US Army Corps of Engineers

Little Rock District

Draft Environmental Assessment
Millwood Lake
Shoreline Management Plan Revision
September 2021

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FINDING OF NO SIGNIFICANT IMPACT (FONSI)

NAME OF PROPOSED ACTION: Millwood Lake Master Plan Revision

PURPOSE AND NEED FOR THE PROPOSED ACTION

The revised Master Plan updates Design Memorandum No. 5-B, Updated Master Plan for Development and Management of Millwood Lake approved in 1964. The Master Plan is the strategic land use document that guides the comprehensive management and development of all recreational, natural, and cultural resources throughout the life of the water resource project. It is a vital tool for the efficient and cost-effective stewardship and sustainability of project resources for the benefit of present and future generations.

With the proposed Master Plan revision, the U.S. Army Corps of Engineers, Little Rock District, has conducted an environmental analysis in accordance with the National Environmental Policy Act of 1969, as amended. The final Integrated Feasibility Report and Environmental Assessment (EA) dated Month Day Year, for the Millwood Lake Master Plan Revision, addresses the comprehensive management and development of all recreational, natural, and cultural resources, opportunities, and feasibility in the Millwood Lake area, located in the Gulf Coastal Ecoregion in southwest Arkansas in Howard, Hempstead, Little River, and Sevier counties. The final recommendation is contained in the report of the Chief of Engineers, dated xxx, 2022.

The Final EA, incorporated herein by reference, evaluated various alternatives that would evaluate existing conditions and potential impacts of land classifications considered in the listed alternatives. The recommended plan is the implementation of Alternative 2, as follows:

The Preferred Alternative (Alternative 2)–This alternative, which is now the Selected Alternative, is the Moderate Conservation alternative. Under this alternative, the land classifications would be revised to reflect current management practices and responses to agency and public comments received during the scoping phase. Changes included reclassifying undeveloped High Density land classifications (i.e. future/closed Corps parks) to Low Density and other land classifications; reclassifying some Wildlife Management lands to Environmentally Sensitive and Vegetative Management lands.

Alternative 2 proposes 1,018.5 acres in High Density recreation, representing a 365.8 acre decrease from the No Action Alternative. Low Density lands total 243.6 acres, representing an increase of 243.6 acres from the No Action Alternative. The majority of the decrease in High Density acreage would be due to reclassification to Low Density (increased from 0 to 243.6 acres). Environmentally Sensitive lands increased by 840.2 acres from the No Action Alternative, while Wildlife Management lands decreased by 661.3 acres. A portion of that converted to Vegetative Management lands (133.2 acres). With these changes, 82% of the shoreline would be protected from development.

In addition to a “no action” plan, one additional alternative was evaluated. The components of these alternatives are described in Section 3.1 of the EA.

For all alternatives the potential effects were evaluated, as appropriate. A summary assessment of the potential effects of the recommended plan are enumerated below.

ANTICIPATED ENVIRONMENTAL IMPACTS: Consideration of the effects disclosed in the EA, and a finding that they are not significant, are necessary to prepare a FONSI. This determination of no significance is required by 40 CFR 1508.13. Additionally, 40 CFR 1508.27 defines significance as it relates to consideration of environmental effects of a direct, indirect or cumulative nature.

Criteria that must be considered in making this finding are addressed below, in terms of both context and intensity. The significance of both short term and long term effects must be viewed in several contexts: society as a whole (human, national); the affected region; the affected interests; and the locality. The context for this determination is primarily local. The context for this action is not highly significant geographically, nor is it controversial in any significant way. Consideration of intensity refers to the magnitude and intensity of impact, where impacts may be both beneficial and adverse. Within this context, the magnitude and intensity of impacts resulting from this decision are not significant. The determination for each impact topic is listed below.

1. The degree to which the action results in both beneficial and adverse effects. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial. The EA indicates that there will be beneficial effects from implementation of the Selected Alternative to terrestrial and aquatic resources. The Selected Alternative would also allow for the continued potential development in the Low Density land classification, yielding a balanced approach in utilization of lake resources.

2. The degree to which the action affects public health or safety. No adverse effects to public health or safety will result from the Selected Alternative. Possible adverse environmental effects may occur from implementation of the No Action Alternative due to potential increased development in the unallocated lands, possibly resulting in more people and watercraft on the lake. Possible adverse economic and socioeconomic effects could potentially occur from implementation of Alternative 1, the Maximum Conservation Alternative.

3. The degree to which the action affects unique characteristics of the potentially affected area, such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas. The Selected Alternative does not threaten any known historic properties. Coordination with Federal, State, and local agencies and Federally Recognized Tribes will be required to avoid, minimize or mitigate potential unforeseen impacts. Park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas will not be impacted by implementation of the Selected Alternative.

4. The degree to which effects on the quality of the human environment are likely to be highly controversial. The project will benefit the public through a balance of terrestrial and aquatic resource preservation with recreation provision. Therefore, the Little Rock District; Corps of Engineers does not regard this activity as controversial.

5. The degree to which the possible effects on the human environment is highly uncertain or involves unique or unknown risks. The uncertainty of the impacts of this action is low since land reclassification around the lake shoreline results in a projection of known and regulated activities as a result of the implementation of the Selected Alternative.

6. The degree to which the action may establish a precedent for future actions with significant impacts. Because the Selected Alternative involves updating the existing Millwood Lake Master Plan, which provides checks and balances on future lakeshore activities, the action should not establish a precedent for significant future impacts.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. There are no other known individual actions associated with this project, therefore there are no cumulatively significant impacts identified with this action.

8. The degree to which the action may adversely affect items listed or eligible for listing in the National Register of Historic Places, or other significant scientific, cultural or historic resources. The Selected Alternative does not impact any known historic properties or other significant scientific, cultural, or historical resources. Coordination with Federal, State, and local agencies and Federally Recognized Tribes will be required to avoid, minimize or mitigate potential unforeseen impacts.

9. The degree to which the action may adversely affect an endangered or threatened species or its critical habitat. The Selected Alternative should not adversely affect any Threatened & Endangered species, as areas where potential use by T&E species and species habitat are primarily classified as Environmentally Sensitive lands. The listed T & E species in the area include the Piping Plover, Red Knot, Eastern Black Rail, which are shoreline wading birds, but have not been documented in the Millwood Lake area. Other species are Ouachita Rock Pocketbook and Rabbitsfoot, which are mussel species inhabiting riverine areas above and below Millwood Lake.

10. Whether the action threatens a violation of Federal, state or local law or requirements imposed for the protection of the environment. No such violations will occur. All applicable Federal, state or local laws and regulations will be complied with during the implementation of the action.

CONCLUSIONS: The impacts identified in the prepared EA have been thoroughly discussed and assessed. No impacts identified in the EA would cause any significant adverse effects to the human environment. Therefore, due to the analysis presented in the EA and comments received from a 45-day public review period that began on October 21, 2021 and ended on December 6, 2021, it is my decision that the preparation of an Environmental Impact Statement (EIS) as required by the National Environmental Policy Act (NEPA) is unwarranted and a "Finding of No Significant Impact" (FONSI) is appropriate. The signing of this document indicates the Corps final decision of the proposed action as it relates to NEPA. The EA and FONSI will be held on file in the Environmental Branch, Planning and Environmental Division of the Little Rock District, Corps of Engineers for future reference. Consultation with regulatory agencies will be

ongoing to ensure compliance with all federal, state, regional, and local regulations and guidelines.

_____	_____
Date	Eric M. Noe, PMP Colonel, EN Commanding

MILLWOOD LAKE
SHORELINE MANAGEMENT PLAN REVISION
ENVIRONMENTAL ASSESSMENT

Table of Contents

Section **Page**

1. INTRODUCTION 1
2. PURPOSE AND NEED FOR ACTION 2
2.1 Purpose and Need 2
2.2 Project History 2
3. ALTERNATIVES 6
3.1 No Action-2012 Plan (Alternative 1) 8
3.2 Preferred (Alternative 2) 8
4. AFFECTED ENVIRONMENT 10
4.1 Project Setting 10
4.2 Climate 10
4.3 Topography, Geology, and Soils 10
4.4 Aquatic Environment 14
4.4.1 Hydrology and Groundwater 14
4.4.2 Water Quality 14
4.4.3 Fish Species and Habitat 15
4.5 Terrestrial Resources 15
4.5.1 Wildlife 15
4.5.2 Vegetation 16
4.6 Wetlands 16
4.7 Threatened and Endangered Species 17
4.7.1 Invasive species 18
4.8 Archaeological and Historic Resources 18
4.8.1 Historical Sites 18
4.8.2 Archaeological Sites/Resources 19
4.9 Air Quality 21
4.10 Socio-Economic Resources 21
4.11 Recreation Resources 25
4.12 Health and Safety 25
4.13 Aesthetics 25
5. ENVIRONMENTAL CONSEQUENCES 26
5.1 Climate 32
5.1.1 No Action (Alternative 1) 32
5.1.2 Preferred (Alternative 2) 32
5.2 Topography, Geology and Soils 32
5.2.1 No Action (Alternative 1) 32
5.2.2 Preferred (Alternative 2) 32
5.3 Aquatic Environment 32
5.3.1 Hydrology and Groundwater 32

5.3.2 Water Quality....33
5.3.3 Fish Species and Habitat....33
5.4 Terrestrial Resources....34
5.4.1 Wildlife....34
5.4.2 Vegetation....34
5.5 Wetlands....35
5.5.1 No Action (Alternative 1)....35
5.5.2 Preferred (Alternative 2)....35
5.6 Threatened and Endangered Species....35
5.6.1 No Action (Alternative 1)....35
5.6.2 Preferred (Alternative 2)....36
5.7 Archaeological and Historic Resources....36
5.7.1 No-Action (Alternative 1)....36
5.7.2 Preferred (Alternative 2)....36
5.8 Socio-Economic Resources....36
5.8.1 No Action (Alternative 1)....36
5.8.2 Preferred (Alternative 2)....36
5.9 Recreation Resources....37
5.9.1 No-Action (Alternative 1)....37
5.9.2 Preferred (Alternative 2)....37
5.10 Air Quality....37
5.10.1 No Action (Alternative 1)....37
5.10.2 Preferred (Alternative 2)....37
5.11 Health & Safety....38
5.11.1 No Action (Alternative 1)....38
5.11.2 Preferred (Alternative 2)....38
5.12 Aesthetics....38
5.12.1 No Action (Alternative 1)....38
5.12.2 Preferred (Alternative 2)....38
5.13 Cumulative Impacts....39
6. ENVIRONMENTAL COMPLIANCE....41
6.1 Fish and Wildlife Coordination Act....41
6.2 Endangered Species Act....41
6.3 Environmental Justice....41
6.4 Cultural Resource Requirement....42
7. Scoping and Public Concern....43
7.1 Introduction....43
7.2 Scoping....43
7.3 Draft Master Plan-Shoreline Management Plan/Draft Environmental Assessments....45
7.4 Final Shoreline Management Plan/Final EA....45
8. Conclusions....46
9. Bibliography....47
10. List of Preparers....49

Appendices

Appendix A: Scoping Report
Appendix B: Draft Release Comments Report
Appendix C: Alternative Maps

List of Tables

Table 2-1 Pertinent Data of Millwood Dam and Lake 5
Table 3-1 Comparison of Shoreline Allocations by Alternative. 6
Table 4-1 Threatened, Endangered, and Species of Concern 17
Table 4-2 Previous Archeological Investigations on Millwood Lake 20
Table 4-3 Previously Recorded Resources at Millwood Lake 21
Table 4-4 Population Estimates and Trends 22
Table 4-5 Income and Employment 23
Table 4-6 Population by Race and Ethnicity, 2019 24
Table 4-7 Poverty Indicators and Number of Children (2019) 24
Table 5-1 Resource Impact with Implementation of Alternatives 27
Table 6-1 Federal Act/Executive Order Compliance 41

List of Figures

Figure 2-1 Millwood Lake and Surrounding Area 4
Figure 3-1 Pie Charts for Percentage of Land Classifications for Each Alternative. 7
Figure 4-1 Ecoregions Bordering Millwood Lake 12
Figure 4-2 Geology of Millwood Lake Watershed 13
Figure 4-3 Population Distribution by Age Group (2019) 22

1. INTRODUCTION

The Millwood Lake Shoreline Management Plan (SMP) is the required U.S. Army Corps of Engineers (Corps) approval document (Title 36, Section 327.30 and ER 1130-2-406) that protects and manages shorelines of USACE Civil Works water resource development projects under Corps jurisdiction in a manner that promotes safe and healthful public use of shorelines while maintaining environmental safeguards. The objectives of management actions in this SMP are to balance permitted private uses and natural resource protection for general public use. The Corps last updated the Millwood Lake SMP in 2012; and thus, revisions are needed to meet recent and forecasted management needs and compliment the recently revised Millwood Lake Master Plan. The updated Millwood Lake SMP, once approved by the Southwestern Division Engineer, will become an appendix to the Operation Management Plan (OMP) for the lake. The objectives of the SMP are to manage and protect the shoreline, to maintain optimal fish and wildlife habitat, natural environmental conditions, and to promote the safe and enjoyable use of the lake and shoreline for recreational purposes. Shoreline uses that interfere with authorized project purposes, public safety concerns, violate local norms, or result in significant environmental effects are not allowed.

Activities covered by the shoreline management plan, such as, placing private floating facilities or modifying vegetation, on public lands require prior written approval, and/or a shoreline use permit from the Operations Project Manager (OPM) at Millwood Lake.

With the draft SMP update, the Corps is completing an Environmental Assessment (EA) that evaluates existing conditions and potential impacts of proposed alternatives. The EA is prepared pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR, 1500–1517), and the Corps Policy and Procedures for Implementing NEPA as directed by Engineer Regulation (ER) 200-2-2 (1988).

2. PURPOSE AND NEED FOR ACTION

2.1 Purpose and Need

The Millwood Lake Shoreline Management Plan establishes policy and furnishes guidelines for the protection and preservation of the desirable environmental characteristics of the lake, while maintaining a balance between public and private shoreline uses. The purpose of this environmental assessment is to select a shoreline management plan alternative that provides optimum use of Millwood Lake's shoreline while ensuring that the natural environment is protected. This document addresses the positive and negative environmental effects associated with the implementation of various shoreline management alternatives. The need for the proposed action is based on the age of the current plan and the changed conditions around the lake and in lake use.

Revision of 36 CFR 327.30 in 1990 required the Little Rock District to convert its approved lakeshore management plans to shoreline management plans. The Little Rock District, prior to converting the shoreline management plans, implemented a District-wide shoreline management policy, SWLOM 1130-2-33, on 15 September 1992. This policy was developed following a series of public meetings with consideration of the written comments.

The initial Lakeshore Management Plan for Millwood Lake was approved in June1976. The next update occurred six years later, and the plan was approved, on 9 July 1982. Since 1982 there have been two supplements to the plan (7 Jun 1991 and 1 Mar 1996). An administrative review was approved, on 14 August 2012.

This current revision also included public participation in the form of comments, received during a virtual scoping process, consisting of mailed postcards, agency letters, and a website where comments were submitted. Analyses of comments received were incorporated during the preparation of an Environmental Assessment (EA). This EA provides the documentation of the impacts of the program and will allow for future revisions of this plan. This Shoreline Management Plan will be reviewed at least once every five years, in accordance with regulations in place, at the time of the review.

2.2 Project History

The Millwood Lake Civil Works project on the Little River is located 16 river miles above its confluence with the Red River, about 12 miles east of Ashdown, AR. The topography around Millwood Lake is characterized by a wide, flat valley which offers few significant variations in the configuration of the terrain. Exceptions are the bluffs which arise sharply out of the water along the east shore near the dam. The contrast that these bluffs offer to the otherwise flat, monotonous terrain makes them quite scenic. Hardwoods such as ash, hickory, water oak, willow, sycamore, and various other species of oak are predominant. Some of the area is classified as tall grass, but virtually no original tall grass species remains in the area. Surface soils are mostly sandy loam and silty clay.

Standing timber was not removed prior to impoundment of the lake, in 1966. The lake is generally shallow, so boaters need to be alert to potential underwater hazards, including submerged stumps, floating objects, and other obstructions. Logs and floating debris are a major hazard after each rise in

lake elevations. A system of 27 miles of boating safety lanes and directional markers has been provided to assist boaters in emergency situations, inclement weather, and quicker access to the shoreline.

Millwood Lake was authorized for construction by the Flood Control Act approved 3 July 1958 (Public Law 85-500, 85th Congress, S. 3901) as a modification of Millwood Reservoir authorized by the Flood Control Act approved 24 July 1946 (Public Law 526, 79th Congress, Chapter 596, 2d Session, R.R. 6597). The authorized purpose for construction of Millwood Lake was for flood control as a unit in the six-reservoir Little River system which also includes Pine Creek Lake, Broken Bow Lake, (Lukfata Lake-previously authorized but never constructed) located in southeast Oklahoma, and DeQueen Lake, Gillham Lake, and Dierks Lake located in southwest Arkansas. Project purposes of Millwood Lake, other-than flood control, are fish and wildlife, recreation, and water supply. Construction of Millwood dam and appurtenant works began in September 1961 and began operations in August 1966. The conservation pool was raised from the initial operating level, elevation 257.0, to the ultimate elevation, 259.2 msl, in 1969, to enhance the recreation potential of the project. For a full list of project authorizations, reference the Millwood Lake Master Plan, dated September 2021.

Figure 2-1 Millwood Lake and Surrounding Area

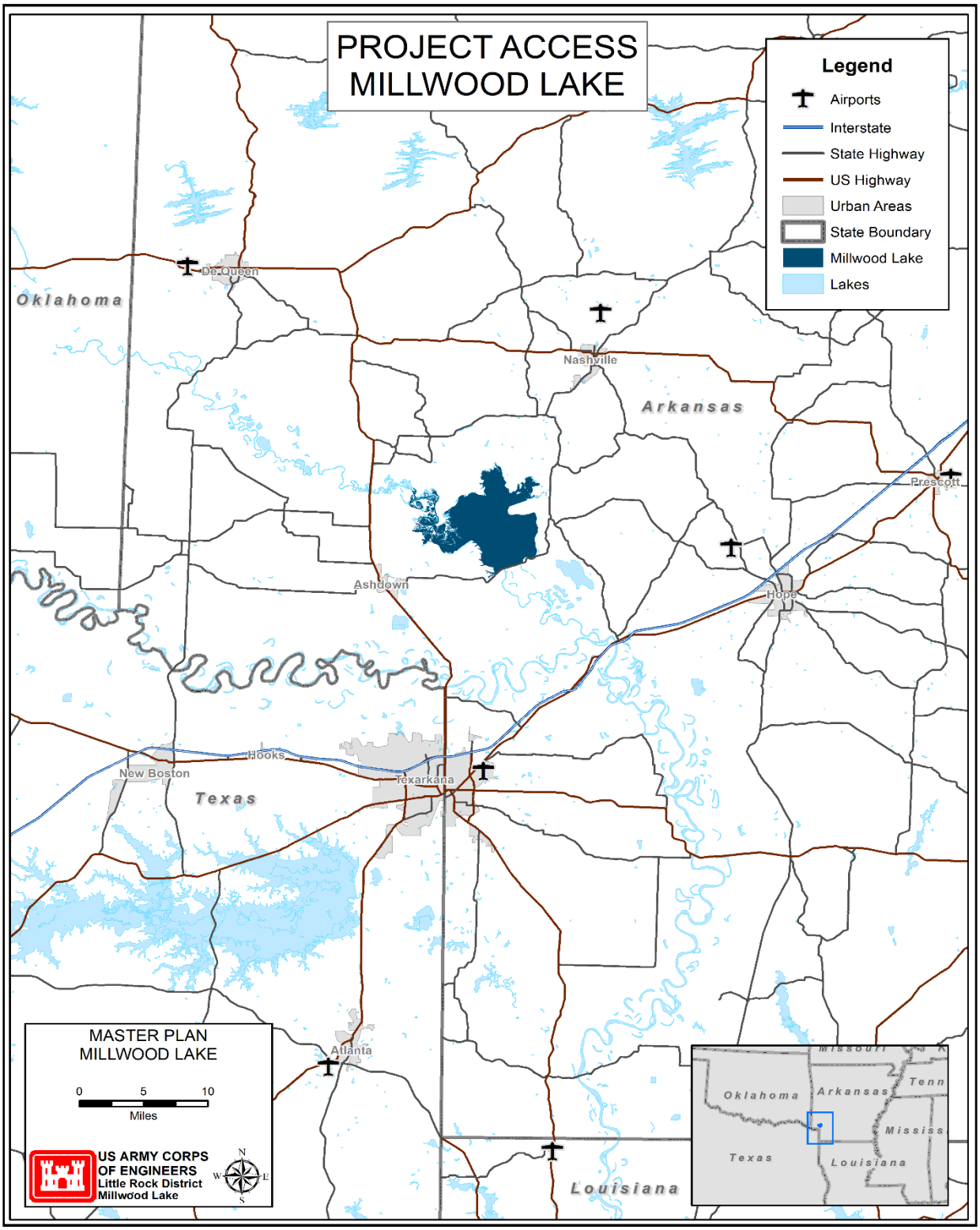


Table 2-1 Pertinent Data of Millwood Dam and Lake

PERTINENT DATA OF THE DAM AND LAKE	
General Information	
Purpose, Stream, State	FC, WS, F&W Little River Arkansas *(1)*
Drainage area, square miles	4,114
Average annual rainfall over the drainage area, inches, approximately	52
Dam	
Length in feet	17,554
Top of dam elevation, feet above mean sea level	301
Lake	
Nominal bottom of power drawdown Elevation, feet above mean sea level	252
Area, acres	13, 100
Nominal top of conservation pool Elevation, feet above mean sea level	259.2
Area, acres	27,125.
Length of shoreline, miles	340
Nominal top of flood-control pool Elevation, feet above mean sea level	287
Area, acres	94,037
Length of shoreline, miles	589
Five-Year frequency pool	
Elevation, feet above mean sea level (flood pool)	287
Elevation, feet above mean sea level (drawdown)	252
(1) FC – flood control, WS-water supply, F&W-Fish and Wildlife	

3. ALTERNATIVES

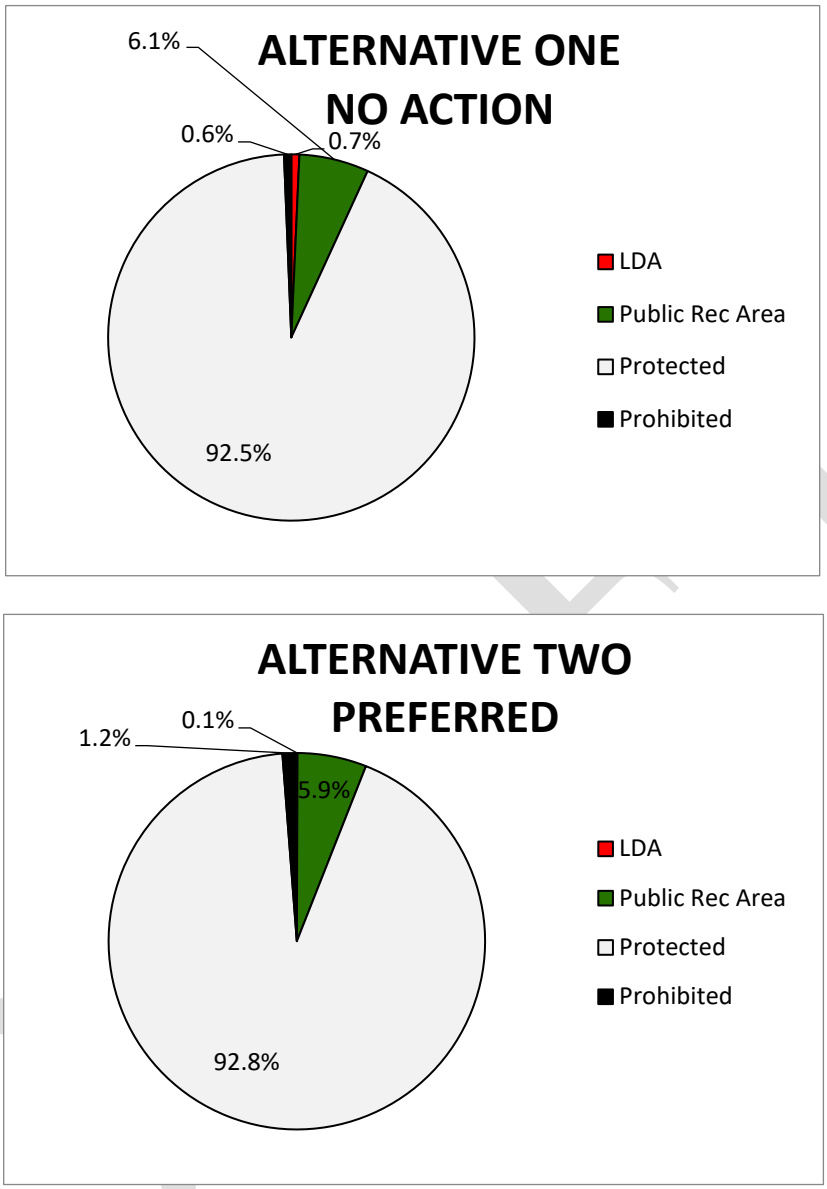
Alternatives evaluated in this EA are depicted in Table 3-1, and in Figure 3-1. The alternatives include: Alternative 1 (No Action-2012 Plan) and Alternative 2 (Preferred). A complete set of maps for each alternative is located in *Appendix A: Alternative Maps,* attached to this document.

In this EA development, the Preferred Alternative is compared to the No Action Alternative in order to evaluate potential positive and negative effects on the natural and human environment based on the various shoreline acreage classifications determined by each alternative. The evaluated alternatives will be provided for public review after completion of the draft EA. Public comments are collected during the public comment period and considered in the development of the final EA and the final updated Shoreline Management Plan. Based on public comments received, the final EA may be a modified version of the Preferred Alternative, based on public preferences. The Final EA will present the Selected Alternative and provide the basis for the agency decision under NEPA.

Table 3-1 Comparison of Shoreline Allocations by Alternative.

Shoreline Allocation	**Alternative 1 No Action (2012 Plan)**		**Alternative 2 Preferred**	
	Miles	Percent	Miles	Percent
Limited Development Area	3.1	0.7%	0.2	0.1%
Public Recreation Area	27.2	6.1%	26.3	5.9%
Protected	410.1	92.5%	411.3	92.8%
Prohibited	2.8	0.6%	5.4	1.2%
Total Shoreline	443.3	100%	443.3	100%

Figure 3-1 Pie Charts for Percentage of Land Classifications for Each Alternative.



3.1 No Action-2012 Plan (Alternative 1)

The No Action Alternative land allocation, which is based on the 2012 shoreline management plan, will retain 3.1 miles of Limited Development Area (LDA) shoreline, representing 0.7% of the total shoreline miles. Public Recreation Areas (PRA) include 27.2 miles (6.1%), the Protected lands allocation include 410.1 miles (92.5%), while Prohibited lands comprise 2.8 miles or 0.6% of the total 443.3 miles of shoreline.

3.2 Preferred (Alternative 2)

The Preferred Alternative land allocation will reduce the LDA to 0.2 miles of shoreline, representing 0.1% of the total shoreline miles. Public Recreation Areas (PRA) are reduced to 26.3 miles (5.9%), the Protected lands allocation is increased to 411.3 miles (92.8%), while Prohibited lands comprise 5.4 miles or 1.2% of the total 443.3 miles of shoreline.

The major changes from the No Action (2012 SMP) to the Preferred Alternative are noted as follows:

Shoreline Allocations (Zoning)

- "Park Buffers" allocation name changed to "Public Recreation Areas".
- Certain Public Recreation Areas around the lake have been reduced, thus allowing the potential for vegetation permits in some areas where previously not allowed.
- Certain LDAs have been reduced due to no expected or potential for development around the lake.

Private Floating Facilities (Docks)

- Two printed and one electronic set of engineer-stamped plans of the entire facility are required for new and any modifications to existing facilities. In addition to the actual structure, plans must include all amenities, including but not limited to, lockers/storage, PWC moorage, and solar battery storage.
- Maximum size slip has changed from "the minimum size required to moor the owners vessel and not to exceed 3' beyond the vessel's length" to 12' x 30'.
- Maximum walkway length changed from 50' to 60'.
- Only alternative power sources (e.g.solar) will be allowed for new floating facilities or those existing facilities without service. Existing docks can maintain electrical systems as previously approved. Docks with overhead or underground electrical systems may be modified to accommodate additional electrical needs.
- Roofs must be unpainted or manufactured roofs must be black, blue, gray, tan, green, or brown (in natural tones).
- Permit applicants must own at least 75 feet of common boundary (within limited development areas) to be considered for a dock.
- Perpetual Easements will no longer be accepted as legal access for a new dock.

Vegetation Modification Permits

- Mowing and/or underbrushing will not be permitted across any natural or manmade break in vegetation such as a road, creek, electric distribution line, etc.

- Vegetation modification permits may allow the removal of a tree or shrub 2 inches or less in diameter at ground level.

Other Permits/Outgrants

- Duck blinds must be portable and removed from project lands on a daily basis.
- No ski course permits will be issued.
- New outgrants will not be issued for residential amenities, such as, steps, stairs, water lines, tramways or private electrical service lines, that have not previously been issued an outgrant.

4. AFFECTED ENVIRONMENT

4.1 Project Setting

Millwood Lake is a reservoir created by Millwood Dam at the junction of the Saline and Little River (NM 16 on Little River), which is located approximately nine miles east of Ashdown, Arkansas. The Little River, a tributary of the Red River, has a total length of 217 miles, with 130 miles in southeastern Oklahoma and 87 miles in southwestern Arkansas. The drainage basin of the river totals 4204 square miles, with 2204 square miles in Oklahoma and 2036 square miles in Arkansas. The lake is located in southwest Arkansas, primarily in Sevier County, but is bordered by Little River, Hempstead and Howard counties (Figure 2-1). A more detailed description of the project location and area is provided in the following sub-sections.

4.2 Climate

Climate within the Millwood Lake watershed is temperate, with summer extremes lasting for longer periods throughout southwest Arkansas, and winter temperatures are typically mild. Extremes may vary, from lows around 22°F in the winter months, to highs above 100°F during the summer. Extreme temperatures may occur for short periods of time at any location within the watershed. Heavy rainfall events are common. Average annual rainfall over the watershed varies from 50 to 52 inches. Monthly rainfall varies from 3.5 inches in the summer months to 4 to 5 inches in the winter and spring. Snowfall each year averages less than an inch during the winter.

Climate change is an area of concern, due to the potential for effects on many aspects of the environment, especially those related to water resources. The U.S. Global Change Research Program (USGCRP) summarized information regarding climate change and its potential effects in regional assessments (http://www.globalchange.gov/publications/reports/scientific-assessments/us-impacts). In the Midwest, which extends from Minnesota to Missouri, extreme events such as heat waves, droughts and heavy rainfall events are projected to occur more frequently. Should these events become significant enough to impact the operation of Millwood Lake, the Master Plan and associated documents (i.e., Operations Management Plan and Shoreline Management Plan) would be reviewed and revised, if necessary.

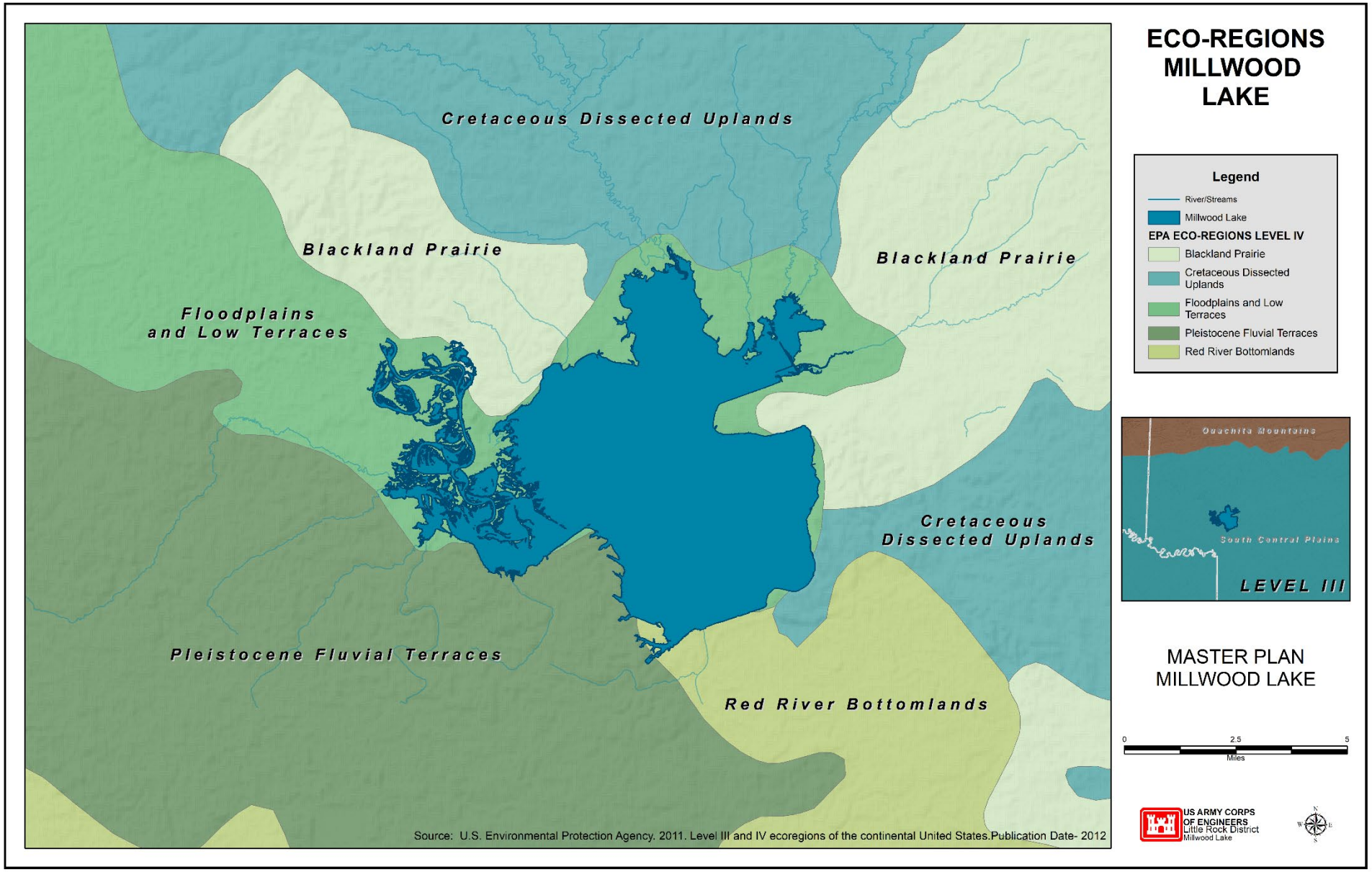
4.3 Topography, Geology, and Soils

The topography in the upper northern watershed of Millwood Lake includes steep inclines typical of the Ouachita Mountains. This portion of the watershed has a rugged topography, with average relief of several hundred feet and some areas that exceed 1700 feet in elevation. The southern portion of the watershed around Millwood Lake lies within The Gulf Coastal Plain, which is an area of low relief, seldom exceeding 100 feet in elevation, and consists of gently rolling to hilly terrain.

The Ouachita Mountain Geologic Province is underlain mainly by Paleozoic sedimentary rocks composed mainly of shale, chert, sandstone, conglomerates, novaculite and volcanic tuff. The Stanley Shale is the most widespread formation in the Ouachita Mountains. The oldest formations occur in the northern portion of the province, and consist of Ordovician Polk Creek Shale, Silurian Missouri Mountain Shale, and Blaylock Sandstone. The Devonian Arkansas Novaculite is also

exposed in this area of the watershed. In the southern Ouachita Mountains, the Jackfork Sandstone occurs, primarily in major mountain ridges. The geology of the Gulf Coastal Plain in the lower watershed generally consists of unconsolidated to semi-consolidated deposits of Cretaceous age sand, clay, marl, and gravel overlain by Quaternary terrace and alluvial deposits. Surface materials are generally unconsolidated top semi-consolidated sand and clay. Figures 4-1 and 4-2 depict ecoregion and geological formations located in the Millwood Lake area.

Figure 4-1 Ecoregions Bordering Millwood Lake



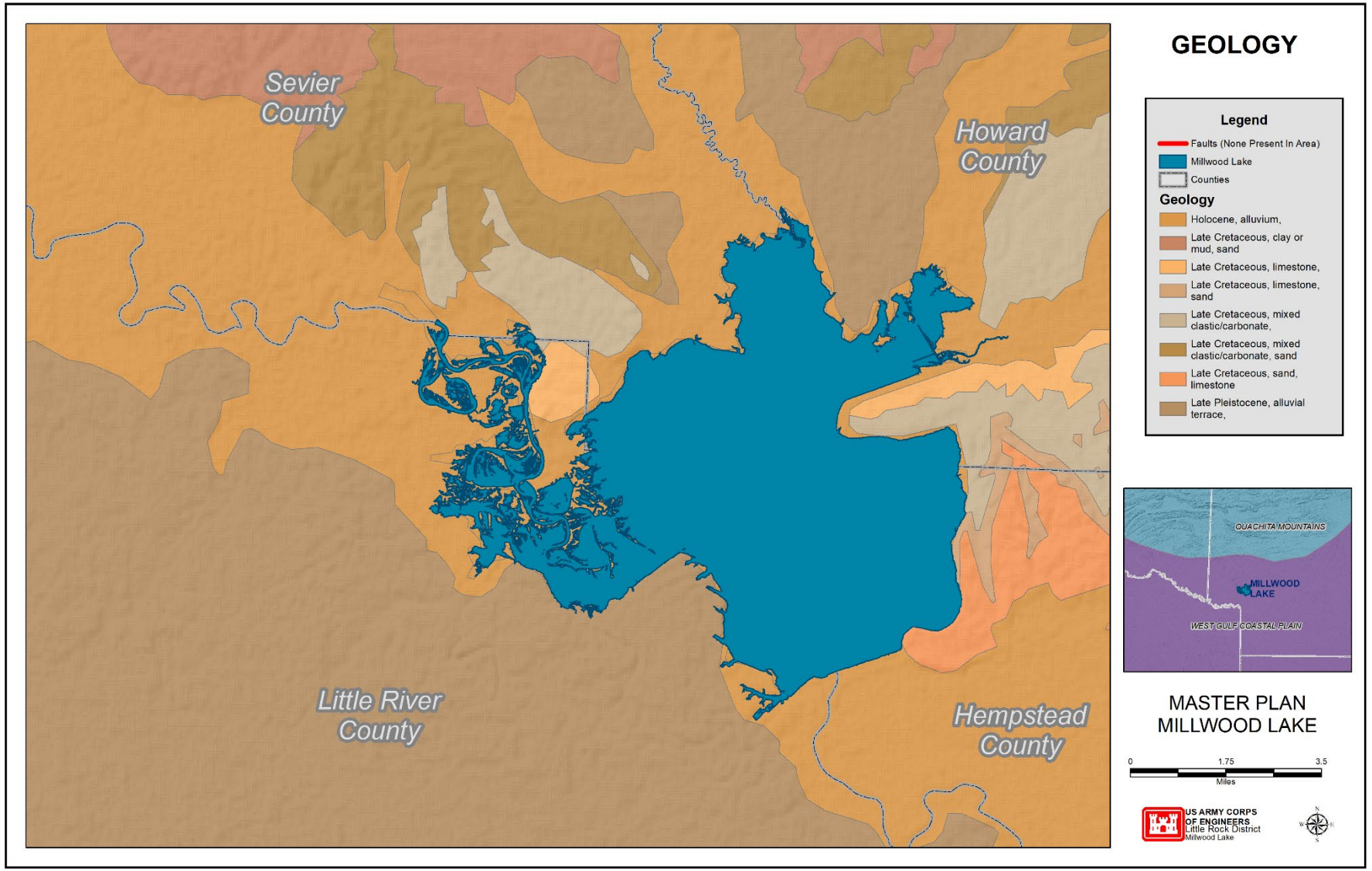


Figure 4-2 Geology of Millwood Lake Watershed

The major soil groups in the Ouachita Mountains portion of the Millwood Lake watershed are Carnasaw-Clebit-Sherless and Yanush-Avant-Bigfork. These soils are deep and tend to be gravelly and/or stony. The major soil groups of the Gulf Coastal Plain in the southern watershed include clays, silt loams and fine sandy silt loams. These soils are usually very deep. Alluvial soils occur in the floodplains along the Little River, and the other major tributaries, including the Rolling Fork, lower Cossatot, Saline River and Mine Creek. Major soil groups associated with the Blackland Prairie are also present in the lower watershed.

Soil surveys as published by the Natural Resource Conservation Service (NRCS) are available for all the counties located in the Millwood Lake watershed. These could be utilized for developing specific resource management plans for the Operational Management Plan.

Soil conservation and management are major considerations when planning natural resource and recreation management practices. While soil movement is influenced by climate, soil type, and topography, which are uncontrollable, it can also be negatively affected by compaction, modification of vegetative cover, and very high lake pool elevations which increase wave action and inundation of unprotected shoreline.

4.4 Aquatic Environment

4.4.1 Hydrology and Groundwater

Millwood Lake is located on the Little River and was formed by the construction of the Millwood Dam at mile 16 in Hempstead and Little River Counties, Arkansas. Dam construction began in 1961 and was completed in 1966. The elevation of the top of the conservation pool is 259.2 feet NGVD29 with the flood pool being at 287 feet NGVD29. The conservation pool top area is approximately 29,200 surface acres and the flood pool top area is approximately 92,500 surface acres. The shoreline length of the design conservation pool is approximately 78 miles. Millwood Lake is located within the Little River Drainage Basin, which drains approximately 4,114 square miles in southwest Arkansas and southeast Oklahoma. Millwood Lake has an average depth of 9 feet. The total water storage capacity of Millwood Lake is 2,623,200 acre-feet, with 1,854,900 acre-feet of flood control storage, 204,970 acre-feet of conservation storage, and 51,710 acre-feet of inactive storage.

Most ground water withdrawn from water wells occurs in the Quaternary age alluvium associated with the Red River and its tributaries, the Nacatoch Sand the Ozan Formation, the Tokio Formation and the Trinity Group, all of Cretaceous age. All but the Ozan aquifer have been, or are being used as a significant source of water supply in the southern watershed of the Millwood Lake area, with the Tokio Formation aquifer being used most often.

4.4.2 Water Quality

Overall surface water quality in the Millwood Lake area is good and the lake has been designated as suitable for primary and secondary contact, municipal, industrial and agricultural water supply by the Arkansas Department of Energy and Environment (ADEE). The waters of the Arkansas portion of the Little River watershed have all been designated by the ADEE for fisheries, primary and secondary contact recreation, and domestic, agricultural, and industrial water supplies (ADEE, 2012). Millwood Lake is classified by ADEE as a Type E water body, which includes most larger lowland lakes of generally 1000 to 30,000 acres in size, located in the Delta, Gulf Coastal Plains and Arkansas River Valley ecoregions. Average depth in Type E lakes is usually less than 10 feet.

The watersheds of Type E lakes contain a mixture of row crop agriculture, confined animal operations, pastureland and some forestlands.

The Environmental Quality Branch of ADEE has been conducting quarterly water chemistry profiles on Millwood Lake at two locations, one in the upper lake and one near the dam, since 2011. In addition to the chemical analyses, field data, including dissolved oxygen, temperature, and pH were collected. The data reflect the nature of the watershed by reflecting elevated turbidity and chlorophyll A at certain times during the years. Wave action due to wind and boating activity resuspends bottom sediments from this shallow lake, creating turbidity in the water column. Sedimentation and nutrient influx from the feeder streams is a major issue for water quality in the lake. Turbid water absorbs more sunlight, elevating water temperatures, while excess nutrients promote algae and aquatic vegetation growth.

4.4.3 Fish Species and Habitat

The impoundment of the Little River and other tributary streams and rivers which form Millwood Lake and other watershed lakes, resulted in changes in the composition of the fish populations. Fish population dynamics are altered, through impoundment, by favoring the lentic (static water) lake species and their habitats, over the lotic (flowing water) or riverine species. Arkansas Game and Fish Commission (AGFC) is the agency primarily responsible for managing the fishery and through their efforts, a variety of fish species are well-established in the lake. Sport fish species currently found include: largemouth bass, spotted bass, white bass, striped bass, flathead catfish, channel catfish, white crappie, black crappie, and various species of sunfish. Due to the quality and diversity of the fishery, Millwood Lake serves as a national fishing destination, hosting many bass tournaments and fishing derbies annually.

Millwood Lake was first impounded in 1966 and most of the standing timber was retained after the impoundment. Since impoundment, the standing timber that was submerged provides structure and forage habitat for fish. Several boating lanes have been established since impoundment, which provides fishermen access to the standing timber habitat.

4.5 Terrestrial Resources

4.5.1 Wildlife

White-tailed deer is the most common big game animals found and hunted in the Millwood Lake area. Wild turkey, although present, are rarely seen in the area. Black bears have been translocated into Felsenthal National Wildlife Refuge, located southeast of Millwood Lake, so occasional bear sightings may become common in the area. American alligator has also increased in numbers in and around Millwood Lake and providing hunters with a permitted hunting season. The principal small game species found in the open upland areas include bobwhite quail, cottontail rabbit, and mourning dove. Gray and fox squirrels are common in upland wooded areas and are also popular for sportsmen. Furbearing animals found in the Millwood Lake area include coyote, red fox, gray fox, otter, mink, muskrat, beaver, bobcat, and raccoon. Habitat management that includes wildlife food plot plantings, mowing, soil disturbance, removal of exotic species and application of prescribed fire provide benefit to these populations.

Birding enthusiasts are provided an excellent opportunity for viewing in the Millwood Lake area. Of the over 400 birds on the state list, 331 have been recorded around Millwood Lake. A wide variety of species of conservation concern breed here including: Hooded Merganser, Osprey, Red-

headed Woodpecker, Brown-headed Nuthatch, Prothonotary Warbler, and Painted Bunting. The lake is especially well-known for its water birds: Anhinga, Tricolored Heron, Black-crowned Night-Heron, Yellow-crowned Night-Heron, White Ibis, Wood Stork, Purple Gallinule, and Common Moorhen. Thousands of American White Pelicans, Franklin's Gulls, and Tree Swallows forage here during migration. Other species identified here include all three jaegers, Black-headed Gull, Black-legged Kittiwake, Bridled Tern, Couch's Kingbird, Cave Swallow, Rock Wren, Northern Wheatear, and Snow Bunting. Canada geese, gadwall American wigeon, mallards, blue and green winged teal, shoveler, pintail, ring necked ducks, lesser scaup, common goldeneye and ruddy ducks are all common migratory waterfowl species visiting Millwood Lake. These duck species are sometimes present in large numbers, due to the shallow water and ample food sources around the lake's shoreline.

4.5.2 Vegetation

The Gulf Coastal Ecoregion around Millwood Lake is characterized by three sub-ecoregion types. Flood plains and low terraces lie adjacent to the lake on the north, while the western adjacent watershed is characterized by blackland prairie and cretaceous dissected uplands. The adjacent watershed on the east side of the lake is primarily blackland prairie. Vegetation types within these sub-regions include forested wetlands and pasture lands north of the lake, some oak-hickory-pine forests interspersed with pasture lands in the cretaceous dissected uplands west of the lake, and the blackland prairie sub-region east of the lake being dominated by hay lands and pasture lands. Some remnants of natural prairie remain in this area. USACE conducts a prescribed fire program to help maintain these specialized vegetative ecosystems in the Millwood Lake area. Along the rivers, streams, and lake shores, the riparian habitats are characterized by wetland hardwood species such as oak, sweet gum, cypress, elm, birch, ash and cottonwood. Pockets of invasive aquatic plant species are common in inlets and coves around the lake. Periodic drawdowns of the lake, as well as, biological control measures have been employed to aid in control of these exotic invasive plant species.

4.6 Wetlands

Wetlands are complex habitats that are transitional from dry land to open water, and they have soil, water, and plant components. Wetlands are defined as those areas inundated or saturated by surface or ground water at a frequency and duration to support a prevalence of vegetation typically adapted for life in saturated soil conditions. Many common species of waterfowl, fish, birds, mammals, and amphibians also live in wetlands during certain stages of their lives.

Millwood Lake wetland areas are classified as: lacustrine (open water), comprising approximately 28,300 acres; and palustrine (standing dead timber and vegetated shorelines). Its palustrine wetlands include, freshwater ponds (included in lacustrine acres), fresh water emergent comprising approximately 22 acres, and shoreline wetlands, which include a mixture of scrub/shrub (6 meters or less in height) or forested wetland species of greater than 6 meters in height. These forested/shrub type wetlands occupy approximately 4,638 acres in the project area. Common woody wetland species typically include buttonbush, willow, green ash, hackberry, elm, willow oak, water oak, overcup oak, sweetgum, and river birch. Some locations may have cypress as well. Palustrine forested/shrub wetlands occur in the feeder streams' floodplains; and are called riverine wetlands.

4.7 Threatened and Endangered Species

There are many species in the Gulf Coastal Ecoregion that are considered either threatened, endangered, or state species of concern. Species become listed for a variety of reasons including over-hunting, over-fishing, and habitat loss, as a result of human development and pollution. Of these, habitat loss is the main contributor imperiling most species. A threatened species is one that is likely to become endangered within the foreseeable future. An endangered species is one in danger of extinction throughout all or a significant portion of its range. The bald eagle (*Halieetus leucocephalus*) is common during the winter months around Millwood Lake. In addition, several bald eagle nests are located around the lake. Although the bald eagle was delisted by USFWS in 2007, due to recovery of the species, both the bald and golden eagles are still protected in accordance with the Bald and Golden Eagle Protection Act.

Table 4-1 lists species known to occur on project lands as reported from the U.S. Fish and Wildlife Service's federally classified status list of species and the Arkansas Natural Heritage data set.

Table 4-1 Threatened, Endangered, and Species of Concern

Common Name	Scientific Name	Status
Piping Plover	*Charadrius melodus*	Threatened
Red Knot	*Calidriou carnutus rufa*	Threatened
Eastern Black Rail	*Laterallus jamaicensis*	Threatened
Ouachita Rock Pocketbook	*Arkansia wheeleri*	Endangered
Rabbits Foot	*Quadrula cylindrica*	Threatened
Bald Eagle	*Haliaeetus leucocephalus*	Protected
Source: U.S. Fish and Wildlife Service		

ANHC Data obtained 2020– species located on or intersect corps property				
Scientific name	**Common Name**	**State Status**	**Global Ranking**	**State Ranking**
Atractosteus spatula	Alligator Gar	INV	G3G4	S2
Haliaeetus leucocephalus	American Bald Eagle	INV	G5	S3B, S4N
Liodytes rigida	Glossy Swampsnake	INV	G5	S3
Procambarus regalis	Regal Burrowing Crayfish	INV	G2G3	S2
Microstylum morosum	Giant Prairie Robber Fly	INV	G3G4	S1
Gallinula galeata,	Common Gallinule	INV	G5	S2B
Porphyrio martinicus	Purple Gallinule	INV	G5	S1B
Fundulus blairae,	Lowland Topminnow	INV	G4	S2
Hyla avivoca	Bird-voiced Treefrog	INV	G5	S3
Pleurobema riddellii	Louisiana Pigtoe	INV	G1G2	S1
Myotis austroriparius	Southeastern Bat	INV	G4	S3
Amorpha paniculata,	Panicled Indigo-bush	ST	G2G3	S1
Spiranthes odorata	Fragrant Ladies' Tresses	INV	G5	S1
Echinodorus berteroi	Upright Burhead	INV	G5	S1S3

Saratoga Landing Blackland Prairie	Western Gulf Coastal Plain Northern Calcareous Prairie	INV	GNR	S2
White Cliffs Natural Area	Juniperus ashei Dry Chalk Outcrop Woodland	INV	G1	SNR
Spiranthes odorata	Fragrant Ladies'-tresses	INV	G5	S1
Pyrrhopappus pauciflorus	Few-flower False Dandelion	INV	G5	S1S2
Penstemon cobaea	Showy Beardtongue	INV	G4	S3

E = Endangered; S2: Imperiled: Imperiled in the state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the nation or state (1,000 to 3,000)-typically 6 to 20 occurrences or few remaining individuals (1,000 to 3,000); S3: Vulnerable: Vulnerable in the state either because rare and uncommon, or found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extirpation. Typically, 21 to 100 occurrences or between 3,000 and 10,000 individuals; G3: Vulnerable: Vulnerable globally either because very rare and local throughout its range, found only in a restricted range (even if abundant at some locations), or because of other factors making it vulnerable to extinction or elimination. Typically, 21 to 100 occurrences or between 3,000 and 10,000 individuals.

4.7.1 Invasive species

In accordance with Executive Order (EO) 13112, an invasive species means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. Invasive species can be microbes, plants, or animals that are non-native to an ecosystem. In contrast, exotic species, as defined by EO 11987, include all plants and animals not naturally occurring, either presently or historically, in any ecosystem of the United States. Invasive species can take over and out-compete native species by consuming their food, taking over their territory, and altering the ecosystem in ways that harm native species. Invasive species can be accidentally transported, or they can be deliberately introduced because they are thought to be helpful in some way. Invasive species cost local, state, and federal agencies billions of dollars every year.
The Millwood Project is being impacted from the spread of invasive species. Locally the project office works with its partners, AGFC, University of Arkansas Extension Services and United States Department of Agriculture, to help stop the spread of these species. Terrestrial invasive species include feral hogs (*Sus scrofa*), sericea lespedeza (*Lespedeza cuneata*), Japanese honeysuckle (*Lonicera japonica),* English ivy (*Hedera helix),* Trifoliate orange (*Citrus* trifoliata), Firethorn *(Pyracantha)*, Callery pear (*Pyrus* calleryana), Privet (*Ligustrum*), Bull thistle (*Cirsium vulgare*), and the emerald ash borer (*Agrilus planipennis*). Aquatic invasive species in Millwood Lake include, Hydrilla, Alligator Weed, and the recently discovered Giant Salvinia. Project rangers post signage in all the recreation areas to communicate the dangers of spreading invasive species on project lands and waters. Rangers also place emerald ash borer traps on project lands to monitor any infestations of this species.

4.8 Archaeological and Historic Resources

4.8.1 Historical Sites

Cottonshed Landing, the one historic site on project land, contains no known remains of structures

or other artifacts. As such, the site is not subject to vandalism or accidental destruction. A sign identifying the site and briefly explaining its significance will be erected in the public-use areas.

4.8.2 Archaeological Sites/Resources

Unlike geological sites, archeological sites are highly subject to vandalism and "pothunting", especially in areas where there are heavy concentrations of people. Fortunately, the only known major site located in an area proposed for intensive deployment is at White Cliffs, a new area. The National Park Service and the Arkansas Archeological Survey will be encouraged to complete excavation and salvage operations prior to development of the area. National and State antiquities laws will be enforced by Park Rangers to discourage unauthorized collecting.

Millwood Lake archeology is important not only to the immediate area, but to the entire Little River System and the Caddoan cultural area. With the exception of Paleo-Indian sites (8,000-14,000 years ago), a complete sequence of human history can be reconstructed at Millwood. Early Archaic (8,000 B.C.), Middle Archaic (3,000 B.C.), Late Archaic, Fourche Maline, Coles Creek, Gibson, and Fulton time periods are all represented. Three archaeological surveys have been conducted by the National Park Service and the Smithsonian Institution, in cooperation with the Corps of Engineers and the Bureau of Reclamation. These surveys located 66 sites in the Millwood Lake area. Subsequent discovery of one other important village site, has brought the total to 67 documented sites. There are 33 village sites, nine of which have been excavated, and 34 campsites. Information obtained from the surveys and subsequent excavations indicates that the earliest prehistoric occupation in the Millwood Lake area is represented by a small dual-component site dating from approximately 8,000-5,000 B.C. The people who inhabited the area during this period sustained themselves principally by hunting, and to some degree, gathering.

Associated with the occupations are side-notched projectile point forms of the early Archaic period. The Late Archaic period (2,000-1,000 B.C.) is represented by three village sites and is recognized by an increased dependence on horticulture. The Caddoan period was the last prehistoric occupation of Millwood. During this time, from possibly 700 A.D. to 1600 A.D., a fairly large village of primarily farming families, could be found. The versatile use of pottery by the Caddo people was one of their most outstanding characteristics.

The Corps of Engineers will continue to cooperate with the National Park Service and the Arkansas Archeological Survey to encourage the identification and salvage or protection of archeological sites, in the project area. Park rangers will be instructed in methods of protecting archeological sites from the public. The sites on project lands are already subject to vandalism by "pothunters" and the need for protection is a reality. Tentative plans are to establish an interpretive center in the project office with a general of the archeological components, supplemented with limited artifact displays. Artifacts previously recovered, plus artifacts excavated in the future, will provide an ample source of material. Furthermore, a rotational display, dioramas, or actual reconstructions, based on archeological data, would further complement these resources.

Previous Investigations in the Millwood Lake Area

The most recent broad cultural resources inventory for Millwood Lake was conducted in 1988 for the *Cultural Resources Priority Plan for the U.S. Army Engineer District, Little Rock* (Blakely and Bennett, Jr., 1988). Table 4-2 lists previous surveys performed along the Millwood Lake. Table 4-2 includes the most up-to-date survey information, according to the

records of the Arkansas Archeological Survey and the Missouri Department of Natural Resources.

Table 4-2 Previous Archeological Investigations on Millwood Lake

Author	Title	Year
Howard, Lynn E	Archeological Survey in Millwood Region of Arkansas	1963
Spears, Carol, Nancy Myer, Hester Davis	Watershed Summary of Archeological and Historic Resources in the White River Basins, Arkansas and Missouri.	1975
Novick, Lee and Charles Cantlry	Millwood Lake: An Archeological Survey of a Portion of Millwood Lake Shoreline.	1979
Lee, Aubra Lane	Cultural Resources Investigations at Millwood Lake, Arkansas	1986
Blakely, Jeffrey A. and W.J. Bennett Jr.	Cultural Resources Priority Plan for the U.S. Army Engineer District	1988

Recorded Cultural Resources in the Millwood Lake Area

Today, the Millwood Project is home to approximately 138 identified archeological sites made up of camp sites, shelter and cave sites, rock cairns, and earthen mound sites. A vast majority of these sites were submerged by impoundment of the White River. Less than five percent of the known sites within the lake area were investigated any further than documentation. Table 4-3 summarizes the previously recorded resources at Millwood Lake.

Table 4-3 Previously Recorded Resources at Millwood Lake

Type of Site	Number of Sites
Historic	4
Prehistoric	114
Multicomponent	20
Total	138
National Register Eligibility Status	
Not Evaluated	132
Not Eligible	5
Eligible	1

4.9 Air Quality

Millwood Lake is located in the Gulf Coastal Plain ecoregion, and it is close to the Domtar Paper Mill in Ashdown, and the Turk Power Plant in Fulton. While both facilities discharge air quality contaminants, the air quality in the Millwood Lake area is clean with levels of air emissions below local emission thresholds. There has been one violation of the current National Ambient Air Quality Standards (NAAQS) established by EPA. Air monitoring requirements are established by EPA and are dictated under their guidance and monitoring objectives. Monitoring sites are placed in areas believed to have higher concentration of pollutants, which generally consist of the state's larger metropolitan areas. These areas, called Metropolitan Statistical Areas (MSA's) are defined by the larger population centers and surrounding counties. Based on these guidelines, the TX-AR MSA, covering Bowie County, TX, and Little River and Miller Counties, AR, has an air quality monitoring site, with carbon monoxide, nitrogen dioxide, ozone, sulfur dioxide, small diameter particulate matter (PM2.5), and large diameter particulate matter (PM10) constituents being monitored. The PM2.5 constituent was the only one exceeding EPA standards, resulting in one unhealthy day for sensitive groups in the year 2020 record. Of the 358 days of reported Air Quality Index (AQI) values, there were 270 days of good air quality and 87 days of moderate air quality for the counties comprising the TX-AR MSA of Texarkana, Arkansas and Texarkana, Texas.

4.10 Socio-Economic Resources

Millwood Lake is located entirely within the state of Arkansas, and its physical area is split between four counties: Little River, Hempstead, Howard, and Sevier. The metropolitan area closest to the lake is the Texarkana, Texas (TX)-Arkansas (AR) Metropolitan Statistical Area (MSA), which is located approximately 15 to 20 miles south/southwest of the lake. The Texarkana MSA is made up of Bowie County, in Texas, and Miller County, in Arkansas.

Data from the 2010 Census, the U.S. Bureau of Labor Statistics, and the 2019 American Community Survey were used to summarize socioeconomic conditions in the project area. Table 4-4. shows 2010 and 2019 population estimates, as well as the estimated annual growth rate for each county in the area. The annual growth rate in recent years (2010-2019) has been largely negative in the zone of influence. The annual growth rate in the zone of influence between 2010 and 2019 was -0.1%. During the same timeframe, the annual growth rate was 0.6% in the United States, 0.3% in Arkansas, 0.3% in Louisiana, 0.5% in Oklahoma, and 1.3% in Texas.

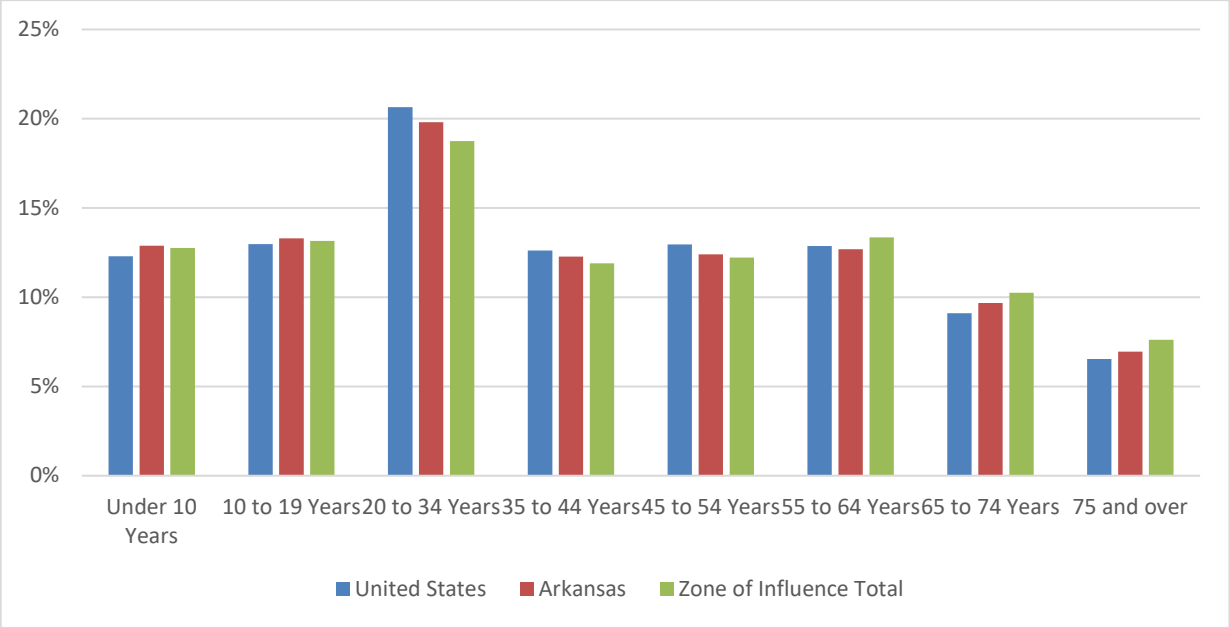
Table 4-4 Population Estimates and Trends

Geographical Area	2010 Population Estimate	2019 Population Estimate	Population Percent Change (2010-2019)
United States	308,745,538	324,697,795	0.6%
Arkansas	2,915,918	2,999,370	0.3%
Louisiana	4,533,372	4,664,362	0.3%
Oklahoma	3,751,351	3,932,870	0.5%
Texas	25,145,561	28,260,856	1.3%
Zone of Influence	**1,224,263**	**1,214,373**	**-0.1%**

Source: U.S. Bureau of the Census, 2010 Census (2010 Estimate); U.S. Bureau of the Census, American Community Survey (2019 Estimate);

Figure 4-1 displays the population by age group for the country, states of Arkansas, and the ZOI. In the ZOI, 13% of the population is 0 to 10 years old, another 13% is 10 to 19 years old, 19% is 20 to 34 years old, 12% is 35 to 44 years old, 12% is 45 to 54 years old, 13% is 55 to 64 years old, 10% is 65 to 74 years old, and 8% is 75 years and over. This age distribution is comparable to the state of Arkansas and the U.S.

Figure 4-3 Population Distribution by Age Group (2019)



Key income indicators (median household income and per capita income) are presented in Table 4-5. Per capita income for counties in the project area varies but is consistently lower than their respective state, often significantly. Average per capita income weighted by population for the entire ZOI was $24,988 in 2019. In comparison, per capita income was $34,103 in the United States, $26,577 in Arkansas, $27,923 in Louisiana, $28,422 in Oklahoma, and $31,277 in Texas. In terms of industries, the distribution across the ZOI is similar to that of the U.S. as well as the

states surrounding the project area. The largest majority of the ZOI (31%) is employed in the Management, business, science, and arts occupations, followed by 22% in Sales and office occupations, 19% in Service occupations, 17% in Production, transportation, and material moving occupations, and 12% in natural resources, construction, and maintenance occupations. Compared to the country, the ZOI has slightly less individuals employed in management, business, science, and arts occupations and slightly more in production, transportation, and material moving occupations.

Table 4-5 Income and Employment

Geographical Area	Median Household Income	Per Capita Income	Civilian employed population 16 years and over	Management, business, science, and arts occupations	Service occupations	Sales and office occupations	Natural resources, construction, and maintenance occupations	Production, transportation, and material moving occupations
United States	$62,843	$34,103	154,842,185	59,647,283	27,489,501	33,491,626	13,713,796	20,499,979
Arkansas	$47,597	$26,577	1,303,490	438,892	220,282	281,025	133,382	229,909
Louisiana	$49,469	$27,923	2,033,758	694,364	390,254	447,126	233,659	268,355
Oklahoma	$52,919	$28,422	1,772,123	615,904	310,390	392,689	199,411	253,729
Texas	$61,874	$31,277	13,253,631	4,867,492	2,288,826	2,937,388	1,433,389	1,726,536
Zone of Influence	**NA**	**$24,988**	**496,310**	**152,920**	**93,092**	**108,308**	**57,764**	**84,226**
Source: U.S. Bureau of the Census, American Community Survey (2019 Estimate)								

In counties adjacent to Millwood Lake, tourism and recreation is also an important part of local economies. Recreation at the lake has substantial impact to local economies based on surveys of visitor spending and attendance at Corps projects. Between 2005 and 2019, annual average visitation was 386,000 between. In 2019, roughly 215,000 people visited Millwood Lake. Though visitation was slightly down compared to previous years, visitors still spent $7.4 million in local economies within 30 miles of the lake. This spending generated $6.9 million in business sales revenue and supported about 74 full and part time jobs with $2.1 million in labor income for local economies.

Executive Order 12898, entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," addresses potential disproportionate human health and environmental impacts that a project may have on minority or low-income communities. Thus, the environmental effects of the Project on minority and low-income communities, or Native American populations must be disclosed, and agencies must evaluate projects to ensurethat they do not disproportionally impact any such community. If such impacts are identified, appropriate mitigation measures must be implemented.

To determine whether a project has a disproportionate effect on potential environmental justice communities (i.e., minority or low-income population), the demographics of an affected population within the vicinity of the Project must be considered in the context of the overall region. Guidance from the Council on Environmental Quality (CEQ) states that "minority populations should be identified where either: (1) the minority population of the affected areas exceeds 50 percent, or (b) the minority population percentage of the affected area is meaningfully greater than the minority

population percentage in the general population or otherappropriate unit of geographic analysis (CEQ 1997)."

Figure 4-6 displays Census data summarizing racial and ethnic characteristics of the ZOI. Table 4-7 displays poverty indicators for the ZOI. The purpose is to analyze whether the demographics of the affected area differ in the context of the broader region; and if so, do differences meet CEQ criteria for an Environmental Justice community. Based on the analysis, poverty and unemployment are more prevalent in the ZOI than in the states surrounding the lake as well as the United States. Further, the minority population in the ZOI is greater than that of Arkansas, Louisiana, and Oklahoma, though it does not exceed 50 percent.

Table 4-6 Population by Race and Ethnicity, 2019

Area	White alone	Black or African American alone	Hispanic or Latino (of any race)	American Indian and Alaska Native alone	Asian alone	Native Hawaiian and Other Pacific Islander alone	Some other race alone	Two or more races
United States	61%	12%	18%	1%	5%	0%	0%	2%
Arkansas	72%	15%	7%	1%	1%	0%	0%	2%
Louisiana	59%	32%	5%	1%	2%	0%	0%	2%
Oklahoma	66%	7%	11%	7%	2%	0%	0%	7%
Texas	42%	12%	39%	0%	5%	0%	0%	2%
Zone of Influence	63%	26%	7%	1%	1%	0%	0%	2%
Source: U.S. Bureau of the Census, American Community Survey (2019 Estimate)								

Table 4-7 also displays the percentage of children (individuals under the age of 18) by county in the ZOI. The purpose of the data is to assess whether the project disproportionally affects the health or safety risks to children as specified by Executive Order (E.O.) 13045 - *Protection of Children from Environmental HealthRisks and Safety Risks* (1997).

Table 4-7 Poverty Indicators and Number of Children (2019)

Area	Unemployment Rate	Percent of population below poverty line in last 12 months	Percent of Population Under 18 Years Old
United States	3.7%	13.4%	18.5%
Arkansas	3.5%	17.0%	23.7%
Louisiana	4.7%	19.2%	27.2%
Oklahoma	3.1%	15.7%	21.5%
Texas	3.5%	14.7%	20.9%
Zone of Influence	4.0%	20.3%	29.8%
Source: Bureau of Labor Statistics (Unemployment); U.S. Bureau of the Census, American Community Survey (2019 Estimate)			

4.11 Recreation Resources

The recreational resources of Millwood Lake are considered to be of great importance to this Gulf Coastal region. Tourism and lake visitation are major sources of income for the counties surrounding this lake. USACE has taken advantage of the natural and scenic beauty and constructed a variety of recreational facilities around the lake. The Project offers many recreational activities such as wildlife viewing, boating, fishing, hunting, picnics, and camping, as well as hiking and biking trails. There are 12 public use areas around Millwood Lake operated by the Corps of Engineers, and four additional leased areas. Future development of parks and recreation facilities will follow the guidelines as stated in the Arkansas 2019-2023 State Comprehensive Outdoor Recreation Plan (SCORP). These criteria furnish guidelines for determining the type and number of facilities needed to satisfy the current and projected demand and also furnishes guidelines for serviceability, operation, and maintenance of facilities. Considerations for the physically handicapped will be included in the design of facilities.

For a detailed description of the recreational resources, as well as visitation data at Millwood Lake, see Chapter 2 of the 2022 Millwood Revised Master Plan.

4.12 Health and Safety

Safety of project visitors and project staff are the highest priority in daily project operations. Facilities and recreational areas are routinely evaluated to ensure sites are safe for visitor use. Project staff conducts numerous water safety programs and public announcements to educate children and project visitors about ways to be safe on the lake.

Boating lanes established on the lake are kept clean for boater's safety and ease of navigation through flooded timber. Park Rangers provide visitor assistance and work with county law enforcement agencies to ensure public safety. Park Rangers and Arkansas Game and Fish personnel provide water safety and enforcement patrols on the lake as their budgets allow.

4.13 Aesthetics

Management objectives include maintaining scenic vistas while limiting impacts that would negatively affect aesthetics. Natural landscapes and views of undeveloped lands are an important feature that enhances the recreational experience. The perimeter lands around Millwood Lake provide a natural setting that is aesthetically pleasing as well as buffering the lake from development and negative impacts such as erosion and storm water runoff. However, there are problems in maintaining these aesthetic qualities. Project resource staff is continually investigating trespasses that include activities such as timber cutting and land destruction by unauthorized off road vehicles. In addition, litter and illegal trash dumping both on project lands and project waters are continual problems. Vandalism within recreation areas also occurs. Other concerns that impact aesthetics are demands put upon project resources for uses such as road and utility line corridors.

5. ENVIRONMENTAL CONSEQUENCES

The following table summarizes the resources that are likely to be affected by each of the alternatives for an update of the Millwood Lake Shoreline Management Plan, which includes the No Action alternative. A detailed discussion of the potential impacts of each of the alternatives follows the synopsis provided in Table 5-1.

Table 5-1 Resource Impact with Implementation of Alternatives

Resource Category	Alternative 1 No Action	Alternative 2 -Preferred
Climate, Topography, Geology and Soils	The No Action Alternative is used as the base line for comparison with the action alternative. This alternative represents the current conditions that exist and the potential for additional development under the current regulations. There is no documentation of significant environmental concerns on climate, topography, geology and soils from current activities on and around the lake.	There would be an impact, although not significant, on climate, topography and geology as a result of implementation of the Preferred Alternative due to the potential for reduced development around the lake due to a 3.3 mile reduction of LDA and a 13.2 mile reduction in Public Recreation Area. Any additional boating activity above current uses may come from increased use of existing public launching facilities and commercial marinas.
Aquatic Environment	The No Action Alternative would result in little to no impacts on the hydrology and groundwater components of the aquatic environment Water quality impacts would likely be minimally impacted under this alternative due to continuing the issuance and renewal of vegetation modification and dock permits.	The Preferred Alternative is similar to the No Action Alternative in terms of potential impacts to the hydrology and groundwater components of the aquatic environment, but water quality would potentially be minimally impacted due to the reduction of LDA and PRA shoreline miles.

Resource Category	Alternative 1 No Action	Alternative 2 Preferred
Terrestrial Resources	The No Action Alternative would have minimal negative impact on the lakeside terrestrial resources due to continuing the issuance and renewal of vegetation modification and dock permits.	Implementation of the Preferred Alternative would have a positive impact on terrestrial resources in comparison to the No Action Alternative. Due to an increase in Protected and Prohibited land allocations, this would have a positive benefit to the vegetation and wildlife around the lake.
Wetlands	The No Action Alternative would have minimal negative impact on the lakeside terrestrial resources due to continuing the issuance and renewal of vegetation modification and dock permits.	Implementation of the Preferred Alternative would have a positive impact on terrestrial resources in comparison to the No Action Alternative. Due to an increase in Protected and Prohibited land allocations, this would have a positive benefit to the vegetation and wildlife around the lake.
Threatened & Endangered Species	The No Action Alternative could have a potential negative impact on Threatened, Endangered, Protected, or Species of State Concern, depending on whether or not new dock or vegetation modification permits impacted the known location of a listed species.	The Preferred Alternative would be similar to existing condition, but with less potential for impact to any listed Threatened, Endangered, Protected, or Species of State Concern. Due to the increase in Protected and Prohibited lands, there may be some positive benefits to any or all the listed species.

Resource Category	Alternative 1 No Action	Alternative 2 Preferred
Archaeological & Historic Resources	The No Action Alternative would have some potential to have a negative impact on cultural resource sites and historic properties compared to all the Preferred Alternative due to the continued issuance of vegetation modification and boat dock permits.	The Preferred Alternative would be similar to No Action, but with slightly less potential to impact cultural resource sites or historic properties. There are reductions in both LDA and PRA, with corresponding increases in Protected and Prohibited lands, which would enhance protection of these resources.
Air Quality	Implementation of the No Action Alternative would have minimal impacts to existing air quality due to a continuation of the permitting process, creating a potential for increased boating activity.	Implementation of the Preferred Alternative would result in some reduction in negative air quality impacts as compared to the No Action Alternative due to a decrease in LDA and PRA lands, thereby having a potential for a decrease in future development.

Resource Category	Alternative 1 No Action	Alternative 2 Preferred
Socio-economics	The No Action Alternative may have beneficial impacts on the socio-economic situation in the counties surrounding Millwood Lake due to the retention of a larger percentage of LDA and PRA lands as compared to the Preferred Alternative.	The Preferred Alternative may have minimal negative impact on the socio-economic situation in the counties surrounding Millwood Lake since this alternative reduces LDA lands by 3.3miles and PRA lands by 13.2 miles from the No Action Alternative.
Recreation Resources	Under the No Action Alternative, areas around Millwood would have the potential to add more boat docks, since a higher percentage of LDA is retained, as compared to the Preferred Alternative. This may enhance the recreational experience for boating and fishing activities on the lake.	The Preferred Alternative would reallocate some LDA and PRA lands to Protected and Prohibited allocations. Implementation of this alternative could restrict some boating access, but would allow more recreation in the wildlife viewing, hiking, and hunting arena.

Resource Category	Alternative 1 No Action	Alternative 2 Preferred
Health & Safety	The No Action Alternative would still allow potential development opportunities, but not to the degree to cause significant boat congestion or increase water related accidents. Recreational boating experiences and boater satisfaction may be impacted due to the potential for additional boats on the lake.	The Preferred Alternative would reduce both LDA and PRA lands, thereby reducing the potential for increased development. Water quality may be positively impacted due to reduced development and a decrease in fuel and oil leakage due to limits on boating access. The increase in Protected and Prohibited lands could result in a potential increase in human exposure to insects and wildlife. The availability of recreational opportunities, balanced with conservation of natural environment could lead to better health, both mental and physical, for lake users.
Aesthetics	The No Action Alternative would still allow potential development opportunities, but not to the degree to significantly impact the current aesthetic qualities that make Millwood Lake a desired location for both residents and visitors. This alternative would maintain the area of pristine shoreline and preserve regions of boulders, bluffs, and mature forest flora that currently dominate views.	Under the Preferred Alternative, the reduction of 3.3 miles of LDA and 13.2 miles of PRA, along with the addition of 14.3 miles of Protected lands allocation would enhance a sense of the pristine nature of the lake. The developed areas are, for the most part, shielded from the lake view, which preserves the viewscapes of those recreating on the lake.

5.1 Climate

5.1.1 No Action (Alternative 1)

There could be some potential impact to climate as a result of implementation of the No Action alternative. Of the 3.1 miles of existing LDA, a potential for additional development could modify the vegetation component near the shoreline, allowing more sunlight penetration. Greater temperature fluctuations generally occur when woody vegetation is removed from an area. Reduced ground cover could cause an increase in sedimentation during rainfall events, which could increase the turbidity of the water, resulting in a potential for a small increase in water temperature.

5.1.2 Preferred (Alternative 2)

The Preferred Alternative is more protective than the No Action Alternative in terms of potential impacts on air and water temperature modification. A reduction of LDA lands allocation of 2.9 miles of shoreline could reduce the potential for development, which reduces the potential impact on climate due to vegetation removal at various locations within the 2.9 shoreline miles. The conversion of 0.9 miles of PRA lands primarily to Protected lands would also result in less potential vegetation modification.

5.2 Topography, Geology and Soils

5.2.1 No Action (Alternative 1)

The No Action Alternative could allow additional potential development on the current 3.1 miles of LDA allocation lands, but due to the fragmentation of this acreage around the shoreline, there would be only minor impacts on the topography, geology and soils. The combination of LDA and PRA lands represents 30.3% of total shoreline miles around the lake. With this amount of shoreline miles consisting of these allocations, some potential impacts from erosion and sedimentation could result from the implementation of this alternative.

5.2.2 Preferred (Alternative 2)

The Preferred Alternative is more restrictive than the No Action Alternative in terms of potential impacts to topography, geology and soils. There would likely be little change in impacts on the existing conditions regarding these features, due to the fact that this alternative generally reflects current lake usage patterns. LDA lands would be reduced from the No Action Alternative by 2.9 shoreline miles, and PRA lands would be reduced by 0.9 miles. These shoreline miles would be reallocated to Protected and Prohibited lands, which provide more of a vegetated lake buffer area. This vegetation helps to reduce storm water velocity and acts as a filtering mechanism. This would help reduce erosion and sediment deposition in the lake.

5.3 Aquatic Environment

5.3.1 Hydrology and Groundwater

5.3.1.1 No-Action (Alternative 1)

The hydrology and groundwater components of Millwood Lake would not change significantly from the existing condition due to the implementation of a No Action Alternative. The potential for additional development under this alternative would have some effect on reducing percolation

through the soil layers due to ground cover removal, and potentially increasing storm water velocity. Wetland areas within the current 3.1 miles of LDA could be potentially impacted due to implementation of the No Action Alternative.

5.3.1.2 Preferred (Alternative 2)

The Preferred Alternative is slightly different than the No Action Alternative in terms of potential impacts to the hydrology and groundwater components of the aquatic environment. The hydrology and groundwater conditions are generally a function of the watershed drainage and existing geology of the area but having only 6% of the shoreline classified as LDA and PRA in this alternative, as compared to 6.8% in the No Action Alternative, would enhance rainfall absorption and slow runoff velocity due to retention of additional 3.8 miles of Protected and Prohibited lands shoreline vegetation.

5.3.2 Water Quality

5.3.2.1 No Action (Alternative 1)

Lake fluctuations associated with flood control procedures, result in change in the environment along the shoreline of the lake. Turbidity from heavy rainfall has a temporary, adverse effect on Millwood Lake. During these periods of increased runoff, urban areas and other parts of the terrain, especially those that have had the protective vegetation removed, contribute silt and other suspended particles to the tributaries. While implementation of the No Action Alternative is relatively independent of the existing watershed drainage on the lake water quality, potential continued development around the lake shoreline would exacerbate water quality issues due to potential increased erosion, localized increases in turbidity and increased sedimentation in the lake following storm events. Under the No Action Alternative, LDA and PRA lands comprise 6.8% of the shoreline. Based on the current allocation, the potential exists for continual localized degradation of shoreline vegetation due to potential increased development and subsequent vegetation removal and mowing activities. This would result in negative impacts to water quality due to increased storm water velocity, scour and sedimentation.

5.3.2.2 Preferred (Alternative 2)

Implementation of the Preferred Alternative may result in positive benefits to water quality due to a reduction in boating access, with reduced fuel and oil spillage, and a reduction in both LDA and PRA allocated lands as compared to the No Action Alternative. There is a corresponding increase in Prohibited and Protected lands. These land reallocations would serve to limit development on these lands, thereby reducing impacts to ground disturbance and subsequent increased erosion. These factors would reduce erosion sedimentation and pollutants scoured from reduced impervious surfaces, with additional benefits of retention of more shoreline vegetation, improved fisheries habitat, increased water clarity and cooler water temperature conditions, due to the decrease of turbidity and sediment deposition.

5.3.3 Fish Species and Habitat

5.3.3.1 No Action (Alternative 1)

The fishery of Millwood Lake may have potential minor impacts from the implementation of the No Action alternative, which has 3.1 miles of available shoreline allocated as LDA lands. Implementation of the No Action alternative would allow potential development in some areas of this shoreline mileage. Development often results in vegetation removal down to water's edge,

which impacts shoreline stability, removes fish cover provided by overhanging vegetation, tree trunks and roots, and exacerbates storm water erosion and sedimentation. During the spring spawning season this sedimentation has the potential to disrupt spawning activity and productivity in the coves and lake arms where spawning commonly occurs.

5.3.3.2 Preferred (Alternative 2)

Implementation of the Preferred Alternative would have a positive effect on the lake fishery resource as compared to the No Action Alternative. There is a 2.9-mile reduction in LDA land allocation and a 0.9-mile reduction in PRA lands, with these shoreline miles being added to Protected and Prohibited lands allocation. The increases in lands in these two areas would serve as additional protection for lakeside vegetation and preservation of overhanging vegetation, which provides cover for fish, reduces storm flow velocity, reduces erosion scour, and reduces sedimentation. These factors improve spawning habitat, thereby potentially enhancing fish population dynamics in the lake.

5.4 Terrestrial Resources

5.4.1 Wildlife

5.4.1.1 No Action (Alternative 1)

The terrestrial resources of Millwood Lake may have potential minor impacts from the implementation of the No Action alternative, which has 3.1 miles of available shoreline allocated as LDA lands. Implementation of the No Action alternative would allow potential development in some areas of this shoreline mileage. Development often results in vegetation fragmentation, which may impact wildlife movement corridors in some areas. Based on the current shoreline allocation, the potential exists for continual degradation of shoreline vegetation due to increased development and potential vegetation removal and mowing activities. This would result in negative effects to wildlife due to potential removal of trees and understory vegetation, with a potential to alter food sources and migratory patterns of insects, birds and mammal species.

5.4.1.2 Preferred (Alternative 2)

Implementation of the Preferred Alternative would have a positive effect on terrestrial resources, when compared to the No Action alternative. There would be a 2.9-mile shoreline mile reduction in LDA lands allocation, a 0.9-mile reduction in PRA lands, and a corresponding increase in Protected and Prohibited lands allocation. The increases in lands in these two allocations would provide additional protection for lakeside vegetation, and preservation of habitat for wildlife and migratory bird species. The buffer of natural vegetation that remains along the shoreline from this designated acreage would potentially enhance migration and feeding activities for many species of wildlife.

5.4.2 Vegetation

5.4.2.1 No Action (Alternative 1)

Under the No Action Alternative, 3.1 miles of shoreline would be allocated as LDA lands. An additional 0.9 miles are allocated as PRA lands, which results in 6.8% of shoreline miles allocated as lands that have had, or have potential for, some vegetation modification within these areas. Based on this, the potential exists for continued degradation of shoreline vegetation due to increased development and subsequent vegetation removal and mowing activities. This would

result in potential negative effects to the natural shoreline vegetation composition due to potential removal of trees and understory vegetation, thus possibly altering food sources and migratory patterns of insects, birds and mammal species, as well as increasing a potential for increased storm water erosion effects.

5.4.2.2 Preferred (Alternative 2)

Implementation of the Preferred Alternative would have a positive effect on the shoreline vegetation, when compared to the No Action alternative. There would be a 2.9-mile reduction in LDA lands and a 0.9-mile reduction in PRA lands allocation. This results in 92.8% of total shoreline miles being allocated as Protected lands. The increases in lands allocated as Protected would serve as additional protection for lakeside vegetation and subsequent preservation of habitat for wildlife and migratory bird species. The buffer of natural vegetation that remains along the shoreline from this designated acreage would enhance migration and feeding activities for many species of wildlife, as well as mediate storm water velocity and scour.

5.5 Wetlands

5.5.1 No Action (Alternative 1)

Under the No Action Alternative, 3.1 miles of shoreline would be allocated as LDA lands. An additional 0.9 miles are allocated as PRA lands, which results in 6.8% of shoreline miles allocated as lands that have had, or have potential for, some vegetation modification within these areas. Based on this, the potential exists for localized degradation of shoreline wetland vegetation due to increased development and subsequent vegetation removal and mowing activities. This would result in potential negative effects to the natural wetland function due to potential removal of trees and understory vegetation, thus possibly altering food sources and migratory patterns of insects, birds and mammal species, as well as increasing a potential for increased sedimentation from storm water runoff.

5.5.2 Preferred (Alternative 2)

Implementation of the Preferred Alternative could have a positive effect on the shoreline wetland vegetation, when compared to the No Action alternative. There would be a 2.9 miles reduction in LDA lands, and a 0.9 miles reduction in PRA lands allocation. This results in 92.8% of total shoreline miles being allocated as Protected lands. The increases in lands allocated as Protected would serve as additional protection for lakeside wetland vegetation and subsequent preservation of habitat for wildlife and migratory bird species. The buffer of natural vegetation that remains along the shoreline from this designated acreage would enhance migration and feeding activities for many species of wildlife, as well as mediate storm water velocity and scour.

5.6 Threatened and Endangered Species

5.6.1 No Action (Alternative 1)

Of the species listed in Table 4-1 of Section 4.0, AFFECTED ENVIRONMENT, one species would be potentially affected by implementation of the No Action Alternative. The Bald Eagle, *Haliaeetus leucocephalus*, which was removed from the threatened listing in 2007 by the USFWS, but still remains a protected species, are located the area of some lands allocated as LDA.

5.6.2 Preferred (Alternative 2)

The Preferred Alternative would likely have fewer potential adverse effects on listed threatened, endangered, protected, or species of state concern than as noted in the No Action Alternative. There are no known species directly impacted by the LDA lands allocation.

5.7 Archaeological and Historic Resources

5.7.1 No-Action (Alternative 1)

Under the No-Action Alternative, which includes 137.6 miles allocated as LDA lands, potential impacts could occur in 14 cultural resource locations, spreading across 4.8 shoreline miles. Any new ground disturbing activities on USACE lands would require a permit to be issued prior to commencement of the activity. Through the site review process prior to issuance of a permit or any federal action, unknown sites would be identified, and known sites would be evaluated for their significance and eligibility for the National Register of Historic Places pursuant to 36 CFR Part 800 of the National Historic Preservation Act. Cultural Resource sites within LDA allocated lands could potentially undergo the most severe impact due to the fact that activities such as boat dock construction and shoreline use permits result in a degree of ground disturbance which could pose a threat to intact cultural deposits. Potential mitigation for impact to cultural or historic sites would be the requirement for a cultural or historic resource site evaluation. If evaluation of site identifies a cultural or historic resource, avoidance of the action would be recommended.

5.7.2 Preferred (Alternative 2)

Under the Preferred Alternative, the LDA lands allocation would decrease from 137.6 shoreline miles to 133.3 miles, thus decreasing the potential for effects on cultural resources. Under this alternative, 11 cultural resource sites spreading across 1.89 shoreline miles, could potentially sustain some impacts. Again, any new ground disturbing activities on USACE lands would require a permit to be issued prior to commencement of the activity. Through the site review process prior to issuance of a permit or any federal action, unknown sites would be identified, and known sites would be evaluated for their significance and eligibility for the National Register of Historic Places pursuant to 36 CFR Part 800 of the National Historic Preservation Act.

5.8 Socio-Economic Resources

5.8.1 No Action (Alternative 1)

The No Action Alternative may potentially have the most effect on the socio-economic situation in the counties surrounding Millwood Lake, due to the fact that 6.8% of the available shoreline miles is allocated as LDA and PRA lands. While the additional potential for some development exists around the lake, current population growth and the demographic makeup of the population is expected to remain similar to the current rates and percentages the area experience now. Housing units and their values would not be affected if the No Action alternative is implemented. It is likely that changes in the socio-economic conditions of the Millwood area would be the result of outside influences, and not those created by the No Action alternative.

5.8.2 Preferred (Alternative 2)

The Preferred Alternative would likely have less of a positive effect on the socio-economic situation in the counties surrounding Millwood Lake than the No Action Alternative. Population would be expected to stay the same or decline slightly due to the decreased LDA and PRA lands

allocation, and corresponding increases in Protected and Prohibited lands allocation. Under the Preferred Alternative the demographic makeup of the population would likely be unaffected. Total housing units would stay the same or decrease due to the decreased availability of potential development and boating recreation at the lake, but it is unlikely that housing values would change as a result of the alternative. The economy of the area would likely stay the same or have a slight decline if this alternative is implemented.

5.9 Recreation Resources

5.9.1 No-Action (Alternative 1)

Provision of recreational facilities and services would continue at Millwood Lake without an update to the Millwood Lake Shoreline Management Plan. However, the 2012 SMP by which the Resource Manager and staff operate would not accurately reflect the current status of project facilities. Currently, there are areas of bluffs incorrectly allocated as LDA, and several boat docks are located outside of areas currently allocated as LDA. Correcting these deficiencies would allow the Millwood Lake staff more time to devote to enhancement of recreational opportunities and safety for lake visitors.

5.9.2 Preferred (Alternative 2)

Under the Preferred Alternative, all lands would be allocated to reflect current uses and some of the existing allocations would be changed. This proposed update in shoreline allocations would be structured to achieve a balance based on the present public use of the lake while sustaining the natural, cultural, and socio-economic resources of the area and reflecting the current management and operation of lands at Millwood Lake. Under Alternative 2, the current LDA lands, PRA lands, comprising 6.8% of available shoreline miles, would be reduced to 6%. Protected lands, currently at 92.5% of shoreline miles, would increase to 92.8%, while Prohibited lands allocation, at 0.6%, would increase to 1.2% of available shoreline miles. These allocations more accurately reflect current lake usage, with fishing, boating, hunting and wildlife viewing dominating the recreational activity on the lake. The proposed increase in Protected and Prohibited lands may assist in forging additional partnerships between public and private entities for recreational and wildlife conservation opportunities. The retention of a major percentage of the natural shoreline vegetation would lead to improved water quality, due to the buffering and filtering capability of this vegetation.

5.10 Air Quality

5.10.1 No Action (Alternative 1)

Under the No Action alternative, the air quality around the lake would remain the same as currently exists. There would likely be increases in vehicular exhaust emissions due to localized development, and the associated construction equipment and traffic in the area. However, no violations of the current National Ambient Air Quality Standards (NAAQS) established by EPA would be expected as a result of the implementation of this alternative.

5.10.2 Preferred (Alternative 2)

Implementation of the Preferred Alternative would also result in no change in air quality impacts as noted under the No Action Alternative. Since this alternative would incorporate more shoreline miles into the Protected and Prohibited lands allocation, there would likely be a reduction in potential development, local vehicular exhaust emissions, and construction equipment activity, which would avoid or reduce potential impacts on localized air quality. All shoreline allocations

are within compliance with the Clean Air Act of 1990. No violations of the current NAAQS established by EPA would be expected as a result of the implementation of this alternative.

5.11 Health & Safety

5.11.1 No Action (Alternative 1)

Safety of project visitors and project staff is the highest priority in daily project operations. The No Action Alternative would have 6.8% of available shoreline miles allocated as LDA and PRA lands, and with the potential for additional development, including docks and vegetation modification, this would allow for a higher potential for a reduction in lake water quality, as described in Section 5.3.2. There could potentially be an increase in boat traffic on the lake and a possible increase in congestion, creating additional safety issues. The lake could experience increased user conflict, for example, boats vs. personal watercrafts. Under the No Action Alternative, populations who recreate at the lake could be exposed to health risks associated with impaired water quality, such as *E. coli,* and potential hazardous run off due to the overall potential for increased recreation at the lake.

5.11.2 Preferred (Alternative 2)

The recreational opportunities on the lake provided by this alternative, balanced with conservation of natural environment, could lead to better health, both mental and physical, of the visiting population. Implementation of the Preferred Alternative would likely result in reduced traffic congestion on the water, and a lower potential for water related incidents. The increase in Protected and Prohibited lands allocation could potentially increase exposure to insects and animals, which is generally understood by the public who utilize these lands.

5.12 Aesthetics

5.12.1 No Action (Alternative 1)

Aesthetics is an important feature that enhances the recreational experience. Lands around Millwood Lake provide a natural setting that is aesthetically pleasing as well as buffering the lake from views of development and clearings.

Under the No-Action Alternative the visual character of the landscape would slowly change due to potential continued development increasing the amount of land with views of development and human structures. This would increase the amount of visual contrast between the natural and developed landscapes around the lake. Visual contrast is a measure of impact on visual quality and aesthetics. Dock development would eliminate the unspoiled and untamed aesthetic of this landscape. Road and utility line corridors also impact aesthetics and visual resources at Millwood. Since the lake is partially surrounded by pockets of residential and commercial development, these demands would continue to increase. In many instances, requests for new shoreline use permits are in areas where the natural vegetation and landscape would be disturbed.

5.12.2 Preferred (Alternative 2)

The wide, open area of Millwood Lake and the nearby timbered coves and shore conveys a sense of tranquility to the lake, and the conversion of an additional 3.8 miles of shoreline to Protected and Prohibited lands, from LDA and PRA lands, would continue to preserve the sense of relatively pristine shoreline. The natural vegetation along the shoreline would enhance the viewscapes of the people recreating on the lake, while potentially impeding the view of the lake from the shore.

Under this proposed alternative, property owners could work with Corps staff to determine the appropriate vegetation management measures for their specific property location adjacent to the shoreline of the lake.

5.13 Cumulative Impacts

Cumulative impacts are those that may result from the incremental impact of the evaluated alternatives added to those of other past, present, or reasonably foreseeable future actions in the local area. The Shoreline Management Plan for Millwood Lake was last approved in 2012. During that time, public use patterns have remained similar, but trends, facility and service demands have shifted in the past nine years due to the need for alternative experiences in recreation and tourism. Between 2005 and 2019, annual average visitation was 386,000. In 2019, roughly 215,000 people visited Millwood Lake. Though visitation was slightly down compared to previous years, visitors still spent $7.4 million in local economies within 30 miles of the lake. Millwood Lake receives pressure for both private shoreline and public recreation use, resulting in management concerns regarding the overall sustainability of the lake. With public use at project facilities changing, reallocations of services at these facilities need to be addressed. Changes involving recreation area closures and improvements have occurred during the last two decades to meet the evolving public use. In addition, cooperative agreements are being considered in order to operate and maintain facilities, which would reduce the financial burden on the taxpayers.

Two main themes came out of the scoping process, which was a cumulative exercise involving private and public entities, and local, state and federal agencies: improving fishing and fish habitat and increasing lake depth. Preservation of the natural shoreline and controlling development would enhance fish habitat in the lake. Lake sedimentation, from watershed erosion, impact the local fisheries, as well as introducing nutrients that feed the enlarging mats of aquatic vegetation that inhabit Millwood Lake. The elevated turbidity levels are due to excessive silt from surface erosion from agriculture activities, unpaved road surfaces, in-stream erosion mainly from unstable stream banks, and any other land surface disturbing activity. Wave action from wind and boating also resuspend sediments, which tends to keep the water turbidity elevated.

Existing conditions at the lake allow for some degree of development on 6.8% of available shoreline mileage, but it should be noted that reallocation of lands under the Preferred Alternative would enhance water quality by reducing LDA and PRA lands, which potentially reduces development, and by increasing the amount of Protected and Prohibited lands more of the natural shoreline vegetation would be protected. Approximately 92.8% of the shoreline would have a natural vegetated composition due to these land reallocations identified in the Preferred Alternative. There would be insignificant impacts to climate, topography, geology and soils under this alternative. The aquatic environment of the lake should benefit from a potential reduction in storm water runoff velocity, reduced sedimentation, improved water quality, and a cleaner substrate for macroinvertebrate production and fish spawning activity. This alternative would also enhance wildlife foraging and movement patterns, offer more protection for threatened and endangered species that inhabit the area, and result in minimal impacts to cultural resources. A provision for additional potential development opportunities coupled with an abundance of lands remaining in their natural condition would balance and enhance recreational experiences, which would potentially stimulate the socio-economics of the area. This balanced approach should provide a safe and aesthetically pleasing recreational experience for the public that visits and/or lives at Millwood Lake.

Continued collaboration and coordination with state and federal resource agencies, as well as local agencies and watershed groups, is necessary to monitor, evaluate and remediate aging infrastructure, failing septic systems around the shoreline, and potential water quality impacts. Coordination with these entities could also evaluate and promote watershed enhancement programs that would serve to institute stream bank stabilization, land improvement and conservation programs, and implementation of best management practices to reduce watershed runoff and erosion.

As management of Millwood Lake ensues, the Corps would continue to coordinate with Federal, State, and local agencies to avoid, minimize or mitigate potential impacts.

6. ENVIRONMENTAL COMPLIANCE

Compliance with Federal Acts and Executive Orders are summarized in the following table.

Table 6-1 Federal Act/Executive Order Compliance

Act/Executive Order	Status	Compliance
Wetlands (EO 11990)	No effect	C
Prime/Unique Farmlands	N/A	N/A
Floodplain Management (EO 11988)	N/A	N/A
Clean Water Act		
Section 404	No effect	N/A
Section 401	No effect	N/A
NPDES	No effect	N/A
Fish and Wildlife Coordination Act	No effect	C
Endangered Species Act	No effect	C
National Historic Preservation Act	No effect	C
Environmental Justice (EO 12898)	No effect	C
Clean Air Act	No effect	C
Comprehensive Environmental Response Compensation and Liability Act (CERCLA)	N/A	N/A
Resource Conservation and Recovery Act (RCRA)	N/A	N/A
Wild and Scenic Rivers Act	N/A	N/A
Rivers and Harbors Act	N/A	N/A
N/A—not applicable C--Compliant		

6.1 Fish and Wildlife Coordination Act

The Corps is required to coordinate with the USFWS and AGFC under the Fish and Wildlife Coordination Act (FWCA) (48 Stat. 401, as amended; 16 USC 661 et. seq.). Coordination was initiated with a scoping notice; no concerns were raised by these agencies. Review of the Environmental Assessment will be completed during the draft release.

6.2 Endangered Species Act

The Endangered Species Act (ESA) requires the determination of possible effects on species or degradation of habitat critical to Federally listed endangered or threatened species. Implementation of an updated Shoreline Management Plan will have no effect on federally listed threatened or endangered species. Individual requests for use of project lands would be evaluated to ensure compliance with this Act.

6.3 Environmental Justice

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations* requires Federal agencies to promote "nondiscrimination in Federal programs substantially affecting human health and environment". In response to this directive, Federal Agencies must identify and

address a disproportionately high and adverse human health and environmental effects of their programs, policies, and activities on minority and low-income populations. The final step in the environmental justice evaluation process is to evaluate the impact of the project on the population and to ascertain whether target populations are affected more adversely than other residents.

Implementing the Shoreline Management Plan Revision would not disproportionately affect minority or low-income populations.

6.4 Cultural Resource Requirement

Section 106 of the National Historic Preservation Act of 1966 requires the Corps to identify historic properties affected by the Selected Alternative and to evaluate the eligibility of those properties for the National Register of Historic Places. Section 110 of the Act requires the Corps to assume responsibility for the preservation of historic properties in its ownership. The Act also requires Federal agencies to provide the Advisory Council on Historic Preservation an opportunity to comment on undertakings through the process outlined in the Council's regulations (36 CFR 800).

There is no potential to effect cultural resources with implementation of an updated Shoreline Management Plan. Individual requests for use of project lands would be evaluated on a case-by-case basis, to ensure compliance with this act.

7. SCOPING AND PUBLIC CONCERN

7.1 Introduction

No single agency has complete oversight of stewardship activities on the public lands and waters surrounding Millwood Lake. Responsibility for natural resource and recreation management falls to several agencies that own or have jurisdiction over these public lands and waters.

Increasingly, competition for the use of these lands and waters and their natural resources can create conflicts and concerns among stakeholders. The need to coordinate a cooperative approach to protect and sustain these resources is compelling. Many opportunities exist to increase the effectiveness of Federal programs through collaboration among agencies and to facilitate the process of partnering between government and non-government agencies.

To sustain healthy and productive public lands and water with the most efficient approach requires individuals and organizations to recognize their unique ability to contribute to commonly held goals. The key to progress is building on the strengths of each sector, achieving goals collectively that could not be reasonably achieved individually. Given the inter-jurisdictional nature of Millwood Lake, partnering opportunities exist and can promote the leveraging of limited financial and human resources. Partnering and identification of innovative approaches to deliver justified levels of service defuse polarization among interest groups, and lead to a common understanding and appreciation of individual roles, priorities, and responsibilities.

To the extent practical, this Shoreline Management Plan and a proactive approach to partnering would position Millwood Lake to aggressively leverage project financial capability and human resources, in order to identify and satisfy customer expectations, protect and sustain natural and cultural resources and recreational infrastructure, and programmatically bring Corps management efforts and outputs up to a justified level of service. Public involvement and extensive coordination within the Corps of Engineers and with other affected agencies and organizations is a critical feature required in developing or revising a Project Shoreline Management Plan.

Agency and public involvement and coordination have been a key element in every phase of the Millwood Lake Shoreline Management Plan revision.

7.2 Scoping

In accordance with NEPA and ER 200-2-2, USACE initiated the environmental compliance and review process for the Millwood Lake MP and SMP revision project. An EA will be prepared to identify potential direct, indirect, and cumulative impacts related to implementation of the MP and SMP. The process of determining the scope, focus, and content of a NEPA document is known as “scoping” and this occurs at the start of the process. Scoping is a useful tool to obtain information from the public and governmental agencies, in order to help set the parameters of issues to focus on and analyze.

In March of 2020, a global coronavirus pandemic (COVID-19) was declared. This prompted a lot of changes in the workforce, including USACE implementing telework schedules to keep employees safe and social distanced. In addition, and due to the evolving Federal, State, and Local policies designed to address the spread of COVID-19, the project delivery team (PDT) determined that no in-person agency or public scoping workshops would occur until the threat of the virus subsided. As an alternative, the Millwood Master Plan and Shoreline Management Plan Revision website was created to be the primary source of information during this time. Website information was provided through various sources, such as notification postcards, news releases, agency scoping letters, and media outreach, for individuals to visit the project website to find out more information about the process to update the Master Plan and Shoreline Management Plan of Millwood Lake; to solicit comments for Scoping; and to communicate to the public of the reason behind changing the traditional USACE scoping process, in response to the global pandemic. As part of the initial phase of the environmental process, an extended public scoping comment period was held between November 16, 2020, and December 31, 2020, to gather agency and public comments on the MP and SMP revision process and issues that should be examined as part of the environmental analysis. The extension on the comment period was one response to the change in the traditional USACE scoping process, due to the pandemic.

In particular, the scoping process was used as an opportunity to get input from the public and agencies about the vision for the MP and SMP update and the issues that the MP and SMP should address. When people visited the Millwood Lake Master Plan update website, they were encouraged to provide input by completing a comment form that asked for responses to specific questions in addition to soliciting for general comments about the plan and the environmental review. The questions included:

- How would you like to see Millwood Lake in 20 years?
- What changes, if any, would you like to see at the lake?
- What about Millwood Lake is most important to you?
- What about Millwood Lake is least important to you?
- Please provide your comments and suggestions on items to update the Millwood Lake SMP.
- Additional Comments on the MP or SMP revision or about issues that should be studied?

USACE published notice of the scoping period through an email blast, a direct mail postcard, press releases, and agency notification letters. The postcard notice and email blast were sent to landowners adjacent to USACE-owned lands around the lake, holders of fishing permits purchased in Arkansas who's listed zip code is within 7 miles of Millwood Lake, dock permit holders, dock builders, timber buyers, and those who held reservations to camp at Millwood Lake campgrounds within the 2019 recreational season. Postcards were sent to those for whom only a postal address was available; all others received the email blast. Agency coordination letters were sent to potentially interested agencies. A letter was sent on November 10, 2020, to 19 agencies providing notification of the upcoming agency scoping comment period and links to the project website where more information could be found.

A project website, https://www.swl.usace.army.mil/Missions/Planning/Millwood-Lake-Master-Plan-Revision/, was developed for both the MP and SMP revision project. The site included information about Millwood Lake, the MP and SMP revision process, and the scoping process. Information on the scoping process included, how to submit comments and who to contact for

more information. Between November 16, and December 31, 2020, 126 people visited the project website.

7.3 Draft Master Plan-Shoreline Management Plan/Draft Environmental Assessments

The draft release of the Millwood Lake Shoreline Management Plan and associated documents is scheduled for release at the end of July 2021, with public workshops scheduled for late August 2021.

7.4 Final Shoreline Management Plan/Final EA.

The Final Shoreline Management Plan is scheduled for completion in January 2022, with public workshops scheduled in early January 2022.

Public workshop format will be similar to the Scoping and Draft Release workshops; however, no comments will be accepted as the plan is final.

8. Conclusions

The Shoreline Management Plan for Millwood Lake was last approved in 2012. Since then, public use patterns have remained similar, but trends, facility and service demands have shifted in the past nine years due to the need for alternative experiences in recreation and tourism. While visitation to the lake has varied in numbers through the last nine years, the demand for high quality recreational experiences remain. Millwood Lake receives pressure for both private shoreline and public recreation use, resulting in management concerns regarding the overall sustainability of the lake. With public use at project facilities changing, reallocations of services at these facilities need to be addressed. Changes involving recreation area closures and improvements have occurred during the last four decades to meet the evolving public use. In addition, cooperative agreements are being considered, in order to operate and maintain facilities, which would reduce the financial burden on the taxpayers.

The Shoreline Management Plan is not intended to address the specifics of regional water quality or water level management; these areas are covered in a project's water management plan. However, specific issues identified through the Shoreline Management Plan revision process can still be communicated and coordinated with the appropriate internal Corps resource (i.e., Operations for shoreline management) or external resource agency (i.e., Arkansas Game and Fish Commission for fisheries management and Arkansas Dept. of Energy and Environment for water quality) responsible for that specific area. To facilitate this action, the current Shoreline Management Plan development evaluated two alternatives relative to their potential impacts on the land and water resources of Millwood Lake.

These alternatives spanned the gamut of increased shoreline protection to increased shoreline development and the potential effects on the human, terrestrial, and aquatic environment from their implementation. A no action alternative looked at leaving the lake as it currently exists in terms of developable areas and protected areas. Of the 443.3 miles of shoreline available land around the lake, 6.8% of this is allocated as Limited Development Area and Public Recreation Area lands, which would allow some potential future development.

The action alternative (Preferred Alternative) would reduce the LDA by 2.9 shoreline miles, and the PRA by 0.9 miles, resulting in 6% of the shoreline allocated to these lands. The remainder of the shoreline would be allocated to Protected Area lands (92.8%) and Prohibited Area lands (1.2%). These allocations would leave the majority of the available shoreline acreage as preservation areas. Potential effects from this would be decreased vegetation removal and a reduction in soil erosion due to the reallocation of lands previously included as LDA and PRA lands, which had the potential for construction and conversion of pervious surfaces to impervious. This construction activity is generally detrimental to water quality and terrestrial and aquatic wildlife species. Development has the potential to increase the number of boats on the lake, increased health and safety issues, aesthetic impacts, and impaired recreational experiences for many visitors. The Preferred Alternative would preserve more shoreline vegetation, reduce stormwater runoff quantity and velocity, resulting in less in-lake sedimentation and turbidity, and improve water quality. This alternative seeks to balance all components of lake usage, including the provision for growth and recreation potential, while protecting and preserving terrestrial and aquatic resources.

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10. List of Preparers

EA Preparation

- Robert Singleton, Biologist, Regional Planning and Environmental Center
- Allen Wilson, District Archeologist, Operations Division
- Cherrie-Lee Philip, Conservation Biologist, Operations Division

Appendix A

Millwood Lake Master Plan and Shoreline Management Plan Scoping Report

Appendix B
Draft Release Comments Report

Reserved for Draft Release Comment Report

Appendix C

Millwood Lake Shoreline Management Plan
No Action and Preferred Alternative Shoreline Allocation Maps