.

Sub-task JBAB – With Project Conditions

Work Description: The work performed under this sub-task involves 5 activities as described below.

- Evaluation of Structural Alternatives. This effort involves measuring the outputs of the various structural project alternatives considered. Structural alternatives are those alternatives that require physical modification of the lake shoreline, stream channels, or other feature of the study area. A total of 60 sites will be evaluated – 10 shoreline erosion sites and 50 environmental restoration and resource protection sites. Methods of analysis and benefit evaluation will be selected and employed based on the anticipated complexity of the alternatives considered. Where appropriate, spreadsheet models developed by the Mobile District Economic Analysis Team will be employed. Where required, more sophisticated, third-party developed tools such as IWR-PLAN and Eco-Easy will be used. It is anticipated that roughly one-third to one-half (or 20 to 30) of the 60 sites will require more sophisticated modeling efforts. Risk-based analysis, required by current USACE guidance, will be incorporated to address issues of risk and uncertainty. Potential variables subject to uncertainty include property values, structure values, shoreline erosion rates, damage functions, recreational fleet characteristics, user response to perceived improvements to the resource and user willingness to pay for improvements.

- Evaluation of Nonstructural Alternatives. Potential nonstructural measures that may be evaluated include any or a combination of the following: land use regulations, redevelopment and relocation policies, floodplain acquisition and easements, and on-site detention of floodwaters. Non-structural alternatives are expected to have effects on both the NED and NER accounts.

- NED Pan**.** The Economist will coordinate with the Product Delivery Team to identify the shoreline erosion reduction and environmental restoration and resource protection alternatives that reasonably maximize net NED benefits. The appropriate evaluation and benefit estimation technique will be used to measure benefits.

- NER Plan. The Economist will coordinate with the Product Delivery Team to determine the environmental restoration and resource protection alternatives that maximize the desired environmental outputs. The economics team member will utilize the Institute for Water Resources' (IWR's) IWR-PLAN Decision Support Software, Eco-Easy, or in-house spreadsheet models to analyze up to 51 project alternatives (50 Plan Alternatives and 1 No Action). The NER output evaluation will be accomplished using close coordination with the environmental and engineer team members. The evaluation will produce a comparison of costs versus desirable environmental effects, identifying the alternatives that represent the best financial investments. The evaluation will be accomplished by analyzing effects on a range of decision variables. Upon completion of this task, the Economist will assist the Product Delivery Team and Senior Planner in documenting the analysis, methodology and findings.

- Optimum Trade-off Plan. Since the study will result in both NED and NER effects, an Optimum Trade-off Plan will be established. This plan will represent the best plan in the sense that no alternative plan will have a higher combined NED and NER output vis-à-vis the estimated project costs.

Man-days and Costs: 15 days and $14,400.

Contract Costs: 0.

Duration: 4 weeks.

Sub-task JBAC – Economics Report

Work Description: An Economics Report documenting the results of and the methods used in the economics studies will be prepared. This report will be prepared for the Feasibility Scoping Meeting, Alternative Formulation Briefing, and Feasibility Report. The Economist will prepare the Economics Report, in coordination with the Product Delivery Team and the Senior Planner.

Man-days and Costs: 15 days and $8,800.

Contract Costs: 0.

Duration: 52 weeks.

Task JBB – Social Studies/Report

Work Description: Existing social, economic and demographic conditions of the study area will be documented for the Feasibility Report. The "without project" and "with project" conditions will be defined and documented. The "without project" conditions will reflect the social, demographic and indirect effects of continued shoreline erosion and environmental degradation of Watershed streams and Lake Allatoona, while reflecting any corrective work that may be undertaken by others in the absence of a federal project.

Social impacts will be evaluated on the study area's communities and groups within the zone of influence of the project. Impacts to be considered under the Other Significant Effects (OSE) account will include income distribution; employment distribution; population distribution and composition; the fiscal condition of state and local governments; the quality of community life; life, health, and safety factors; displacement; and long-term productivity. Impacts to minorities and low-income groups will also be evaluated and incorporated into the environmental justice analysis in the NEPA document. The Social Studies report will cost approximately $1,300 and take about 20 man-hours to prepare.

Man-days and Costs: 3 days and $1,300.

Contract Costs: 0.

Duration: 1 week.

Task JBD – Ability to Pay Report

Work Description: An Ability to Pay analysis will be prepared in compliance with the requirements of ER 1105-2-100 and the provisions of Water Resources Development Act of 1986. The analysis will determine the non-federal sponsor's eligibility to reduce their cost-sharing responsibilities based on local economic conditions.

Man-days and Costs: 3 days and $1,300.

Contract Costs: 0.

Duration: 1 week.

Task JBE – Financial Analysis/Report

Work Description: A Financial Analysis Report will be prepared consisting of the non-federal sponsor's Statement of Financial Capability, its preliminary Financing Plan, and the District Commander's assessment of the non-federal sponsor's financial capability. The Financial Analysis Report will include a current schedule of estimated federal and non-federal costs to implement the recommended plan by fiscal year; a schedule of the sources and uses of non-federal funds during and after construction by fiscal year; and the method of financing for all non-federal outlays, including operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) associated with the project. The non-federal sponsor's Statement of Financial Capability will include evidence of their authority and ability to obtain and commit the identified sources and uses of funds.

The non-federal sponsor will prepare a Financing Plan that clearly and convincingly describes how it intends to meet its financial obligations for the project in accordance with the project construction funding and OMRR&R schedules. The Financing Plan will include a current schedule of estimated federal and non-federal expenditures by federal fiscal year which will be provided by the Corps of Engineers and will exactly reflect cost-sharing policy and will agree with estimated cost figures for the recommended plan in the Feasibility Report. In addition, a schedule of the sources and uses of non-federal funds during and after construction by federal fiscal year will be included. The schedule will include project outlays and income as well as outlays and income related to project construction and financing. Also, the schedule of the sources and uses of funds will be consistent with the schedule of estimated federal and non-federal expenditures. Finally, the Financing Plan will explain the method of finance for all non-federal outlays including OMRR&R associated with the recommended project.

The Statement of Financial Capability is a clear and convincing description submitted by the non-federal sponsor of its capability to meet its financial obligations for the project in accordance with the project-funding schedule. This

includes providing evidence of the non-federal sponsor's authority to utilize the identified source or sources of funds. The Statement of Financial Capability should also provide information on the non-federal sponsor's capability to obtain remaining funds.

The District Commander's assessment of the non-federal sponsor's financial capability will determine if it is reasonable to expect that ample funds will be available to satisfy the non-federal sponsor's financial obligations for the project. Consideration will be given to prior performance of the non-federal sponsor on similar projects, certainty of revenue sources and method of payment, and the overall financial position of the non-federal sponsor. The assessment will determine if the following conditions have been met: 1) the non-federal sponsor has adequate funds to meet its financial obligations as delineated by the project funding schedule provided by the Corps; 2) the reliability of the sources of funds has been demonstrated; 3) the non-federal sponsor has full and legal access to those funds; and 4) that all the parties providing funding essential to meeting the non-federal sponsor's financial obligation are legally committed to providing those funds.

Preparation of the Financial Analysis Report will involve both the Corps Economist and non-federal sponsor personnel.

Man-days and Costs: 6 days and $3,700.

Contract Costs: 0.

Duration: 2 weeks.

Sub-product JC – Real Estate Analysis/Documents

The Mobile District Real Estate Division will be responsible for leading the activities required to address real estate issues related to the study. However, the non-federal sponsor will provide significant input into this effort. These activities will include the following: (1) determining land ownership; (2) developing real estate gross appraisals; and (3) preparing the Real Estate Supplement that will include a baseline cost estimate for real estate, a detailed schedule of acquisition milestones, a general description of the area, and total acreage to be acquired (with fee and easement breakdown). The Appraisal Branch will prepare gross appraisals with the assistance of the non-federal sponsor. The Acquisition Branch will work with the non-federal sponsor to obtain

rights-of-entry, prepare preliminary real estate acquisition maps and prepare the Real Estate Supplement. The Real Estate Division will also lead efforts to prepare the Physical Takings Analysis and the preliminary Attorney's Opinion of Compensability.

Task JCA – Real Estate Supplement/Plan

Work Description: The Mobile District Real Estate Division will prepare a Real Estate Supplement (RES) as an appendix to the Feasibility Report. The RES will outline the minimum real estate requirements for the recommended plan in accordance with ER 405-1-12, Draft Chapter 12. The RES will contain a description of the area; the acreage and proposed estates, including non-standard estates, and reasons therefore; discussion of any land owned by the federal government, the non-federal sponsor or any public entity; an estimate of the Public Law 91-646 relocations; the Baseline Cost Estimate for real estate requirements; a discussion of the non-federal sponsor's ability to acquire Lands, Easements, Rights-of-Way, Relocations and Disposal (LERRD) areas; a discussion of any mineral activity; landowner attitudes; a detailed schedule for land acquisition; a preliminary assessment of the facilities/utilities to be relocated; and any other relevant real estate information appropriate for the project.

Man-days and Costs: 50 days and $30,000.

Contract Costs: 0.

Duration: 18 weeks.

Task JCB – Gross Appraisal/Report

Work Description: The Mobile District Real Estate Division will work closely with the non-federal sponsor to evaluate the Watershed area and conduct a Gross Appraisal. A detailed, supported appraisal of the collective real estate requirements and impact of the selected plan will be performed as required by ER 405-1-12 (Chapter 4 and Draft Chapter 12) and policy guidance. Integral to this the work is the preparation of a Baseline Cost Estimate for real estate in the MCACES format. The Gross Appraisal will be incorporated into the RES.

Preparation of the Gross Appraisal will involve a detailed accounting of property ownership, property evaluation for possible easement rights or acquisition of impacted project lands, preparation of a Gross Appraisal, and assessment of

LERRD requirements. The final RES will be provided to the Project Manager and incorporated into the PMP that will be prepared near the end of the Feasibility Study.

Real Estate Division representatives will also attend meetings and conferences with the non-federal sponsor when necessary. The Real Estate Division will also be involved in preparing, modifying and revising the Project Cooperation Agreement (PCA) in cooperation with the non-federal sponsor, Senior Planner, Project Manager, and all other appropriate entities.

Man-days and Costs: 42 days and $25,200.

Contract Costs: 0.

Duration: 13 weeks.

Task JCC – Preliminary Real Estate Acquisition Maps

Work Description: The Mobile District Real Estate Division will prepare an initial set of maps and drawings that delineate the real estate acquisition lines based on technical design drawings developed by the Engineering Division for the selected projects. Maps and drawings will reflect the minimum real estate required to accomplish project purposes. As appropriate, this information should be incorporated into the GIS database.

Costs and Time: The cost and time to prepare the real estate acquisition maps was included under Task JCA.

Task JCD – Physical Takings Analysis

Work Description: A written legal opinion will be prepared by the Mobile District Real Estate Division stating whether flooding will be induced by the construction, operation or maintenance of the proposed project(s). The non-federal sponsor will assist in this effort. If induced flooding is expected, a determination will be made as to whether it will rise to the level of a taking of an interest in real property for which just compensation must be paid to the owner of the real property. The opinion will describe the analysis of relevant information regarding the depth, frequency, duration, velocity and extent of induced flooding, as well as relevant state and Federal law, and will present a conclusion on the physical taking issue.

Man-days and Costs: 15 days and $9,000.

Contract Costs: 0.

Duration: 5 weeks.

Task JCE – Preliminary Attorney's Opinion of Compensability

Work Description: A preliminary legal opinion will be prepared by the Mobile District Real Estate Division stating whether provision of a substitute facility is required under the Fifth Amendment as compensation for a facility/utility being acquired for the project. The opinion makes findings on whether the owner has a compensable interest, whether the owner has the legal duty to continue to maintain and operate the facility/utility, and whether federal law requires the provision of a substitute facility/utility rather than a mere payment of the market value for the property acquired. The preliminary legal opinion differs from the final legal opinion only in its acceptance as fact of the owner's statement of interest in the property, without a search of property records.

Man-days and Costs: 15 days and $9,000.

Contract Costs: 0.

Duration: 5 weeks.

Task JCF – Rights-of-Entry

Work Description: The non-federal sponsor will be primarily responsible for obtaining rights-of-entry as is necessary for the conduct of various investigations undertaken in connection with the Feasibility Study. Rights-of-entry will be obtained for purposes of environmental investigations, cultural assessments, core sampling, surveys, exploration, etc. Documentation will be prepared providing evidence that permission from a landowner to temporarily use his/her land for a specific time and purpose was obtained.

Man-days and Costs: 25 days and $20,000.

Contract Costs: 0.

Duration: 8 weeks.

Task JCG – Relocations of Facilities and Utilities

Work Description: The Mobile District Real Estate Division will be primarily responsible for determining if the alternatives considered require the relocation of any existing facilities or utilities. A staff appraiser will determine the fair market value of any additional lands needed for the relocations. Attorneys in the Real Estate Division will coordinate with the non-federal sponsor to fulfill all legal obligations.

Man-days and Costs: 10 days and $5,000.

Contract Costs: 0.

Duration: 4 weeks.

Task JCH – Real Estate Acquisition Capability Assessment

Work Description: The Mobile District's Real Estate Division will be primarily responsible for preparing a written assessment of the non-federal sponsor's legal and professional capability and experience to acquire and provide the required LERRDs for the construction, operation and maintenance of the recommended project(s), including its condemnation authority and quick-take capability. The Capability Assessment Checklist, included as Appendix 12-E to Chapter 12, Change 31, of ER 405-1-12, must be completed and included as part of the RES.

Man-days and Costs: 10 days and $5,000.

Contract Costs: 0.

Duration: 4 weeks.

Sub-product JD – Environmental Studies/Report

A variety of environmental work will accomplished for the Feasibility Study to (1) comply with specific federal statutes and state regulatory requirements; and (2) to assist in the evaluation and selection of the recommended plan. This work will involve the following activities:

- Develop National Environmental Policy Act (NEPA) documentation.
- Conduct mitigation analyses as required.
- Consult with the US Fish and Wildlife Service in compliance with the Endangered Species Act.
- Perform Section 404(b) Evaluations.
- Obtain Section 401 State Water Quality Certification as required.
- Collect and analyze water quality/quantity, sediment, and other environmental data.
- Update the existing numerical CEQUAL-W2 water quality model for Lake Allatoona (specifically for the Little River and Allatoona Creek embayments).
- Perform appropriate cultural resource investigations.
- Assure there are no environmental hazards associated with the selected project sites.

The environmental studies will involve the collection and analysis of existing and appropriate new data with the intent of gaining an understanding of the effects of urban development within the Watershed and shoreline erosion on the water quality within Lake Allatoona. This information will be used to assist in the identification and evaluation of alternatives to reduce the entry of sediments into streams, to restore degraded stream ecosystems and to correct shoreline erosion problems within Lake Allatoona. Updating of the existing CEQUAL-W2 reservoir model of Lake Allatoona will assist the Product Delivery Team evaluate: (1) the influence of alternative pool level operation scenarios on lake water quality; and (2) the effects on lake water quality from implementation of the environmental restoration and resource protection measures considered in the Feasibility Study.

The Mobile District's Inland Environment Team and the non-federal sponsor will divide responsibility for leading conduct of specific environmental studies, with the support from other members of the Product Delivery Team and appropriate federal and state agency personnel. The assistance of EPA will be sought in the conduct of the environmental studies conducted. A variety of products will be prepared, many of which will be included in the Environmental Appendix of the Feasibility Report. In addition, appropriate summary information will be prepared for inclusion in the text of the main report, and for use in appropriate work products prepared by other members of the Team.

Task JDB – Environmental Assessment (EA)/Findings of No Significant Impact (FONSI)

Work Description: Evaluation of the anticipated environmental effects of the proposed action and alternatives will be performed in accordance with the National Environmental Policy Act (NEPA). A NEPA document will be prepared to accompany the Feasibility Report. The NEPA document will be coordinated with federal and state environmental agencies and the public in accordance with guidance set forth by the Council on Environmental Quality (CEQ).

Preparation of the NEPA document will require support from ecological, biological, archaeological, and engineering disciplines. Field investigations will be conducted and mitigation measures proposed (if required) to reduce the severity of significant adverse impacts. Existing and future "without-project" conditions for aquatic and wetland species/habitat, water quality, fish and wildlife communities, threatened and endangered species, and other pertinent environmental conditions will be described and documented to provide an adequate understanding of the environmental setting of the Watershed study area considered in the Feasibility Study. Resource information describing the environmental outputs to be generated by the measures considered will be assembled in a manner to facilitate conduct of an incremental analysis in cooperation with the Team Economist. The environmental setting assessment will include an inventory and mapping of major habitat types. Further, information from the Hazardous & Toxic or Radiological Waste (HTRW) studies, Cultural Resources studies, and Section 404(b)(1) evaluations will be integrated into the NEPA document.

Due to the environmental nature of this study, it is anticipated that the appropriate NEPA documents prepared to address the effects of the considered actions will be an Environmental Assessment and a Finding of No Significant Impact (FONSI). The NEPA documents will be included in the Environmental Appendix. All associated maps should be prepared in accordance to the GIS standards developed in Task JAGD.

The non-federal sponsor will be responsible for preparing the required NEPA documents using contract resources. The Mobile District's Inland Environment Team will prepare the scope of work and assist in the review of the contractor products.

Man-days and Costs: 136 days and $87,000.

Contract Costs: 0.

Duration: 32 weeks.

Task JDD – Coordination of Documents with Other Agencies

Work Description: Throughout the Feasibility Study, a variety of interim work products (i.e., alternative plans, water quality modeling results, etc.) will be prepared. This information will be coordinated with the non-federal sponsor and local, state and federal agencies to ensure that agency cooperation and consensus is built into the study process. Periodic meetings to address specific issues will also be held on an as needed basis.

Man-days and Costs: 20 days and $13,000.

Contract Costs: 0.

Duration: 52 weeks.

Task JDE – Environmental Resources Inventory Report

Work Description: An Environmental Resources Inventory will be compiled from existing information on the Watershed. The inventory will include information and data to describe biological resources, species of concern, major habitat types and associations, soil types, water quality, land use, etc. of the study area. This information will be considered in the selection of the sub-basins that will be subjected to detailed investigations to receive environmental restoration and resource protection measures and in the evaluations performed for the shoreline erosion protection measures. The inventory will also be used to support preparation of the NEPA documents; conduct of the 404(b)(1) evaluation; perform any required mitigation analyses; and support other appropriate evaluations. Data gaps will be identified and a determination made as to whether additional studies are warranted to fill selected data gaps. The non-federal sponsor will be primarily responsible for the conduct of this task. The EPA will contribute to this task.

Man-days and Costs: 44 days and $28,300.

Contract Costs: 0.

Duration: 26 weeks.

Task JDF – Mitigation Analysis Report

Work Description: Since the principal objective of this study is to improve the environmental conditions within Lake Allatoona and its supporting Watershed, it is unlikely that the measures ultimately recommended for implementation in the Feasibility Report will generate significant adverse impacts, particularly if instream measures that are unacceptable to environmental agencies are avoided. However, the possibility exists that localized adverse impacts could be created with implementation of specific project measures considered. In the event unavoidable significant adverse impacts could be associated with the siting and construction of specific measures, an evaluation will be conducted of possible actions to mitigate for such impacts. The resulting Mitigation Plan will be developed for the Alternative Formulation Briefing and for the Feasibility Report. The Mobile District's Inland Environment Team will be responsible for this product. The EPA will contribute to this task.

Man-days and Costs: 38 days and $20,400.

Contract Costs: 0.

Duration: 16 weeks.

Task JDG – Endangered Species Act Report

Work Description: A number of listed endangered and threatened fish species occur within the various streams throughout the Watershed, including the Cherokee darter and amber darter. Any measure considered having the potential to affect (either beneficially or adversely) stream habitat supporting these and/or other sensitive species will require close coordination with the US Fish and Wildlife Service (FWS) as required by the Endangered Species Act. Such coordination may take the form of either Informal or Formal Consultation. It is possible that specific field studies may be required to clarify the population status of specific fish species in selected sub-basins. If appropriate, a Biological Opinion may be prepared by the FWS. All study reports, FWS reports, and pertinent correspondence will be included in the Environmental Appendix. The non-federal sponsor will be primarily responsible for preparing this report.

Man-days and Costs: 31 days and $20,000.

Contract Costs: $50,000.

Duration: 30 weeks.

Task JDH – Section 404(b)(1) Analysis Report

Work Description: If any of the recommended measures require 401 Water Quality Certification from the State of Georgia (as required by the Clean Water Act), a 404(b)(1) evaluation will be prepared and coordinated with the state. This evaluation will analyze water quality impacts associated with dredging and/or fill activities should such actions be a component of the plan ultimately recommended in the Feasibility Report.

Discussions with EPA staff indicate that recommendations involving sediment retention ponds could require the issuance of NPDES permits because such structures are classified as a "point source" discharge, and as such they would be subject to both a wasteload allocation and NPDES effluent limits.

The Mobile District's Inland Environment Team will be primarily responsible for preparing this report. The EPA will contribute to this task.

Man-days and Costs: 40 days and $24,000.

Contract Costs: 0.

Duration: 8 weeks.

Task JDI – 401 State Water Quality Certification

Work Description: Where applicable, 401 Water Quality Certification (required by the Clean Water Act) will be obtained from the State of Georgia indicating that implementation of specific measures will not result in a violation of state water quality criteria. According to EPA, should the NPDES process triggered by specific measures (i.e. sediment retention ponds) in the recommended plan, it may be necessary to acquire 402 NPDES permits.

The Mobile District's Inland Environment Team will be responsible for compliance with the process to obtain State Water Quality Certification.

Man-days and Costs: 45 and $24,600.

Contract Costs: 0.

Duration: 20 weeks.

Task JDL – Statement of Findings (SOF)

Work Description: A comprehensive summary of all environmental coordination and a record of environmental compliance will be prepared to document the activities undertaken in connection with the NEPA process, Section 404(b)(1) evaluation, Endangered Species Act, cultural resources, and other applicable environmental requirements.

The Mobile District's Inland Environment Team will be responsible for this task.

Man-days and Costs: 19 days and $12,000.

Contract Costs: 0.

Duration: 6 weeks.

Task JDN – Other Environmental Documents/Efforts

Four specific sub-tasks will be pursued under this overall task:

- Identify, collect and analyze water quality and sediment data and other information for use in the conduct of the associated engineering studies.

- Identify and evaluate effectiveness of existing BMP measures employed in the watershed to address NPS issues.

- Update and refine existing CEQUAL-W2 model of Lake Allatoona and use it to evaluate the influence of modified pool level operations on water quality conditions within the lake.

- The anticipated ecosystem outputs/benefits will be identified and measured (quantitatively and/or qualitatively) for use in evaluating the effectiveness of the alternatives considered to satisfy the study objectives.

Sub-task JDNA – Evaluate/Analyze Existing Environmental Data

Work Description: A considerable amount of water quality data has been collected in recent years by a variety of entities within the Watershed. The PMP assumes that modeling tools that will be utilized during the Feasibility Study (, CEQUAL-W2, rainfall-runoff/sediment models to be determined, etc.) and other analytical efforts will make use of and depend upon existing data in an effort to reduce overall study costs. Consequently, prior to the start of detailed study efforts, a comprehensive review and analysis of existing environmental/engineering data (water quality, discharge, sediments, etc.) will be performed. A survey of available data sources will be made to gather all existing information, analyze the data, develop site specific and trend conclusions, document data availability within the Watershed study area, and develop a coarse scale source assessment of environmental problems. The data will be screened to identify the sources that will benefit the overall study objectives, as well as those data sources that are not expected to be of value. In addition, the analysis will identify any significant data gaps that exist for specific subwatersheds within the overall study area, and recommendations will be made as to the need to gather additional data for the purpose of this study. Should such recommendations be developed, discussions would be pursued with the non-federal sponsor to undertake this additional work.

The data collection, review and analysis task will be performed by a non-federal sponsor contractor. The Mobile District's Inland Environment Team will assist in the development of the scope of work and the management and review of the work products. The EPA will contribute to this task.

Man-days and Costs: 15 days and $9,600.

Contract Costs: $55,000.

Duration: 16 weeks.

Sub-task JDNB – Evaluate Current BMPs Used within the Watershed

Work Description: Any plan to improve water quality conditions and restore degraded aquatic habitat within the Lake Allatoona/Etowah River Watershed must include an aggressive and effective program to implement BMP measures at both the individual site and regional levels. An evaluation of all BMPs currently implemented within the Watershed will be performed. The evaluation will be directed at (1) identifying the types of BMP measures presently required by governmental entities to reduce nonpoint source pollution from construction sites and urbanized areas; (2) assessing the amount of the Watershed influenced by these measures; (3) evaluating the effectiveness of these measures in reducing runoff rates, erosion and sediment control, and retention of nonpoint source pollutants; (4) assessing if the BMPs are effective in recreating pre-development local hydrologic conditions; (5) identifying those BMPs that are not effective and pointing out the factors that limit their effectiveness; and (6) recommending actions that could be pursued to improve the implementation of present BMP practices as well as identify additional BMP measures that could be pursued to reduce the introduction of NPS contaminants to watershed streams. The results of the evaluation will be used to define both the "without project" condition and the "with project" for the alternatives considered for the environmental restoration and resource protection projects. Information from this effort will be compiled and included in the overall Feasibility Report. No design of recommended BMPs will be accomplished. However, descriptions of the BMP measures and their estimated effectiveness will be included.

The data collection, review and analysis task will be performed by a non-federal sponsor contractor. The Mobile District's Inland Environment Team will assist in the development of the scope of work and the management and review of the work products. The EPA will contribute to this task.

Man-days and Costs: 15 days and $9,600.

Contract Costs: $100,000.

Duration: 20 weeks.

Sub-task JDNC – Collect Flow Data for Use in CEQUAL-W2 Water Quality Model Evaluations

Work Description: The results of the Reconnaissance Phase investigations identified inflow into Lake Allatoona as an essential data need for the conduct of water quality modeling. To fill this data gap, discharge (i.e. streamflow) data will be continuously collected at the five locations identified in Table 4. Water inflows (temporal, and spatial) at major locations within Lake Allatoona represent a critical component of the CEQUAL-W2 model's ability to accurately predict water quality within the lake. Boundaries correspond to the points of confluence of tributaries or overland flow within the system to be modeled. For the purpose of this task, it is assumed that the boundary and in-stream water quality conditions data will come from existing data sources.

The discharge data will be used along with existing water quality data to refine/update the CEQUAL-W2 model for Lake Allatoona from the forebay of the dam to the I-575 crossing of the Etowah River. Experiences during CEQUAL-W2 model development, and as a result of subsequent evaluations and applications of the model, confirm that reasonable correspondence between modeled and prototype systems, particularly with regard to water balances, thermal structure and dissolved oxygen, can be achieved when boundary conditions are adequately described. Initial installation and operation and maintenance of the stream gauge stations will be accomplished by the non-federal sponsor, using either the U.S. Geological Survey, other contractor support, or in-house stream gauging resources. The costs reflect installation, maintenance and monitoring efforts over the duration of the study.

Table 4
Proposed Streamflow Data Station Locations and Descriptions

Station Type	Station ID	Station Description	Remarks
Continuous Discharge	B1	Etowah River at Hwy 5 spur at Canton	USGS Station 02392000
	B2	Little River north of Woodstock	Upstream of slack water
	B3	Noonday Creek near Bell's Ferry Road	Upstream of slack water
	B4	Allatoona Creek at Old Stilesboro Road	Upstream of slack water
	B5	Shoal Creek	Upstream of slack water

Man-days and Costs: 6 days and $4,000

Contract Costs: $115,000

Duration: 56 weeks.

Sub-task JDND – Update and Application of CEQUAL-W2 Water Quality Model to Evaluate Influence of Modified Pool Level Operations on Water Quality Within Lake Allatoona

Work Description: The existing CEQUAL-W2 model for Lake Allatoona will be used to examine the influence that existing pool level operations have on water quality within the lake. Potential changes in water quality that could be induced by modifying the manner (timing, duration, and extent) in which lake levels are managed (i.e. drawdown schedules) will also be evaluated. To accomplish this work, the existing CEQUAL-W2 model will be updated by: (1) recalibrating the model with additional years of observed data; and (2) increasing the model's resolution for high interest areas within the lake (i.e. the Upper Etowah River section to the I-575 Bridge crossing, the Little River arm, and the Allatoona Creek arm). These areas were selected for detailed modeling to more clearly identify and predict the limiting environmental factors affecting water quality within these regions of the lake. The model will be recalibrated with three additional years of data so that changes to lake water quality can be better predicted for normal, dry, and wet years. The discharge data to be collected under sub-task JDNC will be used for this purpose, along with existing water quality data collected by others. To the extent possible, available modeling techniques will also be used to determine the potential influence that varied lake levels has on the re-suspension of bottom sediments and water turbidity and nutrient availability. This work will be accomplished by the Mobile District with contract support provided by the Corps' Engineering Research and Development Center (formerly known as the Waterways Experiment Station). The EPA will contribute to this task.

Man-days and Costs: 54 days and $50,000.

Contract Costs: $75,000.

Duration: 60 weeks.

Sub-Task JDNE – Ecosystem Restoration Outputs/Benefits

Work Description: Ecosystem restoration outputs/benefits will be determined for all environmental restoration and resource protection alternatives, as well as shoreline erosion protection alternatives as appropriate. The anticipated ecosystem restoration outputs/benefits are likely to involve improvement of degraded stream and riparian habitats, improved water quality, restored habitat for threatened and endangered fish species, etc. As such, most of the outputs/benefits may be non-monetary in nature. This information will form the basis for development of the NER Plan. Once the NER Plan is determined, the Product Delivery Team environmental and economist members will collaborate in the formulation-evaluation process to determine the Optimum Trade-off Plan. The identified ecosystem restoration outputs/benefits will also be used in the incremental cost analyses.

This analysis will be performed by a non-federal sponsor contractor. The Mobile District's Product Delivery Team will be closely involved in the preparation of the scope of work and the review and acceptance of contractor products. The EPA will contribute to this task. The EPA will contribute to this task.

Man-days and Costs: 45 days and $28,800.

Contract Costs: 0.

Duration: 12 weeks.

Sub-Task JDNF – National Pollutant Discharge Elimination System (NPDES) Permits

Discussions with EPA staff indicate that recommendations involving sediment retention ponds could require the issuance of NPDES permits because such structures are classified as a "point source" discharge, and as such they would be subject to both a wasteload allocation and NPDES effluent limits. Since it is not known if such measures will be recommended in the final array of measures comprising the selected plan no costs are included for the permit effort at this time. The EPA will contribute to this task.

Man-days and Costs: 0.

Contract Costs: 0.

Duration: 0.

Sub-Task JDNG – Aquatic Fauna Surveys

For appropriate sites considered to receive environmental restoration and resource protection measures, faunal surveys will be conducted to ascertain the presence/absence of listed threatened and endangered species and other significant communities. The exact locations of the sites requiring faunal surveys will be determined during the course of the study. The faunal surveys will be accomplished by a non-federal sponsor contractor(s), and the efforts will be coordinate with the Mobile District environmental team member.

Man-days and Costs: $20,000.

Contract Costs: $100,000.

Duration: 0.

Sub-product JE – Fish & Wildlife Coordination Act Report

Work Description: The Fish and Wildlife Coordination Act mandates coordination of water resource development plans with the US Fish and Wildlife Service (FWS). The input received from the FWS is directed at minimizing adverse impacts on resources of significance to fish and wildlife resources and to enhancing habitat and population levels where possible. This process requires periodic meetings with the FWS and the sharing of information related to the alternatives considered, and culminates in the preparation of a Fish and Wildlife Coordination Act Report by the FWS. The report will be included in the Environmental Appendix.

The Mobile District will be responsible for working with the FWS to develop this report.

Man-days and Costs: 5 days and $3,000.

Contract Costs: $29,500.

Duration: 30 weeks.

Sub-product JF – HTRW Studies/Report

HTRW investigations will be conducted by a non-federal sponsor contractor. The Mobile District's Environmental and HTRW Section will assist In the preparation of the scope of work and the review of deliverables to assure that the work is conducted in accordance with guidance provided in ER 1165-2-132. The investigations will include a preliminary identification of potential source areas, contaminant release mechanisms, exposure routes, potentially exposed populations, as well as a determination of the non-numerical risk or potential adverse health effects for the identified potential receptors, and an evaluation of the environmental consequences of all storage, use generation, and disposal on the sites considered.

Task JFB – HTRW Site Inspection Report

Work Description: When the alternative project sites are identified for detailed study, present and historic maps, aerial photos, and community records for the sites will be reviewed; visual site surveys will be conducted; and landowners and knowledgeable individuals will be interviewed. Hand held GPS units will be used to georeference all site visits. If it is determined that there are no suspected HTRW problems, the investigation and findings to support this determination will be clearly indicated in the Feasibility Report. If it is determined that there are potential HTRW materials associated with a particular project site that would be disturbed by one of the alternatives considered, regulatory agencies will be notified, and the problems reported to the Product Delivery Team to determine whether the alternative should be modified or dropped from further consideration. The HTRW specialist will prepare a summary account of the HTRW investigation and a map identifying the location of the known, reported, or suspected HTRW sites. The mapping effort will be coordinated with the GIS efforts to assure this information is included on an appropriate data layer. A report will be prepared describing any hazardous/toxic/radiological waste (HTRW) occurrences within or near the areas considered to receive the shoreline erosion protection and environmental restoration and resource protection measures. It will include a determination of the nature and extent of any contamination and a qualitative analysis of the impacts of any contamination that may be present.

Man-days and Costs: 35 days and $22,500.

Contract Costs: 0.

Duration: 16 weeks.

Sub-product JG - Cultural Resources Report

Cultural resources studies will be conducted in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, 36 CFR 800 "Protection of Historic Properties," and ER 1105-2-100. These studies will be conducted to determine the impacts of the considered alternatives on any historical, architectural, and archeological resources that may be present in the areas selected for detail engineering investigations. The results will be documented in a Cultural Resources Appendix to the Feasibility Report.

Task JGA – Site Survey Field Report

Work Description: Field reconnaissance of the study areas will be conducted to examine known archeological sites and architectural properties that may be affected by the considered actions. Although it is unlikely that the environmental restoration and resource protection alternatives will affect cultural resources, required access routes to reach the sites for construction purposes have the potential to affect cultural resources. A field reconnaissance may be required if access to project sites must be constructed across undisturbed lands. The end product of this task will be a detailed report describing all cultural resources in the Area of Potential Effect and assessing the potential impact of each alternative on these resources. The report will also describe the potential range of preservation or mitigation efforts and the associated costs of these studies. The findings of this sub-task will be documented in the Cultural Resources Appendix. This task will be performed by a non-federal sponsor contractor in close coordination with the Mobile District Inland Environment Team. All mapping will meet the GIS standards developed in Sub-Task JAGD and will be coordinated with the GIS efforts.

Man-days and Costs: 11 days and $7,000.

Contract Costs: $24,000.

Duration: 16 weeks.

Task JGB – Data Collection and Analysis Report

Work Description: Archival studies will be performed to identify and map cultural resources sites in the Area of Potential Effect. A current list of properties listed on the National Register of Historic Places will be compiled. Additional research will be conducted at the central archeological site files at the University of Georgia to compile a comprehensive list with map locations of archeological sites in the study areas. This information will be used in the screening of the alternatives. This task will be performed by a non-federal sponsor contractor in close coordination with the Mobile District Inland Environment Team.

Man-days and Costs: 11 days and $7,000.

Contract Costs: $30,000.

Duration: 26 weeks.

Task JGD – Memorandum of Agreement

Work Description: If any historic properties have the potential to be impacted by the plans recommended for implementation in the Feasibility Report, a Memorandum of Agreement (MOA) would be prepared and coordinated with the Georgia State Historic Preservation Officer (SHPO). However, since it is not anticipated this effort will be required due to the nature of the measures to be considered, no costs have been identified at this time. Should the need develop to prepare an MOA at a later date in the study, appropriate adjustments to the study cost estimate would be made at that time.

Man-days and Costs: 0 days and $0.

Contract Costs: 0.

Duration: 0 weeks.

Sub-product JH – Cost Estimates

Project cost estimates will be prepared by the Mobile District Cost Engineering Branch for the alternatives developed for the 10 shoreline erosion protection sites and the 50 environmental restoration and resource protection sites. These estimates will include all federal and non-federal costs for engineering and

design, construction management, and operation, maintenance, repair, replacement, and rehabilitation (OMRR&R). An MCACES cost estimate will be developed for the fully funded project as defined in the NED Plan.

Task JHC - Project Cost Estimates

Work Description: Preliminary, rough order of magnitude (ROM) construction cost estimates will be prepared for up to three alternatives for each of the 10 shoreline protection sites and an average of two alternatives for each of the 50 environmental restoration and resource protection sites. This task includes site visits, attendance at team meetings, and preparation of the draft and final M-CACES estimate for the recommended plan.

Man-days and Costs: 110 days and $ 74,800.

Contract Costs: 0.

Duration: This work will be distributed throughout the duration of the study.

Task JHD – Operation and Maintenance (OMRR&R) Cost Estimates

Work Description: The OMRR&R estimates will be prepared in support of the NED plan. Coordination will be required with the non-federal sponsor.

Man-days and Costs: 18 days and $12,000.

Contract Costs: 0.

Duration: 4 weeks.

Task JHE – Baseline Fully Funded Cost Estimate

Work Description: As part of this task, a Construction Execution Plan will be developed for the recommended plan to take into consideration construction contract size, phasing within each contract, and the sequencing of contracts. Coordination will be required with Operations Division, Construction Division, Planning Division, and the non-federal sponsor. An MCACES fully funded cost estimate will be prepared taking into consideration the Construction Execution Plan.

Man-days and Costs: 27 days and $18,300.

Contract Costs: 0.

Duration: 5 weeks.

Task JHF – Non-Federal Cost Estimate

The non-federal portion of the total cost estimate will be developed for the recommended plan for all efforts through the plans and specifications phase for inclusion in the Engineering Appendix.

Man-days and Costs: 18 days and $12,700.

Contract Costs: 0.

Duration: This work will be distributed throughout the duration of the study.

Task JHG – Cost Engineering Independent Technical Review

Work Description: This task includes attending the ITR conference and briefing the ITR team on the preparation of the estimates for the Feasibility Report. Responses to the ITR team's comments will be provided, and review comments will be incorporated in the Project Fully Funded Cost Estimate.

Man-days and Costs: 5 days and $ 3,700.

Contract Costs: 0.

Duration: 1 week.

Sub-product JI – Public Involvement Documents

The non-federal sponsor will be primarily responsible for performing the work under this sub-product. All work will be coordinated with the Mobile District's Planning and Environmental Division. Public involvement activities will include public meetings/workshops and agency meetings held during the Feasibility Study, plus other miscellaneous meetings with local officials. Coordination with state and local agencies will be initiated immediately at the outset of the study and will be maintained throughout the course of the study.

Public involvement includes interagency coordination between the Mobile District; appropriate federal and State of Georgia agencies; the non-federal sponsor, environmental and community groups; and other interested parties. Project scoping and status meetings will be held with the non-federal sponsor. Meetings will be held to discuss data collection needs, study area water resource problems, and lake shoreline erosion problem areas, tributary stream erosion and sedimentation reduction alternatives, ecosystem restoration options with various organizations. Newsletters, fact sheets and/or correspondence will be generated as appropriate to keep interested parties updated on the status of the Feasibility Study. The Mobile District will provide the non-federal sponsor with the minutes of meetings and forward appropriate information regarding the project schedule. Regular coordination will be maintained with the U.S. Fish and Wildlife Service (FWS) and the USEPA.

Task JIA – Notices of Public Meetings

Work Description: A series of public meetings/workshops will be held after the evaluation of alternatives. Letters, notices, newspaper articles, and other forms of announcement will be used to inform the public of the meetings/workshops. The meetings/workshops will be held at appropriate locations within the study area to inform the public and obtain input to the plan formulation and decision-making process. This task will be jointly planned by the Mobile District's Planning and Environmental Division and the non-federal sponsor and they will share equally in the work

Man-days and Costs: 10 days and $12,000.

Contract Costs: $10,000.

Duration: 4 weeks.

Task JIB – Minutes of Public Meetings

Work Description: A record of the public meetings/workshops, to include comments received during and after the meetings/workshops, will be developed and maintained on file at the Mobile District and by the non-federal sponsor. This task will be jointly performed by the Mobile District's Planning and Environmental Division and the non-federal sponsor.

Man-days and Costs: 10 days and $10,000.

Contract Costs: $10,000.

Duration: 4 weeks.

Task JID – Newsletters

Work Description: Newsletters will be prepared at the beginning of the Feasibility Study to inform the interested public of the study's initiation, and after existing/without project conditions have been determined and the principal sites for study have been identified. Other newsletters will be prepared periodically throughout the course of the Feasibility Study as warranted to keep the public apprised of study progress and the results of intermediate work products. It is envisioned that the total number of newsletters prepared could reach as many as 12 over the course of three years.

This work will be accomplished by a contractor with information provided by the Mobile District's Senior Planner and the non-federal sponsor. The non-federal sponsor will be responsible for managing the contract.

Man-days and Costs: 60 days and $36,000.

Contract Costs: $10,000.

Duration: Assumed to occur every quarter over a 3-year period.

Task JIE – Other Public Involvement Documents

Sub-task JIEA – Public Involvement Plan

Work Description: The Mobile District's Planning and Environmental Division and the non-Federal sponsor will jointly establish the scope of the public involvement techniques and timing of the activities that will comprise the Public Involvement Plan to be followed. At the outset of work on the Feasibility Study, a meeting will be held with the non-federal sponsor to formulate the Public Involvement Plan and to agree on the details of the public involvement techniques to be employed. The non-federal sponsor and the Mobile District will have appropriate individuals attend the meeting. The non-federal sponsor and the Mobile District will each provide an initial list of all potentially interested parties for development of a mailing list for the distribution of public notices, newsletters, fact sheets and other

materials. The mailing list will be continually updated over the course of the study. The Mobile District will maintain the mailing list. The services of a contractor will be sought to accomplish specific components of the public involvement program as outlined in the various sub-tasks under this overall sub-product.

Man-days and Costs: 20 days and $20,000.

Contract Costs: 0.

Duration: 6 weeks.

Sub-task JIEB – Public Involvement and Agency Coordination Appendix

Work Description: The results of the public involvement program will be documented in a public and agency coordination appendix to the Feasibility Report. The appendix will document public involvement activities performed during the Feasibility Study. The appendix will summarize the results of these activities and will include responses to inquiries from the general public, agencies and Congressional interests; coordination with the media; briefings for various committees and private organizations; and preparing materials, including visual aids, for meetings. This task will be performed by the Mobile District's Planning and Environmental Division, with the support of the non-federal sponsor.

Man-days and Costs: 40 days and $35,000.

Contract Costs: 0.

Duration: 12 weeks.

Sub-product JR – Feasibility Scoping Meeting (FSM)

Work Description: As required by Planning Guidance Letter 98-05, Engineer Regulation (ER) 1105-2-100, Appendix O Revised, 10 March 1998, a Feasibility Scoping Meeting (FSM) will be convened early in the Feasibility Study. The purpose of the FSM is to assure that the Feasibility Study is focused and tailored to meet site-specific objectives and constraints. The Mobile District's Senior Planner will be primarily responsible for the conduct of the FSM, with support provided by the non-federal sponsor. The FSM will include the participation of

the non-federal sponsor and representatives from the South Atlantic Division and HQUSACE as appropriate.

Task JRA – Draft FSM Documents

Work Description: A draft FSM document will be prepared after the NEPA scoping process and the preliminary plan formulation and evaluation efforts have been accomplished and the Mobile District is prepared to focus the Feasibility Study on the key alternatives, to further define the depth of analysis required and to refine study/project constraints. The documentation will include, at a minimum, a description of existing conditions and assumptions for without-project conditions; results of initial public involvement; a discussion of problems and opportunities; identification of specific planning objectives and constraints; a description of applicable management measures and preliminary plans; and the evaluation of preliminary plans.

Man-days and Costs: 30 days and $25,000.

Contract Costs: 0.

Duration: 6 weeks.

Task JRB – FSM Technical Review Documents

Work Description: Technical review will be accomplished on the draft FSM document by Mobile District Technical Review Team and the representatives of the non-federal sponsor. Technical review documents will be prepared.

Man-days and Costs: 20 days and $15,000.

Contract Costs: 0.

Duration: 2 weeks.

Task JRC – FSM Documents

Work Description: The FSMs document will be revised in response to technical review comments, and it will be sent to the HQUSACE and the Division three (3) weeks prior to the FSM.

Man-days and Costs: 5 days and $3,000.

Contract Costs: 0.

Duration: 1 week.

Task JRD – HQUSACE/Division Review and FSM

Work Description: The FSM document will be reviewed by HQUSACE/Division staff before the FSM. The FSM will be held to bring HQUSACE, division and district staffs, the non-federal sponsor, and resource agencies together to focus the Feasibility Study on key alternatives, to further define the depth of analysis required, and to refine study/project constraints. Accordingly, this PMP may require revision to accommodate changes agreed to at the FSM. The revised PMP will then form the basis for subsequent conduct and review of the Feasibility Study. This task will be funded through General Expense appropriations and not charged to the study. Only those actions required by the Mobile District and/or the non-federal sponsor to support the review will use study funds.

Man-days and Costs: 5 days and $3,000.

Contract Costs: 0.

Duration: 4 weeks.

Task JRE – FSM Guidance Memorandum

Work Description: The agreed-to changes will be documented in a memorandum to be finalized by HQUSACE, Directorate of Civil Works, Planning (CECW-P). The revised PMP (i.e. this document) will then form the basis for subsequent conduct and review of the Feasibility Report and development of the future Report of the Chief of Engineers. This task will be funded through General Expense appropriations and not charged to the study. Only those actions required by the Mobile District and/or the non-federal sponsor to support the review will use study funds.

Man-days and Costs: 3 days and $1,500.

Contract Costs: 0.

Duration: 2 weeks.

Sub-product JJ – Plan Formulation and Evaluation Report

The Feasibility Study will follow the Corps' six-step planning process specified in ER 1105-2-100:

- Identify water and related land resource problems and opportunities to be addressed. The causes of the problems will be discussed and documented. Planning objectives will be established and any constraints identified.

- Inventory, forecast, and analysis of water and related land resource conditions within the study area relevant to the identified problems and opportunities. This information will be used to establish the existing and future without-project conditions

- Formulate alternative plans to address the planning objectives.

- Evaluate the effectiveness, efficiency, completeness and acceptability of the alternative plans. The anticipated outputs will be estimated to determine how well they satisfy the planning objectives. The impacts of alternative plans will be evaluated using the system of accounts framework (NED, EQ, NER, RED, OSE) specified in the Principles and Guidelines and ER 1105-2-100.

- Compare alternative plans. Benefit-cost ratios will be computed as appropriate, non-monetary output analyses will be performed, and the cost-effectiveness of the plans determined. Incremental cost analyses will be conducted to identify the NER plan (i.e. the plan with the greatest net ecosystem restoration benefits). An optimum tradeoff plan will be developed to identify the plan having the greatest net sum of economic and restoration benefits. The public involvement program will be used to obtain public input in the alternative evaluation process.

- Select the plan for recommendation. The justification for selection of the plan will be based upon the comparison of alternative plans.

The following tasks will be completed by the Planning and Environmental Division's Senior Planner and the non-federal sponsor's study coordinator. The

Mobile District will be primarily responsible for preparing the Plan Formulation Report. The costs of participation in plan formulation activities by the rest of the Product Delivery Team are included in the technical study estimates presented above under the appropriate sub-products.

Task JJA – Product Delivery Team Meetings

Work Description: The initial Product Delivery Team meeting will be held with all team members, including the non-federal sponsor's representative shortly after starting the Feasibility Study. The purpose of the meeting will be to plan and coordinate activities between the different technical disciplines responsible for performing specific investigations for the Feasibility Study. Other Product Delivery Team meetings will be held at regular intervals throughout the study to address a variety of matters related to the prosecution of the study and compliance with the project study plan, including cost estimates, schedules, prosecution of work tasks, and financial transactions.

Man-days and Costs: 36 days and $30,000.

Contract Costs: 0.

Duration: The Team meetings will be held at regular intervals throughout the duration of the study.

Task JJB – Establish Without Project Conditions

Work Description: Without project conditions will be developed and refined in the early stages of the Feasibility Study based on environmental, hydrologic, institutional and socioeconomic input. The alternative plans will be formulated to address the projected future without project conditions.

Man-days and Costs: 40 days and $35,000.

Contract Costs: 0.

Duration: 12 weeks.

Task JJC – Alternative Plan Formulation and Evaluation

Work Description: The Senior Planner will lead the Product Delivery Team in identifying and screening alternative projects. Based upon a review of existing data and limited field reconnaissance, the Team will identify potential alternatives, develop concept level designs and reconnaissance level cost estimates, and conduct a preliminary benefit-cost and/or non-monetary analysis of alternatives. This information, plus information obtained from the public, will be used to screen alternatives to the final set that will be subjected to detailed evaluation. The preliminary set of formulated plans will include required alternatives such as a no-action plan and a nonstructural plan, as well as various structural measures to protect shoreline erosion problems; retain sediments and other pollutants; and/or to restore degraded ecosystems. The preliminary formulation of alternatives task will be performed by the Mobile District's Planning and Environmental Division and the non-federal sponsor.

Man-days and Costs: 60 days and $47,000.

Contract Costs: 0.

Duration: 16 weeks.

Task JJD – Detailed Evaluation of Alternatives

Work Description: The final set of alternatives will be formulated from the results of the screening of the initial array of alternatives considered to develop lake shoreline erosion protection and environmental restoration and resource protection proposals. A variety of analytical techniques will be employed to assess the performance of the plans under various conditions in order to identify a reliable NED plan, NER plan, and optimum trade-off plan. As part of the formulation process, the evaluations will consider technical feasibility, economic feasibility, environmental impact, real estate acquisition, and the views of the public. The alternatives that pass the initial screening process described in Task JJC will be analyzed in terms of costs and benefits to determine the NED plan, non-monetary ecosystem restoration benefits to determine the NER plan, and to develop the optimum trade-off plan.

The environmental restoration and resource protection alternatives will be analyzed by using the Institute for Water Resources' (IWR's) IWR-PLAN Decision Support Software to the 50 project sites that are anticipated to be

developed during the study. The IWR software program will assist with alternative comparison by conducting cost-effectiveness and incremental cost analyses, identifying the alternatives that represent the best financial investments and displaying the effects of each plan on a range of decision variables.

The detailed evaluation of alternatives will be performed by the Mobile District's Planning and Environmental Division and the non-federal sponsor.

Man-days and Costs: 60 days and $47,000.

Contract Costs: 0.

Duration: 16 weeks.

Task JJE – Plan Formulation and Evaluation Report

Work Description: The Mobile District's Senior Planner will lead the Product Delivery Team's plan formulation efforts. The non-federal sponsor will also participate in this effort and coordinate the work with study area interests. Management of the plan formulation effort will include such activities as Product Delivery Team meetings, preparation of plan formulation documents, coordination with the non-federal sponsor and other agencies, and integration of all technical investigations.

The Senior Planner will summarize the results of the technical studies leading to plan selection in the Plan Formulation Report that will be incorporated into the eventual Feasibility Report. The Plan Formulation Report will document the alternative formulation, evaluation and selection process that was used to identify the NED plan, the NER plan, the optimum trade-off plan and the recommended plan. The costs and benefits and environmental and hydraulic impacts and ecosystem restoration benefits of alternatives presented in the report will be developed at the feasibility level of detail.

The annual and periodic activities and responsibilities for operating and maintaining the considered plans will be described in the Plan Formulation Report, including any environmental mitigation if required. The magnitude of these activities will be described for the alternative selected for recommended implementation. All requirements of 33 CFR 208 and other Federal regulations specifying operation and maintenance requirements will be clearly described so that the non-federal sponsor will be aware of its future O&M responsibilities.

Management of the plan formulation process and preparation of the Plan Formulation Report will be performed by the Mobile District's Planning and Environmental Division and the non-federal sponsor.

Man-days and Costs: 60 days and $47,000.

Contract Costs: 0.

Duration: 16 weeks.

Sub-product JQ – Alternative Formulation Briefing (AFB)

As required by Planning Guidance Letter 98-05, Engineer Regulation (ER) 1105-2-100, Appendix O Revised, 10 March 1998, an Alternative Formulation Briefing (AFB) will be convened when the Mobile District is ready to present the formulation of alternatives and identify the NED plan, the NER plan, the optimum trade-off plan and the tentatively selected plan. The Corps of Engineers will be primarily responsible for this effort, with assistance being provided by the non-federal sponsor.

Task JQA – AFB Project Documentation

Work Description: A draft AFB document will be prepared when the Mobile District is ready to present the results of the alternative formulation, evaluation and comparison process and has identified the NED plan, the NER plan, the optimum trade-off plan and the tentatively selected plan. Specific items for inclusion in the document are the complete array of alternatives, cost estimates, benefit analyses, incremental analyses, and real estate requirements and costs. The AFB document will be revised in response to technical review comments, and it will be sent to the HQUSACE and division three (3) weeks prior to the AFB.

Man-days and Costs: 30 days and $25,000.

Contract Costs: 0.

Duration: 6 weeks.

Task JQB – AFB Technical Review Documents

Work Description: Technical review of the draft AFB documentation will be accomplished by the Mobile District Technical Review Team. This effort will produce technical review documents that summarize the review findings.

Man-days and Costs: 25 days and $18,000.

Contract Costs: 0.

Duration: 2 weeks.

Task JQC – AFB Policy Compliance Review Documents

Work Description: Policy compliance review documents will be prepared by HQUSACE.

Man-days and Costs: 5 days and $4,000.

Contract Costs: 0.

Duration: 3 weeks.

Task JQD – AFB Guidance Memorandum

Work Description: An AFB Guidance Memorandum will be prepared by HQUSACE, Directorate of Civil Works, Planning (CECW-P). The AFB Guidance Memorandum will document directions to the Mobile District to complete the Feasibility Study.

Man-days and Costs: 5 days and $4,000.

Contract Costs: 0.

Duration: 2 weeks.

Task JQE – Attend AFB

Work Description: The AFB will be attended by HQUSACE, Division and District staffs and the non-federal sponsor. The purposes of the AFB are to review study findings concerning lake shoreline erosion protection and environmental restoration and resource protection needs; evaluate the array of alternatives and determine their consistency with the federal interest; and to review the preliminary impact analysis conducted of the alternatives. This briefing will be a key decision point in determining whether alternatives meet federal and non-federal policies and budgetary criteria and should be recommended for project implementation. If the non-federal sponsor has a preferred alternative that differs from the federally recommended plan, it will be identified and reviewed at this time.

Man-days and Costs: 15 days and $15,000.

Contract Costs: 0.

Duration: 3 days.

Sub-product JK – Draft Report Documentation

A Draft Feasibility Report will be prepared following the guidance contained in ER 1105-2-100. With minor revisions, the Plan Formulation Report will be suitable for incorporation into the Feasibility Report as the main report section. Detailed appendices will be prepared documenting the results of the technical analyses. The cost of preparing the report appendices are contained under each of the technical elements described previously. The contents of the Draft Feasibility Report are summarized below:

- Concise main report summarizing the study's technical findings, conclusions and recommendations.
- Draft NEPA document.
- Technical appendices presenting the detailed backup and results of individual work tasks.
- An appendix containing the non-federal sponsor's Financial Capability Statement and preliminary Financing Plan.

- Other supporting documentation including the Project Management Plan (PMP) to be used in the design and construction phase of project implementation.

The Mobile District will be primarily responsible for assembling the Draft Feasibility Report with major inputs provided by the non-federal sponsor. The EPA will contribute to this task.

Task JKA – Draft Feasibility Report and NEPA Document

Work Description: Preparation of the Draft Feasibility Report includes assembling, writing, editing, typing, drafting, reviewing, reproducing and distributing the report, Draft NEPA document and other related documentation required for transmittal to USACE and higher authorities for use as a decision document. A Preliminary Draft Report and NEPA document will be prepared for technical review; it will be revised to comply with technical review comments prior to submittal for review. The Draft Feasibility Report and Draft NEPA document will be prepared by the Mobile District's Planning and Environmental Division. The costs of preparing the Draft NEPA document and various technical appendices are included under other Sub-Products.

Man-days and Costs: 40 days and $30,000.

Contract Costs: $3,000 (reproduction costs).

Duration: 12 weeks.

Task JKB – Public Review Comments

Work Description: This task involves reviewing and preparing responses to letters received from agencies and the public in response to the Draft Feasibility report and Draft NEPA document. Responses to the comments will be included in the final Feasibility Report and Final NEPA document. This task will be performed by the Mobile District Planning and Environmental Division.

Man-days and Costs: 20 days and $15,000.

Contract Costs: 0.

Duration: 4 weeks.

Task JKE – Technical Review Documents

Work Description: Technical review documents will be prepared by the Mobile District.

Man-days and Costs: 20 days and $15,000.

Contract Costs: 0.

Duration: 4 weeks.

Task JKF – Headquarters Policy Compliance Review Documents

Work Description: Policy compliance review documents will be prepared by HQUSACE. This task will be funded through General Expense appropriations and not charged to the study.

Man-days and Costs: $0.

Contract Costs: 0.

Duration: 4 weeks.

Task JKC – Project Guidance Memorandum (PGM)

Work Description: This task includes directive guidance prepared by HQUSACE for the work to be accomplished to obtain approval of the Final Feasibility Report. This task will be performed by HQUSACE and funded through General Expense appropriations and not charged to the study.

Man-days and Costs: $0.

Contract Costs: 0.

Duration: 2 weeks.

Sub-product JL – Final Report Documentation

The Final Feasibility Report will incorporate comments from agencies, the public and higher authority review. The steps in producing a Final Feasibility Report include the following:

- Finalize Draft Feasibility Report for non-federal sponsor's review.
- Conduct Mobile District Project Review Board meetings.
- Revise the Draft Feasibility Report in response to HQUSACE comments.
- Modify the Draft Feasibility Report in response to comments received during the agency and public comment period.
- Coordinate with the non-federal sponsor and internal Mobile District elements.
- Reproduce and distribute the Final Feasibility Report.

The Mobile District will be primarily responsible for assembling the Final Feasibility Report with major inputs provided by the non-federal sponsor. The EPA will contribute to this task.

Task JLC – Final Feasibility Report and NEPA Document

Work Description: This task involves the revision of draft documents into the final version and the assembly of the various components into the Final Feasibility Report and final NEPA document. This work will be accomplished by the Mobile District's Planning and Environmental Division. The costs of preparing the final NEPA document and the technical appendices are included under other Sub-Products.

Man-days and Costs: 30 days and $20,000.

Contract Costs: $3,000 (reproduction costs).

Duration: 4 weeks.

Task JLD – Technical Review Documents

Work Description: Technical review documents will be prepared by Mobile District.

Man-days and Costs: 20 days and $15,000.

Contract Costs: 0.

Duration: 3 weeks.

Task JLA – Division Commander's Notice

Work Description: A public notice will be prepared to announce the completion of the Division Commander's Report, based on his endorsement of the findings and recommendations of the District Commander. The public notice will indicate that the report has been submitted for Washington Level Review. This task will be performed by the South Atlantic Division and funded through General Expense appropriations and not charged to the study.

Man-days and Costs: $0.

Contract Costs: 0.

Duration: 1 week.

Sub-Product JM – Washington Level Report Approval

Work Description: This sub-product includes all activities necessary for submittal of the Final Feasibility Report to Congress after completion of all levels of review. The non-federal sponsor will be afforded an opportunity to participate in any significant effort as a result of Washington level review. This task will be performed by HQUSACE and funded through General Expense appropriations and not charged to the study. Only those actions required by the Mobile District and/or the non-federal sponsor to support the Washington level review and approval process will use study funds.

Task JME – State and Agency Review and NEPA Document Filing Letters

Work Description: Letters from appropriate state and federal regulatory agencies will be obtained by the Mobile District and included in the final NEPA document.

Man-days and Costs: 1 day and $1,000.

Contract Costs: 0.

Duration: 4 weeks.

Task JMA – Policy Compliance Review

Work Description: A written assessment of the Final Feasibility Report will be prepared by HQUSACE, Civil Works Directorate, Policy Division, to document the Final Feasibility Report's compliance with current policy. Mobile District activities will involve those required to respond to the HQUSACE comments and to revise the Final Feasibility Report if needed.

Man-days and Costs: 10 days and $15,000.

Contract Costs: 0.

Duration: 6 weeks.

Task JMB – Chief of Engineers' Report

Work Description: A brief summary of the Feasibility Report, signed by the Chief of Engineers, will be prepared to transmit recommendations to the Assistant Secretary of the Army (Civil Works) (ASA(CW)). This task will be performed by HQUSACE.

Man-days and Costs: $0.

Contract Costs: 0.

Duration: 1 week.

Task JMF – ASA (CW) Memorandum to OMB

Work Description. A memorandum will be prepared from ASA (CW) to OMB requesting the Administration's position regarding transmitting the report to Congress for project authorization. This task will be performed by ASA (CW).

Man-days and Costs: $0.

Contract Costs: 0.

Duration: 1 week.

Task JMC – OMB Letter to ASA (CW)

Work Description: A letter will be prepared from OMB to ASA (CW) expressing the Administration's position regarding transmitting the report to Congress for project authorization. This task will be performed by OMB with assistance provided by HQUSACE.

Man-days and Costs: 2 days and $1,500.

Contract Costs: 0.

Duration: 20 weeks.

Task JMD – ASA(CW) Transmittal to Congress

Work Description: A letter will be prepared from ASA(CW) transmitting the feasibility report along with ASA(CW)'s recommendation to Congress. This task will be performed by ASA(CW).

Man-days and Costs: $0.

Contract Costs: 0.

Duration: 1 week.

Sub-product JP – Management Documents

This sub-product includes all of the management documents related to the Feasibility Report not associated with the performance of the above described tasks and sub-tasks.

Task JPF – All Other Management Documents

Sub-task JPFA – Project Management Plan (PMP)

Work Description: A draft PMP will be prepared specifying work roles and responsibilities for the design and construction of the selected plan to be recommended in the Final Feasibility Report, and its operation and maintenance requirements. The Mobile District will have the lead responsibility for preparing the draft PMP. This task will require close coordination between the non-federal sponsor and the Mobile District's Product Delivery Team. The draft PMP will be based on study results available at the time of preparation. The draft PMP will be submitted with the Draft Feasibility Report.

Man-days and Costs: 40 days and $25,000.

Contract Costs: 0.

Duration: 8 weeks.

Sub-task JPFB – Engineering Management

The Engineering Division (EN) Project Architect/Engineer (PA/E) will be entirely responsible for managing all EN efforts to prepare the Engineering Appendix and other contributions to the Feasibility Report. This includes coordinating with the Project Manager and Senior Planner regarding the status of engineering work efforts. Specific duties of the PA/E also include providing quality assurance, resolving technical issues, ensuring products are delivered in a timely manner, providing appropriate technical representation and participation in Product Delivery Team meetings, managing EN's budget and schedule, chairing EN team meetings, and reporting on EN's study status. The PA/E will compile all text, cost estimates, drawings, tables, charts, and figures for the Draft and Final Engineering Appendix. The Draft Engineering Appendix will be reviewed by EN. A back check review of the Final Engineering Appendix will also be conducted. The review team will consist of individuals from the hydraulics, geotechnical, and

cost estimating disciplines. Corps of Engineers criteria will be used to judge the technical adequacy of the products, and documentation will be accomplished by written comments, responses, and correspondence. This activity also includes EN supervision and computer costs.

Man-days and Costs: 300 days and $245,000 (includes $45,000 of CADD costs associated with engineering design).

Contract Costs: 0.

Duration: This task will extend over the duration of the Feasibility Study.

Product K – Project Cooperation Agreement

The Project Cooperation Agreement (PCA) documents the cost-sharing arrangement; relative roles and responsibilities for implementation of the recommended plan; and contains an analysis of the non-federal sponsor's ability to meet their responsibilities under the terms of the PCA.

Sub-product KA – Initial Draft PCA Package

The initial draft of the PCA package will accompany the Feasibility Report and will include:

- The applicable model PCA for an environmental restoration/watershed project (see ER 1105-1-100 and ER 1165-2-131).
- Federal and non-federal allocation of funds table.
- PCA Deviation Report.
- Certification of legal review.
- MSC review comments.

Task KAA – Initial Draft PCA

Work Description: A Draft PCA will be prepared near the end of the Feasibility Study and will be included in the Feasibility Report. The PCA is a legally binding agreement that defines the extent and scope of the non-federal sponsor's participation in implementing the design, construction, and operation and maintenance of the recommended plan. The Draft PCA will be coordinated with the non-federal sponsor. The Mobile District's Programs and Project

Management Division will lead performance of this task, with the support of the Real Estate Division, and the full involvement of the local sponsor.

Man-days and Costs: 10 days and $5,000.

Contract Costs: 0.

Duration: 4 weeks.

Task KAB – Federal/Non-Federal Allocation of Funds Table

Work Description: An allocation of funds table will be prepared that includes the allocation of funds for each project feature, programmed by fiscal year, for the non-Federal sponsor and the Federal government. This table outlines the cash flow for each partner for project purposes (see ER 1165-2-131, ER 11-2-240, and appropriate project management guidance letters). The Mobile District's Programs and Project Management Division will perform this task with assistance being provided by the non-federal sponsor.

Man-days and Costs: 3 days and $2,500.

Contract Costs: 0.

Duration: 1 week.

Task KAC – PCA Deviation Report

Work Description: The deviation report outlines, point-by-point, the deviations of the PCA from the standard model PCA. This report is intended to assist higher-level authorities in their review of the PCA. The deviation report will be an attachment to the letter forwarding the draft PCA package to HQUSACE. The Mobile District's Programs and Project Management Division will perform this task, with the support of the Real Estate Division and in coordination with the non-federal sponsor.

Man-days and Costs: 3 days and $2,500.

Contract Costs: 0.

Duration: 1 week.

Task KAD – PCA Certification of Legal Review

Work Description: A brief memorandum for record will be prepared that certifies that the District Counsel has reviewed the initial draft PCA for legal sufficiency. The Mobile District's Office of Counsel will perform this task.

Man-days and Costs: 3 days and $2,500.

Contract Costs: 0.

Duration: 1 week.

Task KAE – PCA Checklist

Work Description: An endorsement will be attached to the Draft PCA that contains the SAD review comments on the PCA. This task will be performed by SAD and funded through other appropriations.

Man-days and Costs: 1 day and $700.

Contract Costs: 0.

Duration: 1 week.

Product Z – Programs and Project Management (PPM) Documents

Sub-Product ZA – Project Coordination Documents

Work Description: This effort involves the maintenance of copies of letters exchanged with the non-federal sponsor that affect study costs, scopes and/or schedules; official correspondence with higher authority on similar subjects; internal memoranda that bear on significant study elements and other correspondence that affects significant aspects of the study. The Mobile District's Programs and Project Management Division Project Manager will be primarily responsible for performing this task.

Man-days and Costs: $0 (Costs are included in other activities performed by PM.).

Contract Costs: 0.

Duration: continuous.

Sub-Product ZB – Funds Control Documents

This effort includes the preparation and management of internal funds control documents for the allocation and management of the Feasibility Study. The Mobile District's Programs and Project Management Division Project Manager (PM) responsible for managing the overall study cost, schedule, preparing present and future budget year submissions, and conducting fiscal coordination with the non-federal sponsor. A representative of the non-federal sponsor will assist in project management. The Mobile District's Project Manager will:

- Monitor expenditures.
- Keep the PMP current.
- Prepare project management reports.
- Report study status and issues to the District Engineer and the Executive Committee.

The project management structure will continue into the PE&D Phase. Updates of PMP will include monthly finance and accounting reports regarding expenditures and obligations, executive summary reports for the Project Review Board, schedule and cost changes, and changes to work elements.

This task includes preparation of budget documents and financial reports. At the end of the Feasibility Study, a final audit will be performed. Work required to obtain a letter of intent from the non-federal sponsor to participate in the PE&D and Construction Phases will also be accomplished under this task. The Mobile District's Programs and Project Management Division Project Manager will perform this task.

Man-days and Costs: 100 days and $80,000.

Contract Costs: 0.

Duration: Continuous.

Sub-Product ZN – All Other PPM Documents

Task ZNA – Program Management

Work Description: The Mobile District is entirely responsible for accomplishing this task. The Mobile District's Programs and Project Management Division (PPMD) assigns a Program Manager to develop and track budget data. This effort involves the preparation and regular updates of cost estimates and budget justification sheets used to support the annual presentation of the Corps of Engineers budget to Congress. This effort also involves the periodic submission of the results of funding capability and prioritization analyses for the study for funding purposes; scheduling of obligations and expenditures; tracking of deviations in the established budget performance measures; review of PRB Reports; and preparation and coordination of periodic District manpower requirement analyses for the study.

Man-days and Costs: 100 days and $80,000.

Contract Costs: 0.

Duration: Continuous.

Reference to Statutes, Regulations, and Guidance Needed to Perform the Work

The U.S. Army Corps of Engineers' planning guidance for the conduct of feasibility studies is contained in five primary sources. The first and most important of these is the Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies, also known as the Principles and Guidelines or P&G. The second most important source is Engineering Regulation (ER) 1105-2-100, Guidance for Conducting Civil Works Planning Studies. Appendix A of ER 1105-2-100 contains references to the applicable statutes, public laws, executive orders, and engineering regulations which guide preparation of U.S. Army Corps of Engineers' feasibility phase studies. In no particular order, the remaining sources of information are Engineering Pamphlet (EP) 1165-2-1 Digest of Water Resources Policies and

Authorities; the series of Corps Planning Guidance Letters; and a series of additional engineering regulations (ER's) and engineering circulars (EC's).

This section of the PMP lists statues, regulations, Corps of Engineers' guidance, and other source materials that will be referred to during the Feasibility Study to guide completion of the work tasks. Table 5 lists the various types of guidance related to this study.

Table 5
Guidance Documents to be Used in the Feasibility Study

Publication Number	Title	Publication Date
EC 1105-2-208	Preparation and Use of Project Study Plans	23 Dec 94
EC 1105-2-214	Project Modifications for Improvement of the Environment and Aquatic Ecosystem Restoration	30 Sept 97
EC 1165-2-203	Technical and Policy Compliance Review	15 Oct 96
EC 1165-2-204	Processing Project Cooperation Agreements for Specifically Authorized Projects and Separable Elements	31 July 97
EM 1110-1-1802	Geophysical exploration for Engineering and Environmental Investigations	31 Aug 95
EM 1110-1-1804	Geotechnical Investigations, ENG 1836, ENG 1836A	29 Feb 84
EM 1110-2-1205	Environmental Engineering and Local Flood Control Channels	15 Nov 89
EM 1110-2-1304	Civil Works Construction Cost Index System (CWCCIS) Chapters 1 – 2	12 Oct 88
EM 1110-2-1415	Hydrologic Frequency Analysis	5 Mar 93
EM 1110-2-1416	River Hydraulics	15 Oct 93
EM 1110-2-1417	Flood Run-off Analysis	31 Aug 94
EM 1110-2-4000	Sedimentation Investigations of Rivers and Reservoirs, ENG 1787	31 Oct 95
EP 11-1-4	Value Engineering: A Profitable Partnership	15 May 95
EP 200-2-3	Environmental Compliance Guidance and Procedures	30 Oct 96
EP 1105-2-10	Six Steps to a Civil Works Project	1 May 90
EP 1110-2-7	Hydrologic Risks	1 May 88
EP 1110-2-9	Hydrologic Engineering Study Design	31 July 94
EP 1165-2-1	Digest of Water Resources Policies and Authorities	30 July 99
ER 5-1-11	Program and Project Management	27 Feb 98
ER 10-1-7	Board of Engineers for Rivers and Harbors	17 Mar 89

Table 5 (Cont.)
Guidance Documents to be Used in the Feasibility Study

ER 11-2-101	Army Programs – Civil Works Activities Chapters 1 - 24	01 Aug 64
ER 200-2-2	Procedures for Implementing NEPA	04 Mar 88
ER 200-2-3	Environmental Compliance Policies	30 Oct 96
ER 405-1-12	Real Estate Handbook (Chapter 12, Change 31)	1 May 98
ER 415-1-11	Bid ability, Construct ability, Operability, and Environmental Review	01 Sept 94
ER 415-345-13	Financial Closeout	15 Aug 89
ER 1105-2-100	Guidance for Conducting Civil Works Planning Studies	28 Dec 90
ER 1110-1-12	Quality Management	01 Jun 93
ER 1110-1-1300	Cost Engineering Policy and General Requirements	26 Mar 93
ER 1110-2-1150	Engineering and Design for Civil Works Projects	31 Mar 94
ER 1110-2-1302	Civil Works Cost Engineering, ENG 1738-R, ENG 1739-R, ENG 1740-R, ENG 1741-R, ENG 1741A-R, ENG 1741B-R, ENG 1741C-R	31 Mar 94
ER 1110-2-1450	Hydrologic Frequency Estimates	31 Aug 94
ER 1110-2-1460	Hydrologic Engineering Management	07 Jul 89
ER 1110-2-1464	Hydrologic Analysis of Watershed Runoff	30 Jun 94
ER 1110-2-8153	Technical Project Sedimentation Investigations	30 Sept 95
ER 1110-3-1301	Hazardous, Toxic, and Radioactive Waste (HTRW) Cost Engineering	10 Mar 99
ER 1165-2-18	Reimbursement for Non-Federal Participation in Civil Works Projects	1 Feb 89
ER 1165-2-21	Flood Damage Reduction Measures in Urban Areas	30 Oct 80
ER 1165-2-26	Implementation of Executive Order 11988 on Flood Plain Management	30 Mar 84
ER 1165-2-28	Corps of Engineers Participation in Improvements for Environmental Quality	30 Apr 80
ER 1165-2-30 CH 1	Acceptance and Return of Required, Contributed, or Advanced Funds	31 Dec 97 30 Oct 98 (change 1)
ER 1165-2-131	Local Cooperation Agreements for New	15 Apr 89

Table 5 (Cont.)
Guidance Documents to be Used in the Feasibility Study

	Start Construction Projects	
ER 1165-2-132	Hazardous, Toxic and Radioactive Waste (HTRW) Guidance for Civil Works Projects	26 Jun 92
Planning Guidance Memoranda #99-01	Reconnaissance Phase Guidance	3 Mar 99
Planning Guidance Letter #95-2	Alternative Review Process	25 Jul 95
Planning Guidance Letter #96-3	Expedited Reconnaissance Study Phase Guidance	16 Aug 96
Planning Guidance Letter #97-1	WRDA 96 Implementation	13 Dec 96
Planning Guidance Letter #97-2	Long-Term Management Strategies for Sediment Control	18 Feb 97
Planning Guidance Letter #97-5	Aquatic Ecosystem Restoration	10 Mar 97
Planning Guidance Letter #97-8	Watershed Management, Restoration, and Development	23 Jul 97
Planning Guidance Letter #97-10	Shortening the Planning Process	26 Mar 97
Planning Guidance Letter #98-4	Limit on Work-in-Kind	22 Jan 98
Policy Guidance Letter #12	Capability Assessments of Potential Non-Federal Sponsors of Cost Shared Civil Works Projects	2 May 96
Policy Guidance Letter #52	Flood Plain Management Plans	8 Dec 97
Policy Guidance Letter #55	Clarification of Credit for non-Federal Sponsors Costs of Preconstruction Engineering and Design (PED)	7 Oct 97

Table 5 (Cont.)
Guidance Documents to be Used in the Feasibility Study

	Coordination Team Activities and Project Cooperation Agreement (PCA) Negotiations	
Policy Guidance Letter #59	Recreation Development at Ecosystem Restoration Projects	11 Jun 98
Policy Guidance Letter #60	Draft – Quality and Water Resources Development Projects	5 Jun 98
Policy Guidance Letter #61	Application of Watershed Perspective to Corps of Engineers Civil Works Programs and Activities	27 Jan 99
CECW-A Memorandum	Implementation of New Technical and Policy Review Procedures	14 Apr 95
CECW-PE Memorandum	Model Agreement for Feasibility Studies	21 Mar 97
CECW-AG Memorandum	Model Design Agreement	3 Aug 98
-	Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies	10 Mar 83
EM 1110-2-1201	Reservoir Water Quality Analysis	30 Jun 87
EM 1110-2-1414	Water Levels and Wave Heights for Coastal Engineering Design	7 Jul 89
EM 1110-2-1418	Channel Stability Analysis for Flood Control Projects	31 Oct 94
EM 1110-2-1601	Hydraulic Design of Flood Control Channels	30 Jun 94

SECTION 3 – WORK BREAKDOWN STRUCTURE

The Work Breakdown Structure (WBS) is a product-oriented hierarchy of the scope of work, and is broken down into component products. The WBS presented in Table 6 reflects the sub-products, tasks, sub-tasks, etc. defined in Section 2 (Scope of Studies) to produce the principal product – the Feasibility Report. The work tasks are organized according to the U.S. Army Corps of Engineers' Civil Works Breakdown Structure (CWBS).

The WBS is intended to summarize the entire Feasibility Study work effort and is an outline of the specific tasks that are to be accomplished to produce the Feasibility Phase study products. The WBS follows a consistent set of accounting codes. The accounting codes of the WBS allows products, tasks, cost, and schedule to be tracked with easy reference throughout the Feasibility Study.

The WBS used is an accounting system for Corps of Engineers Civil Works projects. The Corps' Financial Management System (CEFMS) and the Project Management Information System (PROMIS) are designed to directly accept cost using the Civil Works WBS. Table 6 also lists the accounting codes of the Civil Works WBS for the Feasibility Study. The alphabetic code "J" corresponds to and links all work efforts related to preparing the Feasibility Report to the Feasibility Report product. The second level (i.e. JA – Engineering Appendix) corresponds to sub-products of the Feasibility Report. The third level (i.e. (JCB – Gross Appraisal Report) corresponds to major tasks/work elements. Sub-tasks (4^{th} level) and sub-sub-tasks (5^{th} level) are also used, in some cases, to provide further detailed task descriptions.

Table 6
Work Breakdown Structure (WBS) for the Feasibility Study

WBS Code	Tasks
J	**Feasibility Report**
JA	**Engineering Appendix**
JAA	Surveys and Mapping
JAB	Hydrology and Hydraulic Studies/Reports
JABA	Site Visits
JABAA	Site Visits to Lake Allatoona
JABAB	Site Visits to Watershed
JABB	Without Project Conditions
JABC	Inventory and Ranking of Lake Allatoona Shoreline Erosion Sites
JABD	Evaluation of Selected Lake Allatoona Shoreline Erosion Sites
JABE	Inventory and Ranking of Watershed Environmental restoration and resource protection Sites
JABF	Evaluation of Environmental restoration and resource protection Sites
JABG	Coordination with GIS Manager
JABH	Coordination with Others
JABI	Estimation of Quantities
JABJ	H & H Reports
JABK	H & H Independent Technical Review
JABL	Presentation of Study Results
JAC	Geotechnical Studies/Reports
JACA	Geotechnical Investigations for Shoreline Erosion Sites on Lake Allatoona
JACB	Geotechnical Investigations for Environmental restoration and resource protection Sites
JACC	Geotechnical Independent Technical Review
JAE	Engineering and Design Analysis Report with Preliminary Drawings for Environmental restoration and resource protection Sites
JAEA	Structural Engineering Design
JAEB	Structural Design Independent Technical Review
JAG	GIS Mapping
JAGA	Compile Existing Information
JAGB	Evaluate and Assess Data
JAGC	Develop GIS Data Management Integration Plan
JAGD	Develop GIS Mapping Symbology Standards
JAGE	Collect Additional Site Specific Data

Table 6 (Cont'd)
Work Breakdown Structure (WBS) for the Feasibility Study

JAGEA	Watershed Data
JAGEB	Shoreline Erosion Site Data
JAGF	Establish and Maintain a Relational Database
JAGG	Coordinate with Product Delivery Team and Non-federal Sponsor
JAGH	GIS Independent Technical Review
JB	**Socioeconomic Studies/Report**
JBA	Economic Analysis/Report
JBAA	Existing/Without Project Conditions
JBAAA	Existing Conditions
JBAAB	Without Project Conditions
JBAB	With Project Conditions
JBAC	Economics Report
JBB	Social Studies/Report
JBD	Ability to Pay Report
JBE	Financial Analysis Report
JC	**Real Estate Analysis/Documents**
JCA	Real Estate Supplement/Plan
JCB	Gross Appraisal/Report
JCC	Preliminary Real Estate Acquisition Maps
JCD	Physical Takings Analysis
JCE	Preliminary Attorney's Opinion of Compensability
JCF	Rights-of-Entry
JCG	Relocations of Facilities and Utilities
JCH	Real Estate Acquisition Capability Assessment
JD	**Environmental Studies/Report**
JDB	Environmental Assessment (EA) and Finding of No Significant Impact (FONSI)
JDD	Coordination of Documents with Other Agencies
JDE	Environmental Resources Inventory Report
JDF	Mitigation Analysis Report
JDG	Endangered Species Act Report
JDH	Section 404(b)(1) Analysis/Report
JDI	401 State Water Quality Certification
JDL	Statement of Findings (SOF)
JDN	Other Environmental Documents/Efforts
JDNA	Evaluate and Analyze Existing Data
JDNB	Evaluate Current BMPs Used within Lake Allatoona Watershed
JDNC	Collect Flow Data for Use in CEQUAL-W2 Water Quality Model Evaluations
JDND	Update and Application of CE-QUAL-W2

Table 6 (Cont'd)
Work Breakdown Structure (WBS) for the Feasibility Study

	Water Quality Model to Evaluate Influence of Modified Pool Level Operations on Water Quality Within Lake Allatoona
JDNE	Ecosystem Restoration Outputs/Benefits
JDNF	National Pollutant Discharge Elimination System Permits
JDNG	Faunal Surveys
JE	**Fish and Wildlife Coordination Act Report**
JF	**HTRW Studies/Report**
JFB	HTRW Site Inspection Report
JG	**Cultural Resource Report**
JGA	Site Survey Field Report
JGB	Data Collection and Analysis Report
JGD	Memorandum of Agreement
JH	**Cost Estimates**
JHC	Project Cost Estimates
JHD	Operation and Maintenance (OMRR&R) Cost Estimates
JHE	Baseline Fully Funded Cost Estimate
JHG	Cost Engineering Independent Technical Review
JI	**Public Involvement Documents**
JIA	Notices of Public Meetings
JIB	Minutes of Public Meetings
JID	Newsletters
JIE	Other Public Involvement Documents
JIEA	Public Involvement Plan
JIEB	Public Involvement Report and Agency Coordination Appendix
JR	**Feasibility Scoping Meeting (FSM)**
JRA	Draft FSM Documents
JRB	FSM Technical Review Documents
JRC	FSM Documents
JRD	HQUSACE/Division Review and FSM
JRE	FSM Guidance Memorandum
JJ	**Plan Formulation and Evaluation Report**
JJA	Product Delivery Team Meetings
JJB	Establish Without Project Conditions
JJC	Alternative Plan Formulation and Evaluation
JJD	Detailed Evaluation of Alternatives
JJE	Plan Formulation and Evaluation Report
JQ	**Alternative Formulation Briefing (AFB)**
JQA	AFB Project Documentation

Table 6 (Cont'd)
Work Breakdown Structure (WBS) for the Feasibility Study

JQB	AFB Technical Review Documents
JQC	AFB Policy Compliance Review Documents
JQD	AFB Guidance Memorandum
JQE	Attend AFB
JK	**Draft Report Documentation**
JKA	Draft Feasibility Report and NEPA Document
JKB	Public Review Comments
JKE	Technical Review Documents
JKF	Headquarters Policy Compliance Review Documents
JKC	Project Guidance Memorandum (PGM)
JL	**Final Report Documentation**
JLC	Final Feasibility Report and NEPA Document
JLD	Technical Review Documents
JLA	Division Commander's Notice
JM	**Washington Level Report Approval**
JME	State and Agency Review and NEPA Document Filing Letters
JMA	Policy Compliance Review
JMB	Chief of Engineers' Report
JMF	ASA (CW) Memorandum to OMB
JMC	OMB Letter to ASA (CW)
JMD	ASA(CW) Transmittal to Congress
JP	**Management Documents**
JPF	All Other Management Documents
JPFA	Project Management Plan (PMP)
JPFB	Engineering Management
K	**Project Cooperation Agreement**
KA	**Initial Draft PCA Package**
KAA	Initial Draft PCA
KAB	Federal/Non-federal Allocation of Funds Table
KAC	PCA Deviation Report
KAD	PCA Certification of Legal Review
KAE	PCA Checklist
Z	**Programs and Project Management (PPM) Documents**
ZA	**Project Coordination Documents**
ZB	**Funds Control Documents**
ZN	**All Other PPM Documents**
ZNA	Program Management

SECTION 4 – ORGANIZATIONAL BREAKDOWN STRUCTURE

The Organizational Breakdown Structure (OBS) identifies which organization has responsibility or input in completing each study task for the Feasibility Study. In addition to identifying task responsibilities, the OBS section includes mechanisms for assuring proper coordination between the Mobile District Product Delivery Team and the non-federal sponsor's representatives involved in the Feasibility Study.

ORGANIZATIONAL WORK RESPONSIBILITIES

The OBS describes the responsibility of each organization in providing input to and/or completing tasks identified in the Scope of Studies and the Work Breakdown Structure (WBS). The following identifies the technical responsibilities for conduct of the study.

Programs and Project Management Division (PPMD). The District Engineer (i.e. Commander) or Deputy District Engineer for Program and Project Management Division (DPM) will assign a Project Manager (PM) to serve as an advisor and consultant to the corporate board and each of its members. The PM is responsible and accountable for successful completion and delivery of assigned projects to the non-federal sponsor within established costs, schedules, and quality parameters. For assigned projects, the PM is an extension of the Commander, keeping him or her, and the DPM, informed and integrating the individual efforts that make a project successful. The PM provides leadership to a multi-disciplined Product Delivery Team with responsibility for assuring that the Feasibility Study stays focused on the non-federal sponsor's needs and expectations and that all work is integrated and one in accordance with a management plan and approved business processes. The PM assures that the non-federal sponsor's interests are properly represented within the U.S. Corps of Engineers and serves as the primary point of contact between the non-federal sponsor and the Corps. The PM keeps the functional chiefs apprised of the non-federal sponsor's expectations and the status of the study's progress, assists in early identification and resolution of problems, and identifies where additional talent and effort may be required to meet the Mobile District's commitments established in the PMP. The PM can make Mobile District commitments within pre-assigned constraints as defined in the PMP in coordination with the functional elements.

Planning and Environmental Division (PD). The Senior Planner will be assigned from the Planning and Environmental Division and will be responsible

for performing plan formulation, public involvement, monitoring the progress of technical work, and developing and preparing the Feasibility Report. The Economics Analysis Team will be responsible for developing methods to measure the monetary and non-monetary benefits of the alternatives considered in detail, and developing the Financing Plan. The Inland Environment Team will be responsible for assessing environmental impacts and accomplishing NEPA compliance activities.

Engineering Division (EN). The Engineering Division's Project Architect/ Engineer (PA/E) will be responsible for managing the Engineering Division's contribution to the Feasibility Study. This includes coordinating with the PM and the Senior Planner regarding the status of engineering work efforts. Engineering Division will be responsible for the surveying and mapping activities. The Hydrology and Hydraulics Branch will be responsible for conducting hydrologic and hydraulic design studies and providing the GIS Manager. The Design Branch will be responsible for developing designs and drawings and structural engineering investigations. The Geotechnical Branch will be responsible for geotechnical analyses and the conduct of HTRW investigations. The Cost Engineering Branch will be responsible for developing cost estimates for initial construction and operation and maintenance of the alternative plans and the selected plan.

Real Estate Division (RE). The Real Estate Division will be responsible for performing all required real estate activities for the project. Real estate activities will include determining land ownership; developing the real estate gross appraisal; and preparing the Real Estate Plan which will include a baseline cost estimate for real estate, development of a detailed schedule of acquisition milestones, and a general description of the area and total acreage to be acquired, with fee and easement breakdown. The Appraisal Branch will prepare gross appraisals. The Planning and Control Branch will obtain rights-of-entry, prepare preliminary real estate acquisition maps and prepare the real estate plan. The Acquisition Branch will prepare the physical takings analysis, the preliminary attorney's opinion of compensability and capability assessment.

Non-federal Sponsor. The non-federal sponsor is responsible for providing the data, work products, etc. agreed upon in the Feasibility Cost-Sharing Agreement (FCSA) and other items of local cooperation required in the conduct of the Feasibility Study. The non-federal sponsor will also share in the conduct of project management duties. As such, the sponsor will provide appropriate staff support to work with the Corps Project Manager on an equal basis throughout the course of the feasibility study. All efforts will be conducted in accordance with

required budget, scope, quality, and scheduled commitments. The non-federal sponsor will be involved in all aspects of the Feasibility Study to assure that it agrees with the findings of the study. The non-federal sponsor will attend and participate in all progress meetings, public workshops; provide scientific/technical input to field studies; participate in the plan formulation process; assist in the development of recommended plans; and review reports.

Other Study Participants. Numerous agencies/organizations will be consulted throughout the study for their input. Some agencies will participate in all project processes and others will only participate in the plan formulation process. The EPA's consistent participation in the study will be sought in particular in view of the emphasis placed on this agency in the legislative language that authorized this study.

MANAGEMENT RESPONSIBILITIES

Three levels of management responsibility will be used to guide development of the study: the Product Delivery Team, the Executive Committee, and the Project Review Boards (PRB). The management structure will be formalized in the Feasibility Cost-Sharing Agreement (FCSA).

Product Delivery Team. The Product Delivery Team will include representatives from the Mobile District, the Corps' Lake Allatoona staff, non-federal sponsor, and other agencies, as appropriate. This Team will develop the appropriate scopes of work for the technical studies, guide their accomplishment, and participate in the plan formulation process and the selection of potential alternatives for detailed evaluation. The Team will be directly involved in establishing the roles of the Team members and in focusing investigations on the critical issues. The Mobile District representatives will include the PM, Senior Planner and individuals from the various offices involved in the technical aspects of the Feasibility Study, to include the Lake Allatoona project office. The non-federal sponsor will also appoint representatives to the Team. The Team will recommend to the Executive Committee the tasks to be conducted and the extent of planning and evaluation to be carried out in the Feasibility Study in accordance with the provisions of the PMP. The Team will also report to the Executive Committee and PRB on the results of studies and recommend alternative courses of action for project implementation. Team meetings will be held at regularly intervals throughout the Feasibility phase.

Executive Committee. As indicated in the FCSA, management of the overall study is the responsibility of the Executive Committee, which will be comprised of

the Mobile District's Deputy District Engineer for Programs and Project Management and Chief of Planning and Environmental Division; and a representative of the Lake Allatoona Preservation Authority (LAPA), the non-federal sponsor. The Executive Committee will meet throughout the Feasibility Study to review study progress, finances, and findings as developed and reported by the Product Delivery Team.

The Mobile District and the non-federal sponsor representatives will be equal partners on the Executive Committee and will serve as co-chairs. The Executive Committee will manage the overall study by:

- Maintaining a working knowledge of the Feasibility Study.
- Assisting in resolving emerging policy issues.
- Ensuring that evolving study results and policies are consistent and coordinated.
- Directing the Product Delivery Team.
- Reviewing and approving decisions made by the Product Delivery Team.

The Executive Committee will participate in Issue Resolution Conferences (IRCs). The Executive Committee will agree on solutions and study direction, which may include study termination. At least one IRC will be held prior to the public distribution of the Draft Feasibility Report to ensure that all issues are resolved before the final report is submitted to higher authority. Additional IRCs will be held, as required, throughout the study to resolve any problems that may arise.

As detailed in the FCSA, the Executive Committee must approve any significant amendments to the FCSA. Significant changes are defined as any modification to the FCSA which increases the total study costs by more than 15 percent. They must also approve any reassignment of work items between the non-federal sponsor and the federal government. The Executive Committee is also responsible for decisions on whether to suspend or terminate studies under conditions of the FCSA. The committee will also resolve any disputes that are not resolved by the Product Delivery Team and will appoint representatives from their respective organizations to serve on the Team.

Project Review Boards. Project Review Boards (PRBs) have been established at three levels within the U.S. Army Corps of Engineers to evaluate the status and progress on all studies, projects, and programs.

The first PRB level is held by the Mobile District and chaired by the District Engineer or his designee. It will include the chiefs of the elements whose functions are integral to the role of the District in Civil Works projects. The Mobile District PRB will review the PES report monthly for compliance with this PMP and provide comments to CESAD and the Project Manager. The Mobile District PRB will facilitate resolution or elevate to CESAD major issues raised during the study, monitor study contingencies and costs of changes against the approved study cost estimate, and take appropriate action on SCCRs. The Mobile District PRB also will approve this PMP and any significant changes identified by the Product Delivery Team and recommended by the Project Manager. The non-federal sponsor may attend the Mobile District PRB meetings at its discretion.

The second PRB will be chaired by the South Atlantic Division (CESAD) Division Engineer or designee and include the chiefs of the elements whose functions are integral to the role of the Division in Civil Works projects. The CESAD PRB will review monthly the Project Executive Summary (PES) for compliance with this PMP and provide comments to the Mobile District. The CESAD PRB will facilitate resolution or elevate to the Division Engineer or higher authority major issues raised during the study, monitor study contingencies and cost changes against the approved study cost estimate, and take appropriate action on schedule and cost change requests.

The third PRB is held at the Headquarters of the U.S. Army Corps of Engineers (HQUSACE) in Washington, DC. The HQUSACE PRB is chaired by the Director of Civil Works or designee and includes the chiefs of the elements whose functions are integral to the Corps role in Civil Works project development. The HQUSACE PRB will review the Feasibility Study only if it determines that it needs intensive management at that level or if recommended by the South Atlantic Division (CESAD) PRB. The HQUSACE PRB will facilitate resolution of major study issues, concerns, or problems through Corps functional channels and make recommendations to the Director of Civil Works, CESAD, and the non-federal sponsor as part of intensive management. Upon receipt of a Schedule and Cost Change Request (SCCR), the HQUSACE PRB will approve changes in major milestones and significant cost increases. The HQUSACE PRB will meet bimonthly.

DESCRIPTION OF COORDINATION MECHANISMS

The Feasibility Study will require input from various Corps elements, the non-federal sponsor, other federal and state agencies, and other external organizations, such as consultants and organizations. Proper coordination among these study participants is essential to maintain the project schedule, to avoid duplication of efforts, to detect problems in a timely manner, and to maintain agreement and cooperation on the direction of the study. The formal mechanisms that will be used to maintain proper coordination are described in the following.

Internal Coordination Mechanisms. Internal coordination mechanisms will be used between the Corps and the non-federal sponsor to ensure that effective internal command, control, and coordination is maintained during the Feasibility Study. The primary internal coordination mechanisms will be the monthly Project Review Board (PRB) meetings, regular meetings of the Product Delivery Team, and Issue Resolution Conferences scheduled at critical phases of the study. An earned value analysis will also be accomplished by the Project Manager on a monthly basis. The purpose of such an analysis is to assess actual study progress against scheduled progress in regards to both cost and schedule. This analysis also will indicate cost and schedule variances.

An Annual Work Plan will also be developed each federal fiscal year to reflect anticipated funding levels and work efforts, based on this PMP. The District PRB will review monthly the PES report for compliance with the PMP and provide comments to the Project Manager and the South Atlantic Division. The Annual Work Plan will include reports on study progress to date, a schedule for the efforts planned for the coming year, specific work tasks required to complete investigations, estimates of costs from each work group, and other pertinent information. The Annual Work Plan will be approved by the Executive Committee.

External Coordination Mechanisms. Coordination outside the Corps and non-federal sponsor will be necessary to ensure the success of the Feasibility Study. External agency counterparts for the environmental work effort include the USEPA, U.S. Fish and Wildlife Service (FWS), the Georgia State Historic Preservation Officer (SHPO), Georgia Environmental Protection Division, other state agencies, and a number of local county and municipal government agencies.

Public Involvement. Newsletters, workshops and other public involvement techniques will be scheduled throughout the study to gather input, report on study progress, or to report study findings. The Senior Planner will be responsible for arranging and managing appropriate public involvement activities.

Study Briefings and Fact Sheets. Study briefings will be provided and fact sheets prepared throughout the study for the non-federal sponsor, Congressional representatives, state and local officials, and others, as appropriate.

RESOURCE CODES

A set of Resource Codes used for accounting and administrative purposes are presented in Table 7. The Resource Codes consist of abbreviations for the names of the technical elements responsible for conducting portions of the Feasibility Study. These abbreviations are also used in the Responsibility Assignment Matrix shown in Table 8.

Table 7
Resource Codes

Resource Code	Technical Element / Resource Code Description
EN	Engineering Division
EN	Surveys and Mapping
EN-D	Design Branch
EN-DR	Project Design & Review Section
EN-E	Cost Engineering Branch
EN-G	Geotechnical, Environmental & HTRW Branch
EN-GE	Environmental and HTRW Section
EN-GG	Geotechnical & Dam Safety Section
EN-H	Hydrology & Hydraulics Branch
EN-HH	Coastal, Hydrology & Hydraulic Design Section
PD	Planning and Environmental Division
PD-E	Environment & Resources Branch
PD-EI	Inland Environmental Team
PD-F	Plan Formulation Branch
PD-FE	Economic Analysis Team
PD-FP	Plan Development & Floodplain Mgmt Team
PM	Programs & Project Management Division
PM-C	Civil Works Programs and Project Management Branch
PM-CM	Civil Works Project Management Team
PM-CP	Civil Works Programs Management Team
RE	Real Estate Division
RE-A	Acquisition Branch
RE-P	Planning & Control Branch
RE-R	Appraisal Branch
SPONS	Non-federal Sponsor

RESPONSIBILITY ASSIGNMENT MATRIX (RAM)

The Responsibility Assignment Matrix (RAM) is a tabular representation of the organizational responsibilities for the performance of the work efforts defined in the Work Breakdown Structure (WBS). The RAM defines the intersection of the Organizational Breakdown Structure (OBS) and the WBS. Table 8 presents the RAM for the Feasibility Study. WBS codes are represented vertically in the first column of the matrix and adopt the accounting system of the Corps' Civil Works WBS. The second column includes an abbreviated description of the task/work activity. Resource Codes of the OBS are represented horizontally in the first row of the matrix. The individual cells of the matrix (the intersection of the WBS and OBS) identify the responsible organization for each WBS task/work activity. Lead organizations are identified with a "l", while supporting organizations are identified with an "s".

Table 8
Responsibility Assignment Matrix

WBS Code	WBS Name	EN	EN-DR	EN-E	EN-GE	EN-GG	EN-HH	PD-E	PD-EI	PD-FE	PD-FP	PM-CM	PM-CP	RE-A	RE-P	RE-R	SPONS
J	Feasibility Report	s	s	s	s	s	s	l	s	s	s	s	s	s	s	S	
JA	Engineering Appendix	s	s	s	s	s	l										
JAA	Surveys and Mapping	l				s	s			s	s						
JAB	Hydrology and Hydraulic Studies/Reports		s			s	l			s					s		
JABA	Site Visits					s	l		s								
JABAA	Site Visits to Lake Allatoona					s	l		s								
JABAB	Site Visits to Watershed					s	l		s								
JABB	Without Project Conditions					s	l		s								
JABC	Inventory and Ranking of Lake Allatoona Shoreline Erosion Sites					s	l	s	s	s	s	s			s		s
JABD	Evaluation of Selected Lake Allatoona Shoreline Erosion Sites					s	l	s	s	s	s	s			s		s
JABE	Inventory and Ranking of Watershed Environmental restoration and resource protection Sites					s	l	s	s	s	s	s			s		s
JABF	Evaluation of Environmental restoration and resource protection Sites					s	l	s	s	s	s	s			s		s
JABG	Coordination with GIS Manager	s				s	l		s								
JABH	Coordination with Others						l	s	s	s							s
JABI	Estimation of Quantities		s			s	l		s								
JABJ	H & H Reports		s			s	l		s	s							s
JABK	H & H Independent Technical Review		s			s	l	s				s					s
JABL	Presentation of Study Results						l	s				s					s
JAC	Geotechnical Studies Reports					l	s								s		
JACA	Geotechnical Investigations for Shoreline Erosions Sites on Lake Allatoona					l	s		s								
JACB	Geotechnical Investigations for Environmental restoration and resource protection Sites					l	s		s								
JACC	Geotechnical Independent Technical Review		s			l	s	s				s					s
JAE	Structural Engineering & Design of Environmental restoration and resource protection Sites		l			s	s										
JAEA	Structural Engineering Design		l			s	s										
JAEB	Structural Design Independent Technical Review		l			s	s	s				s					s
JAG	GIS Mapping					s	l		s	s							s
JAGA	Compile Existing Information					s	l		s	s							s
JAGB	Evaluate and Assess Data					s	l		s	s							s
JAGC	Develop GIS Data Management Integration Plan						l										s
JAGD	Develop GIS Mapping Symbology Standards					s	l		s								s
JAGE	Collect Additional Site Specific Data					s	l		s	s							s
JAGEA	Watershed Data					s	l		s	s							s

Table 8 (Cont.)
Responsibility Assignment Matrix

WBS Code	WBS Name	EN	EN-DR	EN-E	EN-GE	EN-GG	EN-HH	PD-E	PD-EI	PD-FE	PD-FP	PM-CM	PM-CP	RE-A	RE-P	RE-R	SPONS
JAGEB	Shoreline Erosion Data					s	I		s	s							s
JAGF	Establish and Maintain a Relational Database						I										
JAGG	Coordinate with Product Delivery Team and Non-federal Sponsor					s	I		s	s							s
JAGH	GIS Independent Technical Review					s	I	s	s	s		s					s
JB	Socioeconomic Studies/Report						s		s	I							
JBA	Economic Analysis/Report						s		s	I					s	s	
JBAA	Existing/Without Project Conditions						s		s	I							s
JBAAA	Existing Conditions						s		s	I							s
JBAAB	Without Project Conditions						s	s	s	I							s
JBAB	With Project Conditions						s		s	I							
JBAC	Economics Report									I							
JBB	Social Studies/Report									I							s
JBC	Ability to Pay Report							s		I		s			s		s
JBE	Financial Analysis Report							s		I		s			s		s
JC	Real Estate Analysis/Documents													s	I	S	
JCA	Real Estate Supplement/Plan		s				s				s				I		
JCB	Gross Appraisal Report		s				s			s	s					L	
JCC	Preliminary Real Estate Acquisition Maps						s				s				I		
JCD	Physical Takings Analysis										s			I			s
JCE	Preliminary Attorney's Opinion of Compensability													I			s
JCF	Rights-of-Entry					s	s				s		s		I		s
JCG	Relocations of Facilities and Utilities														I		
JCH	Real Estate Acquisition Capability Assessment														I		s
JD	Environmental Studies/Reports				s				I								
JDB	Environmental Assessment and Finding of No Significant Impact			s	s		s		I	s	s		s		s		
JDD	Coordination of Documents with Other Agencies				s				I								
JDE	Environmental Resources Inventory Report.								I								
JDF	Mitigation Analysis Report								I								
JDG	Endangered Species Report								I								
JDH	Section 404(b)(1) Evaluation Report								I								
JDI	401 State Water Quality Certification								I								
JDL	Statement of Findings								I								
JDNA	Evaluate and Analyze Existing Environmental Data						s		I								s
JDNB	Evaluate Current BMPs Used within Lake Allatoona Watershed						s		I								s
JDNC	Collect Flow Data for Use in CEQUAL-W2 Water Quality Model Evaluations						s		I								

Table 8 (Cont.)
Responsibility Assignment Matrix

WBS Code	WBS Name	EN	EN-DR	EN-E	EN-GE	EN-GG	EN-HH	PD-E	PD-EI	PD-FE	PD-FP	PM-CM	PM-CP	RE-A	RE-P	RE-R	SPONS
JDND	Update and Application of CE-QUAL-W2 Water Quality Model to Evaluate Influence of Modified Pool Level Operations on Water Quality Within Lake Allatoona						s		I								
JDNE	Ecosystem Restoration Outputs/Benefits								I	s							s
JE	FWCAR								I								
JF	HTRW Studies/Report				I				s								
JFB	HTRW Site Inspection Rpt.				I				s								
JG	Cultural Resource Report																
JGA	Site Survey Field Report		s		s	s	s		I		s						
JGB	Data Collection and Analysis Report								I								
JGD	Memorandum of Agreement							s	I			s					
JH	Cost Estimates		s	I			s		s								
JHC	Project Cost Estimates		s	I			s		s								
JHD	OMRR&R Cost Estimate		s	I			s		s				s				s
JHE	Baseline Fully Funded Cost Estimate		s	I			s	s	s			s	s				s
JHG	Cost Engineering Independent Technical Review		s	I			s	s	s			s					s
JI	Public Involvement Docs.							I									s
JIA	Notices and Public Workshops							I	s	s					s		s
JIB	Minutes of Public Workshops							I									s
JIC	Public Comments Report						s	I	s	s					s		s
JID	Newsletters							I	s	s					s		s
JIE	Other Public Involvement Docs.							I	s	s		s					s
JIEA	Public Involvement Plan							I				s					s
JIEB	Public Involvement Report and Agency Coordination Appendix							I	s	s							s
JR	Feasibility Scoping Meeting							I				s					
JRA	Draft FMS Documents						s	I	s	s							s
JRB	FMS Technical Review Documents						s	I	s	s							
JRC	FMS Documents						s	I	s	s							
JRD	HQUSACE/Division Review and FSM						s	I	s	s		s					s
JRE	FMS Guidance Memorandum							I				s					
JJ	Plan Formulation and Evaluation Report							I				s					
JJA	Product Delivery Team Meetings	s	s	s	s	s	s	I	s	s	s	s	s	s	s	S	s
JJB	Establish Without Project Conditions					s	s	I	s	s							s
JJC	Alternative Plan Formulation and Evaluation					s	s	I	s	s					s		s
JJD	Detailed Evaluation of Alternatives					s	s	I	s	s		s			s		s
JJE	Plan Formulation and Evaluation Report					s	s	I	s	s		s			s		s
JQ	Alternative Formulation Briefing							I				s					s
JQA	Draft AFB Documentation.		s	s	s	s	s	I	s	s					s		
JQB	AFB Technical Review Documents		s	s	s	s	s	I	s	s					s		s

Table 8 (Cont.)
Responsibility Assignment Matrix

WBS Code	WBS Name	EN	EN-DR	EN-E	EN-GE	EN-GG	EN-HH	PD-E	PD-EI	PD-FE	PD-FP	PM-CM	PM-CP	RE-A	RE-P	RE-R	SPONS
JQC	AFB Policy Compliance Review Documents							I									
JQD	AFB Guidance Memorandum							I									
JQE	Attend AFB							I				s					s
JK	Draft Report Documentation							I									
JKA	Draft Feasibility Report and NEPA Document.		s	s	s	s	s	I	s	s			s	s	s	s	
JKB	Public Review Comments		s	s	s	s	s	I	s	s			s	s	s	s	
JKE	Technical Review Documents		s	s	s	s	s	I	s	s			s	s	s	s	
JKF	HQUSACE Policy Compliance Review Docs.							I				s					s
JKC	Project Guidance Memorandum		s	s	s	s	s	I	s	s		s	s		s		s
JL	Final Report Documentation		s	s	s	s	s	I	s	s					s		
JLC	Final Feasibility Report and NEPA Document.		s	s	s	s	s	I	s	s							
JLD	Technical Review Documents		s	s	s	s	s	I	s	s		s			s		s
JLA	Division Commander's Notice							I									
JM	Washington Level Report Approval							I				s					
JME	State and Agency Review and NEPA Document Filing Letters							I	s								
JMA	Policy Compliance Review							I				s					
JMB	Chief of Engineers' Report							I									
JMF	ASA(CW) Memo to OMB							I									
JMC	OMB Letter to ASA(CW)							I									
JMD	ASA(CW) Transmittal to Congress							I				s					
JP	Management Documents																
JPF	All Other Management Documents																
JPFA	Project Management Plan							s				I					s
JPFB	Engineering Management	s	s	s		s	I										
K	Project Cooperation Agreement							s				I		s			
KA	Initial Draft PCA Package							s				I		s			
KAA	Initial Draft PCA							s				I		s			
KAB	Federal/Non-federal Allocation of Funds Table							s				I		s			
KAC	PCA Deviation Report							s				I		s			
KAD	PCA Certification of Legal Review							s				I		s			
KAE	PCA Checklist							s				I		s			
Z	Programs and Project Management (PPM) Documents							s				I					
ZA	Project Coordination Documents							s				I					
ZB	Funds Control Documents							s				I					
ZN	All Other PPM Documents							s				I					
ZNA	Program Management							s				I					

SECTION 5 – FEASIBILITY STUDY SCHEDULE

This section of the PMP presents the schedule to complete the Feasibility Study and identifies the major milestones and major tasks. The study schedule includes all critical study tasks, inter-relationships between tasks, key decision points, in-progress reviews, and issue resolution meetings. The schedule will be used in monitoring the progress of work on the Feasibility Study. Assuming a 29 March 2002 study start, the final Feasibility Report is scheduled for completion on 19 January 2006.

MAJOR MILESTONES

The major milestones for the Feasibility Study are shown in Table 9. Milestone dates assume a 29 March 2002 study start and will be adjusted proportionally if study initiation occurs earlier or later.

Table 9
Major Milestones for Feasibility Study

WBS Code	WBS Product	Milestone Code	Milestone Name	Date
HCC00	FCSA Signed/Executed	60	District and non-Federal Sponsor Execute FCSA	07 May 2002
JPC00	Study Funds Control Documents	100	Initiation of Feasibility phase study	04 Jun 2002
JR000	Update of PMP	`	PMP Feasibility Scoping Meeting	11 Nov 2003
JRE00	HQ Guidance/Approval Memorandum	110	PMP Guidance Memorandum	25 Nov 2003
JQA00	AFB Project Documentation	122	Documentation to SAD for Alternative Formulation Briefing (AFB)	19 Oct 2004
JQC00	AFB Policy Compliance Review Documents	124	Date of AFB	30 Nov 2004
JQD00	AFB Guidance Memorandum	126	AFB Guidance Memorandum	14 Dec 2004
JKB00	Public Review Comments	145	Draft Report & NEPA Document for Public Review	03 May 2005
JKF00	HQ Policy Compliance Review Documents	130	Conduct Feasibility Review Conference (FRC)	03 May 2005
JKC00	Project Guidance Memorandum (PGM)	140	Project Guidance Memorandum	17 May 2005
JHE00	Baseline Fully Funded Cost Estimate	150	Baseline Cost Estimate (MCACES) Approved by District	19 Oct 2004
JP000	Final PMP	160	PMP Endorsed Partner/PRB Approval	16 Nov 2004

Table 9 (Cont.)
Major Milestones for Feasibility Study

WBS Code	WBS Product	Milestone Code	Milestone Name	Date
JDI00	401 State Water Quality Certification	300	Certification of Water Quality Issued	21 Sep 2004
JLC00	Final Feasibility Report and NEPA Document	165	District Submits Feasibility Report and NEPA Document	14 Jun 2005
JMA00	Policy Compliance Review Document	182	Date HQ Policy Division Sends Final Assessment to HQ Planning Division	20 Sep 2005
JMF00	ASA(CW) Memorandum to OMB	175	ASA(CW) Memorandum to OMB	04 Oct 2005
JLA00	Division Commander's Notice	170	MSC Commander's Public Notice	12 Jun 2005
JMB00	Chief of Engineer's Report	330	Chief's Report Issued to ASA(CW)	27 Sep 2005
JMD00	ASA(CW) Transmittal to Congress	340	ASA(CW) Report to Congress	28 Feb 2006

TASK DEPENDENCIES AND TIMELINES FOR WORK ACTIVITIES

The study schedule contained in Appendix A presents the Feasibility Study schedule. The schedule shows work activities to the Major Task Level (i.e. JAA – Surveying and Mapping) using the Civil Works Work Breakdown Structure (WBS) organization. The schedule identifies task dependencies and provides a timeline for work activities. Each Major Task is listed, along with its duration in days, start and finish dates, and dependencies among tasks (i.e., predecessor and successor relationships). In addition, the Gantt chart approach used to display the schedule provides a visual representation of when the tasks begin, other tasks are being conducted simultaneously, and milestone dates (shown with a diamond).

SECTION 6 – BASELINE FEASIBILITY STUDY COST ESTIMATE

This section of the Project Management Plan (PMP) presents the cost estimate for the Feasibility Study. The Feasibility Study cost estimate is presented in Table 10. Study costs are displayed by Federal fiscal year at the Civil Works Work Breakdown Structure (WBS) at the task, sub-task, and sub-sub-task levels. As shown in Table 10, the total study costs (including Corps in-house costs, costs for non-federal sponsor's efforts, and the costs for contractor support) are estimated to be $5,212,800. The total study costs reflect a baseline value of $4,344,000 and a contingency factor of $868,800.

Table 10
Feasibility Study Cost Estimate Summary

Study Breakdown Structure Account	Tasks	Cost Estimate ($)		
		Non-Contract	Contract	Total
J0000	**Feasibility Report**	-	-	-
JA000	**Engineering Appendix**	-	-	-
JAA00	Surveys and Mapping	10,000	300,000	310,000
JAB00	Hydrology and Hydraulic Studies/Reports	-	-	-
JABA0	Site Visits	-	-	-
JABAA	Site Visits to Lake Allatoona	13,000	0	13,000
JABAB	Site Visits to Watershed	55,000	0	55,000
JABB0	Without Project Conditions	36,000	180,000	216,000
JABC0	Inventory and Ranking of Lake Allatoona Shoreline Erosion Sites	6,400	0	6,400
JABD0	Evaluation of Selected Lake Allatoona Shoreline Erosion Sites	36,000	0	36,000
JABE0	Inventory and Ranking of Watershed Environmental restoration and resource protection Sites	140,400	0	140,400
JABF0	Evaluation of Environmental restoration and resource protection Sites	360,000	0	360,000
JABG0	Coordination with GIS Manager	22,400	0	22,400
JABH0	Coordination with Others	20,000	0	20,000
JABI0	Estimation of Quantities	44,000	0	44,000
JABJ0	H&H Reports	34,000	0	34,000
JABK0	H&H Independent Technical Review	8,000	0	8,000
JABL0	Presentation of Study Results	5,900	0	5,900
JAC00	Geotechnical Studies/Reports	-	-	-
JACA0	Geotechnical Investigations for Shoreline Erosion Sites on Lake Allatoona	40,000	77,100	117,100
JACB0	Geotechnical Investigations for Environmental restoration and resource protection Sites	75,000	105,400	180,000

Table 10 (Cont.)
Feasibility Study Cost Estimate Summary

		Cost Estimate ($)		
JACC0	Coordination with Others	0	0	0
JACD0	Geotechnical Independent Technical Review	3,300	0	3,300
JAE00	Engineering and Design Analysis Report with Preliminary Drawings for Environmental restoration and resource protection Sites	-	-	-
JAEA0	Structural Engineering Design	112,000	0	112,000
JAEB0	Coordination with Others	0	0	0
JAEC0	Structural Design Independent Technical Review	3,300	0	3,300
JAG00	GIS Mapping	-	-	-
JAGA0	Compile Existing Information	5,800	15,700	21,500
JAGB0	Evaluate and Assess Data	3,600	15,600	19,200
JAGC0	Develop GIS Data Management Integration Plan	5,800	16,000	21,800
JAGD0	Develop GIS Mapping Symbology Standards	6,600	0	6,600
JAGE0	Collect Additional Site Specific Data	-	-	-
JAGEA	Watershed Data	25,000	100,000	125,000
JAGEB	Shoreline Erosion Site Data	82,000	0	82,000
JAGF0	Establish and Maintain a Relational Database	29,600	0	29,600
JAGG0	Coordinate with Product Delivery Team and Non-Federal Sponsor	20,000	0	20,000
JAGH0	GIS Independent Technical Review	8,800	0	8,800
JB000	**Socioeconomic Studies/Report**	-	-	-
JBA00	Economic Analysis/Report	-	-	-
JBAA0	Existing/Without Project Conditions	-	-	-
JBAAA	Existing Conditions	5,700	0	5,700
JBAAB	Without Project Conditions	42,100	0	42,100
JBAB0	With Project Conditions	14,400	0	14,400
JBAC0	Economics Report	8,800	0	8,800
JBB00	Social Studies/Report	1,300	0	1,300

Table 10 (Cont.)
Feasibility Study Cost Estimate Summary

		Cost Estimate ($)		
JBD00	Ability to Pay Report	1,300	0	1,300
JBE00	Financial Analysis Report	3,700	0	3,700
JC000	**Real Estate Analysis/Documents**	-	-	-
JCA00	Real Estate Supplement/Plan	30,000	0	30,000
JCB00	Gross Appraisal/Report	25,200	0	25,200
JCC00	Preliminary Real Estate Acquisition Maps	-	-	-
JCD00	Physical Takings Analysis	9,000	0	9,000
JCE00	Preliminary Attorney's Opinion of Compensability	9,000	0	9,000
JCF00	Rights-of-Entry	20,000	0	20,000
JCG00	Relocations of Facilities and Utilities	5,000	0	5,000
JCH00	Real Estate Acquisition Capability Assessment	5,000	0	5,000
JD000	**Environmental Studies/Report**	-	-	-
JBD00	Environmental Assessment (EA) and Finding of No Significant Impact (FONSI)	87,000	0	87,000
JDD00	Coordination of Documents with Other Agencies	13,000	0	13,000
JDE00	Environmental Resources Inventory Report	28,300	0	28,300
JDF00	Mitigation Analysis Report	20,400	0	20,400
JDG00	Endangered Species Act Report	20,000	50,000	70,000
JDH00	Section 404(b)(1) Analysis/Report	24,000	0	24,000
JDI00	401 State Water Quality Certification	24,600	0	24,600
JDL00	Statement of Findings (SOF)	12,000	0	12,000
JDN00	Other Environmental Documents/Efforts	-	-	-
JDNA0	Evaluate and Analyze Existing Environmental Data	9,600	55,000	64,600
JDNB0	Evaluation of Current BMPs Used within Lake Allatoona Watershed	9,600	100,000	109,600
JDNC0	Collect Flow Data for Use in CEQUAL-W2 Water Quality Model Evaluations	5,000	143,800	148,800

Table 10 (Cont.)
Feasibility Study Cost Estimate Summary

		Cost Estimate ($)		
JDND0	Update and Application of CE-QUAL-W2 Water Quality Model to Evaluate Influence of Modified Pool Level Operations on Water Quality Within Lake Allatoona	50,000	75,000	125,000
JDNE0	Ecosystem Restoration Outputs/Benefits	28,800	0	28,800
JDNF0	National Pollutant Discharge Elimination System Permits	0	0	0
JDNG0	Faunal Surveys	20,000	100,000	120,000
JE000	**Fish and Wildlife Coordination Act Report**	29,500	0	29,500
JF000	**HTRW Studies/Report**	-	-	-
JFB00	HTRW Site Inspection Report	22,500	0	22,500
JG000	**Cultural Resource Report**	-	-	-
JGA00	Site Survey Field Report	7,000	24,000	31,000
JGB00	Data Collection and Analysis Report	7,000	30,000	37,000
JGD00	Memorandum of Agreement	0	0	0
JH000	**Cost Estimates**	-	-	-
JHC00	Project Cost Estimates	74,800	0	74,800
JHD00	Operation and Maintenance (OMRR&R) Cost Estimates	12,000	0	12,000
JHE00	Baseline Fully Funded Cost Estimate	18,300	0	18,300
JHF00	Non-Federal Cost Estimate	12,700	0	12,700
JHG00	Cost Engineering Independent Technical Review	3,700	0	3,700
JI000	**Public Involvement Documents**	-	-	-
JIA00	Notices of Public Meetings	12,000	10,000	22,000
JIB00	Minutes of Public Meetings	10,000	10,000	20,000
JID00	Newsletters	36,000	10,000	46,000
JIE00	Other Public Involvement Documents	-	-	-
JIEA0	Public Involvement Plan	20,000	0	20,000
JIEB0	Public Involvement Report and Agency Coordination Appendix	35,000	0	35,000

Table 10 (Cont.)
Feasibility Study Cost Estimate Summary

		Cost Estimate ($)		
JR000	**Feasibility Scoping Meeting (FSM)**	-	-	-
JRA00	Draft FSM Documents	25,000	0	25,000
JRB00	FSM Technical Review Documents	15,000	0	15,000
JRC00	FSM Documents	3,000	0	3,000
JRD00	HQUSACE/Division Review and FSM	3,000	0	3,000
JRE00	FSM Guidance Memorandum	1,500	0	1,500
JJ000	**Plan Formulation and Evaluation Report**	-	-	-
JJA00	Product Delivery Team Meetings	30,000	0	30,000
JJB00	Establish Without Project Conditions	35,000	0	35,000
JJC00	Alternative Plan Formulation and Evaluation	47,000	0	47,000
JJD00	Detailed Evaluation of Alternatives	47,000	0	47,000
JJE00	Plan Formulation and Evaluation Report	47,000	0	47,000
JQ000	**Alternative Formulation Briefing (AFB)**	-	-	-
JQA00	AFB Project Documentation	25,000	0	25,000
JQB00	AFB Technical Review Documents	18,000	0	18,000
JQC00	AFB Policy Compliance Review Documents	4,000	0	4,000
JQD00	AFB Guidance Memorandum	4,000	0	4,000
JQE00	Attend AFB	15,000	0	15,000
JK000	**Draft Report documentation**	-	-	-
JKA00	Draft Feasibility Report and NEPA Document	30,000	3,000	33,000
JKB00	Public Review Comments	15,000	0	15,000
JKE00	Technical Review Documents	15,000	0	15,000
JKF00	Headquarters Policy Compliance Review Documents	0	0	0
JKC00	Project Guidance Memorandum (PGM)	0	0	0
JL000	Final Report Documentation	-	-	-
JLC00	Final Feasibility Report and NEPA Document	20,000	3,000	23,000

Table 10 (Cont.)
Feasibility Study Cost Estimate Summary

		Cost Estimate ($)		
JLD00	Technical Review Documents	15,000	0	15,000
JLA00	Division Commander's Notice	0	0	0
JM000	**Washington Level Report Approval**	-	-	-
JME00	State and Agency Review and NEPA Document Filing Letters	1,000	0	1,000
JMA00	Policy Compliance Review	15,000	0	15,000
JMB00	Chief of Engineers' Report	0	0	0
JMF00	ASA (CW) Memorandum to OMB	0	0	0
JMC00	OMB Letter to ASA (CW)	1,500	0	1,500
JMD00	ASA(CW) Transmittal to Congress	0	0	0
JP000	**Management Documents**	-	-	-
JPF00	All Other Management Documents	-	-	-
JPFA0	Project Management Plan (PMP)	25,000	0	25,000
JPFB0	Engineering Management	245,000	0	245,000
K0000	**Project Cooperation Agreement**	-	-	-
KA000	**Initial Draft PCA Package**	-	-	-
KAA00	Initial Draft PCA	5,000	0	5,000
KAB00	Federal/Non-Federal Allocation of Funds Table	2,500	0	2,500
KAC00	PCA Deviation Report	2,500	0	2,500
KAD00	PCA Certification of Legal Review	2,500	0	2,500
KAE00	PCA Checklist	700	0	700
Z0000	**Programs and Project Management (PPM) Documents**	-	-	-
ZA000	**Project Coordination Documents**	0	0	0
ZB000	**Funds Control Documents**	80,000	0	80,000
ZN000	**All Other PPM Documents**	-	-	-
ZNA00	Program Management	80,000	0	80,000
TOTAL	**-**	**2,920,400**	**1,423,600**	**4,344,000**

Table 11 displays the total federal and non-federal sponsor costs by federal fiscal year (October through September). The amounts shown in Table 11 include a contingency factor of 20% to account for uncertainties and other unknowns that could be encountered during the course of the Feasibility Study. Addition of the contingency factor (i.e. $868,800) increases the total study costs to $5,212,800. The apportionment of the non-federal sponsor costs in cash and in in-kind services will be determined during negotiations to develop the Feasibility Cost-Sharing Agreement.

Table 11
Federal and Non-federal Sponsor Costs by Federal Fiscal Year

Federal Fiscal Year	Federal	Non-Federal Sponsor		Total
		In kind	Cash	
2002	199,980	200,620	-	400,600
2003	200,005	199,595	-	399,600
2004	924,205	903,595	-	1,827,800
2005	993,570	997,230	5,360	1,996,160
2006	288,640	300,000		588,640
TOTAL	2,606,400	2,601,040	5,360	5,212,800
Percentage	50.0%	49.9%	0.1%	

Note: These figures reflect inclusion of a 20% contingency factor. See Table 12 for details of cost apportionment by study task.

Table 12 provides the back-up information for Table 11 by identifying how work on the individual tasks will be apportioned between federal and non-federal study partners. Also included in Table 12 is the related apportionment of federal and non-federal costs by study task. Federal policy requires that General Investigation feasibility studies be cost-shared 50-50 with the non-federal sponsor. As indicated in Table 12, almost all of the non-federal sponsor's contribution to this study will be provided through in-kind services. Under this arrangement, a cash contribution of $5,360 will be required, as shown in Table 11, of the non-federal sponsor to satisfy the 50-50 cost-sharing requirement.

Table 12
Apportionment of Federal and Non-Federal Costs by Individual Study Task

Account	Task	Total	Federal %	Non-Federal %	Costs	
					Federal	Non-Federal
J0000	**Feasibility Report**					
JA000	**Engineering Appendix**					
JAA00	Surveys & Mapping	$372,000.00	60%	40%	$223,200.00	$148,800.00
JAB00	Hydrology and Hyddraulic Studies/Reports					
JABA0	**Site Visits**					
JABAA	Site Visit to Lake Allatoona	$15,600.00	60%	40%	$9,360.00	$6,240.00
JABAB	Site Visit to Watershed	$66,000.00	60%	40%	$39,600.00	$26,400.00
JABB0	W/O Project Conditions	$259,000.00	80%	20%	$207,200.00	$51,800.00
JABC0	Inventory and Ranking of Lake Allatoona Shoreline Erosion Sites	$7,700.00	25%	75%	$1,925.00	$5,775.00
JABF0	Evalutation of Selected Lake Allatoona Shoreline Erosion Sites	$43,200.00	25%	75%	$10,800.00	$32,400.00
JABE0	Inventory and Ranking of Environmental restoration and resource protection sites.	$168,500.00	25%	75%	$42,125.00	$126,375.00
JABF0	Evaluation of Environmental restoration and resource protection sites.	$432,600.00	25%	75%	$108,150.00	$324,450.00
JABG0	Coordination w/GIS Manager	$26,900.00	25%	75%	$6,725.00	$20,175.00
JABH0	Coordination w/others	$24,000.00	50%	50%	$12,000.00	$12,000.00
JABI0	Estimation of Quantites	$52,800.00	90%	10%	$47,520.00	$5,280.00
JABJ0	H&H Reports	$40,800.00	75%	25%	$30,600.00	$10,200.00
JABK0	H&H Independent Technical Review	$9,600.00	90%	10%	$8,640.00	$960.00
JABL0	Presentation of Study Results	$7,100.00	40%	60%	$2,840.00	$4,260.00
JAC00	**Geotechnical Studies and Reports**					
JACA0	Geotechnical Investigation of Lake Allatoona Shoreline Erosion Sites	$140,500.00	20%	80%	$28,100.00	$112,400.00
JACB0	Geotechnical Investigations for Environmental restoration and resource protection sites.	$216,000.00	20%	80%	$43,200.00	$172,800.00
JACC0	Coordination w/others	$8,100.00	50%	50%	$4,050.00	$4,050.00
JACD0	Geotechnical Independent Technical Review	$4,000.00	80%	20%	$3,200.00	$800.00
JAE00	**Engineering & Design Analysis Report w/ Preliminary Drawings of Environmental restoration & resource protection sites**					
JAEA0	Structural Engineering Design	$134,400.00	85%	15%	$114,240.00	$20,160.00
JAEB0	Coordination w/others	$8,100.00	50%	50%	$4,050.00	$4,050.00
JAEC0	Structual Design Independent Review	$4,000.00	90%	10%	$3,600.00	$400.00
JAG00	**GIS Mapping**					
JAGA0	Compile Existing Information	$25,800.00	10%	90%	$2,580.00	$23,220.00

Table 12 (Cont.)
Apportionment of Federal and Non-Federal Costs by Individual Study Task

Account	Task	Total	Federal %	Non-Federal %	Costs	
					Federal	Non-Federal
JAGB0	Evaluate and Assess Data	$23,000.00	10%	90%	$2,300.00	$20,700.00
JAGC0	Develop GIS Data Mapping Integration Plan	$26,200.00	10%	90%	$2,620.00	$23,580.00
JAGD0	Develop GIS Mapping Symbology Standards	$7,900.00	10%	90%	$790.00	$7,110.00
JAGE0	*Collect Additional Site Specific Data*					
JAGEA	Watershed Data	$150,000.00	10%	90%	$15,000.00	$135,000.00
JAGEB	Shoreline Erosion Site Data	$98,400.00	10%	90%	$9,840.00	$88,560.00
JAGF0	Establish and Maintain Relational Database	$35,500.00	10%	90%	$3,550.00	$31,950.00
JAGG0	Coordinate with Product Delivery Team and Non-Federal Sponsor	$24,000.00	50%	50%	$12,000.00	$12,000.00
JAGH0	GIS Independent Technical Review	$10,600.00	50%	50%	$5,300.00	$5,300.00
JB000	**Socioeconomic**					
JBA00	*Economic Analysis*					
JBAA0	*Existing w/o conditions*					
JBAAA	Existing conditions	$6,800.00	70%	30%	$4,760.00	$2,040.00
JBAAB	W/O Project Conditions	$50,500.00	70%	30%	$35,350.00	$15,150.00
JBAB0	With Project Conditions	$17,300.00	70%	30%	$12,110.00	$5,190.00
JBAC0	Economics Report	$10,600.00	70%	30%	$7,420.00	$3,180.00
JBB00	Social Studies Report	1,500.00	70%	30%	$1,050.00	$450.00
JBD00	Ability to Pay Report	1,500.00	90%	10%	$1,350.00	$150.00
JBE00	Financial Analysis	$4,500.00	90%	10%	$4,050.00	$450.00
JC000	**Real Estate**					
JCA00	Real Estate Supplimental Plan	$36,000.00	75%	25%	$27,000.00	$9,000.00
JCB00	Gross Appraisal/Report	$30,200.00	60%	40%	$18,120.00	$12,080.00
JCC00	Primary Real Estate Acquisition Maps					
JCD00	Physical Takings Analysis	$11,000.00	50%	50%	$5,500.00	$5,500.00
JCE00	Preliminary Attorney's Opinion of Compensability	$11,000.00	75%	25%	$8,250.00	$2,750.00
JCF00	Rights-of-entry	$24,000.00	25%	75%	$6,000.00	$18,000.00
JCG00	Relocation of Facilities and Utilities	$6,000.00	75%	25%	$4,500.00	$1,500.00
JCH00	Real Estate Acquisition Capability Assessment	$6,000.00	75%	25%	$4,500.00	$1,500.00
JD000	**Environmental Studies/Reports**					
JDB00	Environmental Assessment (EA) and Finding of No Significant Inpact (FONSI)	$104,400.00	20%	80%	$20,880.00	$83,520.00
JDD00	Coordination of Documents w/other Agencies	$15,600.00	50%	50%	$7,800.00	$7,800.00
JDE00	Environmental Resource Inventory Report	$34,000.00	20%	80%	$6,800.00	$27,200.00
JDF00	Mitigation Analysis Report	$20,500.00	75%	25%	$15,375.00	$5,125.00
JDG00	Endangered Species Act Report	$84,000.00	20%	80%	$16,800.00	$67,200.00

Table 12 (Cont.)
Apportionment of Federal and Non-Federal Costs by Individual Study Task

Account	Task	Total	Federal %	Non-Federal %	Costs	
					Federal	Non-Federal
JDH00	Section 404(b)(1) Analysis/Report	$28,800.00	80%	20%	$23,040.00	$5,760.00
JDI00	401 State Water Quality Certification	$29,500.00	80%	20%	$23,600.00	$5,900.00
JDL00	Statement of Findings (SOF)	$14,400.00	90%	10%	$12,960.00	$1,440.00
JDN00	Other Environmental Documents/Efforts					
JDNA0	Evaluate and Analyze Existing Environmental Data	$77,500.00	20%	80%	$15,500.00	$62,000.00
JDNB0	Evaluation of Current BMPs Used within Lake Allatoona Watershed	$131,500.00	20%	80%	$26,300.00	$105,200.00
JDNC0	Collect Flow Data for Use in CE-QUAL-W2 Water Quality Model Evaluations	$166,400.00	20%	80%	$33,280.00	$133,120.00
JDND0	Update and Application of CE-QUAL-W2 Water Quality Model to Evaluate Infulence of Modifed Pool Level Operations on Water Quality within Lake Allatoona	$150,000.00	90%	10%	$135,000.00	$15,000.00
JDNE0	Ecosystem Restoration Outputs/Benefits	$34,600.00	20%	80%	$6,920.00	$27,680.00
JDNF0	National Pollutant Discharge Elimination System (NPDES) Permits					
JDNG0	Faunal Surveys	$144,000.00	10%	90%	$14,400.00	$129,600.00
JE000	**Fish and Wildlife Coordination Act Report**	$35,400.00	90%	10%	$31,860.00	$3,540.00
JF000	**HTRW Studies/ Report**					
JFB00	HTRW Site Inpection Report	$27,000.00	10%	90%	$2,700.00	$24,300.00
JG000	**Cultural Resource Report**					
JGA00	Site Survey Field Report	$37,200.00	20%	80%	$7,440.00	$29,760.00
JGB00	Data Collection & Analysis Report	$44,000.00	20%	80%	$8,800.00	$35,200.00
JGD00	Memorandum of Agreement					
JH000	**Cost Estimates**					
JHC00	Project Cost Estimates	$89,800.00	90%	10%	$80,820.00	$8,980.00
JHD00	Operations and Maintenance (OMRR&R) Cost Estimates	$14,400.00	75%	25%	$10,800.00	$3,600.00
JHE00	Baseline Fully Funded Cost Estimate	$22,000.00	90%	10%	$19,800.00	$2,200.00
JHF00	Non-Federal Cost Estimate	$15,200.00	90%	10%	$13,680.00	$1,520.00
JHG00	Cost Engineering Independent Technical Review	$4,400.00	90%	10%	$3,960.00	$440.00
JI000	**Public Involvement Documents**				$0.00	$0.00
JIA00	Notices of Public Meetings	$26,400.00	10%	90%	$2,640.00	$23,760.00
JIB00	Minutes of Public Meetings	$24,000.00	10%	90%	$2,400.00	$21,600.00
JID00	Newsletters	$55,200.00	10%	90%	$5,520.00	$49,680.00
JIE00	Other Public Involvement Documents					

Table 12 (Cont.)
Apportionment of Federal and Non-Federal Costs by Individual Study Task

Account	Task	Total	Federal %	Non-Federal %	Costs	
					Federal	Non-Federal
JIEA0	Public Involvement Plan	$24,000.00	50%	50%	$12,000.00	$12,000.00
JIEB0	Public Involvement Report and Agency Coordination Appendix	$42,000.00	50%	50%	$21,000.00	$21,000.00
JR000	**Feasability Scoping Meeting (FSM)**					
JRA00	Draft FSM Docuements	$30,000.00	75%	25%	$22,500.00	$7,500.00
JRB00	FSM Technical Review Documents	$18,000.00	75%	25%	$13,500.00	$4,500.00
JRC00	FSM Documents	$3,600.00	75%	25%	$2,700.00	$900.00
JRD00	HQUSACE/Division Review amd FSM	$3,600.00	75%	25%	$2,700.00	$900.00
JRE00	FSM Guidance Memorandum	$1,800.00	90%	10%	$1,620.00	$180.00
JJ000	**Plan Formulation and Evaluation Report**					
JJA00	Product Delivery Team Meetings	$36,000.00	80%	20%	$28,800.00	$7,200.00
JJB00	Establish w/o Project Conditions	$42,000.00	80%	20%	$33,600.00	$8,400.00
JJC00	Alternative Plan Formulation and Evaluation	$56,400.00	80%	20%	$45,120.00	$11,280.00
JJD00	Detailed Evaluation of Alternatives	$56,400.00	80%	20%	$45,120.00	$11,280.00
JJE00	Plan Formulation and Evaluation Report	$56,400.00	80%	20%	$45,120.00	$11,280.00
JQ000	**Alternative Formulation Briefing (AFB)**					
JQA00	AFB Project Documentation	$30,000.00	75%	25%	$22,500.00	$7,500.00
JQB00	AFB Technical Review Documents	$21,600.00	75%	25%	$16,200.00	$5,400.00
JQC00	AFB Policy Compliance Review Documents	$4,800.00	75%	25%	$3,600.00	$1,200.00
JQD00	AFB Guidance Memorandum	$4,800.00	75%	25%	$3,600.00	$1,200.00
JQE00	Attend AFB	$18,000.00	75%	25%	$13,500.00	$4,500.00
JK000	**Draft Report Documentation**					
JKA00	Draft Feasibilty Report and NEPA Document	$39,600.00	50%	50%	$19,800.00	$19,800.00
JKB00	Public Review Comments	18,000.00	50%	50%	$9,000.00	$9,000.00
JKE00	Technical Review Documents	18,000.00	50%	50%	$9,000.00	$9,000.00
JKF00	Headquarters Policy Compliance Review Documents					
JKC00	Project Guidance Memorandum (PGM)					
JL000	**Final Report Documentation**					
JLC00	Final Feasibilty Report and NEPA Document	27,600.00	50%	50%	$13,800.00	$13,800.00
JLD00	Technical Review Documents	18,000.00	50%	50%	$9,000.00	$9,000.00
JLA00	Division Commander's Notice					
JM000	**Washington Level Report Approval**					
JME00	State and Agency Review and NEPA Document Filing Letters	$1,200.00	80%	20%	$960.00	$240.00

Table 12 (Cont.)
Apportionment of Federal and Non-Federal Costs by Individual Study Task

Account	Task	Total	Federal %	Non-Federal %	Costs	
					Federal	Non-Federal
JMA00	Policy Compliance Review	$18,000.00	80%	20%	$14,400.00	$3,600.00
JMB00	Chief of Engineer's Report					
JMF00	ASA (CW) Memorandum to OMB					
JMC00	OMB Letter to ASA (CW)	$1,800.00	80%	20%	$1,440.00	$360.00
JMD00	ASA (CW) Transmittal to Congress					
JP000	**Management Documents**					
JPF00	All Other Management Documents					
JPFA0	Project Management Plan PMP	$30,000.00	60%	40%	$18,000.00	$12,000.00
JPFB0	Engineering Management	$294,000.00	100%	0%	$294,000.00	$0.00
K000	**Project Cooperation Agreement**					
KA000	**Initial Draft PCA Package**					
KAA00	Initial Draft PCA	$6,000.00	80%	20%	$4,800.00	$1,200.00
KAB00	Federal/Non-Federal Allocation of Funds Table	$3,000.00	80%	20%	$2,400.00	$600.00
KAC00	PCA Deviation Report	$3,000.00	80%	20%	$2,400.00	$600.00
KAD00	PCA Certification of Legal Review	$3,000.00	80%	20%	$2,400.00	$600.00
KAE00	PCA Checklist	$800.00	80%	20%	$640.00	$160.00
Z0000	**Programs and Project Management (PPM) Documents**					
ZA000	**Project Coordination Documents**					
ZB000	**Funds Control Documents**	$96,000.00	90%	10%	$86,400.00	$9,600.00
ZN000	**All Other PPM Documents**					
ZNA00	Program Management	$96,000.00	100%	0%	$96,000.00	$0.00
		$5,212,800.00			**$2,611,760.00**	**$2,601,040.00**

Note: The difference between the federal and non-federal costs is $5,360. Therefore, a cash contribution of $5,360 will be required of the non-federal sponsor to satisfy the 50-50 cost-sharing requirement.

SECTION 7 – QUALITY CONTROL PLAN

OBJECTIVE OF QUALITY CONTROL PLAN

The objective of the quality control plan is to describe the process that will be followed to achieve feasibility phase documents and services that meet the requirements of the non-Federal sponsor and are consistent with appropriate laws and Corps regulations, policies, and technical requirements.

PROJECT DELIVERY TEAM

The members of the Project Delivery Team (PDT) are listed in Table 13.

Table 13
Product Delivery Team and Review Team Assignments.

Discipline	Product Delivery Team Member	Review Team Member
Surveys and Mapping and GIS Mapping	Don Thrower	Mark Penton
Hydrology & Hydraulics Engineering	Cheryl Hrabovsky	TBD
Geotechnical Engineering	Ron Nettles	TBD
Structural Engineering	James Mabry	TBD
Project Architect Engineer	Cheryl Hrabovsky	Greg Miller
Economic Analyses	David Luckie	TBD
Real Estate	Reid Ferrill	TBD
Environmental Analysis	Jerry Jones	Michael Eubanks
Hazardous, Toxic & Radiological Waste	Steve Hand	Adrienne Jones
Cultural Resources	Dottie Gibbens	Ernie Seckinger
Cost Engineering	Joe Ellsworth	Bill Griffin
Public Involvement	Glen Coffee	TBD
Plan Formulation/Report Preparation	Glen Coffee	TBD
Program Management	Meg Richardson	TBD
Project Management	Thomas Smith	TBD
Non-federal sponsor	TBD	TBD

TBD – To be determined.

INDEPENDENT TECHNICAL REVIEW APPROACH

The Mobile District will conduct a technical review of Feasibility Study products using in-house house resources. The in-house technical review is expected to be advantageous with respect to budget and schedule.

DOCUMENTS TO BE REVIEWED AND SCHEDULE FOR REVIEW ACTIVITIES

All of the products of the tasks listed in the detailed scope of work in Section 2 – Scope of Studies will be subject to Independent Technical Review (ITR). Seamless single discipline review will be accomplished within the funcitional work elements before the release of materials to other members of the PDT or integrated into the overall Feasibility Report. Section Chiefs/Team Leaders shall be responsible for accuracy of the computations through design checks and other internal procedures before the intermediate work products (including review and approval of contractor prepared deliverables) are submitted for the ITR. The non-federal sponsor will participate in the ITR to assure expectations of the local interests with the work products are being satisfied.

ITR would occur before major decision points in the planning process. Major checkpoints in the ITR process are shown in Table 14. Review of the associated work products will be accomplished in accordance with the schedule contained in Appendix A.

Table 14
Independent Technical Review Checkpoints

Checkpoint
ITR Team Meets to Discuss ITR Process
ITR Team Meets to Discuss Issues
ITR Team Completes Review of Feasibility Scoping Meeting Document
ITR Team Completes Review of Alternative Formulation Meeting Document
ITR Team Completes Review of Draft Feasibility Report w/NEPA Document
ITR Team Completes Review of Final Feasibility Report w/NEPA Document

COST ESTIMATE FOR QUALITY MANAGEMENT

The costs for conducting ITR are included in the individual scopes of work that are included in Section 2 – Scope of Studies.

QUALITY CONTROL ACTIVITIES

Responsibilities. The chief of each functional element within the Mobile District will have overall responsibility for the technical quality of products that are managed within his/her functional element. Other functional chiefs, the PDT, the ITR Team, and the ITR Team Leader, also, have significant roles and responsibilities in achieving quality products.

Independent Technical Review. Key to the successful execution of the quality control process for the Feasibility Report is the ITR process. This review will be accomplished by an ITR Team composed of individuals having extensive experience in disciplines involved in the development and review of Feasibility Study products, and who were not involved in the study. The designated representative of the non-federal sponsor will be invited to participate in all ITR efforts. The ITR Team Leader will be a senior staff member with technical competence to resolve disputes.

Dispute Resolution. The ITR Team Leader will review the Feasibility Study products and ITR Team comments and PDT responses to identify any disagreements between members of the PDT and the ITR Team. Such disagreements will be brought to the attention of the appropriate functional chief to facilitate resolution of technical disagreements between the PDT and ITR Team counterparts. If this interaction does not resolve the issue, the final decision will be made by the functional chief. The functional chief may consult with South Atlantic Division staff, which may serve as an unbiased sounding board. In addition, major technical issues may be forwarded to the South Atlantic Division for resolution.

Technical and Policy Issue Resolution. Issues involving technical and policy interpretation will be brought to the attention of the chief of the responsible functional element for resolution. In some cases, the functional chief may hold an Issue Resolution Conference to resolve major policy or technical issues. South Atlantic Division and Headquarters, U.S. Army Corps of Engineers

participation, along with the non-federal sponsor may be requested to participate in the Issue Resolution Conference.

Final Documentation and Quality Control Certification. Proper documentation will be a key component of the quality control process. Significant comments, issues and decisions will be recorded and the entire process will leave a clear audit trail. The documentation and certification of the ITR and other quality control activities will be made part of the project file and will be included with the submission of the products to the South Atlantic Division.

FUNCTIONAL CHIEFS QUALITY CONTROL RESPONSIBILITIES.

The District functional chiefs quality control review responsibilities include:

- Assuring the high quality of decision and implementation documents.
- Providing oversight and direction for resolving technical issues.
- Approving assignment of personnel to the PDT and ITR Team.
- Participating in Technical Review Strategy Sessions.
- Identifying the appropriate level of detail required for adequate technical review.
- Assuring independence of the ITR Team.
- Advising the District Commander on the adequacy of completed documents.
- Assigning the ITR Team Leader if requested.
- Preparing formal directives for the ITR Team.
- Resolving or facilitating the resolution of policy and technical issues identified during the ITR process.
- Administratively supporting the ITR Team.

- Assuring that current policies are implemented in District planning and engineering documents.

- Chairing in-house technical review conferences.

- The functional chief with the lead responsibility for the product receiving ITR shall be responsible for reviewing and approving the Quality Control Plan (QCP).

- Monitoring customer satisfaction with District planning and engineering products.

SENIOR PLANNER'S RESPONSIBILITIES.

The Senior Planner's responsibilities include:

- Assuring study schedules provide adequate time to perform ITR.

- Assuring the ITR Team Leader is informed of significant meetings and conferences.

- Assuring that lessons learned from similar studies/designs are incorporated.

- Submitting completed documents requiring ITR to the ITR Team Leader on schedule.

- Resolving or facilitating the resolution of policy and technical issues with the PDT members, the ITR Team Leader and the ITR Team members.

INDEPENDENT TECHNICAL REVIEW TEAM LEADER RESPONSIBILITIES.

The ITR Team Leader's responsibilities include:

- Preparing the QCP as directed by the responsible functional chief and revising the QCP as changes occur such as departure of a Team member.

- Informing appropriate functional chiefs of significant disagreements between counterparts on PDT and ITR Team.

- Recommending resolution of disagreements to functional chiefs, particularly when they involve issues that affect cross-functional areas.

- Keeping functional chiefs informed on policy issues.

- Coordinating the review of documents and other material identified in the QCP.

- Chairing ITR Team meetings.

- Submitting assessments on completed documents to functional chiefs.

- Maintaining ITR Team files documenting the ITR process

- Presenting review activities and findings at milestone conferences. Also preparing documents recording the significant technical review comments and the resolution of these comments. These documents also serve as memoranda for recording the decisions made at the milestone conference.

- Preparing "lessons learned" reports for use in improving the review process.

INDEPENDENT TECHNICAL REVIEW TEAM MEMBERS RESPONSIBILITIES

The ITR Team members will be responsible for timely in-progress review of completed elements of the Feasibility Study. They will be responsible for documenting the seamless peer reviews. The ITR Team members will be responsible for providing nearly immediate seamless peer review upon request

and filing a memorandum recording the nature, scope, and findings of the review with the ITR Team Leader. The ITR Team members will review the entire document; however, they will concentrate on the parts that are relevant to their expertise. Comments will be constructive and contain the elements in the "Appropriate Comments" section below. A backcheck review will be conducted to insure all comments have been incorporated by the PDT or appropriately answered to the satisfaction of the reviewer. Disputes will be resolved as outlined in the "Dispute and Policy Resolution" section below.

PROJECT DELIVERY TEAM RESPONSIBILITIES

The PDT members will request seamless peer reviews as required for their completed parts of their products. This will insure a quality product prior to final review by the ITR Team. The PDT members will respond to comments from the ITR Team in accordance with the schedule in the project management plan (PMP). After a backcheck review, the ITR Team members will participate in resolution of any disputes. If agreement cannot be reached final resolution will be accomplished as outlined in the "Dispute and Policy Resolution" section below.

NON-FEDERAL SPONSOR RESPONSIBILITIES

The non-federal sponsor will be responsible for delegating a representative to serve on the ITR Team. Participation in each ITR effort will be at the discretion of the non-federal sponsor. The non-federal sponsor should be prepared to convey all concerns and issues to the ITR Team Leader in accordance with established procedures.

PROJECT MANAGER RESPONSIBILITIES

The Project Manager is a member of the PDT. The Project Manager will ensure that adequate time and resources are provided to the ITR Team for the review of products. To ensure that quality expectations are met, the PM will ensure that ITR certification requirements are met prior to approval by the District Commander and transmittal of the Feasibility Report to the South Atlantic Division. The Project Manager is also responsible for a timely quality control review and that it is conducted consistent with the provisions of the PMP.

SELECTION OF INDEPENDENT TECHNICAL REVIEW TEAM MEMBERS

Since careful coordination between these disciplines is required, the ITR Team will include senior staff with broad technical and policy expertise. The goal will be the establishment of an informed, objective ITR Team with full accountability to maintain objectivity. To insure this objectivity, the members of the ITR Team will be independent from those who perform the work. Supervisors of PDT members will not be included on the ITR Team. In addition, technical managers of contracts that develop data and information, provide assumptions, clarify guidance, or otherwise participate in the preparation of work products will not serve as ITR Team members. If sufficient staff is not available, or if specialized review expertise is required, functional chiefs will supplement the ITR Team with personnel from other districts, divisions, Headquarters, centers of expertise, laboratories, the non-Federal sponsor's organization or by contract. If review assistance is required, the expertise needed will be found and the schedule and cost negotiated for the required services. As indicated in Table 12 of the preparation of the PMP all members of the ITR Team have not been identified.

DOCUMENT REVIEW

When the documents identified for ITR are available, the Senior Planner will forward copies of the document to the ITR Team Leader who will distribute them to the ITR Team. ITR Team members will be expected to review the entire document, but will concentrate on those parts of the document that cover their areas of expertise. Their first action will be to assure the material reviewed and approved in during the preceding peer reviews has been integrated as expected into the work products. Reviewers will decide whether any of their earlier reviews need to be revisited. To maintain the concept of one review, material covered in earlier peer reviews will not be reviewed again except when the presentation in the document is substantially different from the material previously reviewed or when it is the judgment of the ITR Team that the technical material previously reviewed may be contributing to unreasonable or inconsistent results in the document being reviewed.

CHECKLIST FOR REVIEW OF FEASIBILITY REPORT

The following checklist will be used to guide review of the Feasibility Report. The checklist is meant to serve as a tool to assist the ITR members only and not to replace his/her technical expertise or judgment:

- Has the study been conducted in accordance with and fully responsive to the study authority?

- Is the study area, as defined, reasonable and consistent with the study authority?

- Have the real extent and severity of the water-resources problems and without-project conditions been clearly documented?

- Are current findings consistent with prior phases of study? Have intervening external factors (such as regulation changes, significant storm events, etc.) jeopardized previous logic, analyses and conclusions?

- Have the assumptions and rationale for the without-project condition been explicitly stated and are they reasonable?

- Are planning objectives clearly identified?

- Were the views of non-federal interests solicited and considered in the plan formulation process?

- Have all reasonable structural and non-structural plans, including a no-action plan, been considered? Do they fully address the identified problems and needs?

- Was the plan formulation analysis conducted in accordance with accepted techniques and appropriate guidelines and regulations?

- Was the environmental work conducted in accordance with appropriate techniques, guidelines and regulations?

- Was the economic/benefit analysis conducted in accordance with accepted techniques, guidelines and regulations?

- Has the NED plan been identified? Is it the selected/recommended plan?

- Has the NER plan been identified? Is it the selected/recommended plan?

- Has the optimum tradeoff plan been identified? Is it the selected/recommended plan?

- For environmental restoration efforts, was a cost effectiveness and incremental analysis accomplished? Was resource significance defined?

- Is there a rationale for a locally-preferred plan or non NED recommended plan?

- Does the recommended plan meet the customer's needs and has the position of the Sponsor(s) been explicitly conveyed?

- Have upstream and downstream effects of the recommended plan been identified?

- Have all known benefits been included in the benefit estimate? Have high-priority benefits been identified?

- Have economic methodologies and assumptions been explained in sufficient detail?

- Is the evaluation of each alternative based on the difference between the without-project and with-project conditions?

- Have risk and uncertainty been addressed in accordance with ER 1105-2-101?

- Has the necessary coordination been conducted and documented in accordance with the National Environmental Policy Act of 1969 (NEPA) and ER 200-2-2?

- Have HTRW considerations been addressed?

- Is the proposed project recommendation consistent with current administration policies?

- Does the over-all Planning Report adequately display study assumptions, and findings, as well as and clearly represent a firm basis for the recommendation?

In addition, key concepts that should be addressed by the ITR Teams include the following:

- Validity of technical assumptions

- Methods and procedures used in the analyses

- Reasonable alternatives were addressed

- Appropriateness of data used

- Reasonableness of the results and responsiveness to customer needs

If a formal checklist is used by the ITR Team members, it should be provided as part of the review product.

PRESENTATION OF ITR COMMENTS

To enhance communication of review comments, and to ensure that each expressed review concern is relevant to the decision to be made, all comments shall contain the following four elements:

1) A clear statement of the concern. The information deficiency or incorrect application of policy or procedures in the report will be identified.

2) Basis of the concern. The appropriate law, ASA (CW) /Corps policy, EC, ER, Design Criteria, guidance, or procedure that has not been properly followed in the decision or implementation document will be referenced.

3) Significance of the concern. The importance of the concern with regard to plan formulation, economic feasibility, cost sharing, Federal interest, environmental compliance, design, and public acceptability will be indicated.

4) Specific actions needed to resolve the concern. The actions that the PDT must take to resolve the concern will be identified.

INDEPENDENT TECHNICAL REVIEW TEAM ASSESSMENT

After individual ITR Team members have completed their reviews and furnished their comments to the ITR Team Leader, they may meet as a Team to convert the individual comments into an assessment of the document. This assessment can be more than a compilation of individual comments. Comments will be consolidated into a consensus draft assessment of the document. This assessment may raise technical issues and questions concerning the document and can make suggestions for modifying the document. The PDT and the non-federal sponsor's representative can be given an opportunity to provide substantive, value added comments on the draft assessment. The final assessment will be submitted to the responsible functional chief for decision/action.

DISPUTE AND POLICY RESOLUTION

The ITR Team Leader will review comments and checklists to identify disagreements between members of the PDT and the ITR Team. If disagreements are found, the ITR Team Leader will assure that the appropriate functional chiefs of the PDT members have been made aware of any disagreements during the review. If the PDT members' supervisors also disagree with the reviewer, the ITR Team Leader will document the supervisors' position on the matter by memorandum to the ITR Team files. Technical issues will be raised with the appropriate functional chief for resolution. Major technical issues may be forwarded to South Atlantic Division Headquarters for resolution. If the disagreement involves interpretation of policy, the appropriate functional chief will be informed of the issue for resolution or referral to higher headquarters. All disputes related to the schedule and budgeted costs are to be referred through Programs and Project Management Division.

TECHNICAL REVIEW TEAM REVIEW DOCUMENTATION

ITR Team files will be readily available to all members of the PDT and the ITR Team. The files will also be available to higher Headquarters during quality

assurance reviews, Washington level policy reviews and review conferences. All reviews will be documented by checklists or "memoranda of review". The ITR Team files will include all review comments formatted in a comment, response, action taken and backcheck review results and all decisions made by technical function supervisors during peer review. All comments on draft assessments, as well as conference memoranda for the record, will be kept on file. The ITR Team files will be transferred to project files at the time of dissolution of the ITR Team.

TECHNICAL REVIEW DOCUMENTATION FILE

The documentation (documentation includes hard copy of e-mail messages) to be placed in the review file will include the following:

- The final QCP, QCP approval letter, and documents revising the QCP.
- One copy of each of the milestone documents reviewed by the ITR Team.
- The MFR from the milestone conferences.
- The review MFRs and checklists prepared by the ITR Team members following review of the milestone documents.
- Formal assessments to the functional chiefs on the review of the milestone documents, prepared by the ITR Team Leader.
- Documents related to resolving significant disagreements between the PDT and ITR Team.
- The lessons learned report for use in improving the ITR process prepared by the ITR Team Leader.
- Documentation of the in-process peer review may. Such documentation may include the following the scheduling MFR or e-mail message stating that the initial briefing has taken place and that a subsequent in-process peer review will or will not be necessary. If the initial briefing identifies no need for further in-process peer review, documentation of this conclusion, and the basis for it can be the only in-process peer review documentation required. If a subsequent in-process peer review is necessary, a tentative schedule will be provided.

- If a subsequent in-process peer review is required. The ITR Team member will prepare a checklist. The checklist will be initialed by the functional chief responsible for the product reviewed to indicate that the supervisor acknowledges the review has taken place.

- After any in-process peer review the ITR Team member may prepare a MFR to the ITR Team Leader. The MFR should include an evaluation of the adequacy of data, assumptions, acceptability of techniques, and procedures used, level of detail, compliance with policy, and guidelines, consistency of results, accuracy, and comprehensiveness.

- Any documentation generated in the resolution of significant disagreements from the in-process peer review.

- ITR Team assessment by ITR Team Leader signifying closure of quality control (QC) process.

- QC certification.

CERTIFICATION BY INDEPENDENT TECHNICAL REVIEW TEAM MEMBERS

The following statement is to signed and dated by all ITR Team members when the results of their review of the Feasibility Report are submitted:

> I certify that the study and review process required to be performed under my responsibility has been completed and the technical work is generally in accord with Corps regulations, standard report requirements and customer expectations.

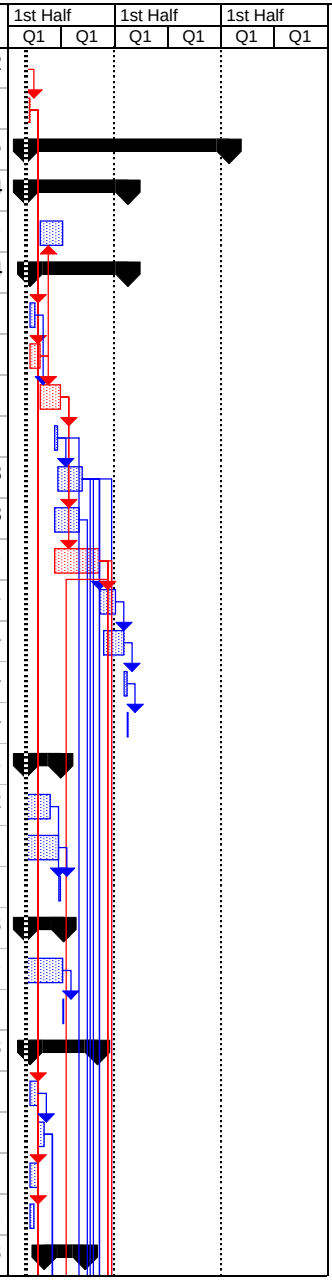
The following statement is to signed and dated by the Division/Office Chiefs upon completion of the ITR Review of the Feasibility Report:

> My staff and I have reviewed the report and the recommendations of the Study and Review Teams. I endorse the report and recommend its signature by the District Engineer and its continued processing through the Corps approval process.

APPENDIX A

FEASIBILITY STUDY SCHEDULE

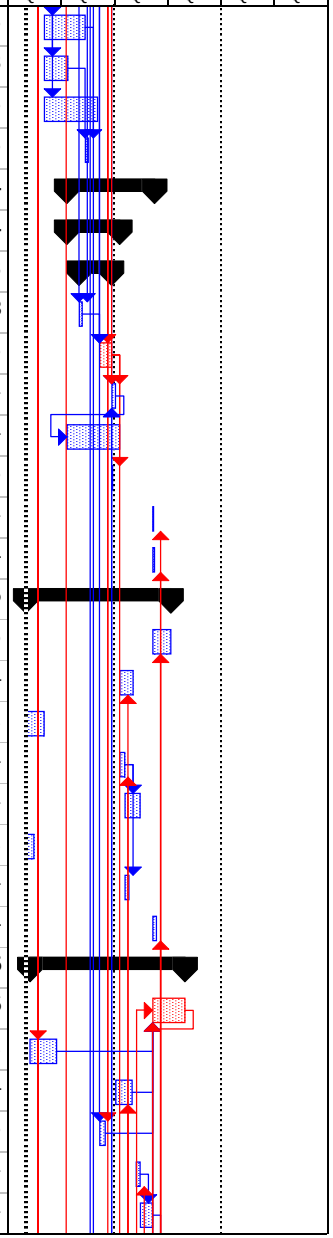
ID	Task Name	Duration	Predecess	Start	Finish
1	Sign FSCA	4 days		May 02 '02	May 07 '02
2	Initiate Study	20 days	1	May 08 '02	Jun 04 '02
3	**J Feasibility Report**	**995 days**		**May 08 '02**	**Feb 28 '06**
4	**JA Engineering**	**500 days**		**May 08 '02**	**Apr 06 '04**
5	JAA Surveys & Mapping	22 wks	8	Aug 14 '02	Jan 14 '03
6	**JAB Hydrology & Hydraulic Studies**	**480 days**		**Jun 05 '02**	**Apr 06 '04**
7	JABAA –Site Visits to Lake Allatoona	5 wks	2	Jun 05 '02	Jul 09 '02
8	JABAB –Site Visits to Watershed	10 wks	2	Jun 05 '02	Aug 13 '02
9	JABB – Without Project Coditions	20 wks	8,7	Aug 14 '02	Dec 31 '02
10	JABC – Inventory, Assessment and Ranking of Lake Allatoona Shoreline Erosion Sites	3 wks	-30 days	Nov 20 '02	Dec 10 '02
11	JABD – Evaluation of Selected Lake Allatoona Shoreline Erosion Sites	24 wks	10	Dec 11 '02	May 27 '03
12	JABE – Inventory, Assessment and Ranking of Sediment Retention/Ecosystem Restoration Sites	24 wks	-30 days	Nov 20 '02	May 06 '03
13	JABF –Evaluation of Alternatives for Sediment Retention/Ecosystem Restoration Sites	44 wks	-30 days	Nov 20 '02	Sep 23 '03
14	JABI – Quantities	16 wks	13,11	Sep 24 '03	Jan 13 '04
15	JABJ – H & H Reports	20 wks	-60 days	Oct 22 '03	Mar 09 '04
16	JABK – H & H Independent Technical Review	3 wks	15	Mar 10 '04	Mar 30 '04
17	JABL – Presentation of Study Results	1 wk	16	Mar 31 '04	Apr 06 '04
18	**JAC Geotechnical Studies**	**170 days**		**May 08 '02**	**Dec 31 '02**
19	JACA – Geotechnical Investigations for Shoreline Erosion Sites on Allatoona	24 wks		May 08 '02	Oct 22 '02
20	JACB – Geotechnical Investigation and Study of Sediment Retention/Ecosystem Restoration Sites	32 wks		May 08 '02	Dec 17 '02
21	JACC – Geotechnical Independent Technical Review	2 wks	19,20	Dec 18 '02	Dec 31 '02
22	**JAE – Engineering and Design Analysis/Report for Sediment Retention**	**185 days**		**May 08 '02**	**Jan 21 '03**
23	JAEA – Structural Engineering Design	36 wks		May 08 '02	Jan 14 '03
24	JAEB – Structural Design Independent Technical Review	1 wk	23	Jan 15 '03	Jan 21 '03
25	**JAG – GIS Mapping**	**330 days**		**Jun 05 '02**	**Sep 09 '03**
26	JAGA – Compile Existing Information	8 wks	2	Jun 05 '02	Jul 30 '02
27	JAGB – Evaluate and Assess Information	6 wks	26	Jul 31 '02	Sep 10 '02
28	JAGC – Develop GIS Data Management Integration Plan	8 wks	2	Jun 05 '02	Jul 30 '02
29	JAGD – Develop GIS Mapping Symbology Standards	4 wks	2	Jun 05 '02	Jul 02 '02
30	**JAGE – Collection of Additional Project Specific Data**	**200 days**		**Sep 11 '02**	**Jun 17 '03**



Project: Lake Allatoona Watershed Stu
Date: Apr 30 '02

Task
Critical Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary

ID	Task Name	Duration	Predecess	Start	Finish
31	JAGEA –Collect Additional Site Specific Data for Watershed	40 wks	27	Sep 11 '02	Jun 17 '03
32	JAGEB – Collect Additional Site Specific Data for Shoreline Erosion Sites	23 wks	27	Sep 11 '02	Feb 18 '03
33	JAGF – Establish and Maintain a Relational Database	52 wks	27	Sep 11 '02	Sep 09 '03
34	JAGH – GIS Independent Technical Review	3 wks	31,32	Jun 18 '03	Jul 08 '03
35	**JB Socioeconomics**	**430 days**		**Feb 12 '03**	**Oct 05 '04**
36	**JBA Economic Analysis**	**260 days**		**Feb 12 '03**	**Feb 10 '04**
37	**JBAA Existing/Without Project Conditions**	**160 days**		**May 07 '03**	**Dec 16 '03**
38	JBAAA Existing Conditions	3 wks	10,12	May 07 '03	May 27 '03
39	JBAAB Without Project Conditions	12 wks	38,11,13	Sep 24 '03	Dec 16 '03
40	JBAB With Project Conditions	4 wks	11,13,39	Dec 17 '03	Jan 13 '04
41	JBAC Economic Reports	52 wks	240 days	Feb 12 '03	Feb 10 '04
42	JBB Social Studies Report	1 wk	39	Dec 17 '03	Dec 23 '03
43	JBD Ability to Pay Report	1 wk	95	Sep 22 '04	Sep 28 '04
44	JBE Financial Analysis Report	2 wks	95	Sep 22 '04	Oct 05 '04
45	**JC Real Estate Analyses/Documents**	**710 days**		**May 08 '02**	**Jan 25 '05**
46	JCA Real Estate Supplement Plan	18 wks	95	Sep 22 '04	Jan 25 '05
47	JCB Gross Appraisal/Report	13 wks	93	Feb 11 '04	May 11 '04
48	JCC Preliminary Real Estate Acquisition Maps	18 wks		May 08 '02	Sep 10 '02
49	JCD Physical Takings Analysis	5 wks	93	Feb 11 '04	Mar 16 '04
50	JCE Preliminary Attorney's Opinion of Compensability	15 wks	49	Mar 17 '04	Jun 29 '04
51	JCF Rights-of-Entry	8 wks		May 08 '02	Jul 02 '02
52	JCG Relocation of Facilities and Utilities	4 wks	49	Mar 17 '04	Apr 13 '04
53	JCH Real Estate Acquisition Capability Assessment	4 wks	95	Sep 22 '04	Oct 19 '04
54	**JD Environmental Studies & Reports**	**760 days**		**Jun 05 '02**	**May 03 '05**
55	JDB EA and FONSI	32 wks	0 wks,58	Sep 22 '04	May 03 '05
56	JDC Environmental Resource Inventory	26 wks	2	Jun 05 '02	Dec 03 '02
57	JDF Mitigation Analysis Report	16 wks	-21 days	Jan 13 '04	May 03 '04
58	JDG Compliance with Endangered Species Act	30 days	11,13	Sep 24 '03	Nov 04 '03
59	JDH Section 404(b)(1) Analysis Report	4 wks	94	Jun 02 '04	Jun 29 '04
60	JDI 401 State Water Quality Certification	12 wks	59	Jun 30 '04	Sep 21 '04



Project: Lake Allatoona Watershed Stu
Date: Apr 30 '02

Task
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Progress
Milestone
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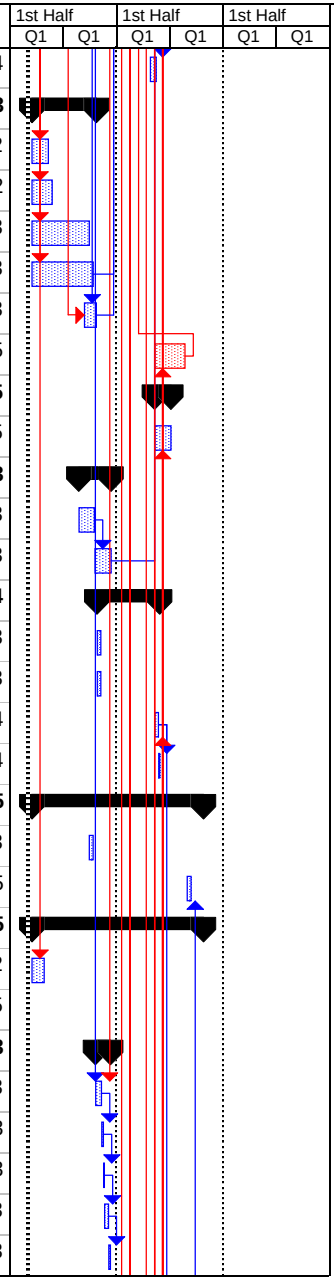
Split
External Tasks
Project Summary

ID	Task Name	Duration	Predecess	Start	Finish
61	JDL Statement of Findings	6 wks	-21 days	Aug 24 '04	Oct 04 '04
62	**JDH Other Environmental Studies**	**315 days**		**Jun 05 '02**	**Aug 19 '03**
63	JDHA Evaluate/Analyze Existing Environmental Data	16 wks	2	Jun 05 '02	Sep 24 '02
64	JDNB Evaluate Current BMP's used within Watershed	20 wks	2	Jun 05 '02	Oct 22 '02
65	JDNC Collect Flow Data for CE Qual-W2 Evaluation	56 wks	2	Jun 05 '02	Jul 01 '03
66	JDND Update and apply CE Qual-W2 Model	60 wks	2	Jun 05 '02	Jul 29 '03
67	JDNE Ecosystem Restoration Outputs/Benefits	12 wks	-90 days	May 28 '03	Aug 19 '03
68	**JE Fish & Wildlife Coordination Act Report**	30 wks	95	Sep 22 '04	Apr 19 '05
69	**JF HTRW Studies/Report**	**80 days**		**Sep 22 '04**	**Jan 11 '05**
70	JFB HTRW Site Inspection Report	16 wks	95	Sep 22 '04	Jan 11 '05
71	**JG Cultural Resources Report**	**160 days**		**Apr 21 '03**	**Nov 28 '03**
72	JGA Site Survey Field Report	16 wks		Apr 21 '03	Aug 08 '03
73	JGB Data Collection and Analysis Report	16 wks	72	Aug 11 '03	Nov 28 '03
74	**JH Cost Estimates**	**307 days**		**Aug 25 '03**	**Oct 26 '04**
75	JHC Project Cost Estimates	4 wks		Aug 25 '03	Sep 19 '03
76	JHD Operation and Maintenance (OMRR&R) Cost Estimate	4 wks		Aug 25 '03	Sep 19 '03
77	JHE Baseline Fully Funded Cost Estimate	4 wks	95	Sep 22 '04	Oct 19 '04
78	JHG Cost Engineering Independent Technical Review	1 wk	77	Oct 20 '04	Oct 26 '04
79	**JI Public Involvement Documents**	**840 days**		**Jun 05 '02**	**Aug 23 '05**
80	JIA Notices Public Meetings	4 wks		Jul 01 '03	Jul 28 '03
81	JIB Minutes of Public Meetings	4 wks	104	May 04 '05	May 31 '05
82	**JIE Other Public Involvement Documents**	**840 days**		**Jun 05 '02**	**Aug 23 '05**
83	JIEA Public Involvement Plan	12 wks	2	Jun 05 '02	Aug 27 '02
84	JIEB Public Involvement Report and Agency Coordination Appendix	12 wks	81,104	Jun 01 '05	Aug 23 '05
85	**JR Feasibility Scoping Meeting (FSM)**	**75 days**		**Aug 13 '03**	**Nov 25 '03**
86	JRA Draft FSM Documents	6 wks	S-6 wks	Aug 13 '03	Sep 23 '03
87	JRB FSM Technical Review Documents	2 wks	86	Sep 24 '03	Oct 07 '03
88	JRC FSM Documents	1 wk	87	Oct 08 '03	Oct 14 '03
89	JRD HQUSACE/ Division Review and (FSM)	4 wks	88	Oct 15 '03	Nov 11 '03
90	JRE FSM Guidance Memo	2 wks	89	Nov 12 '03	Nov 25 '03



Project: Lake Allatoona Watershed Stu
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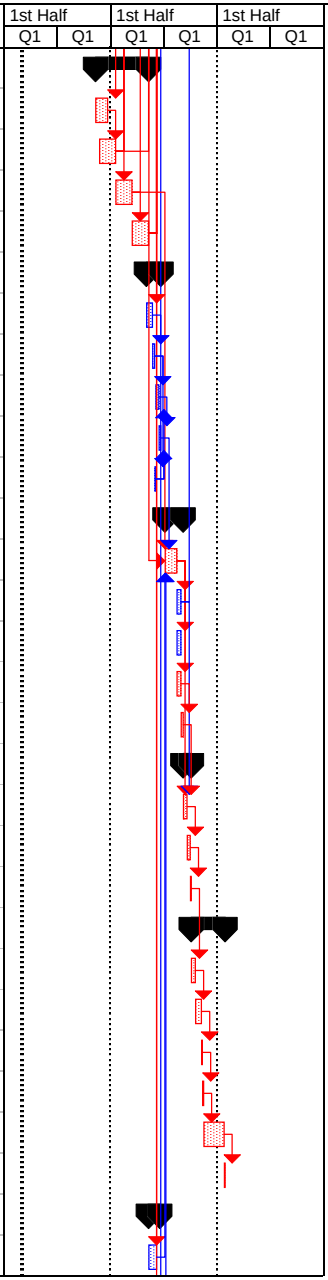
91	**JJ Plan Formulation and Evaluation**	**260 days**		**Sep 24 '03**	**Sep 21 '04**
92	JJB Establish Without Project Conditions	12 wks	-60 days	Sep 24 '03	Dec 16 '03
93	JJC Alternative Plan Formulation and Evaluation	16 wks	FS-8 wks	Oct 22 '03	Feb 10 '04
94	JJD Detailed Evaluation of Alternatives	16 wks	93	Feb 11 '04	Jun 01 '04
95	JJE Plan Formulation and Evaluation Report	16 wks	94	Jun 02 '04	Sep 21 '04
96	**JQ-Alternative Formulation Briefing**	**70 days**		**Sep 08 '04**	**Dec 14 '04**
97	JQA-AFB Project Documentation	6 wks	FS-2 wks	Sep 08 '04	Oct 19 '04
98	JQB-AFB Technical Review Documents	2 wks	97	Oct 20 '04	Nov 02 '04
99	JQC-AFB Policy Compliance Review Documents	3 wks	98,101	Nov 10 '04	Nov 30 '04
100	JQD-AFB Guidance Memorandum	2 wks	99,101	Dec 01 '04	Dec 14 '04
101	JQE-AFB	1 wk	98	Nov 03 '04	Nov 09 '04
102	**JK Draft Report Documentation**	**90 days**		**Jan 12 '05**	**May 17 '05**
103	JKA Draft Feasibility Report and NEPA	12 wks	,123,120	Jan 12 '05	Apr 05 '05
104	JKB Public Review Comments	4 wks	103	Apr 06 '05	May 03 '05
105	JKE Technical Review Documents	4 wks	103	Apr 06 '05	May 03 '05
106	JKF Headquarters Policy Compliance Review	4 wks	103	Apr 06 '05	May 03 '05
107	JKC Project Guidance Memo	2 wks	106	May 04 '05	May 17 '05
108	**JL FinalReport Documentation**	**40 days**		**May 18 '05**	**Jul 12 '05**
109	JLC Final Feasibility Report and NEPA	4 wks	,104,107	May 18 '05	Jun 14 '05
110	JLD Technical Review Documents	3 wks	109	Jun 15 '05	Jul 05 '05
111	JLA Division Commander's Notice	1 wk	110	Jul 06 '05	Jul 12 '05
112	**JM Washington Level Review Documents**	**165 days**		**Jul 13 '05**	**Feb 28 '06**
113	JME State and Agency Review and NEPA Doc Filing Ltrs	4 wks	111	Jul 13 '05	Aug 09 '05
114	JMA Policy Compliance Review	6 wks	113	Aug 10 '05	Sep 20 '05
115	JMB Chief of Engineers Report	1 wk	114	Sep 21 '05	Sep 27 '05
116	JMF ASA (CW) Memo to OMB	1 wk	115	Sep 28 '05	Oct 04 '05
117	JMC OMB Letter to ASA(CW)	20 wks	116	Oct 05 '05	Feb 21 '06
118	JMD ASA (CW) Transmittal to Congress	1 wk	117	Feb 22 '06	Feb 28 '06
119	**JP Management Documents**	**55 days**		**Sep 22 '04**	**Dec 07 '04**
120	JPFA Project Management Plan	8 wks	95	Sep 22 '04	Nov 16 '04



Project: Lake Allatoona Watershed Stu
Date: Apr 30 '02

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Progress
Milestone
Summary
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Rolled Up Progress
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Project Summary

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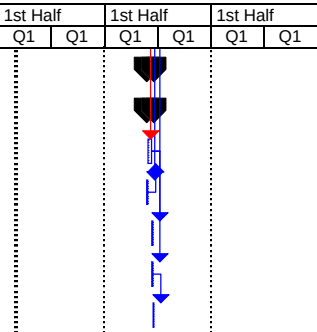
121	**K Project Cooperation Agreement**	**35 days**		**Oct 20 '04**	**Dec 07 '04**
122	**KA Initial Draft PCA Package**	**35 days**		**Oct 20 '04**	**Dec 07 '04**
123	KAA Initial Draft PCA	4 wks	95,124	Oct 27 '04	Nov 23 '04
124	KAB Federal/Non-Federal Funds Allocation Table	1 wk	77	Oct 20 '04	Oct 26 '04
125	KAC PCA Deviation Report	1 wk	123	Nov 24 '04	Nov 30 '04
126	KAD PCA Certification of Legal Review	1 wk	123	Nov 24 '04	Nov 30 '04
127	KAE PCA Checklist	1 wk	126	Dec 01 '04	Dec 07 '04



Project: Lake Allatoona Watershed Stu
Date: Apr 30 '02

Task
Critical Task
Progress
Milestone
Summary
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Split
External Tasks
Project Summary