



Eufaula Lake

Shoreline Management Plan Revision and Master Plan Supplement Final Environmental Impact Statement

March 2013



**US Army Corps
of Engineers**®
Tulsa District

Final Environmental Impact Statement

Lead Agency: United States Army Corps of Engineers (USACE), Tulsa District

Title: Eufaula Lake Shoreline Management Plan Revision and Master Plan Supplement

Designation: Final Environmental Impact Statement

Proposed Action: Revise Eufaula Lake Shoreline Management Plan, supplement Eufaula Lake Master Plan, and take action on specific zoning requests including a request for a lease for construction and operation of a marina and other public recreational facilities.

Affected Jurisdiction: Eufaula Lake, Oklahoma and the counties that surround the lake: Pittsburg, McIntosh, Haskell, Latimer, Muskogee, and Okmulgee

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Abstract: This Final Environmental Impact Statement for the Eufaula Lake Shoreline Management Plan Revision and Master Plan Supplement describes the land and resource categories potentially affected by federal management actions at the Lake. The purpose of the proposed update to the Shoreline Management Plan (SMP) and the Master Plan (MP) supplement is to provide for lake management that is predictable and equitable, responsive to recreation demand and the public interest, and that provides for stewardship of natural and cultural resources.

Based on the analysis of alternatives presented in the Draft EIS and public and agency input, USACE developed a Preferred Alternative. Under the Preferred Alternative the relative proportions of the various shoreline allocations would be very similar to the No Action Alternative. The Preferred Alternative would approve most individual zoning requests as well as a request for a rezone and lease at the Carlton Landing development; designate specific areas to offset potential impacts on the American Burying Beetle, an endangered species; and implement a 45-foot vegetation buffer on vegetation modification permits. Alternatives considered included a range from less shoreline available for dock construction to more than currently exists and a consideration of the suitability of certain areas for dock construction and operation. Overall impact findings did not change between the Draft and Final EIS as the Preferred Alternative falls within the range of alternatives considered in the Draft EIS.

The official comment period for the Draft EIS was held from December 7, 2012 until January 22, 2013. The Notice of Availability of the Final EIS will be published in the *Federal Register* on or about April 5, 2013. After release of this Final EIS, USACE will finalize its revised Shoreline Management Plan and Master Plan. The decision on these plans will be documented in a Record of Decision (ROD) that will be issued no earlier than May 6, 2013.

Responsible Official for Final EIS: Colonel Michael Teague
Corps of Engineers
District Commander

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Acronyms

$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
$\mu\text{S}/\text{cm}$	microsiemens per centimeter
AA	Antiquities Act
ACHP	Advisory Council on Historic Preservation
ADA	Americans with Disabilities Act
AF	acre-feet
AFY	acre-feet per year
AMD	acid mine drainage
APE	area of potential effect
ARPA	Archaeological Resources Protection Act
ATV	all-terrain vehicle
BAOT	Boats at one Time
BD	Boating Density
BLM	Bureau of Land Management
BMP	Best Management Practice
BO	Biological Opinion
BP	Before Present
C1	Commercial district
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
Code	Oklahoma Environmental Quality Code
CRP	Conservation Reserve Program
CSC	Connors State College
CWA	Clean Water Act
dB	decibels
dBA	A-weighted sound level
DEQ	Department of Environmental Quality
DO	dissolved oxygen
DOKARRS	Distribution of Oklahoma Amphibian and Reptiles by Recorded Sightings
DOT	Department of Transportation
EA	Environmental Assessment
EIA	Energy Information Administration
EIS	Environmental impact statement
EM	Engineer Manual
EMAP	Environmental Monitoring and Assessment Program
EO	Executive Order

EOSC	Eastern Oklahoma State College
EP	Engineer Pamphlet
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ER	Engineer Regulation
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FLPMA	Federal Land Policy and Management Act
Form AD 1006	Farmland Conversion Impact Rating Form
FPPA	Farmland Protection Policy Act
FS&W	Fort Smith and Western Railroad
FSA	Farm Service Agency
FWCA	Fish and Wildlife Coordination Act
FWP	Fish and Wildlife Propagation
FY	Fiscal Year
GAP	Gap Analysis Project
GHG	greenhouse gas
GIS	Geographic Information Systems
gpm	gallons per minute
GRP	Grassland Reserve Program
IUCN	International Union for the Conservation of Nature
IWR	Institute for Water Resources
KATS	KI BOIS Area Transit System
Katy RR	Missouri, Kansas and Texas Railroad
L_{eq}	equivalent noise level
L_{dn}	day-night noise level
L_n	noise exceedance level, where n represents a value from 0 to 100 percent
L1UBH	Lacustrine Limnetic Unconsolidated Bottom
L2USC	Lacustrine Littoral Unconsolidated Shore
LEPC	Local Emergency Planning Committee
LMBV	Largemouth Bass Virus
LSZ	Landscape Similarity Zones
MBTA	Migratory Bird Treaty Act
MCS	(Visual) Management Classification System
MCT	Muskogee County Transit Authority
MGD	million gallons per day
MK&T	Missouri, Kansas and Texas Railroad
MP	Master Plan
MSL	mean sea level
MT	metric tons
MW	megawatts
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards

NAC	noise abatement criteria
NAGPRA	Native American Graves Protection and Reparation Act
NAHB	National Association of Home Builders
NAWMP	North American Waterfowl Management Plan
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NLA	National Lake Assessment
NMFS	National Marine Fisheries Service
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NRMS	Natural Resources Management System
NRRS	National Recreation Reservation Service
NTUs	nephelometric turbidity units
NWI	National Wetlands Inventory
O ₃	ozone
OAC	Oklahoma Administrative Code
OAS	Oklahoma Archeological Survey
OBS	Oklahoma Biological Survey
OCC	Oklahoma Conservation Commission
ODEQ	Oklahoma Department of Environmental Quality
ODOT	Oklahoma Department of Transportation
ODPS	Oklahoma Department of Public Safety
ODWC	Oklahoma Department of Wildlife Conservation
OGE	Oklahoma Gas and Electric Company
OHMERC	Oklahoma Hazardous Materials Emergency Response Commission
OHP	Oklahoma Highway Patrol
OHS	Oklahoma Historical Society
OKSHPO	Oklahoma State Historic Preservation Office
OMB	Office of Management and Budget
OMBIL	Operations and Maintenance Business Information Link
OMP	operational management plan
ONG	Oklahoma Natural Gas
ONHI	Oklahoma Natural Heritage Inventory
OSHA	Occupational Safety and Health Administration
OTRD	Oklahoma Tourism and Recreation Department
OWRB	Oklahoma Water Resource Board
Pb	lead
PBCR	Primary Body Contact Recreation
PCBs	polychlorinated biphenyls
PEM1	Palustrine Emergent Persistent

PFO1	Palustrine Forested Broad-leaved Deciduous
PFO5	Palustrine Forested Dead
pH	a measure of the molar concentration of hydrogen ions in the solution and as such is a measure of the acidity or basicity of the solution
PM _{2.5}	fine particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
PM ₁₀	inhalable particulate matter with an aerodynamic diameter less than or equal to 10 microns
ppb	parts per billion
ppm	parts per million
PPWS	Public and Private Water Supply
PSA	project site area
PSD	prevention of significant deterioration
PSO	Public Service Company of Oklahoma
PSS1	Palustrine Scrub-Shrub Broad-leaved Deciduous
PWCs	personal water crafts (<i>e.g.</i> , water scooters, Jet-Skis)
R1	Residential 1 (single-family residential district)
R2	Residential 2 (two-family residential district)
R3	Residential 3 (multiple-family residential district)
RCRA	Resource Conservation and Recovery Act
REAS	Recreation Economic Assessment System
REMIS	Real Estate Management Information System
ROD	Record of Decision
RV	Recreational Vehicle
SARA	Superfund Amendments and Reauthorization Act
SHA	shoreline habitat assessment
SHPO	State Historic Preservation Officer
SIP	state implementation plan
SMP	shoreline management plan
SO ₂	sulfur dioxide
SPCC	Spill Prevention, Control, and Countermeasure
STEPL	Spreadsheet Tool for Estimating Pollutant Loads
SWT	Southwest Division, Tulsa District
TBC	total boat capacity
THPO	Tribal Historic Preservation Office
TMDL	Total Maximum Daily Load
tpy	tons per year
TSCA	Toxic Substances Control Act
UFAS	Uniform Federal Accessibility Standards
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USDA	United States Department of Agriculture
USDOC	U.S. Department of Commerce
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

VA	Veterans Affairs
VOC	volatile organic compound
VRAP	Visual Resources Assessment Procedure
WALROS	Water and Land Recreation Opportunity Spectrum
WDU	wetland development units
WMA	wildlife management area
WPA	Works Progress Administration
WQMP	Water Quality Management Plan
WQS	Water Quality Standards
WWAC	Warm Water Aquatic Community

Executive Summary

ES 1.0 Introduction

The Tulsa District of the United States Army Corps of Engineers (USACE) has prepared this Final Environmental Impact Statement (EIS) in compliance with the National Environmental Policy Act (NEPA) of 1969 (as amended), the Council on Environmental Quality (CEQ) guidelines (40 CFR Parts 1500-1508), the Engineer Regulation (ER) 200-2-2 Procedures for Implementing NEPA, and other relevant federal and state laws and regulations.

ES 2.0 Location and Background

Construction of Eufaula Lake was authorized by the 1946 Rivers and Harbors Act. It is a multi-purpose reservoir impounded by Eufaula Dam on the Canadian River at river mile 27.0, about 12 miles east of Eufaula in McIntosh County, Oklahoma. Construction of the dam began in December 1956 and it was placed in operation in 1964. Eufaula Lake is a unit of the Arkansas River basin on several major tributaries, which come together prior to entering the Arkansas River. These major tributaries include the North Canadian River, Canadian River, Deep Fork River, and Gaines Creek, all of which come together in east-central Oklahoma immediately south of the Arkansas River. The counties that surround Eufaula Lake in east-central Oklahoma include Haskell, Latimer, McIntosh, Muskogee, Okmulgee, and Pittsburg Counties (**Figure ES-1**).

The government lands surrounding the lake include lands purchased in fee and lands over which the USACE real estate interest is limited to easement title only. The distance from the lakeshore upland to the edge of the fee lands is highly variable around the lake. In some places, there is only a narrow band of fee land along the lakeshore, while in other places the fee land may extend a half mile or more from the lakeshore. In a few locations at Eufaula Lake, private lands extend below the normal pool elevation.

The Tulsa District of USACE manages the water and land areas of Eufaula Lake for the purposes of flood control, hydroelectric power, navigation, water supply, fish and wildlife management, and recreation. Management of the government lands that surround the lake is described in a Master Plan (MP) while private shoreline uses are regulated through a Shoreline Management Plan (SMP). The MP describes the underlying “zoning” or land classification for the uplands between the normal conservation pool elevation and the boundary of the USACE-owned lands. The SMP regulates activities that may occur along the shoreline such as dock construction, improved access paths to docks, and vegetation management on the government lands.

The Eufaula Lake MP was completed in 1977 and includes lakeshore classifications that are similar to the shoreline allocation categories established in the SMP. There have been several supplements to the MP since 1977 but a complete revision of the MP has not been performed. A complete revision of the MP is scheduled for summer 2013 after completion of the NEPA review and consideration of public and agency input. The maps in the MP were last revised in 1980, and they are no longer consistent with the SMP. The various land and shoreline designations used in the MP and the SMP, respectively, are described in Section 1.2.1 (SMP shoreline allocations) and Section 1.2.2 (MP land classifications) in this EIS.

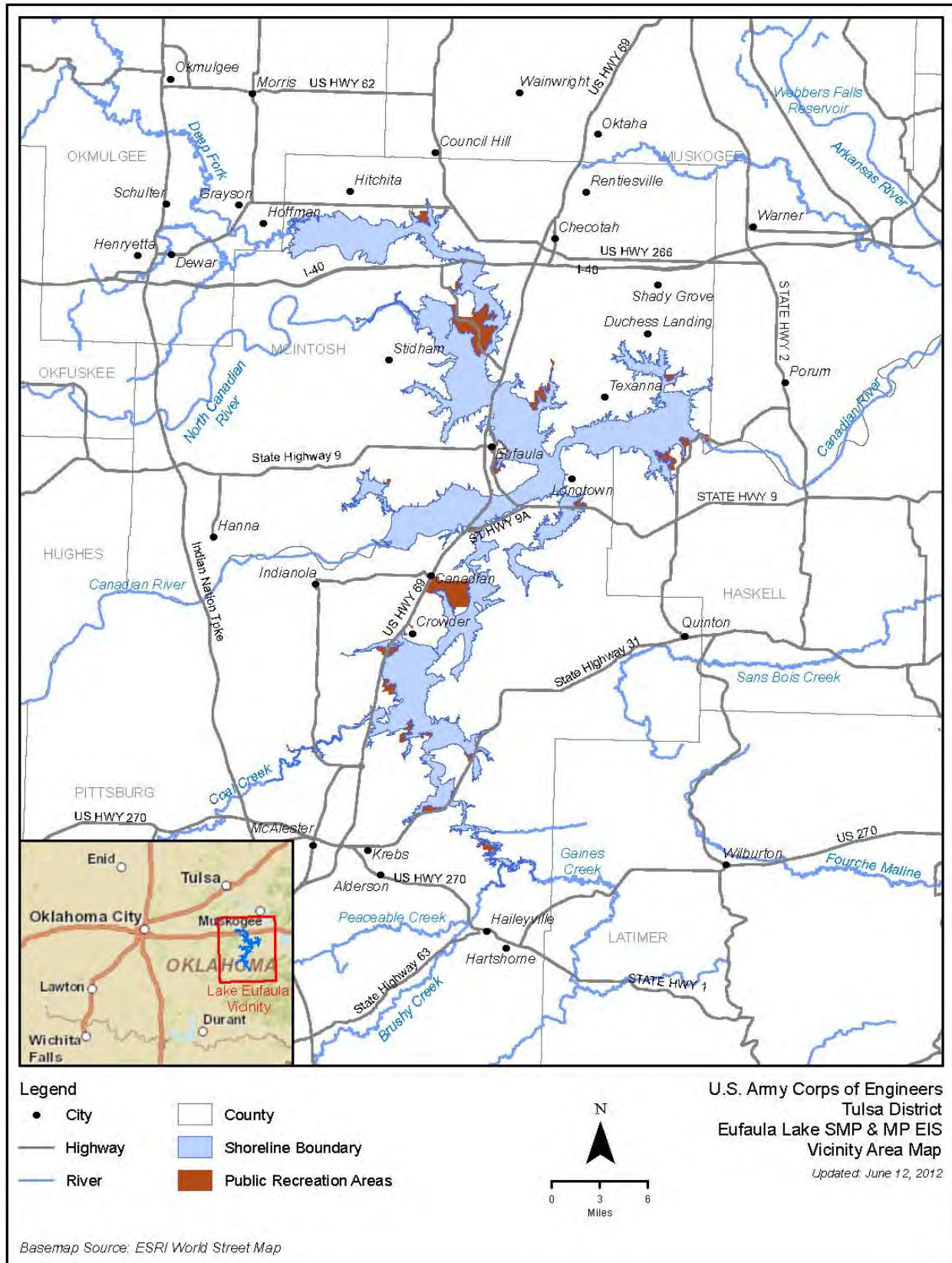


Figure ES-1. Eufaula Lake Vicinity

The first lakeshore management plan (a shoreline management plan) was completed in 1976. The plan was created with input from the public, and the environmental effects of the plan were evaluated in the 1977 Eufaula Lake, Canadian River Operations and Management EIS. In 1976 when this lakeshore management plan was completed, there were approximately 365 boat docks along 26 miles of shoreline zoned as Limited Development and located in selected coves next to existing developments.

The Eufaula Lake SMP was updated in 1981 and adjustments were made to accommodate then current development patterns, with a slight increase in the amount of shoreline allocated for private shoreline uses including private floating facilities. The SMP was updated again in 1986 and 1998; the total amount of shoreline allocated to Limited Development and the number of permitted docks has increased with each revision. There are currently approximately 273 miles of shoreline allocated as Limited Development and 1,673 permitted docks and 992 vegetation modification permits on the lake.

Under the SMP, all project shoreline is allocated to one of four categories that regulate the type of facilities and activities that may be permitted on the lake and the adjacent shoreline – Limited Development, Public Recreation, Protected, and Prohibited Access. The SMP allocations are described in Section 1.2.1. These allocations are intended to complement the land classifications in the project MP. The MP allocates government lands (*i.e.* government fee lands above the normal lake level) into one of several land classifications including Low Density Recreation, Multiple Resource Management, High Density Recreation, and Project Operations. The MP classifications are described in Section 1.2.2.

Under the SMP, the shoreline allocations extend from the water's edge landward to the boundary of federal ownership for purposes of vegetation modification. The shoreline allocation guides what private uses and activities such as dock construction, mowing, or other vegetation modification are allowed on the government lands. Shoreline use permits issued by the Eufaula Lake project office are required for such activities.

For analysis in this EIS, the Eufaula Lake study area includes the Lake, the associated government lands surrounding the lakeshore, and adjacent areas that may be affected by federal management actions at the Lake.

ES 3.0 Purpose and Need

The purpose of this federal action is to revise the Eufaula Lake SMP, supplement the MP, and to evaluate site specific shoreline allocation requests and a proposal for a lease of government property at Eufaula Lake, Oklahoma, in accordance with applicable regulations. These revisions and reviews are intended to provide for lake management that is predictable and equitable, responsive to recreational demand and the public interest, and that provides for stewardship of natural and cultural resources. The revision of the SMP will provide the mechanism to respond to several individual zoning requests for specific shoreline allocations that were received during scoping and during the comment period on the Draft EIS.

The overall objectives of the federal action are as follows:

- Assure compliance with applicable regulations, policy, and laws
- Improve and diversify recreational opportunities for the public at Eufaula Lake
- Maintain the aesthetic and environmental characteristics of Eufaula Lake

- Achieve a balance between private uses and the protection of natural and cultural resources
- Allow commercial concessions and businesses that offer water-related services to the public
- Provide for the protection of public lands and private investments and to honor past commitments
- Provide adequate area for future recreational development

The Eufaula Lake SMP was last revised in 1998 and the MP land utilization maps were last revised in 1980 in Supplement No. 2 to the Lake Eufaula MP dated February 6, 1981. The area of shoreline designated as Limited Development has been increased under each revision of the SMP, but potential effects associated with changes to the shoreline allocations were not thoroughly studied during the more recent revisions. Through a public scoping process and during the public comment period on the Draft EIS, USACE also received several requests for changes to the current SMP allocations and one development proposal that would require both a rezone and the grant of a lease for use of federal land if approved.

The federal actions analyzed in this EIS include:

- Revisions to the Eufaula Lake SMP including potential changes in shoreline allocations and vegetation management policies;
- Supplement the Eufaula Lake MP land use classification maps to be consistent with the shoreline allocations in the SMP; and,
- Consideration of a request to lease government property for a marina and other public shoreline recreational facilities at the Carlton Landing development and 13 other specific zoning requests received during scoping and during the public comment period on the Draft EIS.

ES 4.0 Public Involvement and Coordination

The Tulsa District conducted scoping for this federal action in compliance with NEPA and CEQ guidelines. A Notice of Intent (NOI) was published in the *Federal Register* (Volume 76, No. 79; April 25, 2011), and a public scoping workshop was held in Eufaula, Oklahoma, on June 2, 2011. The workshop allowed the public to ask questions of USACE staff, make written comments about potential alternatives to the SMP and MP, and submit requests for recreational development on public lands. During scoping for the EIS, the Tulsa District received one development proposal (Carlton Landing) that would require a change in both the SMP allocation and the MP land use classification as well as the grant of a lease to use government property. In addition, another ten requests for specific zoning under the SMP were received during scoping. All comments received during scoping were considered in the development of the alternatives and the analysis of potential effects in the Draft EIS.

In accordance with 40 CFR 1501.6, Section 106 of the National Historic Preservation Act of 1966 (as amended), and Executive Order 13175, the Tulsa District USACE sent coordination and cooperating agency request letters to appropriate agencies and initiated consultation with potentially affected Native American tribes. The U.S. Environmental Protection Agency (EPA) accepted the invitation to become a cooperating agency for this EIS. EPA will review preliminary drafts of the document and provide special expertise on air and water quality effects and on NEPA documentation.

The following major issues were identified during scoping and are evaluated in this EIS:

- Public Lands and Access Considerations
- Socioeconomic Impacts
- Fish and Wildlife Considerations
- Federally Listed Endangered Species
- Water Quality Concerns
- Aesthetics: Visual/Scenic Considerations
- Handicap Accessibility
- Cumulative Effect Analysis

The Scoping Summary Report, which was prepared by the Tulsa District in August 2011 and is attached as Appendix A, includes all of the comments received during the scoping period and contains copies of the agency letters.

A public comment and review period on the Draft EIS was held from December 7, 2012 to January 22, 2013. Notice of availability of the Draft EIS was published in the *Federal Register* on December 7, 2012 and copies of the Draft EIS were mailed to the distribution list. In addition, a postcard notice of availability was mailed to all shoreline permit holders and the Draft EIS was available on the Tulsa District's website. A public workshop was held on December 19, 2012 to allow the public to ask questions of USACE staff and to make written and verbal comments about potential alternatives and potential impacts. The workshop was advertised in the Tulsa World, the Oklahoman, the Muskogee Phoenix, Eufaula Indian Journal, McAlester News Sentinel, McIntosh County Democrat, Stigler News Sentinel, and Country Star papers.

Two hundred and three people signed in at the public meeting. Eleven people spoke to a court reporter and 15 people submitted written comments at the meeting. Another approximately 118 written comment letters and emails were received during the public comment period. Seven comment letters were received from agencies, elected officials, and tribes.

ES 5.0 Alternatives

This EIS analyzes the No Action Alternative, the Preferred Alternative, and four action alternatives that would revise the SMP, supplement the MP land classification maps, and that consider the specific requests for zoning and for a lease of government land (Carlton Landing). SMP alternatives would include changes to the shoreline allocations, vegetation management policies, and to dock access requirements. The alternatives are summarized below in Section ES 5.0 and described in detail in Chapter 2.

The National Environmental Policy Act (NEPA) requires USACE to consider a reasonable range of alternatives in the environmental impact statement (EIS) (40 CFR 1502.14). The EIS must also include an evaluation of the No Action Alternative, which serves as a basis for comparison for the evaluation of the action alternatives.

Based on the analysis of the action alternatives in the Draft EIS and consideration of public and agency input, USACE has developed the Preferred Alternative, which is described in detail in Section 2.4.3. The No Action and action alternatives analyzed in this EIS span a range of possible future scenarios from a strong

emphasis on natural resource conservation to a strong emphasis on private shoreline use and additional recreational development opportunities. This progression in the alternatives allowed for an orderly consideration of potential impacts. The Preferred Alternative provides a balance between conservation of natural resources, private shoreline uses, and recreational development opportunities while honoring past commitments generally represented by existing shoreline permits and license agreements.

The No Action Alternative would maintain the current shoreline allocations found in the 1998 SMP and the existing baseline condition of land management. Alternatives 1 and 2 would generally result in an increase in Protected allocations and a decrease in Limited Development allocations. Alternative 1 would result in the greatest decrease in Limited Development. Alternatives 3 and 4 would result in an increase in Limited Development allocations with a corresponding decrease in Protected allocations. Alternative 4 would result in the greatest increase in Limited Development. The relative amounts of Limited Development and Protected shoreline allocations under the Preferred Alternative are similar to the No Action Alternative, but they have been modified based on consideration of dock suitability. The Preferred Alternative would implement a uniform vegetation buffer to protect water quality and reduce shoreline erosion. The Preferred Alternative and Alternative 4 are the only alternatives that would increase the Public Recreation allocation, as these alternatives would approve the rezone and lease request at Carlton Landing and Zoning Request #3 for the Lake Eufaula Association. **Table ES-1** and the sections that follow provide a summary of the activities for each alternative evaluated in this EIS. The relative amounts of each shoreline classification are shown in **Figure ES-2**.

Limited Development areas are where private shoreline uses, such as boat docks, may be allowed and where shoreline vegetation may be modified with a shoreline use permit. The amount of Limited Development shoreline under each alternative is a good indicator of the relative level of development that may occur under each alternative.

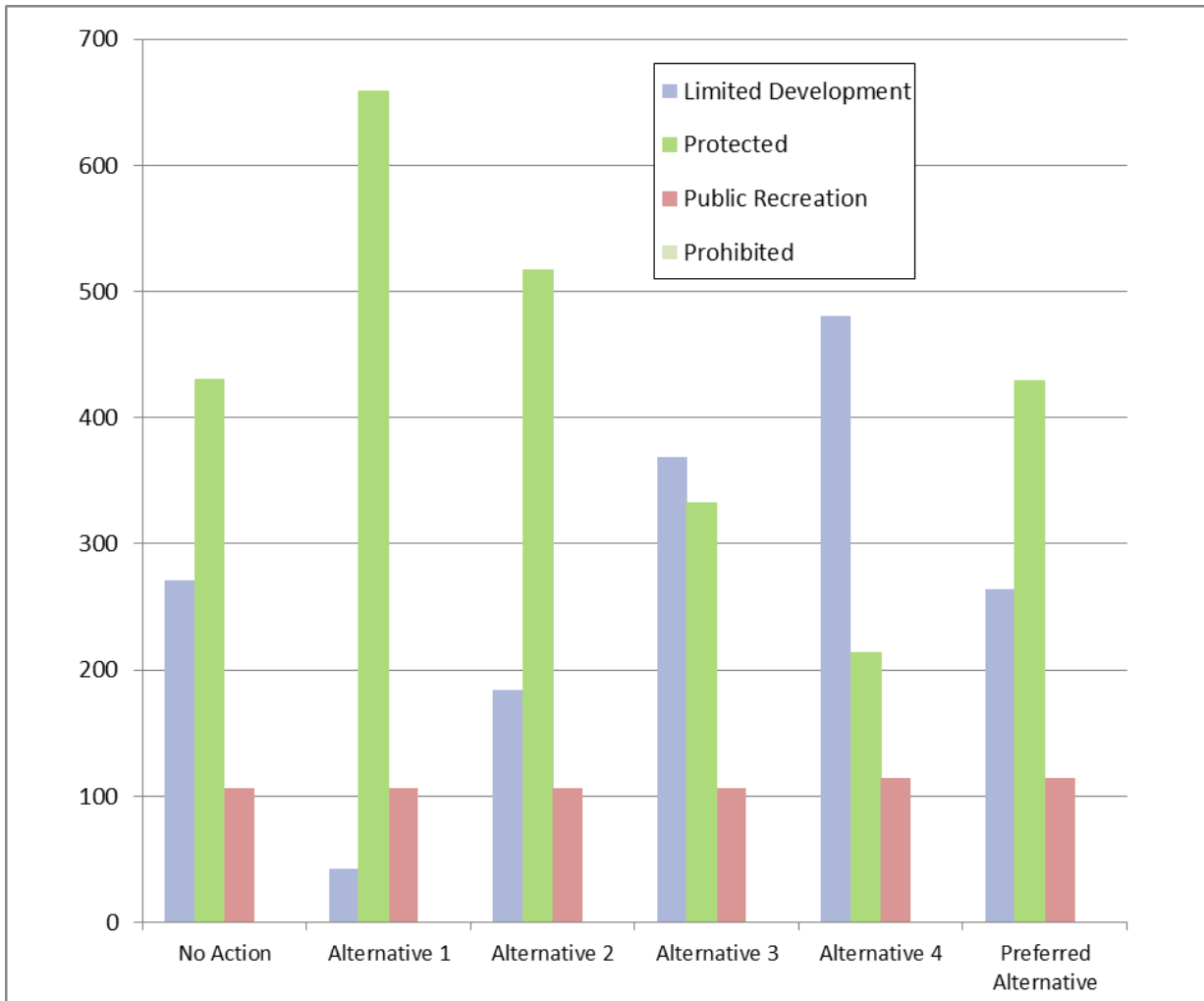


Figure ES-2. SMP Shoreline Allocations (Miles) by Alternative

Table ES-1. Summary of Alternatives Evaluated

Potential Actions	No Action Alternative	Preferred Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4
SMP Revisions(See Section 2.3.1, Table 2-1 for SMP shoreline allocations)	No change to 1998 SMP allocations: 273 miles Limited Development provides potential maximum of 8,810 docks (there are 1,673 existing docks currently); 431 miles Protected, 103 miles Public Recreation, 1 mile Prohibited Access	Reduce Limited Development allocations to 265 miles; provides for a maximum of 6,550 docks; 432 miles of Protected, 111 miles of Public Recreation, 1 mile of Prohibited Access shoreline.	Reduce Limited Development allocation to 1981 SMP level: 42 miles Limited Development provides potential maximum of 2,278 docks; 661 miles Protected, 105 miles Public Recreation, 1 mile Prohibited Access	Reduce Limited Development allocations based on absence of existing adjacent development and dock suitability: 182 miles Limited Development provides potential maximum of 5,873 docks; 521 miles Protected, 105 miles Public Recreation, 1 mile Prohibited Access	Increase Limited Development allocations based on absence of existing lease or license and dock suitability: 367 miles Limited Development provides potential maximum of 11,844 docks; 335 miles Protected, 105 miles Public Recreation, 1 mile Prohibited Access	Increase Limited Development allocations based on absence of existing lease or license and convert shoreline at Carlton Landing to Public Recreation: 480 miles Limited Development provides potential maximum of 15,491 docks; 217 miles Protected, 111 miles Public Recreation, 1 mile Prohibited Access
MP Map Revisions (See Section 2.3.1, Table 2-2 for MP land classifications)	No change to MP land use classifications	Revise MP land use classifications to be consistent with SMP	Revise MP land use classifications to be consistent with SMP	Revise MP land use classifications to be consistent with SMP	Revise MP land use classifications to be consistent with SMP	Revise MP land use classifications to be consistent with SMP
Vegetation Management Policy Revision (See Section 2.3.2, Table 2-3 for definition of the vegetation buffers)	No change to vegetation management policies	Change vegetation management policies to apply a uniform vegetation management buffer width of 45 feet; Implementation would be phased and applied to new applications immediately and to renewals after 2018.	Change vegetation management policies to apply extended vegetation management buffers; widths vary from 55 to 95 feet	Change vegetation management policies to apply extended vegetation management buffers; widths vary from 55 to 95 feet	Change vegetation management policies to apply baseline vegetation management buffers; widths vary from 30 to 70 feet	Change vegetation management policies to apply baseline vegetation management buffers; widths vary from 30 to 70 feet
Grant of Lease and Shoreline Reallocation for Carlton Landing	Lease not granted; SMP allocation remains Protected; MP classification remains High Density Recreation and Low Density Recreation	Lease granted; SMP allocation changed to Public Recreation; MP classification on 43 acres changed to High Density Recreation	Lease not granted; SMP allocation remains Protected; MP classification on 258 acres would change to Future/Inactive Recreation; no change to 43 acres of Low Density Recreation	Lease not granted; SMP allocation remains Protected; MP classification on 258 acres would change to Future/Inactive Recreation; no change to 43 acres of Low Density Recreation	Lease not granted; SMP allocation changed to Limited Development; MP classification on 258 acres would change to Low Density Recreation	Lease granted; SMP allocation changed to Public Recreation; MP classification on 43 acres changed to High Density Recreation
Individual Zoning Requests (The 13 individual requests for specific shoreline zoning received during scoping are described in Section 2.3.4)	No action would be taken on any individual requests for specific SMP allocations	Zoning Request #1 eliminated from further consideration. Zoning Requests #2, 9 and 12 not approved. Zoning Request #3 approved to change Protected shoreline to Public Recreation. Zoning Requests #4, 5, 6, 7, and 10 approved – shoreline remains Limited Development. Requests to change Protected to Limited Development: Zoning Request #8 approved; Zoning Requests #11 and 13 partially approved.	Zoning Request #1 eliminated from further consideration. Zoning Requests #2, 3, 8, 9, 11, 12, and 13 not approved. Zoning Requests #4, 5, 6, and 10 not approved – shoreline allocation changed to Protected, but existing uses grandfathered. Zoning Request #7 approved – maintains Limited Development shoreline.	Zoning Request #1 eliminated from further consideration. Zoning Requests #2, 3, 8, 9, 11, 12, and 13 not approved. Zoning Requests #4, 5, 6, 7, and 10 approved – shoreline remains Limited Development.	Zoning Request #1 eliminated from further consideration. Zoning Requests #2, 3, 9, 11, and 12 not approved. Zoning Requests #4, 5, 6, 7, and 10 approved – maintains Limited Development. Zoning Request #8 approved and #13 partially approved – shoreline changed from Protected to Limited Development.	Zoning Request #1 eliminated from further consideration. Requests to change Protected to Limited Development: Zoning Requests #2, 8, 11, and 13 approved and #12 partially approved. Zoning Request #3 approved to change Limited Development to Public Recreation. Zoning Requests #4, 5, 6, 7, and 10 approved – shoreline remains Limited Development. Zoning Request #9 approved to change Public Recreation to Limited Development.

ES 5.1 No Action Alternative

Under the No Action Alternative, there would be no change to the existing shoreline allocations or land use classifications under the MP, none of the pending zoning requests would be granted, there would be no change to the vegetation management policies, and the MP would continue to be out-of-date with respect to the SMP (see **Figures 2-1** through **2-7** in Chapter 2 of the EIS). The grant of a lease at Carlton Landing would not be approved and the proposed marina and other public recreational facilities along the shoreline would not be permitted.

Under the No Action Alternative, which would maintain the current 273 miles of Limited Development allocated shoreline, there could be a potential maximum of 8,810 docks as compared to the 1,673 private docks that currently exist on the lake. While the actual number that could be constructed would likely be considerably less due to the physical constraints of the shoreline, this maximum build out scenario illustrates that there is considerable potential for growth in the number of docks under the No Action Alternative. It is estimated that this maximum potential number of docks under the No Action Alternative could be reached in just over 70 years.

Under the No Action Alternative, there would be no change to the existing vegetation modification policies, which may allow mowing of an area from adjacent private property to the shoreline with an approved shoreline use permit.

Under the No Action Alternative, there would be no change to the dock access requirements, which currently require private floating facilities to be placed within 500 feet of their direct access.

Under the No Action Alternative, the grant of a lease at Carlton Landing would not be approved and the proposed marina and other public recreational facilities along the shoreline would not be permitted. Development on the adjacent private lands at Carlton Landing would be limited to the first phase, which is planned to consist of approximately 170 residential lots. Some of the residential lots (approximately 4 to 10) would be developed with multifamily units, making the number of residential units greater than the total number of lots. In addition, the shoreline would not be developed or available to the public for recreational activities such as walking, camping, swimming, horseback riding, and bicycling.

ES 5.2 Preferred Alternative

The Preferred Alternative would slightly reduce the amount of shoreline allocated to Limited Development and increase the amount of Public Recreation shoreline (see **Figures 2-19** through **2-25** in Chapter 2 of the Final EIS). Figures showing the corresponding MP land use allocations are shown in Appendix L. While the proportions are not very different from the No Action Alternative, the locations of the various allocations are informed by the analysis that was conducted in the Draft EIS and its associated technical studies and by public and agency input. This alternative would change the MP land use classifications to be consistent with the SMP designations, correct mapping errors discovered during this review, and to designate specific areas to offset potential impacts on the American Burying Beetle, an endangered species.

Individual zoning requests to change Protected shoreline areas to Limited Development allocations may be approved under the Preferred Alternative if the shoreline area is not encumbered with an existing license agreement with another agency or organization and the area is suitable for docks. Zoning requests to maintain existing Limited Development shoreline allocations would be approved.

Under the Preferred Alternative, which would decrease the Limited Development allocated shoreline to 265 miles, there could be a potential maximum of 6,550 docks. Using the projected growth rate in permit applications to project future growth in dock numbers, the maximum potential number of docks allowed under the Preferred Alternative would be reached in slightly less than 65 years. The potential maximum number of docks under the Preferred Alternative is about 26 percent less than the potential full build out of the No Action Alternative.

Under this alternative, a vegetation buffer of 45 feet would be applied to all approved vegetation modification permits. The buffer would extend 45 feet inland from the from the natural vegetation line above the normal conservation pool elevation. The Preferred Alternative would implement this policy change immediately for any new vegetation modification requests. However, there would be a five year transition period, with the buffer applied to renewals after 2018. Within the proposed vegetation buffers, woody vegetation less than 3 inches in diameter would still be allowed to be removed, and trees could be limbed up to one third of the tree height to a maximum of 8 feet.

The Preferred Alternative is the only alternative that would change the dock spacing and access requirements. Under the Preferred Alternative, dock spacing would be increased to 75 feet and dock access would be measured from the center of the common boundary with a private lot to the closest point on the shoreline. A dock may be approved within 125 feet to either side of the center point if minimum spacing requirements are not met, a hazard condition exists at that location, or if the location is not suitable but suitable shoreline exists within 125 feet.

Under the Preferred Alternative, the requested lease at Carlton Landing would be granted and the proposed marina and other public recreational facilities along the shoreline would be permitted. The shoreline amenities to be developed would include a 275 to 300 slip marina, walking and horseback riding trails, a swimming beach, camping and picnicking facilities, and a nature center. The marina would be proposed to begin operations in 2014. The developer has indicated that this would facilitate full build out of the project on adjacent private lands, which would include up to 2,570 homes in the 1,650 acre master plan area. Residential and mixed-use development would be expected to be fully constructed over a 25 to 30 year timeframe depending on market demand.

ES 5.3 Alternative 1

Alternative 1 includes the Limited Development shoreline allocations as they existed under the 1981 SMP (see **Figures 2-26** through **2-32** in Chapter 2 of the EIS); other existing Limited Development shorelines would be changed to Protected. MP land use classification maps would be revised to be consistent with the SMP shoreline allocations. The vegetation management policies would be changed to apply the extended buffer vegetation management zone policies. There would be no change to dock access requirements. The grant of a lease at Carlton Landing would not be approved and the proposed marina and other public recreational facilities along the shoreline would not be permitted. Most of the individual zoning requests would not be approved and some requests to maintain Limited Development would be reversed to Protected allocations.

Alternative 1 would reduce the Limited Development allocated shoreline to 42 miles, and the potential maximum number of docks would be 2,278. The 42 miles of shoreline allocated to Limited Development under Alternative 1 would provide sufficient shoreline length for 1,355 docks. Although there are currently 1,673 existing docks on the lake, over half of the existing docks (908) are located outside of areas that would be designated as Limited Development under Alternative 1. A closer analysis of the individual

segments that would be allocated as Limited Development under Alternative 1 reveals that there would be sufficient space for an additional 605 docks. The existing docks would be grandfathered; therefore, the total potential number of docks that could potentially be built at the lake under Alternative 1 would be 2,278.

Existing permitted facilities in areas that would be converted from Limited Development to Protected would be grandfathered until the facilities fail to meet the criteria set forth in 36 CFR 327.30(h). Those criteria include the conditions that the facilities must be maintained in a safe and useable condition, the facility does not pose a threat to life or property, and the holder of the permit remains in substantial compliance with the permit.

Under this alternative, the extended buffer vegetation management policy would be implemented, which includes the largest buffers proposed to protect shoreline habitats. Under this policy, mowing would not be allowed from the natural vegetation line above the normal conservation pool inland for a distance of 55 to 95 feet. This buffer of natural vegetation along the shoreline would be intended to limit adverse effects on water quality, vegetation, and wildlife habitat.

Under Alternative 1, the grant of a lease at Carlton Landing would not be approved and the potential residential development on adjacent private lands would be the same as described for the No Action Alternative.

ES 5.4 Alternative 2

Alternative 2 would reduce the amount of Limited Development area compared to the No Action Alternative by converting Limited Development areas that are unsuitable for docks and which do not have existing developments adjacent to the government shoreline to Protected (see **Figures 2-33** through **2-39** in Chapter 2 of the EIS). Areas exposed to severe wave action and where water depths do not reach more than 6 feet at normal pool elevation within 200 feet of the shoreline were considered to be unsuitable for docks.

Also under Alternative 2, the MP land use classification maps would be revised to be consistent with the SMP shoreline allocations. The vegetation management policies would be changed to apply the extended buffer vegetation management zone policies as described under Alternative 1. There would be no change to dock access requirements. The grant of a lease at Carlton Landing would not be approved and the proposed marina and other public recreational facilities along the shoreline would not be permitted. Individual zoning requests to maintain existing Limited Development would be approved while other requests would not be approved.

Under Alternative 2, the length of the Limited Development shoreline would be reduced to 182 miles, which could support a potential maximum of 5,844 docks. It is estimated that this maximum potential number of docks could be reached in just over 50 years.

Under Alternative 2, the grant of a lease at Carlton Landing would not be approved and the potential residential development on adjacent private lands would be the same as described for the No Action Alternative.

ES 5.5 Alternative 3

Alternative 3 would increase the amount of Limited Development area by converting Protected areas that are suitable for docks and which do not have an existing license agreement for use of the government shoreline to Limited Development (see **Figures 2-40** through **2-46** in Chapter 2 of the EIS). The MP land use classification maps would be revised to be consistent with the SMP shoreline allocations. The vegetation management policies would be changed to apply the baseline buffer vegetation management zone policies. There would be no change to dock access requirements. The grant of a lease at Carlton Landing would not be approved and the proposed marina and other public recreational facilities along the shoreline would not be permitted; however, the shoreline allocation would be changed to Limited Development. Some of the individual zoning requests would be approved, and other requests would not be approved.

Under Alternative 3, the amount of Limited Development area would increase to 367 miles, which could support a potential maximum of 11,844 docks. It is estimated that this maximum potential number of docks could be reached in just over 85 years.

Under this alternative, the baseline buffer vegetation management policy would be implemented, which includes buffer widths that are 25 feet less than those proposed under Alternative 1 and 2. Under this policy, mowing would not be allowed from the natural vegetation line above the normal conservation pool inland for a distance of 30 to 70 feet. This buffer of natural vegetation along the shoreline would be intended to limit adverse effects on water quality, vegetation, and wildlife habitat.

Under Alternative 3, the grant of a lease at Carlton Landing would not be approved and the potential residential development on adjacent private lands would be the same as described for the No Action Alternative. However, the shoreline allocation would be changed to Limited Development, which might allow some additional private dock construction.

ES 5.6 Alternative 4

Alternative 4 would increase the amount of Limited Development area compared to the No Action Alternative by converting all Protected areas that do not have an existing license agreement for use of the government shoreline to Limited Development (see **Figures 2-46** through **2-52** in Chapter 2 of the EIS). The MP land use classification maps would be revised to be consistent with the SMP shoreline allocations. The vegetation management policies would be changed to apply the baseline buffer vegetation management zone policies as described under Alternative 3. There would be no change to dock access requirements. The grant of a lease at Carlton Landing would be approved and the proposed marina and other public recreational facilities along the shoreline would be permitted. Most of the individual zoning requests would be approved.

Under Alternative 4, the amount of Limited Development area would increase to 480 miles, which could support a potential maximum of 15,491 docks. It is estimated that it would take over 100 years to reach this maximum potential number of docks.

Under Alternative 4, the requested lease at Carlton Landing would be granted and the proposed marina and other public recreational facilities along the shoreline would be permitted as described under the Preferred Alternative.

ES 6.0 Environmental Consequences

This EIS evaluates the potential direct, indirect and cumulative impacts related to the No Action Alternative and each of the action alternatives.

The federal action under consideration is primarily a planning and zoning action. The alternatives vary with respect to shoreline allocations, vegetation management, and consideration of specific zoning requests that, in turn, determine the potential number of private docks that could be built on the lake and the condition of the natural vegetation and habitats along the lakeshore. The alternatives would each have different buffer width ranges so there would be the potential for differential impacts.

Indirect effects also result from implementation, but are later in time or farther removed in distance, while still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. For example, alternatives that allow for private docks would have the indirect effect of attracting residential development to the private lands adjacent to the government lands where private docks could be constructed. Therefore, the amount of Limited Development shoreline could have an indirect effect on resources through this influence on the location of residential development.

Cumulative impacts include the incremental impacts that may occur when the impact of an alternative is added to other past, present, and reasonably foreseeable future actions by others. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

In general, the alternatives describe a continuum with respect to potential direct and indirect habitat impacts in the following order (from least to most significant potential negative impacts):

- Alternative 1
- Alternative 2
- No Action Alternative
- Preferred Alternative
- Alternative 3
- Alternative 4

To determine the significance of impacts, the severity of the potential impact is examined in terms of the type, quality and sensitivity of the resource involved, the duration of the effect (short- or long-term) and other considerations of context.

The potential revisions to the SMP, supplements to the MP land classification maps, and actions on the request for a lease of government land at Carlton Landing and the individual zoning requests were found to have minimal to no effect on several of the resource areas analyzed, and there were minimal differences between the potential effects of each alternative for these resource categories. These resource categories are listed below and are not discussed further in this summary. A more detailed description of effects analysis is found in Appendix H of the EIS for these resource categories.

- Agricultural Lands
- Air Quality

- Climate Change and Greenhouse Gas Emissions
- Water Supply, Flood Storage, and Operation
- Hazardous Materials
- Navigation
- Energy
- Land Use Compatibility
- Public Infrastructure and Utilities
- Social Services and Community Facilities
- Environmental Justice

Although there were no significant effects identified related to socioeconomic and demographics, issues were raised during scoping related to socioeconomic concerns. The issues raised during scoping were primarily related to honoring the expectations of property owners who had purchased land adjacent to the lake with the expectation that they would be able to construct new or maintain existing private docks. Since socioeconomic and demographics were raised as a scoping issue, they are discussed in Chapter 3, Affected Environment, and Chapter 4, Environmental Consequences, of the EIS. Since there are no identified effects, this issue is not included in **Table ES-2**.

Resource categories with potentially significant direct, indirect, and/or cumulative impacts under one or more alternatives are listed below and are summarized in **Table ES-2**. A more detailed description of the evaluation of potential effects on these resources is found in Chapter 4 of the EIS.

- Vegetation, Wetlands, and Aquatic Habitats
- Fish and Wildlife
- Water Quality
- Geology, Soils, and Mineral Resources
- Aesthetics and Visual Resources
- Cultural and Historic Resources
- Recreation
- Noise
- Transportation
- Public Lands and Access

Table ES-2. Summary of Potential Impacts by Resource Category under Each Alternative

Resource Category	No Action	Preferred Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Unavoidable Impacts
Vegetation, Wetlands, and Aquatic Habitats	Loss of terrestrial vegetation types, especially forest cover due to increase in potential development and recreation; potential for disruption of natural hydrology, increase in sediment and nutrient input; introduction and dispersal of invasive species; and/or impact existing populations of rare, unique and imperiled vegetation.	Loss of terrestrial vegetation types, especially forest cover due to increase in potential development and recreation; potential for disruption of natural hydrology, increase in sediment and nutrient input; introduction and dispersal of invasive species; and/or impact existing populations of rare, unique and imperiled vegetation.	None – beneficial effect	Not significant	Loss of terrestrial vegetation types, especially forest cover due to increase in potential development and recreation; potential for disruption of natural hydrology, increase in sediment and nutrient input; introduction and dispersal of invasive species; and/or impact existing populations of rare, unique and imperiled vegetation.	Loss of terrestrial vegetation types, especially forest cover due to increase in potential development and recreation; potential for disruption of natural hydrology, increase in sediment and nutrient input; introduction and dispersal of invasive species; and/or impact existing populations of rare, unique and imperiled vegetation.	Loss of terrestrial habitats on adjacent private lands would be significant under the Preferred Alternative and Alternatives 3 and 4. See Section 4.1.8 for potential mitigation measures.
Fish and Wildlife	Not significant	Adverse impact on American burying beetle at Carlton Landing. Removal of 43 acres of standing timber in the lake at Carlton Landing would adversely affect fisheries. Vegetation buffers may provide localized beneficial effects for some species and maintain habitat connectivity.	None – beneficial effect	Not significant. Vegetation buffers may provide localized beneficial effects for some species and maintain habitat connectivity.	Loss of terrestrial and aquatic habitat due to increased potential development and recreation. Vegetation buffers may provide localized beneficial effects for some species and maintain habitat connectivity.	Loss of terrestrial and aquatic habitat due to increased potential development and recreation. Adverse impact on American burying beetle at Carlton Landing. Removal of 43 acres of standing timber in the lake at Carlton Landing would adversely affect fisheries. Vegetation buffers may provide localized beneficial effects for some species and maintain habitat connectivity.	Alternatives 3 and 4: Loss of terrestrial habitats on adjacent private lands would be significant. Preferred Alternative and Alternative 4 would have an adverse impact on American burying beetle and fisheries at Carlton Landing. See Section 4.2.9 for potential mitigation measures.

Resource Category	No Action	Preferred Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Unavoidable Impacts
Water Quality	Increases in development and recreation within existing land use designations would continue to degrade water quality through erosion, nutrient transport, and decreased dissolved oxygen	Increases in development and recreation within existing land use designations would continue to degrade water quality through erosion, nutrient transport, and decreased dissolved oxygen Additional potential for localized increases in pollutant loading from shoreline recreational development and use at Carlton Landing. Vegetation buffers would provide considerable water quality benefits.	None – potential pollutant loading reduced. Vegetation buffers would provide considerable water quality benefits.	None – potential pollutant loading reduced. Vegetation buffers would provide considerable water quality benefits.	Pollutant loads would increase due to increased potential levels of development and recreation; potential for further degradation of water quality through increased erosion, nutrient transport, and turbidity. Vegetation buffers would provide considerable water quality benefits.	Pollutant loads would increase due to increased potential levels of development and recreation; potential for further degradation of water quality through increased erosion, nutrient transport, and turbidity. Additional potential for localized increases in pollutant loading from shoreline recreational development and use at Carlton Landing. Vegetation buffers would provide considerable water quality benefits.	Mitigation measures would be required under the Preferred Alternative and Alternatives 3 and 4. Vegetation buffers under the action alternatives provide considerable mitigation. See Section 4.3.9 for potential mitigation measures.
Geology, Soils, and Mineral Resources	Potential for erosion and soil loss due to increased development and recreational use.	Potential for erosion and soil loss due to increased development and recreational use.	Not significant. Vegetation buffers would provide some erosion control benefits.	Potential for erosion and soil loss due to increased development and recreational use. Vegetation buffers would provide some erosion control benefits.	Potential for erosion and soil loss due to increased development and recreational use. Vegetation buffers would provide some erosion control benefits.	Potential for erosion and soil loss due to increased development and recreational use. Vegetation buffers would provide some erosion control benefits.	See Section 4.4.9 for potential mitigation measures. Vegetation buffers under the action alternatives provide considerable mitigation.
Aesthetics and Visual Resources	Not significant	Visual Impact Assessment Rating “unacceptable” due to loss of forest cover.	Not significant	Not significant	Visual Impact Assessment Rating “unacceptable” due to loss of forest cover.	Visual Impact Assessment Rating “unacceptable” due to loss of forest cover.	Available mitigation measures would not completely address impacts. See Section 4.5.11 for potential mitigation measures.
Cultural and Historic Resources	145 known sites located along Limited Development shorelines. Mitigation required to avoid impacts. No effect at Carlton Landing.	145 known sites located along Limited Development shorelines. Mitigation required to avoid impacts. No effect on USACE lands at Carlton Landing.	6 known sites located along Limited Development shorelines. Mitigation required to avoid impacts. No effect at Carlton Landing.	106 known sites located along Limited Development shorelines. Mitigation required to avoid impacts. No effect at Carlton Landing.	196 known sites located along Limited Development shorelines. Mitigation required to avoid impacts. No effect at Carlton Landing.	243 known sites located along Limited Development shorelines. Mitigation required to avoid impacts. No effect on USACE lands at Carlton Landing; potential effect on unknown resources on private lands.	Unknown sites on USACE lands would require mitigation to avoid impacts. Unknown sites on adjacent private lands would potentially be affected by indirect impacts.

Resource Category	No Action	Preferred Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Unavoidable Impacts
Recreation	Boat carrying capacity of the lake would be exceeded.	Boat carrying capacity of the lake would be exceeded. Localized increase in opportunities for land-based public recreation at Carlton Landing.	Not significant	Boat carrying capacity of the lake would be exceeded.	Boat carrying capacity of the lake would be exceeded.	Boat carrying capacity of the lake would be exceeded. Capacity of some land-based recreation facilities also exceeded. Localized increase in opportunities for land-based public recreation at Carlton Landing.	Mitigation measures required for the Preferred Alternative and Alternatives 2, 3, and 4. Mitigation measures may address safety but also result in degradation of recreational experience. See Section 4.7.8 for potential mitigation measures.
Noise	Increased boating use could create noise levels out of character for rural setting at some times in some locations.	Increased boating use could create noise levels out of character for rural setting at some times in some locations.	Not significant	Increased boating use could create noise levels out of character for rural setting at some times in some locations.	Increased boating use could create noise levels out of character for rural setting at some times in some locations.	Increased boating use could create noise levels out of character for rural setting at some times in some locations.	Vegetation buffers and no wake zones implemented under the action alternatives may provide some mitigation but some impacts likely remain. See Section 4.8.9 for potential mitigation measures.
Transportation	Not significant	Transportation improvements to Highway 9A and potentially Highway 9 would be needed for safety of turning movements at Carlton Landing in 25-30 years.	Not significant	Not significant	Not significant	Transportation improvements to Highway 9A and potentially Highway 9 would be needed for safety of turning movements at Carlton Landing in 25-30 years.	Under the Preferred Alternative and Alternative 4, construction of highway improvements would mitigate traffic impacts; coordination with county and state transportation agencies required. See Section 4.9.9 for potential mitigation measures.
Public Lands and Access	Not significant	Not significant	Minimal increase in new docks may limit access to lake and result in potential overcrowding at public access points.	Not significant	Not significant	Capacity of some land-based recreation facilities exceeded.	Mitigation under Alternative 4 would require construction of new facilities. See Section 4.10.9 for potential mitigation measures.