



Fishtrap Lake Project Master Plan

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prepared for:



**US Army Corps
of Engineers** ®

Huntington District

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prepared by:

URS

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1.0 INTRODUCTION AND BACKGROUND

This updated Master Plan provides guidance for the management and development of natural and manmade resources in and around the Fishtrap Lake in eastern Kentucky. Fishtrap Lake was impounded by the U.S. Army Corps of Engineers (USACE) in 1968. The USACE oversees 15,693 acres in fee and 203 acres of flowage easements at the Fishtrap Lake Project. The lake is used incidentally for recreation and wildlife management. The Fishtrap Lake Project is referred to as the Project in this document.

This Master Plan is intended to provide a guide for achieving its goals of managing, conserving, and enhancing natural resources while providing the public with quality opportunities for outdoor recreation. The Master Plan was developed in response to regional and local needs, resource capabilities and suitability, and expressed public interests consistent with authorized Project purposes and relevant legislation and regulations.

The Master Plan provides a summary of the purposes and history of the Project; the applicable Federal laws and directives that govern its use; resource objectives; and a detailed analysis of existing natural resources, recreational resources, and land uses. The Master Plan includes projections of future demands for recreational use of the Project and a resource use plan to help ensure that the Project will continue to meet the goals of promoting awareness of the natural environment, adhering to sound environmental stewardship principles, and providing outdoor recreational opportunities for current and future generations in an efficient and effective manner.

The Master Plan also contains proposed actions for modifying recreational facilities and wildlife management approaches for consistency with USACE's established purposes. A Programmatic Environmental Assessment has been prepared to address the potential impacts of proposed actions.

To facilitate reading this document, a list of acronyms and abbreviations is included as Appendix A. Appendix B contains a bibliography, and Appendix C contains a summary of the comments submitted by the public and invited stakeholders during the public scoping period for the Master Plan.

1.1 Project Authorization

Construction of the Fishtrap Lake Project was authorized by the Flood Control Act of 1938 (Public Law [PL] 75-761), which was passed by the 75th Congress on 28 June 1938. The

Fishtrap Lake Project was designated as part of the larger Comprehensive Flood Control Plan for the Ohio River Basin.

1.2 Authorized Project Purposes

The Fishtrap Lake dam was constructed on the Levisa Fork of the Big Sandy River to serve several purposes. The authorized Project purposes are flood risk management, recreation, water quality improvement, low flow augmentation, and fish and wildlife conservation (USACE, 1994).

1.2.1 Flood Risk Management

The Flood Control Act of 1936 (PL 74-738) states that flood risk management is “a proper activity for the Federal Government in cooperation with states, their political subdivisions, and localities thereof.” Congress gave responsibility for Federal flood risk management projects to the USACE. One year later, in 1937, one of the most damaging floods along the Ohio River occurred. Part of Cincinnati was under water for more than 2 weeks, and damage exceeded \$20 million (Ohio Historical Society, 2010).

In the years after passage of the Flood Control Act of 1936, the USACE built approximately 400 reservoirs nationwide, pursuant to congressional authorization and appropriation, with the primary purpose of flood risk management. The reservoirs are estimated to have prevented more than \$19 billion in flood damage in the Ohio River Basin since the 1930s (USACE, 2009a). Subsequent acts, including the Flood Control Act of 1965, authorized additional reservoirs, including Fishtrap Lake.

1.2.2 Recreation

Section 4 of the Flood Control Act of 1944 (PL 78-534) authorized the Chief of Engineers “... to construct, maintain, and operate public parks and recreational facilities in reservoir areas under the control of (the Secretary of the Army), and to permit the construction, maintenance, and operation of such facilities.” The Flood Control Act of 1962 (PL 87-874) broadened the 1944 authority to include all water resources projects. It has since been recognized that long-term recreational development as a purpose that is equal to the other established purposes of water resources development.

One of the policies is to encourage non-Federal participation in the administration of recreational opportunities at USACE projects. Since 1944, the USACE has entered into leases that permit State and local development and administration of recreational areas at Civil Works projects

such as the Fishtrap Lake Project. This policy was reaffirmed by Congress through the passage of the Federal Water Project Recreation Act of 1965 (PL 89-72). The act states that “in investigating and planning any Federal navigation, flood control, reclamation, hydroelectric, or multipurpose water resource project, full consideration shall be given to the opportunities, if any, which the project affords for outdoor recreation.” The act also defines the basis for sharing the financial responsibilities in joint Federal/non-Federal development, enhancement, and management of recreational and fish and wildlife resources of Federal water projects.

A substantial number of recreational areas were developed before the cost-sharing principles of PL 89-72 were implemented, and these areas continue to be operated directly by the USACE. Non-consumptive recreational opportunities offered at the Project through leases with the State and county include camping, boating, and hiking. The Project also provides opportunities for consumptive recreation including fishing and hunting. Recreational areas vary from undeveloped forested land to well-developed and extensively used campgrounds.

1.2.3 Water Quality Control

The Federal Water Pollution Control Act of 1948 (PL 80-845), authorized the Surgeon General of the Public Health Service, in cooperation with other Federal and State and local entities, to develop comprehensive programs for eliminating or reducing the pollution of interstate waters and tributaries and improving the sanitary condition of surface and underground waters. During the development of the plans, consideration was to be given to improvements necessary to conserve waters for public water supplies, propagate fish and other aquatic life, provide for recreational purposes, and provide for agricultural and industrial uses.

The Federal Water Pollution Control Act Amendments of 1961 (PL 87-88) amended the Federal Water Pollution Control Act of 1948 to provide for a more effective program of water pollution control and to fulfill other purposes. Section 2 of PL 87-88 mandated consideration of water storage to include consideration of water storage in Federal projects for water quality control, except that such storage should not be a substitute for adequate treatment or control at the source. This directive was amended by Section 102(b) of the Federal Water Pollution Act Amendments of 1972 (PL 92-500).

The water quality control system at Fishtrap Lake was designed with the understanding that the lake would be stratified during the summer with warm, oxygenated water on the surface and cold, unoxygenated water at the bottom; therefore, a system of selective withdrawal inlets at various water depths was installed in the intake structures.

The water quality control objectives for Fishtrap Lake are low-flow control and downstream flow augmentation. Fishtrap Lake is required to provide water to ensure flowing oxygenated water for downstream fisheries and wildlife. The summer pool of 757 feet National Geodetic Vertical Datum (NGVD) is designed to supply 75.0 cubic feet per second (cfs) in summer, even during the driest years.

1.2.4 Fish and Wildlife Management

The Fish and Wildlife Coordination Act of 1958 (PL 85-624) authorizes the USACE to modify projects to conserve fish and wildlife resources. The Endangered Species Act of 1973 (PL 93-205) provides additional authority for operating projects to protect threatened or endangered fish and wildlife. The Federal Water Project Recreation Act of 1965 (PL 89-72) requires consideration of opportunities for fish and wildlife enhancement in planning water resources projects. Non-Federal bodies are encouraged to operate and maintain the project fish and wildlife enhancement facilities. If non-Federal bodies agree in writing to administer the facilities at their expense, the fish and wildlife benefits are included in the project benefits and project cost allocated to fish and wildlife. Fees may be charged by the non-Federal bodies to repay their costs. If non-Federal bodies do not so agree, no facilities for fish and wildlife may be provided. Fish and wildlife management at Fishtrap Lake is provided by the Kentucky Department of Fish and Wildlife Resources (KYDFWR).

1.3 Prior Master Plans

The first Fishtrap Lake Project Master Plan was developed and approved in 1962 (USACE, 1962). A Master Plan Update was developed in 1976 but was not approved by the Huntington District. Three supplements were prepared in 1989. This document is an update of those documents.

1.4 Application of Public Laws

Development and management of Federal reservoirs are regulated by a number of statutes and Executive Orders (EOs) and guided by USACE documents. The following sections provide a summary of relevant Federal statutes and EOs.

1.4.1 Recreation

The public laws and policy listed below addresses development and management of recreational facilities on public lands and are pertinent to USACE project lands in eastern Kentucky.

- PL 78-53, Flood Control Act of 1936 (22 June 1936), authorizes the construction of civil engineering projects such as dams, levees, dikes, and other flood risk management measures through the USACE.
- PL 78-534, Flood Control Act of 1944 (22 December 1944), authorizes the Chief of Engineers to provide facilities in reservoir areas for public use, including recreation and conservation of fish and wildlife.
- PL 79-526, Flood Control Act of 1946 (24 July 1946), amends PL 78-534 to include authority to grant leases to nonprofit organizations at recreational facilities in reservoir areas at reduced or nominal charges.
- PL 83-780, Flood Control Act of 1954 (3 September 1954), further amends PL 78-534 and authorizes the Secretary of the Army to grant leases to Federal, State, or governmental agencies without monetary considerations for use and occupation of land and water areas under the jurisdiction of the Department of the Army for park and recreational purposes when in the public interest.
- Joint Land Acquisition Policy for Reservoir Projects (Federal Register, Volume 27, 22 February 1962) allows the Department of the Army to acquire additional lands necessary for the realization of potential outdoor recreational resources of a reservoir.
- PL 88-578, Land and Water Conservation Fund Act of 1965 (1 September 1964), prescribes conditions under which USACE may charge for admission and use of its recreational areas.
- PL 89-72, Federal Water Project Recreation Act of 1965 (9 July 1965), requires sharing of financial responsibilities in joint Federal and non-Federal recreational and fish and wildlife resources with no more than half of the cost borne by the Federal Government.
- PL 90-480, Architectural Barriers Act of 1968 (12 August 1968), requires access for persons with disabilities to facilities designed, built, altered, or leased with Federal funds.
- PL 101-336, Americans with Disabilities Act of 1990 (ADA) (26 July 1990), as amended by the ADA Amendments Act of 2008 (PL 110-325), prohibits discrimination based on disabilities in, among others, the area of public accommodations and requires “reasonable accommodation” to persons with disabilities.
- PL 102-580, Water Resources Development Act of 1992 (31 October 1992), authorizes the USACE to accept contributions of funds, materials, and services from non-Federal public and private entities to be used in managing recreational facilities and natural resources.

- PL 103-66, Omnibus Budget Reconciliation Act–Day Use Fees (10 August 1993), contains provisions by which USACE may collect fees for the use of developed recreational sites and facilities, including campsites, swimming beaches, and boat ramps.
- PL 104-333, Omnibus Parks and Public Lands Management Act of 1996 (12 November 1996), created a nine-member advisory commission to review the current and anticipated demand for recreational opportunities at lakes and reservoirs managed by the Federal Government and to develop alternatives to enhance the opportunities for such use by the public.

1.4.2 Water Resource Protection and Flood Risk Management

A number of public laws address water resources protection and flood risk management and the integration of these goals with other Project purposes such as recreation. The following are pertinent to USACE project lands in eastern Kentucky:

- PL 74-738, *Flood Control Act of 1936* (22 June 1936), declares flood risk management to be a proper Federal activity.
- PL 75-761, *Flood Control Act of 1938* (28 June 1938), authorizes the construction of civil engineering projects such as dams, levees, dikes, and other flood risk management measures through the USACE.
- PL 78-534, *Flood Control Act of 1944* (22 December 1944), specifies the rights and interests of the states in water resources development and requires cooperation and consultation with State agencies in planning for flood risk management.
- PL 85-500, *Water Supply Act of 1958* (3 July 1958), authorizes the USACE to include municipal and industrial water supply storage in multiple-purpose reservoir projects.
- PL 87-88, *Federal Water Pollution Control Act Amendments of 1961* (20 July 1961), requires Federal agencies to address the potential for pollution of interstate or navigable waters when planning a reservoir project.
- PL 89-80, *Water Resources Planning Act of 1965* (22 July 1965), provides for the optimum development of the Nation’s natural resources through coordinated planning of water and related land resources. It provides authority for the establishment of a water resources council and river basin commission.

- PL 89-298, *Flood Control Act of 1965* (27 October 1965), authorizes the Secretary of the Army to design and construct navigation, flood risk management, and shore protection projects if the cost of any single project does not exceed \$10 million.
- PL 92-500, *Federal Water Pollution Control Act (Clean Water Act)* (October 18, 1972) Establishes a national goal of eliminating all discharges into U.S. waters by 1985 and an interim goal of making the waters safe for fish, shellfish, wildlife and people by July 1, 1983. Also provides that in the planning of any Corps reservoir consideration shall be given to inclusion of storage for regulation of streamflow. PL 95-217, *Clean Water Act of 1977* (15 December 1977), amends PL 87-88 and requires the Environmental Protection Agency (EPA) to enter into written agreements with the Secretaries of Agriculture, the Army, and the Interior to provide maximum utilization of the laws and programs to maintain water quality.
- PL 99-662, *Water Resource Development Act of 1986* (17 November 1986), establishes cost sharing formulas for the construction of harbors, inland waterway transportation, and flood risk management projects.

1.4.3 Fish and Wildlife Resources

A number of public laws address protection and maintenance of fish and wildlife resources. The following are pertinent to USACE project lands in eastern Kentucky:

- PL 79-732, *Fish and Wildlife Coordination Act* (10 March 1934), provides authority for making project lands available for management by interested State agencies for wildlife purposes.
- Title 16 U.S. Code (U.S.C.) §§ 668-668a-d, *Bald and Golden Eagle Protection Act of 1940* (8 June 1940) as amended, prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald eagles (*Haliaeetus leucocephalus*), including their nests or eggs.
- PL 85-624, *Fish and Wildlife Coordination Act* (12 August 1958), states that fish and wildlife conservation will receive equal consideration with other project purposes and be coordinated with other features of water resources development programs.
- PL 91-190, *National Environmental Policy Act of 1969 (NEPA)* (1 January 1970), establishes a broad Federal policy on environmental quality stating that the Federal government will "... assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings...preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity and variety..."

- PL 93-205, Conservation, Protection, and Propagation of Endangered Species (28 December 1973), requires that Federal agencies will, in consultation with the U.S. Fish and Wildlife Service (USFWS), further conservation of endangered and threatened species and ensure that their actions are not likely to jeopardize such species or destroy or modify their critical habitat.
- PL 95-632, Endangered Species Act Amendments of 1978 (10 November 1978), specifies a consultation process between Federal agencies and the Secretaries of the Interior, Commerce, or Agriculture for carrying out programs for the conservation of endangered and threatened species.
- PL 101-233, North American Wetland Conservation Act (13 December 1989), directs the conservation of North America wetland ecosystems and requires agencies to manage their lands for wetland/waterfowl purposes to the extent consistent with missions.
- PL 106-147, Neo-tropical Migratory Bird Conservation Act (20 July 2000) promotes the conservation of habitat for neo-tropical migratory birds.

1.4.4 Forest Resources

The following law pertains to management of forested lands and is pertinent to USACE project lands in eastern Kentucky:

- PL 86-717, Conservation of Forest Land Act of 1960 (6 September 1960), provides for the protection of forest cover in reservoir areas and specifies that reservoir areas of projects developed for flood risk management or other purposes that are owned in fee and under the jurisdiction of the Secretary of the Army and the Chief of Engineers will be developed and maintained so as to encourage, promote, and ensure fully adequate and dependable future resources of readily available timber. Timber production can be implemented through sustained yield programs, reforestation, and accepted conservation practices.

1.4.5 Cultural Resources

A number of public laws mandate the protection of cultural resources on public lands. The following are pertinent to USACE project lands in eastern Kentucky:

- PL 59-209, Antiquities Act of 1906 (8 June 1906), applies to the appropriation or destruction of antiquities on federally owned or controlled lands and has served as the precedent for subsequent legislation.

- PL 74-292, Historic Sites Act of 1935 (21 August 1935), declares that it is a national policy to preserve for public use historic sites, buildings, and objects of national significance for the inspiration and benefit of the people of the United States.
- PL 86-523, Reservoir Salvage Act of 1960 (27 June 1960), provides for the preservation of historical and archaeological data that might otherwise be lost as the result of the construction of a dam and attendant facilities and activities.
- PL 89-665, National Historic Preservation Act of 1966 (NHPA) (15 October 1966), establishes a national policy of preserving, restoring, and maintaining cultural resources. It requires Federal agencies to take into account the effect an action may have on sites that may be eligible for inclusion on the National Register of Historic Places.
- PL 93-291, Archaeological and Historic Preservation Act of 1974 (24 May 1974), amends PL 86-523 and provides for the Secretary of Interior to coordinate all Federal survey and recovery activities authorized under this expansion of the Reservoir Salvage Act of 1960. The Federal construction agency may expend up to 1 percent of project funds on cultural resource surveys.
- PL 96-95, Archaeological Resources Protection Act of 1979 (31 October 1979), updates PL 59-209 and protects archaeological resources and sites on public lands and fosters increased cooperation and exchange of information among governmental authorities, the professional archaeological community, and private individuals.
- PL 101-601, Native American Graves Protection and Repatriation Act (16 November 1990), requires Federal agencies to return Native American human remains and cultural items, including funerary objects and sacred objects, to their respective peoples.

1.4.6 Leases, Easements, and Rights-of-Way

A number of laws and regulations govern the granting of leases, easements, and rights-of-way on Federal lands. The following are pertinent to USACE project lands in eastern Kentucky:

- 10 U.S.C. § 2667, Leases: Non-excess Property of Military Departments and Defense Agencies (10 August 1956), authorizes the lease of land at water resource projects for any commercial or private purpose not inconsistent with other authorized project purposes.
- U.S.C. Titles 10, 16, 30, 32, and 43 address easements and licenses for project lands; 16 U.S.C. § 460d authorizes use of public lands for any public purpose, including fish and wildlife, if it is in the public interest.

- 16 U.S.C. §§ 470h-3, Lease or Exchange of Historic Property (15 October 1966), for historic properties.
- 16 U.S.C. § 663, Impoundment or Diversion of Waters (10 March 1934), for wildlife resources management in accordance with the approved general plan.
- 30 U.S.C. §§ 181–263, Mineral Leasing Act of 1920 (25 February 1920), promotes the mining of coal, oil, and gas on the public domain and specifies conditions of leasing agreements.
- 30 U.S.C. §§ 351–359, Mineral Leasing Act for Acquired Lands of 1947 (7 August 1947) provides that minerals subject to the Mineral Leasing Act of 1920 that are located on acquired Federal lands are subject to the Federal mineral leasing system.
- PL 91-631, Mining and Minerals Policy Act of 1970 (28 April 1971), specifies the Federal policy for economically sound development of domestic mining.
- PL 91-646, Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (2 January 1971), establishes a uniform policy for fair and equitable treatment of persons displaced as a result of Federal or federally assisted programs.
- PL 94-579, Federal Land Policy and Management Act of 1976 (21 October 1976) establishes a policy that the Federal Government receive fair market value for the use of the public lands and their resources unless otherwise provided for by statute. Provides for the inventory of public land and land use planning. Establishes the extent to which the executive branch may withdraw lands without legislative action.
- PL 95-87, Surface Mining Control and Reclamation Act of 1977 (3 August 1977) regulates surfacing mining and requires permits and inspections.

1.4.7 Executive Orders

As head of the executive branch, the President can issue legally binding orders known as Executive Orders (EOs). These orders are generally issued to direct Federal agencies and officials in their execution of relevant laws and policies. The following EOs are pertinent to USACE project lands in eastern Kentucky:

- EO 11514, Protection and Enhancement of Environmental Quality (5 March 1970), outlines the responsibilities of Federal agencies in consonance with NEPA. EO 11514 was amended in 1977 by EO 11991, Relating to Protection and Enhancement of Environmental Quality, in 1977.

- EO 11593, Protection and Enhancement of Cultural Environment (13 May 1971), outlines the responsibilities of Federal agencies in consonance with the NHPA, NEPA, the Historic Sites Act, and the Antiquities Act.
- EO 11644, Use of Off-Road Vehicles on Public Lands (8 February 1972), establishes a uniform Federal policy regarding the use of vehicles such as trail bikes, snowmobiles, AND dune buggies on public lands.
- EO 11988, Flood Plain Management (24 May 1977), requires Federal agencies to avoid both long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid development of floodplains when practicable alternatives exist.
- EO 11989, Off-Road Vehicles on Public Lands (24 May 1977), amends EO 11644 and authorizes Federal agencies to close areas or trails to off-road vehicles that cause adverse effects to soil, vegetation, wildlife, wildlife habitat, and cultural or historical resources.
- EO 11990, Protection of Wetlands (24 May 1977), restricts Federal agencies from taking actions that would destroy or modify wetlands when there is a practicable alternative.
- EO 11991, Relating to Protection and Enhancement of Environmental Quality (24 May 1977), amends EO 11514 by directing the Council of Environmental Quality to issue guidance to Federal agencies for implementing procedural provisions of NEPA.
- EO 12088, Federal Compliance with Pollution Control Standards (12 October 1978) requires all Federal agencies to be in compliance with environmental laws and fully cooperate with the EPA, State, interstate, and local agencies to prevent, control, and abate environmental pollution. EO 12962, Recreational Fisheries (7 June 1995), directs Federal agencies to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities. EO 12962 was amended by EO 13474 in 2008.
- EO 13112, Invasive Species (3 February 1999), directs each Federal agency to prevent the introduction of invasive species, to detect and respond rapidly to and control populations of invasive species in a cost-effective and environmentally sound manner, to monitor invasive species populations accurately and reliably, and to provide for restoration of native species and habitat conditions in ecosystems that have been invaded.
- EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (10 January 2001), directs Federal agencies, pursuant to a Memorandum of Understanding with the USFWS, to support the conservation intent of migratory bird conventions by integrating bird

conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the greatest extent practicable, adverse impacts on migratory bird resources.

- EO 13327, Federal Real Property Asset Management (4 February 2004) promotes the efficient and economical use of Federal real property resources in accordance with their value as national assets and in the best interest of the Nation. EO 13327 was amended by EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management, in 2007.
- EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management (24 January 2007) instructs Federal agencies to conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically and fiscally sound, integrated, continuously improving, efficient, and sustainable manner.
- EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance (5 October 2009) expands on the energy reduction and environmental performance requirements for Federal agencies identified in EO 13423 and requires Federal agencies to make reductions in greenhouse gas emissions.

1.5 Purpose of the Master Plan

The purpose of this Master Plan is to provide guidance for the preservation, conservation, restoration, maintenance, management, and development of Project lands, waters, and associated resources. The Master Plan is intended to aid responsible stewardship of Project resources for the benefit of present and future generations.

The Master Plan contains an evaluation of the present use and potential uses of Project resources and recommendations for the future management and development of Project resources. This Master Plan is conceptual, and as such, contains a discussion of conceptual activities rather than designs and exact locations.

The Master Plan is based on responses to regional and local needs, resource capabilities and suitability, and expressed public interests that are consistent with authorized Project purposes and pertinent legislation and regulations. Actions by the USACE and by the agencies and individuals granted leases or licenses for use of Project lands must be consistent with the Master Plan. The Master Plan is distinct from the project-level implementation emphasis of the Operational Management Plan (OMP). Policies in the Master Plan are guidelines that will be implemented through provisions of the OMP, specific Design Memoranda, and other planning mechanisms.

The broad intent of this Master Plan is to:

- Determine appropriate uses and levels of development for Project resources
- Provide a framework within which the OMP and other planning mechanisms can be developed and implemented
- Establish a basis on which outgrants and recreational development proposals can be evaluated

1.6 Scope of the Master Plan

This Master Plan includes guidance for appropriate uses, development, enhancement, protection, and conservation of the natural, cultural, and built resources of the Project. The Master Plan has eight sections:

- Section 1.0 – Introduction and Background
- Section 2.0 – Public Involvement, Coordination and Partnerships
- Section 3.0 – Resource Analysis
- Section 4.0 – Recreation Program Analysis
- Section 5.0 – Resource Objectives
- Section 6.0 – Land Allocation and Classification
- Section 7.0 – Resource Use plan
- Section 8.0 – Special Programs
- Appendices
 - Appendix A: Acronyms and Abbreviations
 - Appendix B: Bibliography
 - Appendix C: Summary of Public Scoping Meetings

1.7 Project Description

The description of the Project includes location, history, water quality issues, land acquisition, Federal areas and recreational facilities, outgrants, Project data and lake operations, lake regulation, and visitation data.

1.7.1 Location

The Fishtrap Lake Project is located on the Levisa Fork of the Big Sandy River in Pike County, KY, near the Virginia and West Virginia borders. The Project is about 5 miles east of the junction of U.S. Route 460 and U.S. Highway 23 in Pikeville, KY. Access to the Project from U.S. Route 460, is via State Route (SR) 1789/Fishtrap Road. State Secondary Routes (SSRs) 194 and 1373 also provide access to Project areas. Figure 1-1 shows the location of the Project in the Commonwealth of Kentucky and the major highways in the Project area.

Communities within a 1-hour drive of Fishtrap Lake are Pikeville, KY; Williamson, WV; and Grundy, VA. The Project is almost 2 hours from Huntington, WV, and just over 3 hours from Lexington, KY.

1.7.2 History of the Project

Based on planning studies, it was concluded that comprehensive flood relief in the Levisa Fork Basin could be provided by constructing a system of four flood risk management reservoirs to supplement the Dewey Lake and Prestonburg Local Backwater Protection Projects. The Fishtrap Lake reservoir was one of these four projects. Construction of the dam began in February 1962, and President Lyndon B. Johnson dedicated the Project on October 26, 1968. Approximately 1,712 acres were inundated when the lake was impounded. Prior to Project development, the area contained homes, pasture land, tillable land, woodlands, and streambeds.

1.7.3 Water Quality Issues

Excessive sedimentation from coal mining operations is a significant problem in the Fishtrap Lake watershed. In addition to high electrical conductance levels, elevated levels of sulfates, chlorides, iron were detected in the waters due to mining operations. Other water quality problems that have affected recreational development include floating debris and safety problems related to mining activities. Despite the trash and debris in the lake, water quality samples show that water quality in the lake is safe for recreation including swimming.

KYDFWR lists Fishtrap Lake as impaired for fish consumption by because of polychlorinated biphenyls (PCBs) and methylmercury contamination of fish. Women of childbearing age and children 6 years old and younger are under a State advisory to eat no more than one meal per week of freshwater fish from any body of water in the Commonwealth, and fish consumption advisories have been issued for the Levisa Fork of the Big Sandy River, including Fishtrap Lake (KYDFWR, 2011b).

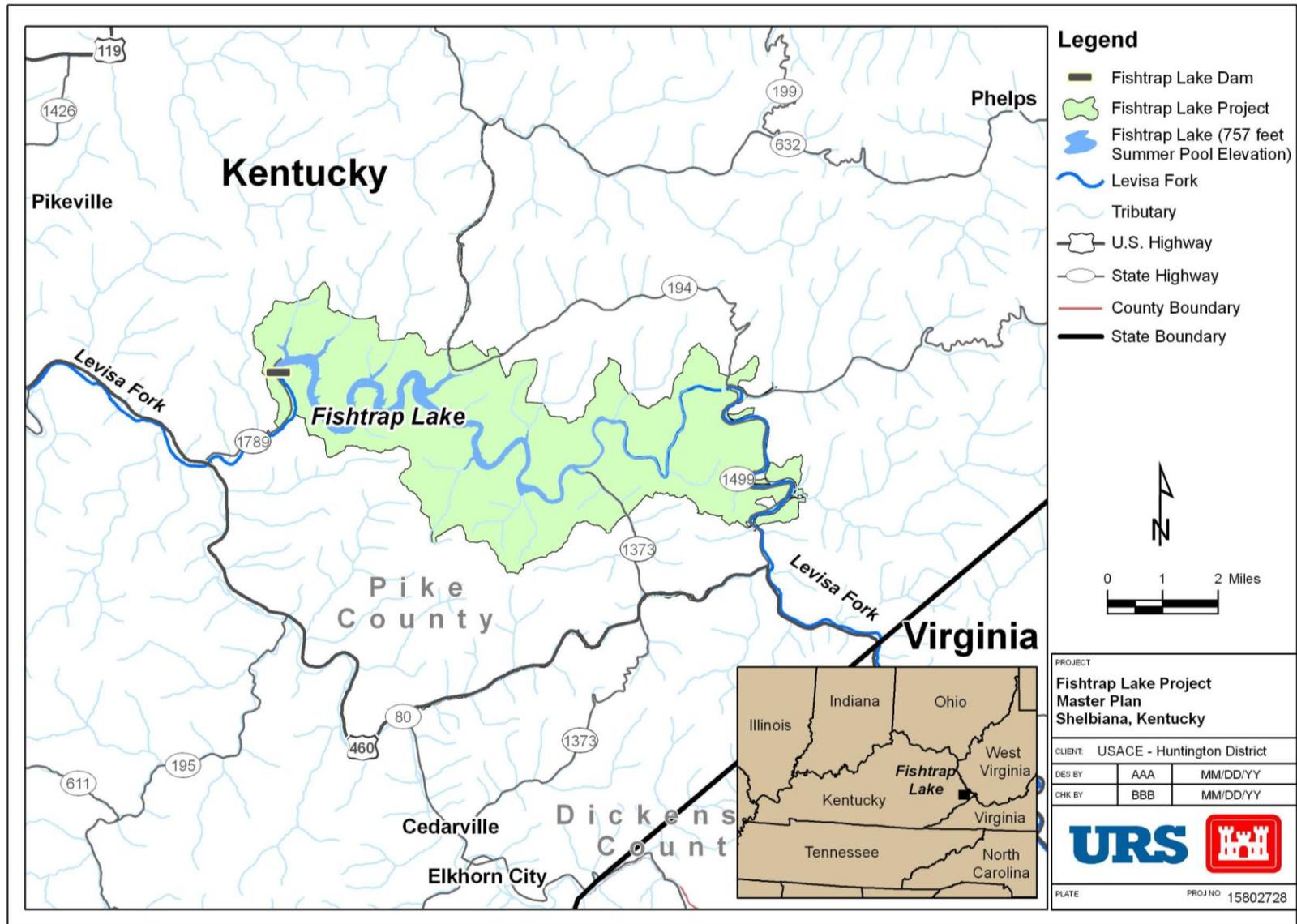


Figure 1-1: Location of Fishtrap Lake Project

1.7.4 Land Acquisition History

The Federal Government purchased the land for the Project site and fully funded construction of the Project. Property acquisitions are discussed in USACE Design Memoranda Nos. 5, 8, 9, 12, and 17, as follows:

- Design Memorandum No. 5 (1960) provided a general Project plan and preliminary design for the dam and reservoir. The Project land is described as rough, hilly, and mountainous, and underlain with coal, oil, and gas reserves. The memo recommended acquiring 11,298 acres for the Project, of which 1,712 would be flooded for the reservoir.
- Design Memorandum No. 8 (1961) recommended acquiring about 480 acres in the Grapevine Creek area and discussed relocation of a roadway.
- Design Memorandum No. 9 (1962) recommended acquiring 3,650 acres for relocation of U.S. Route 460 and for additional Project land.
- Design Memoranda Nos. 8 and 9 were supplemented and amended to recommend acquisition of surface rights for approximately 4,400 acres over coal lands in the Grapevine Creek area to control mining practices and prevent further environmental degradation.
- Design Memorandum No. 12 (1964) recommended acquiring 7,200 acres to accommodate relocation of the Chesapeake and Ohio Railroad tracks near the dam, a new bridge at Millard, and land near Grapevine Creek and in the Morgan-Branch-Simms Creek area.
- A supplement to Design Memorandum No. 12 proposed acquiring 1,890 acres that would be isolated by the elimination of existing roadways.
- Design Memorandum No. 17 (1964) recommended acquiring approximately 1,625 acres to include the narrow, steep valley of the Levisa Fork and small tributary streams.

Ultimately, land acquired for the Project totaled approximately 15,500 acres.

1.7.5 Federal Areas and Recreational Facilities

The USACE manages three areas at the Project: Dam Site Area, Lick Creek Launch Ramp, and Grapevine Creek Campground. The remaining areas of the Project are managed through outgrants.

1.7.6 Outgrants

An outgrant is the written interest granted to an entity or individual that allows that entity or individual to make use of government property through lease, easement, or permit. Outgrants

typically establish a time frame, conditions, and restrictions on the use of the property. Of the eight outgrants at the Project, six are lease agreements for recreational areas. The six outgrants are the Feds Creek Recreation Area, Grapevine Recreation Area, Lick Creek Recreation Area, Appalachian Marina, the Wildlife Management Area (WMA), and Fishtrap Lake State Park. The other two outgrants are Millard-East Shelbiana Volunteer Fire & Rescue Department and the Kentucky Division of Forestry Offices.

Table 1-1 lists the Federal recreational areas and outgrants areas at the Project, and Figure 1-2 shows the locations.

Table 1-1: Outgrant Areas and Managing Agencies

Name of Area	Acreage	Managing Agency
Dam Site Area	61	USACE
Lick Creek Launch Ramp	10	USACE
Grapevine Creek Campground	47	USACE
Feds Creek Recreation Area	3	Pike County
Lick Creek Recreation Area	312	Pike County
Grapevine Recreation Area	1	Pike County
Appalachian Marina	15	Appalachian Marina, Inc.
Wildlife Management Area	15,296	KYDFWR
Fishtrap Lake State Park	331	Kentucky Department of Parks
Millard-East Shelbiana Volunteer Fire & Rescue Department	1	Millard-East Shelbiana Volunteer Fire & Rescue Department, Inc.
Kentucky Division of Forestry Offices	2	Kentucky Division of Forestry

KYDFWR = Kentucky Department of Fish and Wildlife Resources

1.7.7 Project Data and Lake Operation

The Fishtrap Lake dam is a concrete gravity dam with a central impervious core. See Photograph 1-1. The stream bed elevation at the dam is 673 feet NGVD. The top elevation of the dam is 845.3 feet NGVD. Lake surface water elevations are measured in feet above mean sea level (AMSL) using the NGVD, a standard that was developed in 1929 for measuring vertical distances. The top width of the dam is 32 feet and the crest length is 1,100 feet.



Photograph 1-1: Fishtrap Lake Dam

The spillway is controlled by four 57-foot by 37-foot tainter gates in the left abutment near the dam. Crest elevation is 790.0 feet, and the length of crest is 228 net feet. The design discharge is 308,400 cfs at a peak pool elevation of 840.3 feet NGVD with a surcharge of 15.3 feet and a freeboard of 5.0 feet. See Table 1-2.

The outlet works include an intake structure with three gated sluices and 6-foot-wide by 12-foot-high conduits controlled by slide gates. Water is discharged into a 15.5-foot-diameter horseshoe tunnel. The outlet works have three 6-foot by 4-foot low-flow intakes. All three intakes discharge into a common well that discharges into a 3-foot by 6-foot low-flow conduit. Low-flow discharge is controlled by a 3-foot by 6-foot hydraulically operated slide gate. See Table 1-2.

Table 1-2: Project Structures

Facility	Dam	Description
Dam	Type	Rolled rock dam with impervious core
	Top length	1,100 feet
	Top width	32 feet
	Stream bed elevation	673 feet NGVD
	Top elevation	845.3 feet NGVD
Spillway	Type	Controlled
	Crest elevation	790 feet NGVD
	Width	228 feet

Facility	Dam	Description
Outlet works	Type/size	Common well with three 6-foot by 4-foot intakes
	Sluices	Three, 6 feet by 9 feet
	Gates	Each sluice controlled by hydraulically operated slide type gates

NGVD = National Geodetic Vertical Datum

1.7.8 Lake Regulation

Table 1-3 shows how the surface area and shoreline (perimeter) of the lake change as surface elevations change. During periods of flooding, the elevation of the lake may be as high as 825 feet NGVD and have a surface area of as much as 2,631 acres.

Table 1-3: Fishtrap Lake Levels

Lake Surface Level	Elevation (feet NGVD)	Surface Area (acres)	Shoreline (miles)
Winter Pool (December – March)	735	744	33
Summer Pool (April – November)	757	1,131	41
Maximum Flood Control Pool	825	2,631	83

NGVD = National Geodetic Vertical Datum

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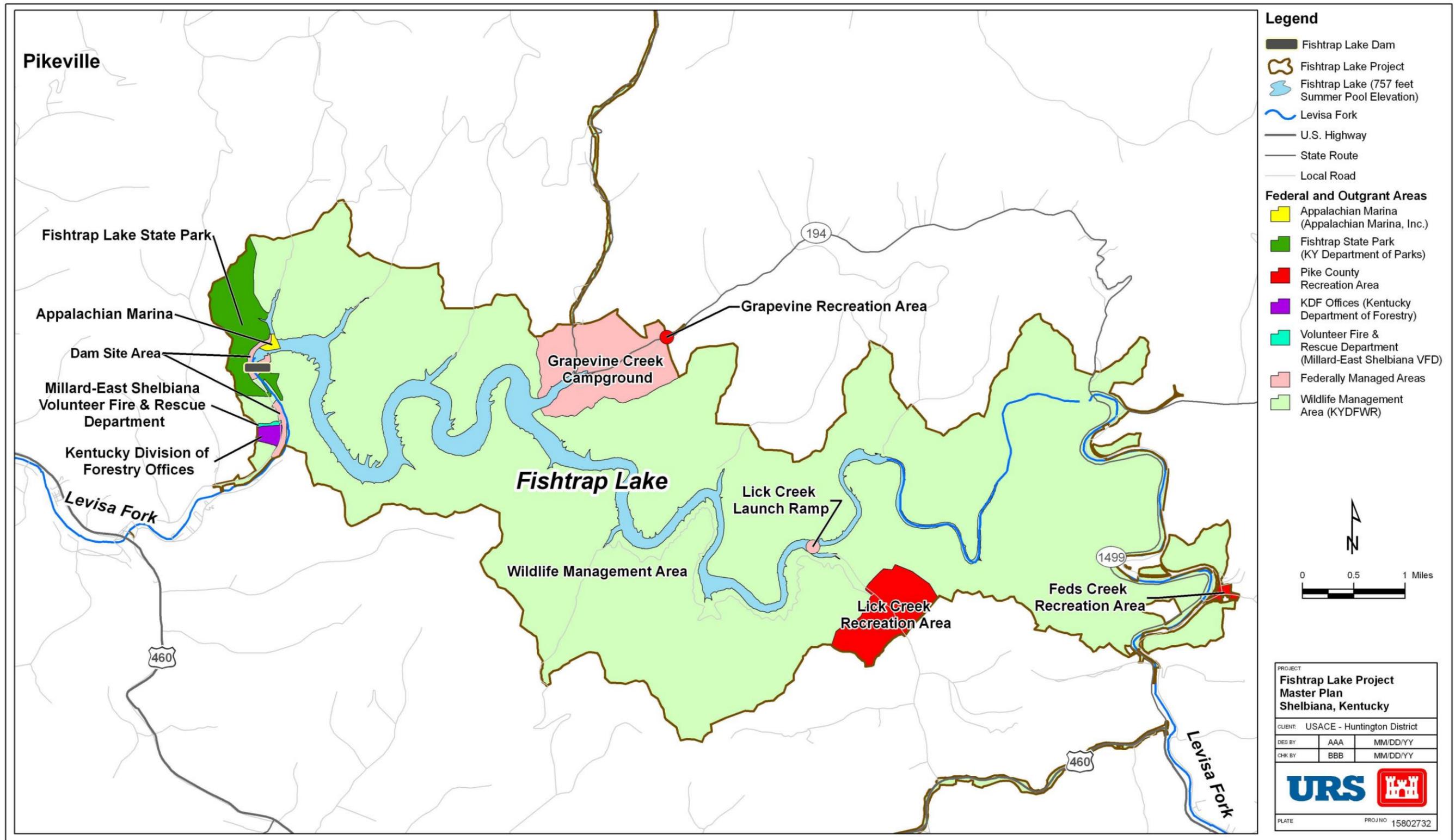


Figure 1-2: Recreational Areas in the Fishtrap Lake Project

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1.7.9 Visitation Data

USACE uses the Visitor Estimation Reporting System (VERS) to estimate the annual number of visits to recreational areas in the Project. The VERS is based on accepted research guidelines and procedures adopted by USACE. The VERS system combines the type of recreational activity and season of the year along with traffic measurements to yield data. Four counters are used to count visitor vehicles—one each at the entrances to the Dam Site Area, Lick Creek Recreation Area, Grapevine Creek Campground, and Feds Creek Recreation Area.

Table 1-4 contains the estimated number of visitors to the Project from 2000 to 2010. One visit is defined as the entry of one person into a recreational area. As shown in Table 1-4, visitation was highest in 2003 with an estimated 560,945 visitors. Project visitation decreased from 2004 to 2007 and increased thereafter.

Table 1-4: Estimated Visitation at the Fishtrap Lake Project, FY 2000–2010

Fiscal Year*	Project Visitation
FY 2000	715,366
FY 2001	514,246
FY 2002	540,830
FY 2003	560,945
FY 2004	448,806
FY 2005	406,593
FY 2006	392,059
FY 2007	288,373
FY 2008	477,124
FY 2009	495,798
FY 2010	486,289

*10/1 to 9/30

1.7.10 Pertinent Investigations and Reports

The Fishtrap Road to Upper Pompey Connector Project involves improvement of approximately 2,350 linear feet of the existing Upper Pompey Road and construction of approximately 3,725 linear feet of new county road. A proposal to construct this roadway project has been submitted by Pike County to USACE for review. At the time of this writing, a decision had not been made on the proposal.

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2.0 SCOPING PROCESS AND PUBLIC INVOLVEMENT

The White House Council on Environmental Quality defines scoping as "... an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action" (Title 40 Code of Federal Regulations [CFR] § 1501.7). The scoping process for the Master Plan was used to invite public participation, identify key issues, and obtain public comment on the Master Plan formulation process.

Public involvement is an important component of developing a successful Master Plan. The public involvement effort related to developing this Master Plan occurred in August 2009, providing the public, stakeholders, and public agencies opportunities to participate in defining the key issues and resource objectives.

2.1 Public Meeting

A public meeting and two stakeholder meetings were held on 6 August 2009 during the scoping phase of the Master Plan. The public meeting, which was conducted at the Millard Elementary School (20 Rocky Road, Pikeville, KY) contributed to an understanding of the key project issues and the formulation of resource objectives (see Section 6.0).

Two stakeholder meetings were also held on 6 August 2009 at the Millard Elementary School.

See Appendix C for a summary of the results of the scoping meetings.

2.2 Identified Key Issues

The following is a summary of the key issues that were identified for consideration in the Master Planning based on the scoping process, including the public and stakeholder meetings.

- Expansion or enhancement of various trail systems
- Increased ATV access on Project land
- Improved management to decrease the amount of floating trash and woody debris in the lake
- Increased oversight of the coal mining industry that affect the Fishtrap Lake Project

2.3 Consistency of Goals with Relevant Planning Documents

The goals and objectives for recreation at the Fishtrap Lake Project are consistent with those of other agencies that provide or plan for recreation in the area based on a review of existing

planning documents prepared by the Commonwealth of Kentucky and the applicable Federal agencies, as follows:

- The Commonwealth of Kentucky's *Statewide Comprehensive Outdoor Recreation Plan*, developed by the Kentucky Department of Local Government (Commonwealth of Kentucky, 2008)
- *Eastern Kentucky Comprehensive Adventure Tourism Plan*, developed by the Kentucky Department of Tourism (Commonwealth of Kentucky, 2007)
- *Comprehensive Wildlife Action Plan* (KYDFWR, 2003)
- *Wildlife Conservation Strategy* (KYDFWR, 2005)
- *Recreational Fishery Resources Conservation Plan Agency Action Plan* (EPA, 1996)
- *Conservation Education Strategic Plan to Advance Environmental Literacy* (USFWS, 2007)
- *2000 RPA [Renewable Resources Planning Act] Assessment of Forest and Range Lands* (USFS, 2000)
- *Strategic Plan: Rivers, Trails and Conservation Assistance Program Strategic Plan* (NPS, n.d.)

According to the Association of Fish and Wildlife Agencies (2005), the goals that are common to these plans include:

- Provision of high quality recreational opportunities for recreation
- Good stewardship of the land
- Restoration of ecological corridors
- Natural habitats for conservation of wildlife
- Preservation of natural, historical, and cultural resources

Shared goals also include approaches for achieving desired ends, including monitoring outcomes or programs, encouraging public involvement, coordination among government entities, and developing partnerships with public, private, and nonprofit entities to develop, manage, and maintain resources. Given the commonalities in goals established by State and Federal agencies, the USACE will continue to work with State and Federal agencies, stakeholders, local government, the public, and other interested parties to enhance recreational opportunities and to support wildlife management and protection goals.

Table 2-1 lists some of the goals in plans that have been developed by other agencies and that are consistent with the Project purposes.

Table 2-1: Common Recreational and Environmental Conservation Goals

Plan	GOAL				
	Enhancement of Recreational Opportunities	Stewardship of the Land	Restoration of Ecological Corridors	Restoration of Habitats	Preservation of Natural, Historical, and Cultural Resources
Kentucky Statewide Comprehensive Outdoor Recreation Plan	✓				✓
Eastern Kentucky Comprehensive Adventure Tourism Plan	✓	✓			✓
Kentucky Comprehensive Wildlife Action Plan			✓	✓	
Kentucky Wildlife Conservation Strategy		✓	✓	✓	
EPA Recreational Fishery Resources Conservation Plan Agency Action Plan		✓		✓	✓
USFS Conservation Education Strategic Plan to Advance Environmental Literacy	✓				✓
USFS 2000 Renewable Resources Planning Act Assessment of Forest and Range Lands		✓			✓
NPS Rivers, Trails and Conservation Assistance Program Strategic Plan					✓

EPA = U.S. Environmental Protection Agency

NPS = National Park Service

USFS = U.S. Forest Service

2.4 Agency Coordination and Partnerships

Because the goals of the KYDFWR, the Kentucky Division of Forestry, the Kentucky Department of Parks, and Pike County overlap the goals of the USACE, these organizations work in partnership with the USACE at the Project.

The KYDFWR Southeastern Region works to enhance wildlife habitat through management of the Project's WMA. The goal of sustainable management of forestry resources is shared by the KYDFWR and the Kentucky Division of Forestry. The Kentucky Division of Forestry manages timber resources in the WMA. The Kentucky Division of Forestry also has the goal of wildfire prevention. The USACE and the Kentucky Division of Forestry established a Memorandum of Understanding for preventing and suppressing forest fires at the Project. The OMP contains detailed information concerning forest fire control responsibilities and operating procedures.

Pike County also works in partnership with the USACE as they manage activities at the Feds Creek Recreation Area and the Lick Creek Recreation Area.

Federal, State, and local government agencies share the goal of public safety. Depending on the type of threat, Project staff may contact the Pike County Sheriff's Department, Kentucky State Police, or KYDFWR Conservation Officers.

3.0 NATURAL RESOURCE ANALYSIS

This section contains the results of an analysis of the existing conditions of the natural resources in the physical and biological environments at the Project. The information is provided to facilitate an understanding of natural resource capabilities, suitability, and constraints relative to future Project development and natural resource-related management activities. This section also provides key information for the development of resource objectives and land classification decisions.

3.1 Physical Environment

The physical environment includes the following natural resources:

- Surface water
- Wetlands
- Groundwater
- Physiography and topography
- Geology, soils, and minerals
- Historic and prehistoric resources
- Scenic elements

These natural resources are discussed in the subsections below. The existing conditions are presented followed by a brief discussion of the suitability of the resource for Project development.

3.1.1 Surface Water

Surface water pertains to water that is available at the ground surface and includes streams, Fishtrap Lake, and the tailwater at the Project.

3.1.1.1 Existing Conditions

Streams

Fishtrap Lake is located Pike County on the Levisa Fork River, a major tributary of the Big Sandy River. Fishtrap Lake is approximately 100 miles upstream from the confluence of Levisa Fork with the Big Sandy River and lies within the Upper Levisa watershed, which encompasses approximately 1,210 square miles.

The 392-square-mile watershed upstream of the Fishtrap Lake dam includes a network of stream tributaries that carry surface water to the Levisa Fork River (Figure 3-1). Figure 3-1 shows the Fishtrap Lake and Upper Levisa watershed boundaries, and Figure 3-2 shows the surface waters and tributaries within the Project.

Upstream land use, such as coal mining, logging, agriculture, and land development, have caused erosion, and the eroded sediment has been transported into surface water. Sediment is considered a pollutant and has diminished the clarity of streams and degraded surface water quality in the Upper Levisa watershed.

According to the *Draft 2010 Integrated Report to Congress on the Condition of Water Resources in Kentucky* (Kentucky Division of Water, 2010), water bodies in the Project or that drain to Fishtrap Lake that are considered impaired for water quality under Section 303(d) of the Clean Water Act (33 U.S.C. § 1313) are the Levisa Fork River, Island Creek, and Lick Creek. An impaired water body has chronic or recurring monitored violations of State water quality regulations and is a priority for water quality enhancement.

Upstream of Fishtrap Lake, the Levisa Fork is impaired for use as warm water aquatic habitat and partially impaired for use as primary contact water recreation by sedimentation/siltation and fecal coliform due to onsite treatment systems (septic systems and similar decentralized systems), sewage discharge in unsewered areas, and surface mining. The lower section of Island Creek is partially impaired for use as warm water aquatic habitat by sedimentation/siltation and total dissolved solids due to surface mining. The lower section of Lick Creek is partially impaired for use as warm water aquatic habitat by nutrient/eutrophication biological indicators and sediment/siltation due to channelization, coal mining, highway/road/bridge runoff (non-construction related), loss of riparian habitat, and non-point source pollution (Kentucky Division of Water, 2010).

Fishtrap Lake

The surface of Fishtrap Lake covers 1,131 acres and is approximately 16.5 miles long during the normal summer pool elevation of 757 feet NGVD. The summer pool (April through November) is typically the highest water level during the year. The lake is long and relatively narrow with many coves at junctions with tributaries; these features result in a shoreline that is approximately 41 miles long during the summer. The shoreline generally consists of steep hills that are well-vegetated down to the water line above the summer pool elevation. Approximately 795 acres of the lake are designated for unrestricted boat use, and 330 acres are restricted as controlled speed or idle-only zones. Boating is not allowed on 6 acres (Figure 3-3).

Fishtrap Lake is listed as impaired for fish consumption due to PCBs and methyl mercury contamination of fish (KY Division of Water, 2010; KDFWR, 2011). Floating trash and woody debris are common on Fishtrap Lake.

The USACE regularly samples the water of Fishtrap Lake at different depths for temperature, dissolved oxygen, acidity (or pH), and conductivity. KYDFWR uses these data to assess the quality of the water for fish habitat. The lake is stratified during the summer with warm, oxygenated water on the surface and cold, unoxygenated water levels at the bottom.

Tailwater

The tailwater is immediately downstream of the dam where the outflow from the lake is discharged. Water is released from the lake through an intake structure and passes through a tunnel to emerge as outflow. This system allows withdrawal from various water depths and offers choices over a considerable range of outflow rates and water parameters, including temperature. In April, May, June, October, and November, the KYDFWR stocks the tailwater with rainbow trout (*Oncorhynchus mykiss*) to increase recreational fishing opportunities at the Project.

3.1.1.2 Implications of Surface Water Resources for Project Development

Although Fishtrap Lake is well suited for boating and other types of water recreation such as swimming, water skiing, and fishing, the floating trash and woody debris in the lake deter some people from enjoying water recreation. The wider expanses of the lake are suitable for motorized boats, while coves and narrower reaches of the lake lend themselves to non-motorized boating. A relatively consistent summer pool elevation is generally maintained that is suitable and conducive to recreational boating and marina operations.

Despite the trash and debris in the lake, water quality samples show that water quality in the lake is safe for recreation including swimming. Although the PCB and methylmercury contamination of fish have resulted in fish consumption warnings (KDFWR, 2011), the levels of these constituents in the lake do not affect human health from direct contact with the water (KY Division of Water, 2010). However, the lack of a beach, coupled with steep and densely vegetated slopes, limits access from the shore and can be a constraint for swimming. Many lake users access the lake for water recreation directly from watercraft. The lake does support an active fishing environment and fishing tournaments.

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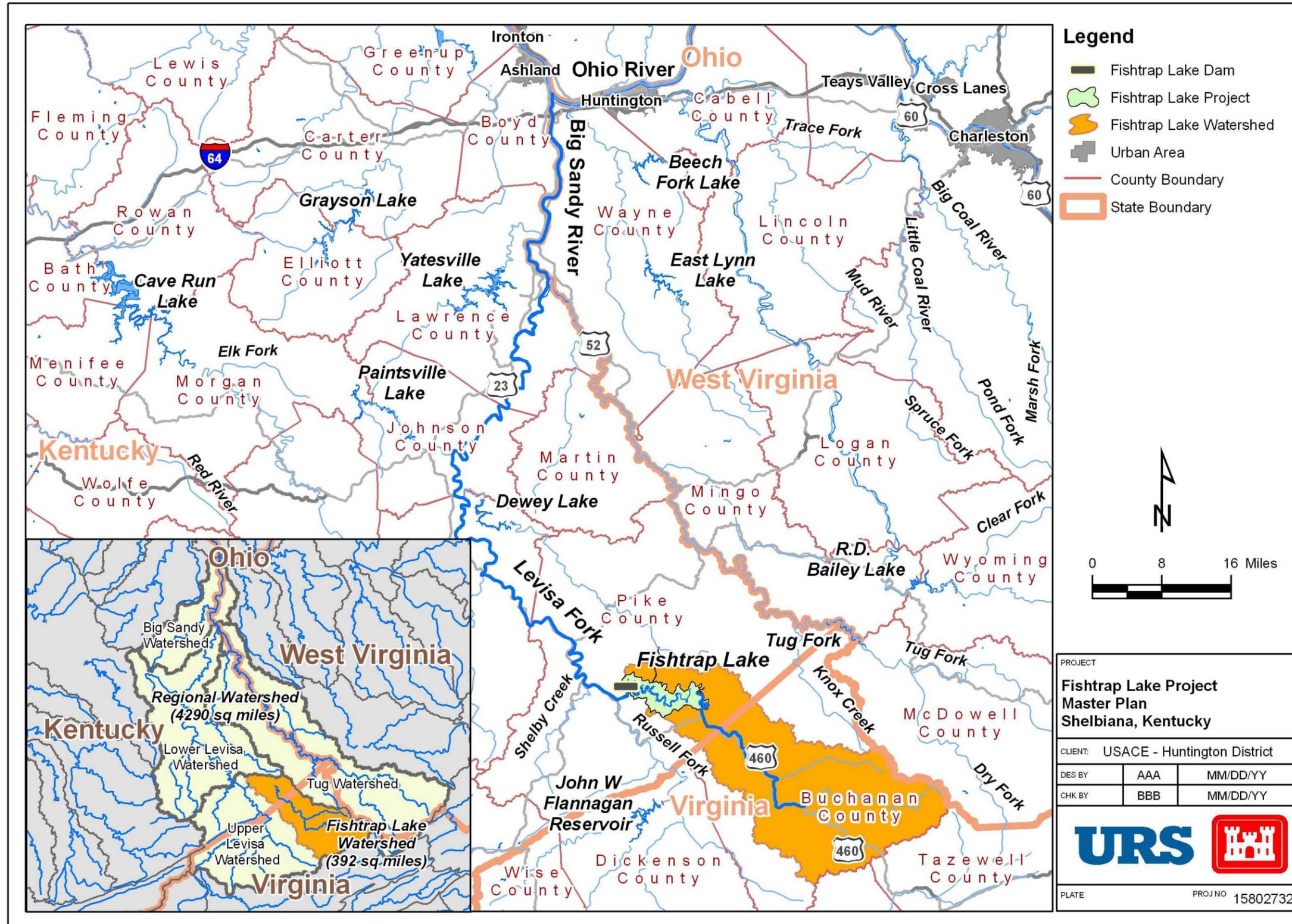


Figure 3-1: Fishtrap Lake Watershed

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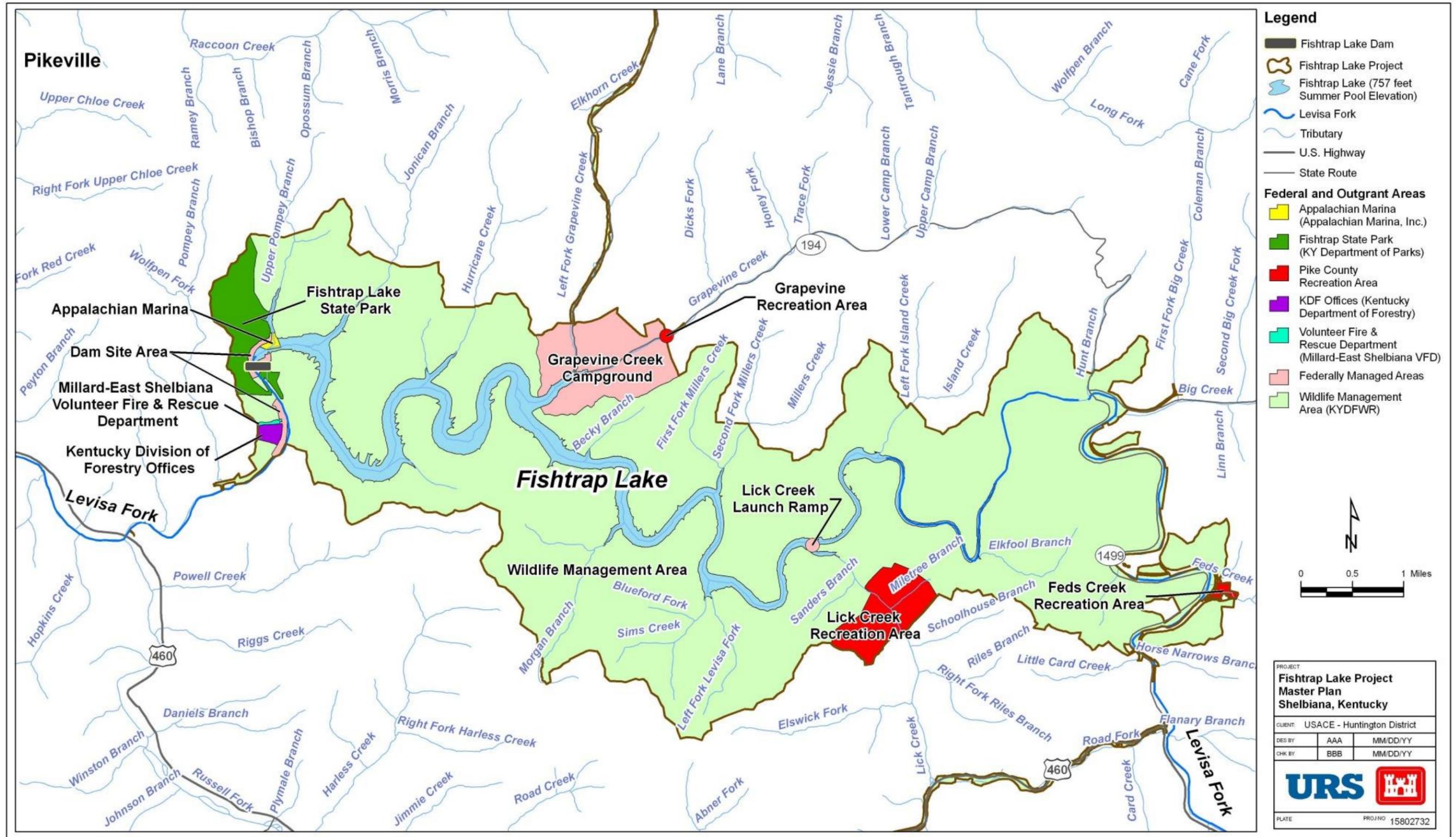


Figure 3-2: Surface Waters in the Project Area

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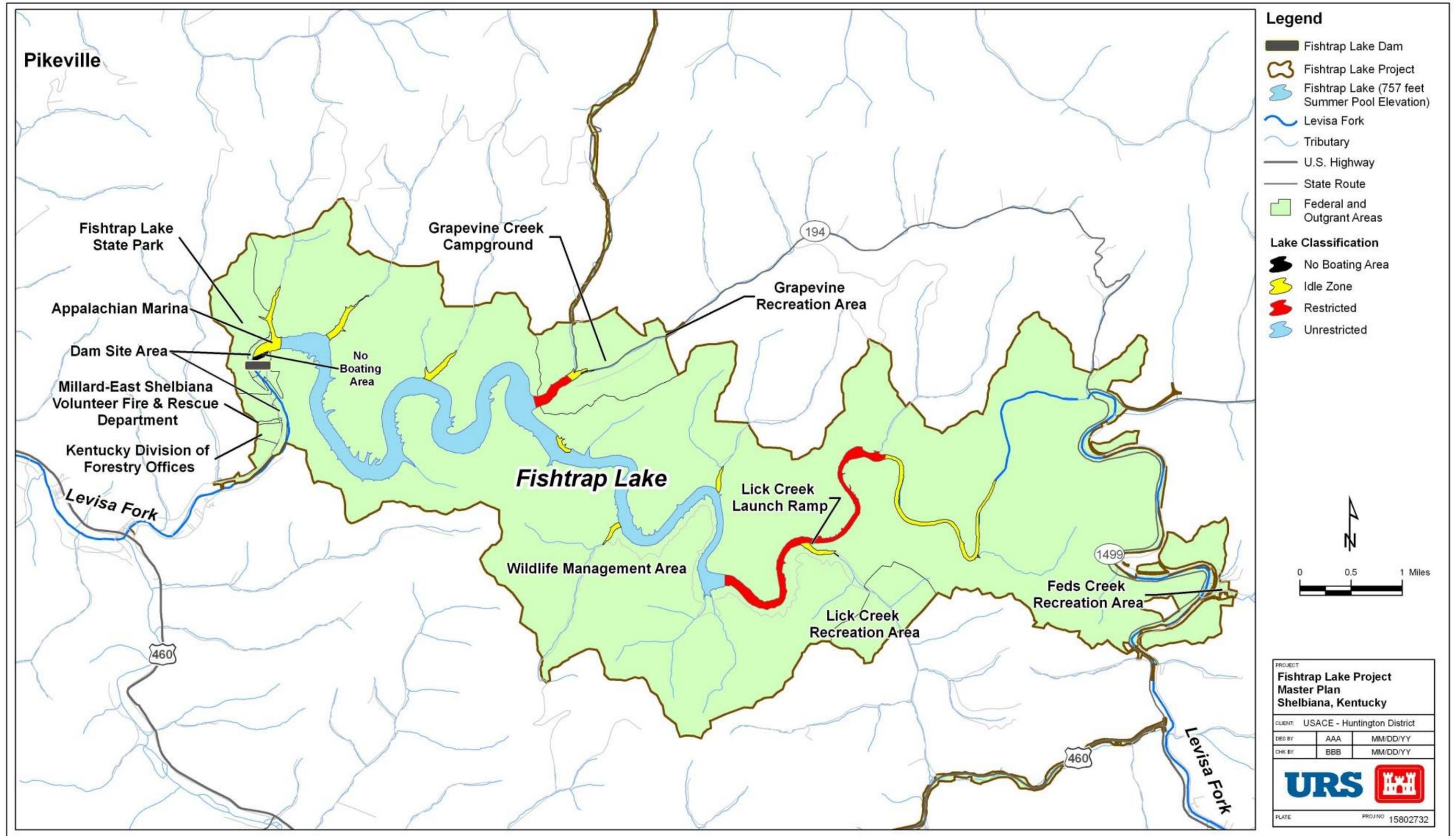


Figure 3-3: Water Surface Zoning

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Because the primary authorized purpose of the Project is flood risk management, the lake is designed to store floodwaters to reduce flood risk downstream. The normal summer pool elevation of 757 feet NGVD can be increased to the maximum flood control pool elevation of 825 feet NGVD during a severe flood event.

Figure 3-4 shows the areas that would be inundated at an elevation of 825 feet NGVD compared to the normal summer pool elevation. The potential fluctuation in elevation may constrain development adjacent to the lake. As illustrated on Figure 3-4, some sections of the Project would not be significantly affected by inundation, which is a result of the steep slopes along the shoreline. According to Section 2.2.1 of EM 1110-1-400, *Engineering and Design Recreation Facility and Customer Services Standards* (USACE, 2004), a general guideline for planning purposes is to construct lakeside development above the 20 percent chance (5-year) flood event.

3.1.2 Wetlands

In Section 404 of the Clean Water Act (33 U.S.C. § 1344), wetlands are defined as “... those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

Wetlands typically contain diverse vegetation which attracts a variety of wildlife species, especially when standing water is present. Various wildlife species are attracted to wetlands because of standing water and diverse vegetation. Some wildlife species are dependent on wetland ecology for food, water, and shelter and cannot survive in other environments. The wildlife attracts predators, including hunters. Because of the link between upland and aquatic systems, wetlands attract and support many species from adjacent ecosystems.

Wetlands are important in part because they hold and slowly release floodwater and snow melt. Wetlands also filter impurities out of surface water, recycle nutrients, and trap sediment. Wetlands provide recreational opportunities for bird watching, hunting, wildlife observation, and possibly fishing, canoeing, kayaking.

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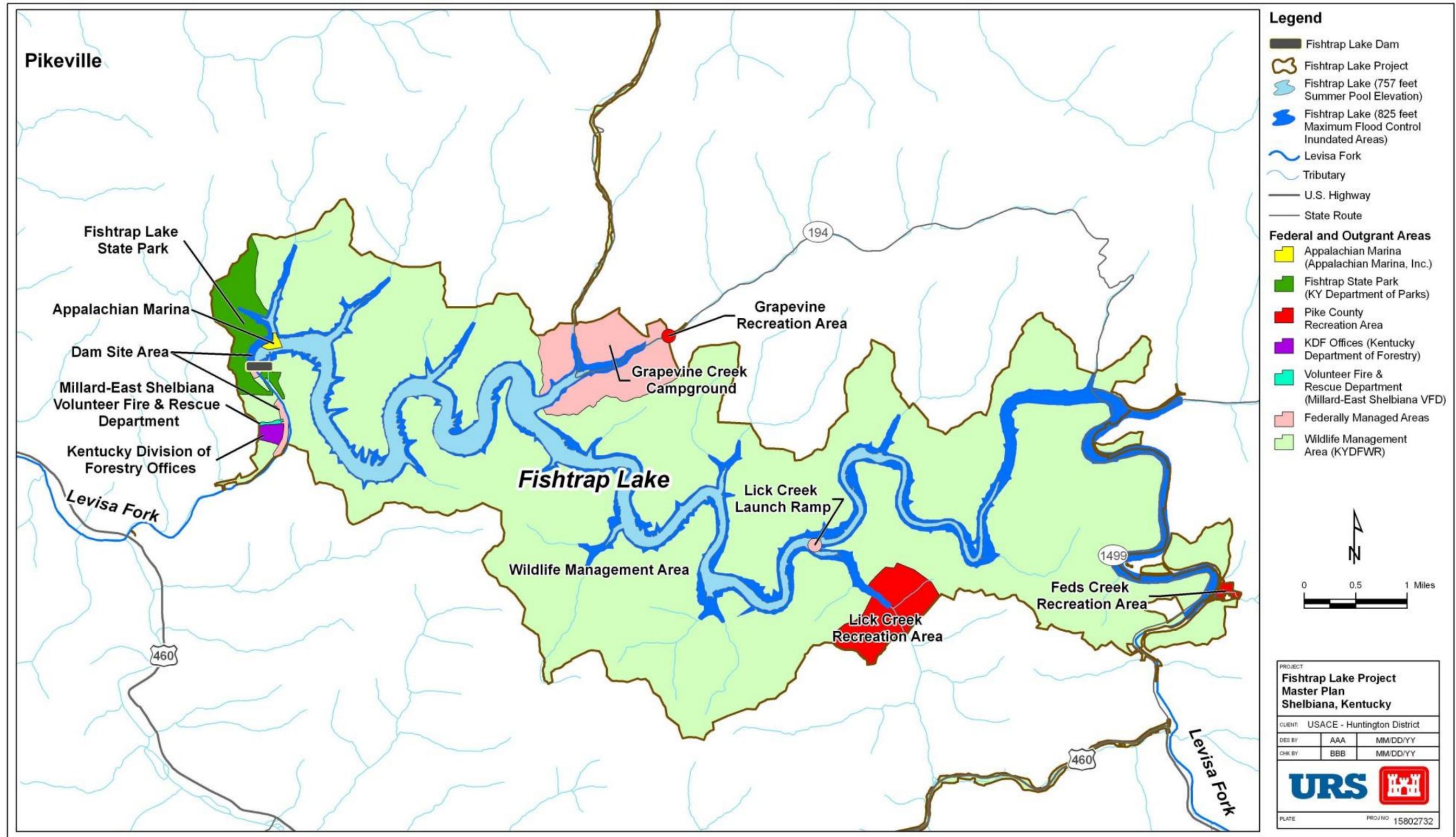


Figure 3-4: Inundation Area between Summer Pool and Flood Control Pool Elevations

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3.1.2.1 Existing Conditions

The National Wetland Inventory (NWI) maps from the USFWS are generalized maps that give approximate locations of wetland areas based on surveys. According to the NWI maps, 10 types of wetlands exist within the Project, one of which is the lake itself. The other 9 wetland types cover a total of approximately 110 acres. The wetlands tend to occur mainly in relation to streams and are scattered, consisting of relatively small areas of less than 3 acres (USFWS, 2010). See Figure 3-5.

3.1.2.2 Implications of Wetland Resources for Project Development

Wetlands provide specialized habitat for select flora and fauna that would otherwise not thrive at the Project. Under EO 11990, Protection of Wetlands, Federal agencies are tasked with the responsibility to preserve and enhance wetland resources. Wetlands can be considered both a constraint and an opportunity for Project development. They are a constraint because they are a sensitive environmental resource that should be preserved, thus limiting development opportunities for high intensity/density recreational activities. They also provide recreational opportunities as a result of their diverse habitat and wildlife, such as wildlife viewing, bird watching, and interpretive and educational activities. Prior to the implementation of any proposed actions, such as recreational development of an area, wetland delineations would need to be conducted, the potential impacts on any wetlands would need to be evaluated, and water quality certification would need to be obtained, if necessary.

3.1.3 Groundwater

Groundwater is subsurface water in geologic units called aquifers, which are recharged by precipitation and infiltration of surface waters. Groundwater supplies wells and springs and is generally pumped by wells for public and private use. Groundwater is a vital, natural resource that is susceptible to contamination from a variety of activities. Contaminated groundwater can be difficult to remediate.

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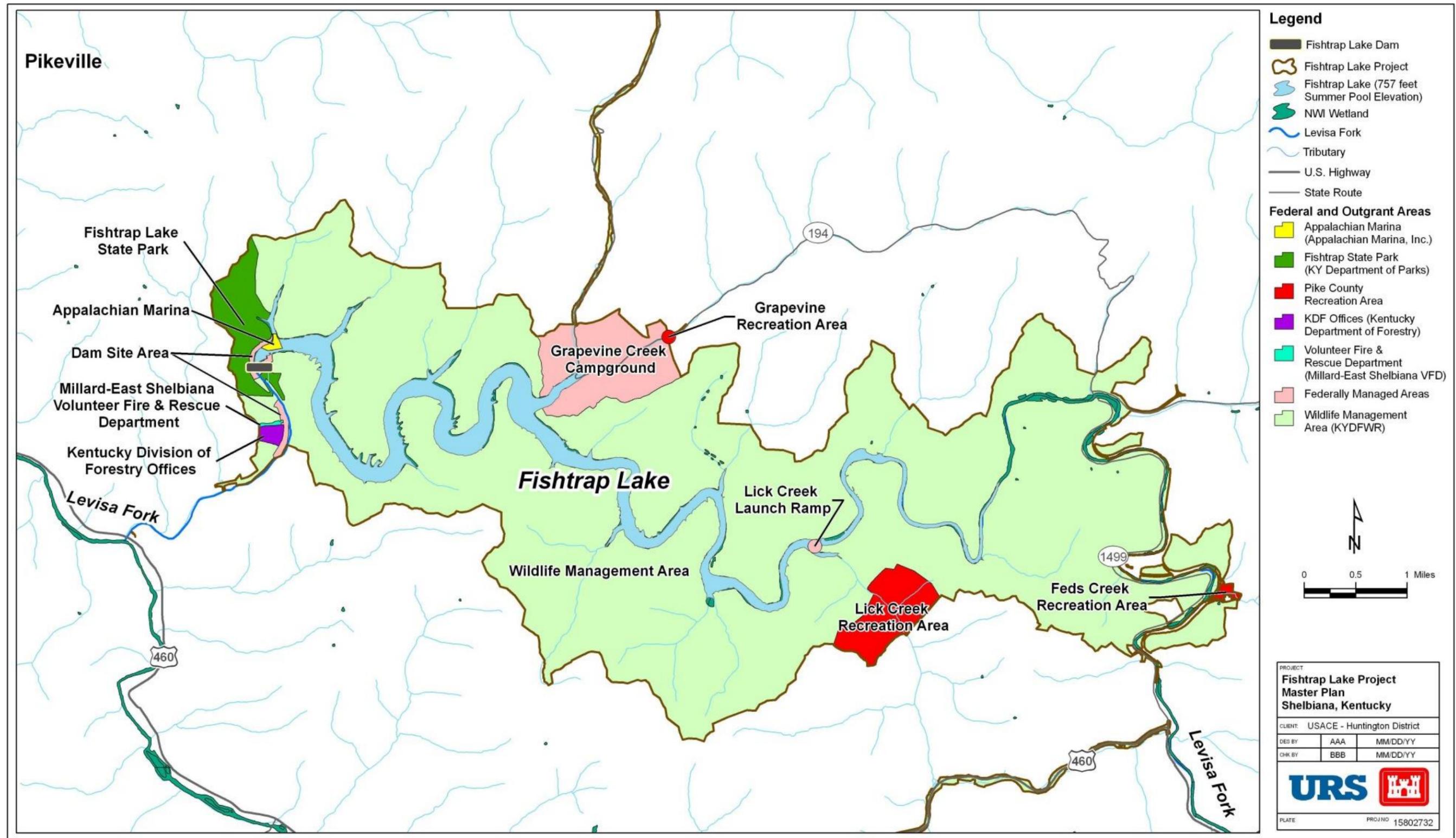


Figure 3-5: NWI Wetlands

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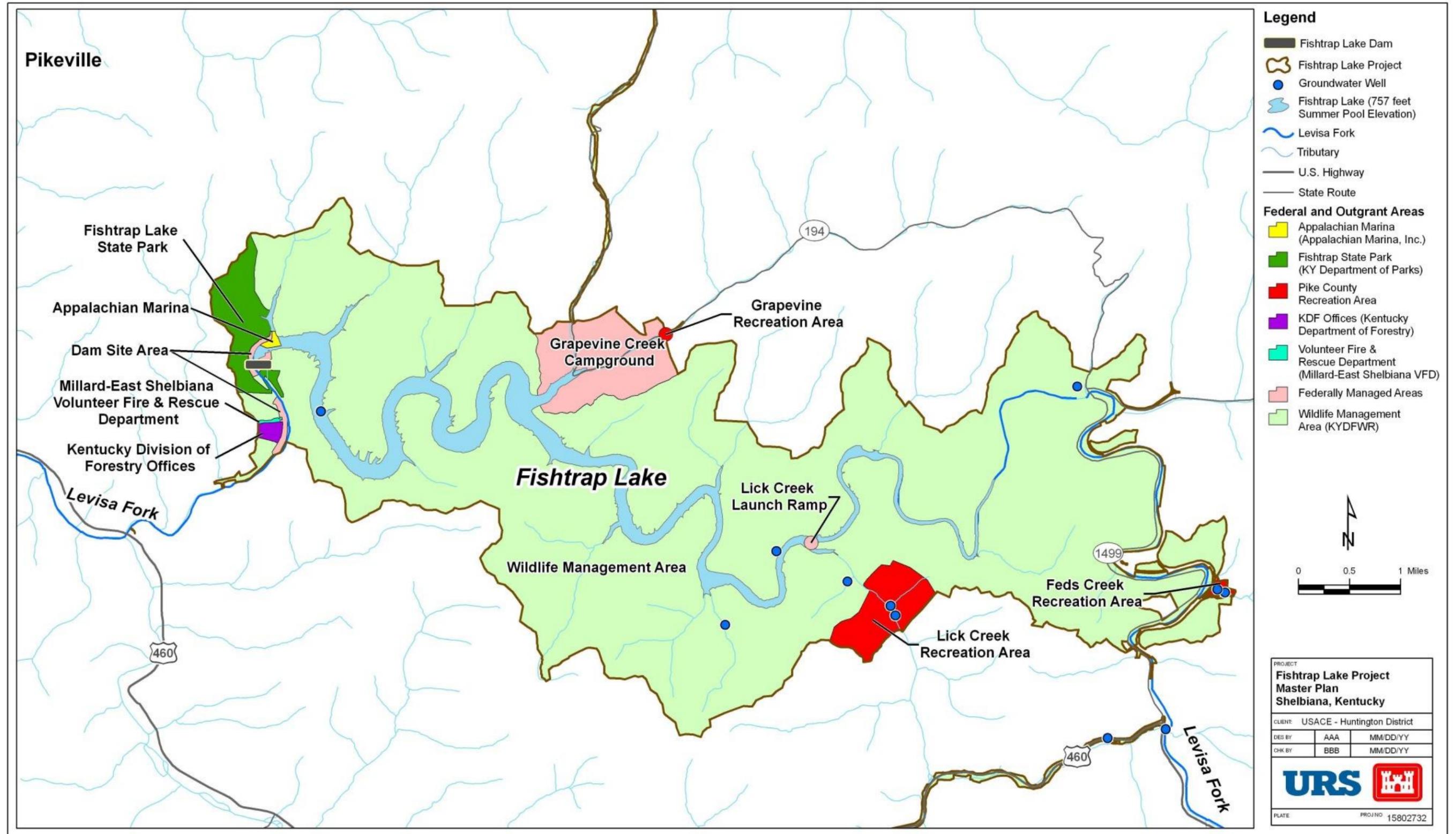


Figure 3-6: Groundwater Well Locations

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3.1.3.1 Existing Conditions

One aquifer, the Middle Breathitt Formation, provides groundwater to the groundwater wells in the Project area. Eleven groundwater wells (2 public, 8 domestic, and 1 monitoring) are recorded in the Project area (Figure 3-6), but their condition is unknown (Kentucky Geological Survey, 2002). No natural springs have been identified for water use in the Project area.

In Pike County, the groundwater contains noticeable amounts of iron (Fe) and is considered moderately hard. Other naturally occurring constituents that may be present in objectionable amounts are sulfate (SO₄), sodium chloride (NaCl), and manganese (Mn). Salty water may be found at depths of 200 feet or below the ground surface level of the major valley bottoms (Kentucky Geological Survey, 2011). No groundwater contamination has been identified in the Project area.

3.1.3.2 Implications of Groundwater Resources for Project Development

No constraints were identified that would limit the use or quantity of groundwater for development opportunities. Groundwater is a potential source of water for enhancing or developing additional wetlands, for irrigating maintained landscape areas or providing potable water for Project development in remote areas.

3.1.4 Physiography / Topography

The physical features of the earth's surface are described in terms of physiography (landforms) and topography (elevation, slope, and orientation).

3.1.4.1 Existing Conditions

The Project is located in the Eastern Coalfields Physiographic Region of the Cumberland Plateau. The topography of the Project area is hilly and mountainous terrain with coves and valleys. Flat areas are uncommon, except along the valley bottoms. Elevations in the Project area range from approximately 760 feet to 2,040 feet NGVD. Approximately 80 percent of the Project area consists of steep slopes in excess of 30 percent, with 10 percent of the area having between 15 and 30 percent slope, and the remaining 10 percent of the area with less than 15 percent slope.

3.1.4.2 Implications of Physiography/Topography Resources for Project Development

The topography at the Project provides significant scenic quality that enhances many of the recreational experiences, but it also poses development constraints. Areas with slopes of less than 15 percent have the highest development potential in terms of topography and provide

opportunities for higher density recreational development. Slopes between 15 percent and 30 percent have more limited project development potential but can provide interesting and challenging opportunities for hiking, mountain biking, hunting, and wildlife and scenic viewing. Areas with slopes in excess of 30 percent typically have very limited development potential but provide wildlife habitat and visual buffers and add scenic quality.

As illustrated in Figure 3-7, portions of the Project adjacent to the lake have the best potential to support development; however, these areas may be limited by periodic inundation from the lake and its tributaries (Figure 3-4).

3.1.5 Geology, Soils, and Minerals

This section describes the geologic setting, soil characteristics, and mineral resources in the Project area.

3.1.5.1 Existing Geology Conditions

The geology of the Project area is characterized by Lower to Middle Pennsylvanian-aged rock that is approximately 305 to 320 million years old. Four primary geologic units occur within the Project area (Kentucky Geological Survey, 2009): (1) alluvium, which is found along valley bottoms and consists of stream deposits of sediments (gravels, sands, silts, clay) up to approximately 30 feet thick, (2) the Grundy Formation, which is found primarily at the bottom of mountain side slopes and consists of sandstone, siltstone, shale, and coal, (3) the Pikeville Formation, which is typically the first unit encountered upward from the valley floor, and consists of sandstone, shale, and coal, and (4) the Hayden Formation, which is found along ridgetops and upper side slopes and consists of shale and coal.

3.1.5.2 Existing Soils Conditions

The soil types that occur in the Project area are primarily the result of variability in the geologic parent material and positions on the landscape. The various soil types are grouped based on associations across the landscape. According to the *Soil Survey of Pike County, Kentucky* (USDA, 1990), 16 groups (referred to as soil map units in Table 3-1) occur at the Project area, 9 of which occupy less than 1 percent of the area. Because of the limited presence of the 9 soil map units, they are excluded from further discussion. The remaining 7 soil map units are listed in Table 3-1 and categorized as the following based on their suitability and limitations for recreational development: (1) most suitable for development, (2) limited development potential, and (3) least suitable for development. Figure 3-8 shows the soil types in the Project area.

Table 3-1: Soils in the Project Area in Order of Predominance

Soil Map Unit Symbol	Soil Type	Typical Slope	Suitability for Project Development Based on Slope and Soil Type
MaF	Marrowbone-Dekalb-Muskingum complex, very rocky	30–80%	Least suitable
KsF	Kimper-Sharondale-Muskingum complex, very stony	30–80%	Least suitable
FmF	Feds creek-Marrowbone-Dekalb complex, very stony	30–80%	Least suitable
MmF	Marrowbone-Feds creek-Myra complex, very stony	30–80%	Least suitable
BrG	Berks-Rock outcrop-Marrowbone complex	60–120%	Least suitable
HpC	Hayter-Potomac-Stokly complex	2–15%	Most suitable
FgE	Feds creek-Gilpin-Marrowbone complex	20–50%	Limited development potential

Source: USDA (1990)

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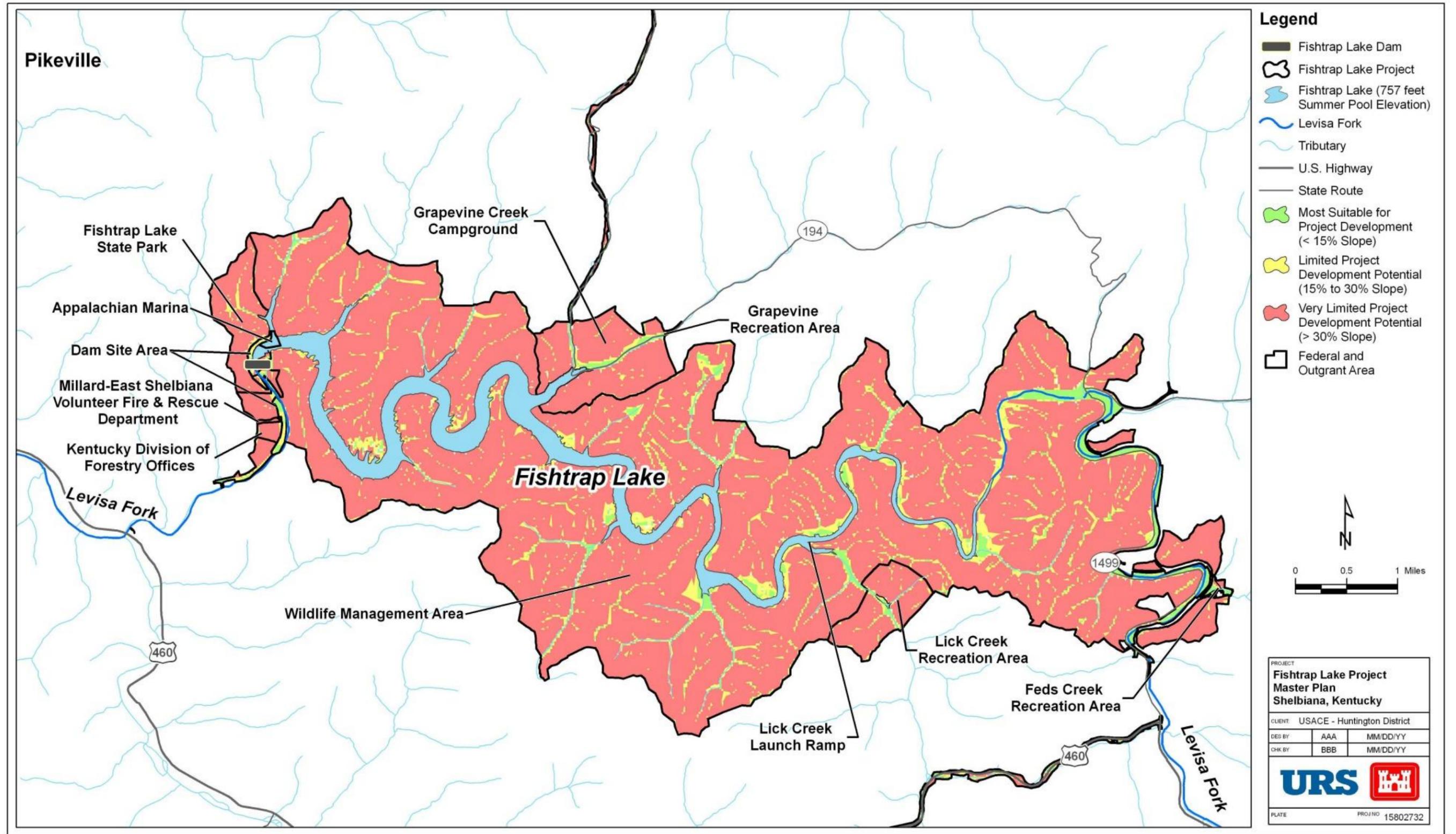


Figure 3-7: Topography Suitability for Project Development

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The Farmland Protection Policy Act of 1981 (7 U.S.C. §§ 4201–4209) designates soils that are suitable to farming as prime or unique farmlands and is intended to minimize irreversible conversion of farmland to nonagricultural uses. One soil type in the Project area, the Grigsby-Yeager complex, is considered prime farmland; however, because it occurs over less than 0.1 percent of the project area, it is not listed in Table 3-1. This soil is also listed as a hydric, which is indicative of wetland areas. This soil type is not currently planted or managed for forage or wildlife habitat by USACE or the KYDFWR.

3.1.5.3 Existing Minerals Conditions

The Project area is located in the Appalachian Mountains and is part of a region that contains coal deposits and oil and gas reserves. Coal mining and oil and gas extraction in Pike County are ongoing activities that have occurred for many decades.

One active coal mine is located in the WMA in the Island Creek area, and approximately 15 miles of active coal haul roads in the Island Creek and Biggs areas are used by a private mineral extraction company.

Oil and gas extraction is common in the Project area. According to the Kentucky Division of Oil and Gas Conservation (2010), 126 oil and/or gas wells exist within the Project boundaries (Figure 3-9). There are 95 active gas wells, 14 dry and abandoned gas wells, 2 gas wells categorized as “not drilled,” 7 active oil and gas wells, and 8 oil and gas wells categorized as “not complete.” These sites are appropriately maintained and do not adversely affect recreation at the Project or any other authorized Project purpose. Some of the subsurface mineral rights at the Project are owned by the government; however, large areas occur where the mineral rights are not owned by government (Figure 3-9).

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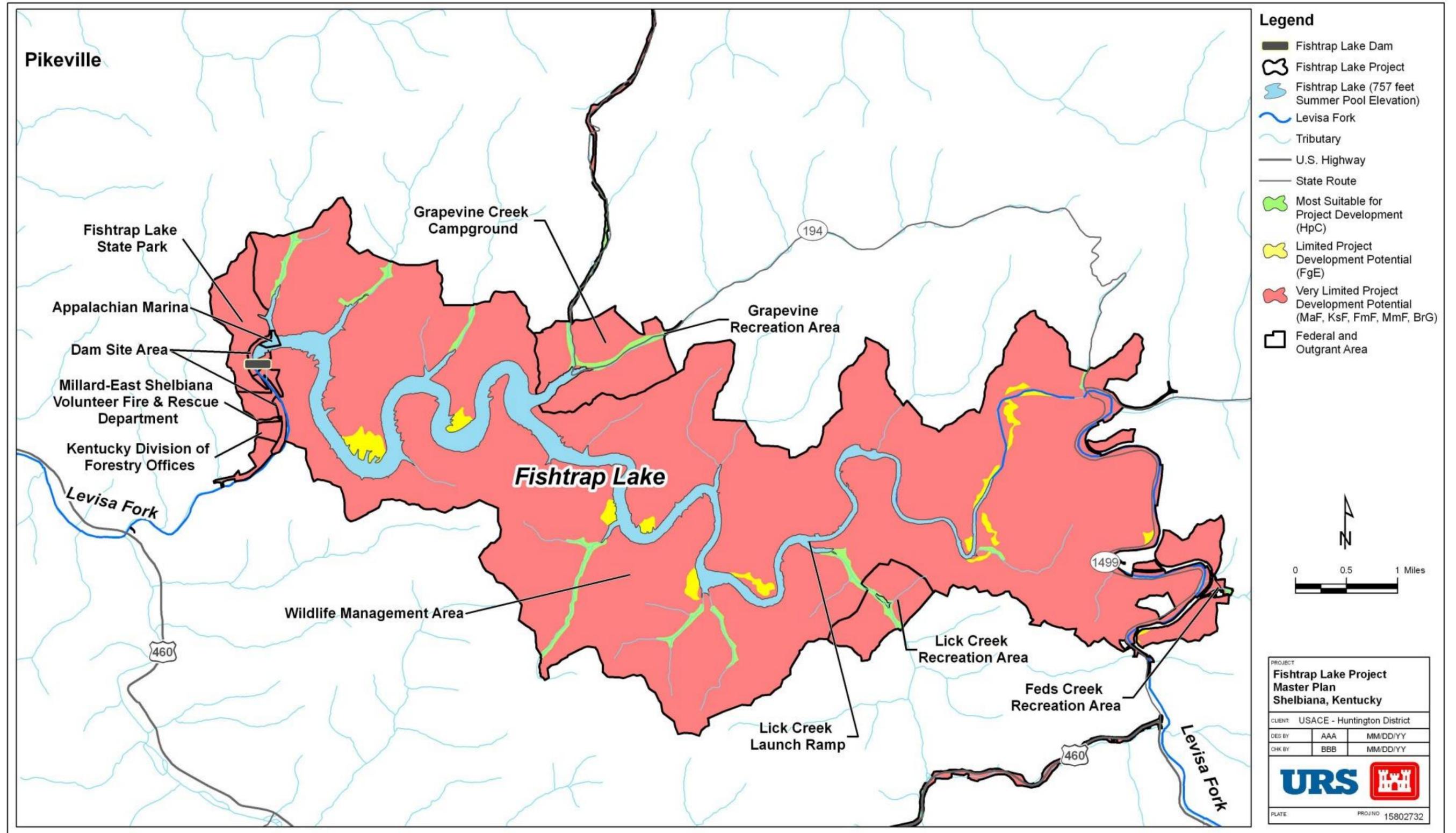


Figure 3-8: Soil Suitability for Project Development

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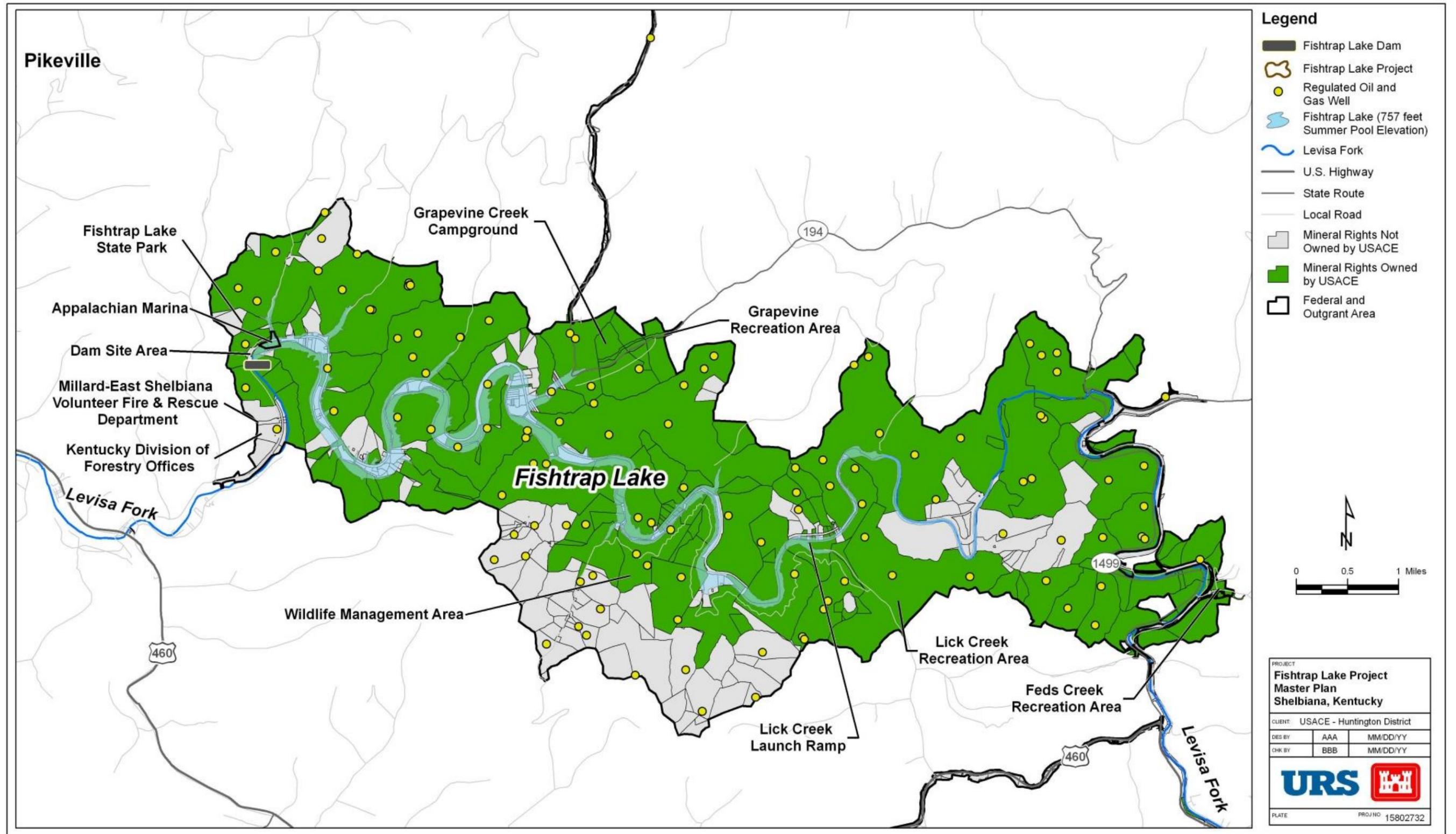


Figure 3-9: Mineral Rights and Oil and Gas Well Locations

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3.1.5.4 Implications of Geology, Soils, and Mineral Resources for Project Development

Geology and Soils

Many of the soils in the Project area are generally prone to erosion because of the steep sloping terrain they are on and have limited development potential for roadways, trails, small buildings, campgrounds, picnicking, playgrounds, or lawns. Some soils categorized as having limited development potential may be suitable for lower intensity recreational use such as hiking trails, wildlife observation, and hunting and even higher intensity recreational use where slopes are less than 15 percent. See Figure 3-8.

Minerals

Because the demand for coal, oil, and gas is anticipated to continue, there is potential for new extraction operations for minerals in the Project area. Coal, oil, and gas are leasable minerals governed by the Mineral Leasing Act of 1920 (30 U.S.C. §§ 181-263) and the Mineral Materials Act of 1947 (30 U.S.C. §§ 351 et seq.).

For Project lands where government owns all subsurface mineral rights, any future resource extraction would proceed through the Bureau of Land Management (BLM). The BLM would coordinate any new leases with the USACE to avoid or minimize impacts to recreational, natural, or sensitive resources associated with access road and extraction site development. For Project lands where the government does not own the subsurface mineral rights, the owner of the mineral rights would apply to the Kentucky Division of Mine Permits for approval and permitting of the extraction process and amounts. Because mineral extraction can cause disturbances, the USACE would be allowed to review and comment on the permit application.

Potential impacts of mineral extraction activities include the footprint of the extraction site and construction and operation of access roads. Mineral extraction within the Project boundary could infringe on general recreational areas or on fish and wildlife-related recreation, either directly or from pollutants that are a result of extraction operations.

3.1.6 Cultural Resources

As defined by the Advisory Council on Historic Preservation, a historic property is a prehistoric or historic district, site, building, structure, or object included in or eligible for inclusion in the National Register of Historic Places (NRHP). A historic property includes artifacts, records, and remains that are related to and located in National Register properties.

3.1.6.1 Existing Conditions

A Historic Properties Management Plan (HPMP) was completed for the Project area in 1998 (Cultural Resource Analysts, Inc., 1998). The HPMP contains a summary of the 86 archeological sites that were identified in the Project area from 1962 and to 1998. Sites were identified through studies completed as part of the initial reservoir studies, systematic surveys of the entire reservoir, or site-specific surveys in the Project area. The previous surveys account for 100 percent of the Project area. Fifty-one of the identified sites are primarily of historic Euro-American affiliation while the remaining 35 sites are prehistoric dating from the Late Archaic (4000 to 1000 B.C.) through the Fort Ancient (A.D. 1000 to 1750) temporal periods.

In the HPMP, the Project area was divided into three zones based on inundation by the lake:

- Conservation pool: below 725 feet AMSL; permanently inundated
- Littoral zone: 725 to 757 feet AMSL; affected by seasonal fluctuations between the winter and summer pools
- Upland zone: above 757 feet AMSL; includes all remaining land in the Project area

Three of the archeological sites are in the conservation pool, 44 are in the littoral zone, and 39 are in the upland zone.

None of the sites listed in the HPMP have been determined eligible for the NRHP but nine sites have been determined potentially eligible for the NRHP. The 9 sites are 15Pi7, 15Pi8, 15Pi11, 15Pi12, 15Pi13, 15Pi15, 15Pi16, 15Pi21, and 15Pi23. Two of the sites are in the conservation pool, 6 are in the littoral zone, and 1 is in the upland zone. All 9 sites are prehistoric and described as open-air habitations or villages. Two of the sites were subject to large scale investigations.

According to the HPMP, further investigation has been proposed for the following 17 sites to determine whether they meet NRHP eligibility criteria: 15Pi17, 15Pi18, 15Pi20, 15Pi22, 15Pi24, 15Pi25, 15Pi26, 15Pi27, 15Pi28, 15Pi29, 15Pi31, 15Pi32, 15Pi33, 15Pi34, 15Pi38, 15Pi41, and 15Pi45. Of the 17 sites, none are in the conversation pool, 13 are in the littoral zone, and 4 are in the upland zone. All 17 sites are prehistoric and described predominantly as camps and/or villages. There is also one rock shelter and one mound. The remaining 60 sites were determined to be ineligible for the NRHP and no further work is required.

Two systematic surveys have been completed in the Project since the 1998 HPMP. The first survey is a 2008 mine survey conducted partially within the Project area; in this survey, one site

was re-identified that had been previously determined to require further investigation and recommended site avoidance (Cultural Resource Analysts, Inc., 2008). The second survey was conducted in 2011 and was limited to the Dam Site Area, Grapevine Recreation Area, and Lick Creek Recreation Area (ASC Group, Inc., 2011). Five previously recorded sites were identified in the 2011 survey, 4 of which were previously determined to be ineligible for the NRHP and 1 that was previously determined to require further investigation. No new sites were identified in the 2011 survey.

3.1.6.2 Implications of Cultural Resources for Project Development

Cultural resources in the conservation pool were originally situated in open field environments that were subject to deforestation, plowing, and clearing for the reservoir. These cultural resources have been continuously inundated since 1969. The effect of the inundation of these resources is unknown, but if the sites were not eroded prior to the establishment of silt caps, the inundation may have preserved them.

Cultural resources in the littoral zone were also originally situated in open field environments that were subject to deforestation and plowing. These sites are difficult to relocate because of the silting that occurs when the sites are submerged during normal summer pool and exposed during winter pool. If large enough silt caps are formed, the sites may have been preserved, but the alternating wet-dry cycle of the littoral zone increases decay rates for organic materials in the sites. If these sites are exposed during the winter pool, there is potential for looting.

Cultural resources in the upland zone are susceptible to mechanical and biochemical processes and human activities that are not associated with inundation. The sites in the upland zone constitute most of the recorded sites and are commonly affected by erosion, development, agricultural practices, and looting.

Site distribution tendencies in the Project area are based on the distribution of recorded sites in the Project area. Relatively level alluvial surfaces along the Levisa Fork and the lower reaches of prominent tributaries have a high potential to contain sites. High terraces also have the potential to contain sites while the dissected upland has a very low potential to contain sites. Colluvial slopes, sideslopes, and upland ridges have low potentials to contain intact sites that have not been affected.

Proposed development actions should take into account previously identified sites and their treatment recommendations. Sites that are eligible, or potentially eligible for the NRHP, should be avoided or subjected to further analysis prior to any undertaking that has the potential to affect

those sites. Avoidance measures and/or further analysis would be coordinated with the District archaeologist. Actions proposed for areas not previously surveyed would require coordination with the District archeologist to determine whether a cultural resource survey is required.

Once inventories of real estate actions that have been cleared internally, these smaller projects need to be catalogued and mapped using Geographical Information Systems (GIS) to ensure that areas are not subject to repeated surveys. In the absence of mapping, coordination with the District archeologist would ensure that real estate actions are not subject to unnecessary resurveying. Cultural resource research, evaluation, and reporting must comply with all applicable Federal and State laws and regulations.

Priorities for cultural resources in the Project area are as follows:

1. Stabilizing and evaluating recorded sites that have been previously listed as potentially eligible or needing further evaluation for their NRHP eligibility
2. Assessing the dam and associated structures for their NRHP eligibility
3. Accessing artifact collections recovered from the Project area according to the guidelines established in 36 CFR Part 79
4. Improving consultation and education efforts including outreach to Native American tribes, coordination with the Kentucky Heritage Council, training of project personnel, and site interpretation
5. Updating the HPMP to include the GIS georeferenced boundary delineations and metadata for all surveyed areas and identified resources within the Project area,
6. Producing GIS boundary delineations for previously cleared as well as all future real estate actions.

3.1.7 Scenic Qualities

Scenic qualities refer to the quality of the environment as perceived through visual senses.

3.1.7.1 Existing Conditions

As described previously, the topography of the Project area is characterized by hilly and mountainous terrain dissected by valleys. This terrain, in combination with the lake and forested landscape, creates an overall scenic environment with opportunities for scenic vistas and viewsheds. View distances range from relatively confined views to panoramic views that fade out of sight. The forests have a combination of older growth trees and understory trees (such as

redbud and dogwood), creating a visually appealing environment. The vegetation of the Project offers changes in color, texture, and size that vary by topography, vegetation type, and season. River birch, willow, and sycamore trees flourish in lowlands adjacent to streams and the lake, providing an attractive contrast in color to that of the vegetation on adjacent slopes, ridges, and ravines such as post oak, Virginia pine, red oak, hemlock, and birch trees.

3.1.7.2 Implications of Scenic Qualities for Project Development

The Project area has significant scenic qualities and provides numerous opportunities for scenic vistas. However, enjoyment of the scenic qualities can be limited because of accessibility to the sites and obstruction of the views by vegetation. Constraints to developing additional viewsheds include topography, soil conditions, and vegetation—all of which must be evaluated prior to creating opportunities for additional scenic vistas.

3.1.8 Hazardous, Toxic and Radioactive Waste

Hazardous wastes, as defined by the Resource Conservation and Recovery Act (RCRA), are a solid waste or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may: (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of or otherwise managed.

3.1.8.1 Existing Conditions

No HTRW issues were identified within the Project.

3.1.8.2 Implications of HTRW for Project Development

It is not anticipated that HTRW concerns will impact any Project development initiatives.

3.2 Biological Environment

The biological environment section provides a summary of the biological features of the Project area and planning constraints. The biological environment includes vegetation, terrestrial wildlife, aquatic resources, threatened and endangered species that may inhabit the Project, and critical and sensitive wildlife habitat.

3.2.1 Vegetation

The types of plants and the percentage of coverage in the Project area are discussed in this section.

3.2.1.1 Existing Conditions

Most of the land cover at the Project is forested (82 percent) and is broken by small, scattered areas of grasslands/herbaceous cover and developed open space (Homer et al., 2004). Table 3-2 lists the land cover types in the Project area and the percentage of area they cover. See Figure 3-10.

Table 3-2: Land Cover Types in the Project Area

Land Cover	Percent of Project Area
Allegheny-Cumberland dry oak forest and woodland	75%
Open water	7%
Successional grassland/herbaceous	6%
South central interior mesophytic forest	5%
Developed open space	2%
Low intensity developed	1%
Southern Appalachian low mountain pine forest	1%
Appalachian hemlock-hardwood forest	1%
Other (developed) includes medium- and high-intensity developed land and quarry/strip mine/gravel pit	1%
Other (natural) includes pasture/hay, south central interior small stream/riparian, row crop, successional shrub/scrub, southern interior acid cliff, and southern Appalachian mountain pine forest and woodland	1%

Source: Homer et al. (2004)

Allegheny-Cumberland dry oak forests and woodlands are typically dominated by white oak (*Quercus alba*), southern red oak (*Quercus falcata*), chestnut oak (*Quercus prinus*), and scarlet oak (*Quercus coccinea*), with lesser amounts of red maple (*Acer rubrum*), pignut hickory (*Carya glabra*), and mockernut hickory (*Carya alba*). Small stands of shortleaf pine (*Pinus echinata*) or Virginia pine (*Pinus virginiana*) may occur, particularly adjacent to escarpments or following fire. In the absence of fire, eastern white pine (*Pinus strobus*) may be prominent, occurring in a variety of situations, including on nutrient-poor or acidic soils (NatureServe, 2007).

Successional grassland/herbaceous consists either of dense shrubs or dense herbaceous cover dominated by grasses or sedges (*Carex* spp.). Herbaceous vegetation is most often dominated by rhododendron (*Rhododendron* spp.) but also includes mountain laurel (*Kalmia latifolia*) or a mixture of shrubs. Grassy areas are characteristically dominated by flattened oatgrass (*Danthonia compressa*) or sedges. Large areas have also become dominated by blackberry (*Rubus allegheniensis*) and by mixtures of native grasses with exotic pasture grasses. Most examples of grassy areas have some invading shrubs and trees, often dense enough to threaten the herbaceous vegetation.

South-central interior mesophytic forests are highly diverse and predominantly deciduous. They occur on deep and enriched soils enhanced by the presence of limestone or related base-rich geology, in non-mountainous settings, and usually in somewhat protected landscape positions such as coves or lower slopes. Dominant species include sugar maple (*Acer saccharum*), American beech (*Fagus grandifolia*), yellow poplar (*Liriodendron tulipifera*), American basswood (*Tilia americana*), red oak (*Quercus rubra*), cucumber tree (*Magnolia acuminata*), and black walnut (*Juglans nigra*). Eastern hemlock (*Tsuga canadensis*) may be present in some stands. Trees may grow very large in undisturbed areas, and many examples of this type of forest are bisected by small streams (NatureServe, 2007).

Southern Appalachian low mountain pine forests are characterized by shortleaf pine, and Virginia pine and hardwoods (oaks and maples) are sometimes abundant on especially dry sites. This forest type occurs from ridge tops to the valleys and is generally found on acidic soils and bedrock. The shrub layer may be well developed, and herbs are often sparse. Frequent low-intensity fires, coupled with severe fires, may have been the sole factor for determining the occurrence of this ecological system (NatureServe, 2007).

Appalachian hemlock-hardwood forests are characterized by northern hardwoods such as sugar maple, yellow birch (*Betula alleghaniensis*), and American beech, either forming a deciduous canopy or mixed with eastern hemlock or eastern white pine. Other common and sometimes dominant trees include oaks (most red oak), yellow poplar, black cherry (*Prunus serotina*), and sweet birch (*Betula lenta*) (NatureServe, 2007).

The primary tree species in the Project area are oaks (*Quercus* spp.), maples (*Acer* spp.), and hickories (*Carya* spp.), with small stands of pine (*Pinus* spp.). Other less dominant species include American beech (*Fagus grandifolia*), yellow poplar (*Liriodendron tulipifera*), yellow birch (*Betula alleghaniensis*), American basswood (*Tilia americana*), cucumber tree (*Magnolia acuminata*), black walnut (*Juglans nigra*), Eastern hemlock (*Tsuga canadensis*), black cherry

(*Prunus serotina*), and sweet birch (*Betula lenta*) (NatureServe, 2007). Because Eastern hemlocks are rapidly declining in Kentucky, KYDFWR and USACE take special care to prevent adverse impacts on the 25 acres of existing stands.

A primary goal of the KYDFWR's and USACE's comprehensive forestry management approach is to manage the forest to yield a healthy, sustainable forest. A key issue is controlling invasive species. Invasive species are problematic because they compete with native flora and fauna for the same resources. An invasive species is a species that is foreign to a particular region and out-competes native species for the same resources. Japanese knotweed (*Polygonum cuspidatum*), Japanese stiltgrass (*Microstegium vimineum*), Tree-of--Heaven *Ailanthus altissima*, paulownia (*Paulownia tomentosa*), and kudzu (*Pueraria lobata*) are the invasive species of primary concern at the Project (Rick Mauro, Northeast Region Public Lands Wildlife Biologist, written communication, 17 June 2011).

Japanese knotweed is an upright, shrub like, herbaceous perennial that can grow to a height of more than 10 feet. It spreads quickly to form dense thickets that exclude native vegetation and greatly alter natural ecosystems. It poses a significant threat to riparian areas, where it can survive severe floods and is able to rapidly colonize scoured shores and islands. Once established, populations are extremely persistent. It is difficult to control because of its ability to regrow from vegetative pieces and from seed (USFS, 2004).

Japanese stiltgrass is an annual grass with a sprawling habit that may grow to 3 feet in height. Japanese stiltgrass is especially well adapted to low light conditions. It threatens native plants and natural habitats in open to shady and moist to dry locations. It spreads to form extensive patches, displacing native understory species that are not able to compete with it (USFS, 2004).

Tree-of-Heaven (*Ailanthus altissima*) is a rapidly growing deciduous tree that was introduced to the United States in the 1700s (USDA, 2010). The trees are problematic because they crowd out native species, emit an offensive odor, and can damage pavement and foundations of buildings with their vigorous root system. The trees can be managed chemically, mechanically, or physically.

Paulownia, commonly called princess tree, was introduced in the 1840s as an ornamental. It grows and produces seeds rapidly and displaces natives especially in disturbed areas. The trees can be managed chemically, mechanically, or physically.

Kudzu was introduced to North America in the 19th century for erosion control. Its climbing, coiling, and trailing vine completely crowds out the native species (USFS, 2010). It can be managed chemically, mechanically, or physically.

Although the KYDFWR occasionally seeds open areas with native grass seed to augment or supplement the naturally occurring vegetation and provide benefit to small mammals, deer, turkeys, and birds by providing nesting areas, bedding areas for deer, and habitat for insects; seeding is primarily done on reclaimed mine land. In the Fishtrap Lake WMA, about 650 acres of reclaimed mine land have been converted into grassland and shrub-cover (KYDFWR 2009a).

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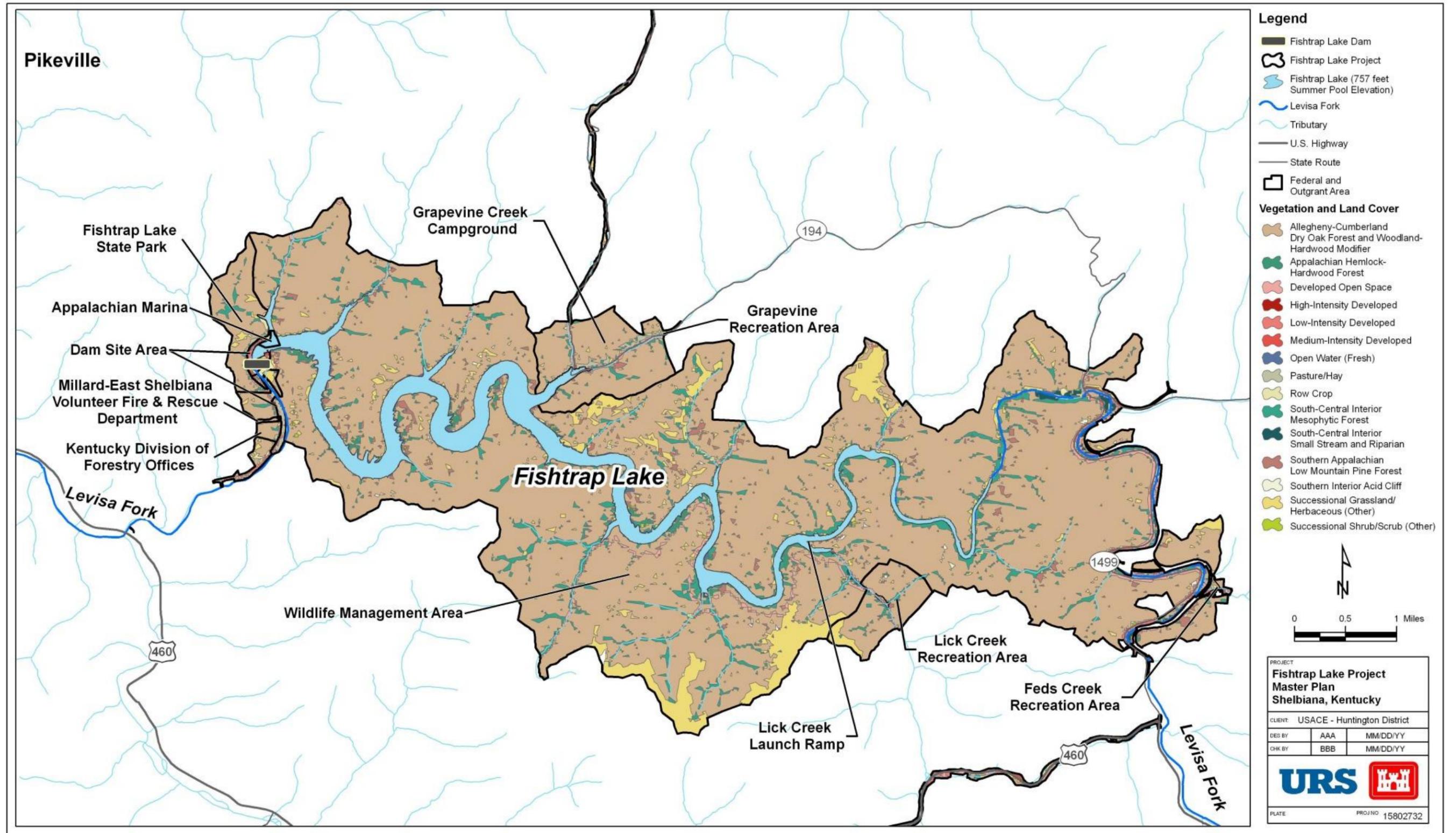


Figure 3-10: Vegetation and Land Cover

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3.2.1.2 Implications of Vegetative Resources for Project Development

Vegetative resources enhance and support development and recreational opportunities at the Project by providing an aesthetically pleasing natural setting and landscape buffer. The forest and associated open fields provide habitat for a variety of wildlife, affording opportunities for wildlife viewing. The forest also provides suitable habitat for target game species including deer and wild turkey. Vegetation and tree roots slow stormwater runoff, providing erosion control capabilities, especially in areas with steep slopes surrounding the lake and tributaries.

The Project contains many areas that are unique and/or environmentally sensitive, including the bottomland hardwood habitats, which are becoming scarcer and consequently more valuable; and Eastern hemlocks, which provide a unique ecology, but are rapidly declining in Kentucky. These areas are critical to the healthy ecology that supports the recreational activities at the Project and provides opportunities for future activities. Areas of the forest where the canopy is dense and unbroken provide a rapidly diminishing resource that attracts a number of neotropical birds, some of which are in decline. A good example is the cerulean warbler (*Dendroica cerulea*), which requires this specific ecology.

Properly managed, vegetative resources will continue to provide recreational opportunities at the Project, and the resource could support many opportunities for development activities. Protecting environmentally sensitive or unique vegetative resources can be a constraint when planning for future development activities—special consideration should be given to avoid or protect these areas.

3.2.2 Terrestrial Wildlife

Terrestrial wildlife is defined as the animals that are found on land and in the air and includes amphibians, birds, mammals, and reptiles.

3.2.2.1 Existing Conditions

According to the KYDFWR, the Project area supports at least 26 amphibian species, 140 bird species, 48 mammal species, and 23 reptile species (KYDFWR, 2011a).

The KYDFWR implemented wildlife restoration within the WMA in the 1980s with releases of white-tailed deer (*Odocoileus virginianus*) and in the 1990s with releases of wild turkey (*Meleagris gallopavo*). In recent years, otters (*Lutra Canadensis*), elk (*Cervus elaphus*) and black bear (*Ursus Americanus*) have also been relocated to the WMA (Richard Mauro, Northeast

Region Public Lands Wildlife Biologist, written communication, 17 June 2011). The KYDFWR conducts regular surveys to measure wildlife populations and collects reports from hunters regarding numbers and types of animals harvested to estimate the numbers of game species. Hunting for deer, turkey, and squirrel is popular in the WMA. Fishtrap Lake is the only WMA in the state open to bear hunting. Besides statewide youth hunts, the only gun or muzzle-loader hunting for deer permitted on the WMA is an annual two-day quota hunt. Grouse are present in areas of second growth forest, and some woodcock (*Scolopax minor*) are found in forested bottomland along the creeks. Populations of quail, dove, and rabbits are currently low (KYDFWR, 2009a).

Migratory waterfowl are often found in the WMA. Species using the Project for at least part of the year include mallard (*Anas platyrhynchos*), wood duck (*Aix sponsa*), American black duck (*Anas rubripes*), bufflehead (*Bucephala albeola*), green-winged teal (*Anas crecca*), green heron (*Butorides virescens*), blue heron (*Ardea herodias*), and belted kingfisher (*Megaceryle alcyon*).

The KYDFWR has implemented various habitat development measures within the WMA. Construction of 18 small wildlife waterholes of less than 0.1 acre have been constructed at scattered locations in the WMA to provide habitat for a variety of upland species of frogs and salamanders and a standing water source for birds and mammals (Richard Mauro, Northeast Region Public Lands Wildlife Biologist, written communication, 17 June 2011).

Although none of the main North American flyways cross the Project area, many neotropical migrants can be found in eastern Kentucky. Neotropical birds breed in North America and spend the nonbreeding season in Mexico, the Caribbean, and Central and South America. The annual migration of neotropical migrants brings species such as cerulean warblers, indigo buntings (*Passerina cyanea*), scarlet tanagers (*Piranga olivacea*), Baltimore orioles (*Icterus galbula*), and wood thrushes (*Hylocichla mustelina*) into Kentucky to nest and breed while others pass through on their way to and from their breeding habitat north of Kentucky. During the nonbreeding season, the neotropical species return south (KSNPC, 2007).

3.2.2.2 Implications of Terrestrial Wildlife for Project Development

Terrestrial wildlife resources support both consumptive and non-consumptive recreational activities at the Project. White-tailed deer and wild turkey are the most popular game species, but dove, woodcock, waterfowl, and various small game species also provide opportunities for hunters at the Project. Non-consumptive recreational activities supported by terrestrial wildlife at the Project include wildlife viewing and birding (neotropicals and year-round species).

Wildlife management provides opportunities for stewardship, support for species that are in decline, and preservation of habitat. The concept of stewardship, described in the USACE’s *Environmental Stewardship and Maintenance Guidance and Procedures* pamphlet (USACE, 1996a), is a natural resources management tool that aims to ensure the conservation, preservation, or protection of resources for present and future generations by focusing on sustaining of ecosystems.

Properly managed, terrestrial wildlife will continue to provide recreational opportunities at the Project and the resource could support many opportunities for development. No significant issues related to terrestrial wildlife were identified that would constrain development activities.

3.2.3 Aquatic Resources

Aquatic resources refer to the animal life in surface waters including streams, wetlands, and the lake.

3.2.3.1 Existing Conditions

Fishtrap Lake sustains a diverse composition of aquatic species. Some of the fish species found in the lake are listed in Table 3-4.

Table 3-3: Some of the Fish Species in Fishtrap Lake

Common Name	Scientific Name
largemouth bass	<i>Micropterus salmoides</i>
smallmouth bass	<i>Micropterus dolomieu</i>
spotted bass	<i>Micropterus punctulatus</i>
hybrid striped bass	<i>Morone</i> sp.
black crappie	<i>Promoxis nigro-maculatus</i>
white crappie	<i>Promoxis annularis</i>
channel catfish	<i>Ctalurus punctatus</i>
flathead catfish	<i>Pylodictis olivaris</i>

KYDFWR (2009a)

Existing structure like rocky bottoms, sandy bottoms, pooling areas, rock outcrops, and grassy areas all work together to provide habitat for a variety of aquatic life. Semi-aquatic species include amphibians (see Table 3-3). Amphibians are referred to as semi-aquatic because they spend half their life cycle in aquatic ecosystems and half in terrestrial ecosystems. The Project

area supports amphibians such as the Fowler’s toad, salamanders, mountain chorus frog, and green frog. These animals are good indicators of the health and stability of an aquatic ecosystem (USACE, 2001).

The lake provides habitat for many fish species and is considered a good fishery. The KYDFWR stocks the tailwater below the dam with rainbow trout in April, May, and November, and in some years, also in June and October (KYDFWR, 2010b).

In addition to all waters in the Commonwealth being under a statewide advisory for women of childbearing age and children 6 years old and younger to eat no more than one meal per week of freshwater fish from any body of water in the Commonwealth, the Levisa Fork River including Fishtrap Lake has fish consumption advisories (KYDFWR, 2011b). The Fishtrap Lake advisory is for the general population to consume no more than one fish per month and sensitive populations to consume no more than six fish per year of channel catfish, drum, white bass, or suckers/carp because PCB and methylmercury contamination and for the general population to consume no more than one fish per week and sensitive populations¹ to consume no more than one fish per month of black bass (which includes largemouth, smallmouth and spotted bass) and flathead catfish because of PCB and methylmercury contamination.

3.2.3.2 Implications of Aquatic Resources for Project Development

Aquatic resources in both the lake and the tailwater support recreational fishing at the Project including fishing tournaments each year. Although there is a statewide advisory for consumption of fish, the presence of pollutants in the lake does not adversely affect the level of fish populations. As such, the aquatic resources are not considered a constraint but an opportunity when planning for development activities.

3.2.4 Threatened and Endangered and Species of Special Concern

Threatened, endangered, and species of special concern are sensitive and protected biological resources, including plant and animals that are listed for protection by the USFWS or the Commonwealth of Kentucky. Under the Federal Endangered Species Act of 1973 (16 U.S.C. §§ 1531–1544), an “endangered species” is defined as any species in danger of extinction throughout all or a significant portion of its range. A “threatened species” is defined as any species likely to become an endangered species in the foreseeable future.

¹Women of childbearing age, children 6 years of age or younger, pregnant and nursing women and women who plan to become pregnant

3.2.4.1 Existing Conditions

Threatened or endangered species that may occur at the Project are shown in Table 3-5 along with their State and Federal status. The Kentucky State Nature Preserves Commission (KSNPC) lists 13 species for Pike County as State-endangered or threatened (KSNPC, 2011). Of the 13 species, none are federally listed as threatened or endangered, but 4 are federally listed as species of management concern.

Table 3-4: Listed Threatened and Endangered Species in Pike County, KY

Taxonomic Group	Scientific Name	Common Name	Federal Status	State Status
Birds	<i>Aimophila aestivalis</i>	Bachman's sparrow	MC	E
Vascular Plants	<i>Agrimonia gryposepala</i>	tall hairy groovebur	—	T
	<i>Boykinia aconitifolia</i>	brook saxifrage	—	E
	<i>Castanea pumila</i>	Allegheny chinkapin	—	T
	<i>Schisandra glabra</i>	bay starvine	—	E
	<i>Scutellaria saxatilis</i>	rock skullcap	—	T
	<i>Thuja occidentalis</i>	northern white cedar	—	T
Terrestrial Snails	<i>Glyphyalinia rhoadsi</i>	sculpted glyph	—	T
Insects	<i>Pseudanophthalmus hypolithos</i>	Aschamp cave beetle	MC	T
Amphibians	<i>Plethodon wehrlei</i>	Wehrle's salamander	—	E
Fishes	<i>Lampetra appendix</i>	American brook lamprey	—	T
	<i>Percina macrocephala</i>	longhead darter	MC	E
Mammals	<i>Myotis leibii</i>	eastern small-footed myotis	MC	T

Source: KSNPC (2011)

E = endangered

MC = Species of Management Concern

T = threatened

3.2.4.2 Implications of Threatened and Endangered Species and Species of Special Concern on Project Development

Because no federally listed threatened or endangered species have been identified as living within Pike County, federally threatened or endangered species should not limit development of recreational activities at the Project. Habitat for State-listed threatened or endangered species should be preserved.

3.2.5 Critical Habitat

In Section 7 of the Endangered Species Act (16 U.S.C. § 1536), critical habitat is defined as an area that is essential to the conservation of a species, although the area need not actually be occupied by the species when it is designated.

3.2.5.1 Existing Conditions

There is no designated critical habitat under Section 7 of the Endangered Species Act present within the Project area. The KSNPC has not identified any State Nature Preserves or State Natural Areas within the Project area (KSNPC, 2010).

3.2.6 Environmentally Sensitive Areas

Environmentally sensitive areas are typically areas that are designated as special status or protected by Federal or State statutes or legislation. Extremely rare or unique natural resource features may also be considered as potentially environmentally sensitive areas.

3.2.6.1 Existing Conditions

Examples of environmentally sensitive areas include protected critical habitat, threatened and endangered species, cultural resources under Section 106 of the National Historic Preservation Act (16 U.S.C. § 470f), and wetlands.

The Project area contains other unique species and habitats that could not be clearly located based on available data but that may also be considered as sensitive environmental areas including:

- Bottomland hardwood areas
- Areas of forest where the canopy is dense and unbroken, which provide a rapidly diminishing resource and habitat for the cerulean warbler

3.2.6.2 Implications of Environmentally Sensitive Areas for Project Development

Preservation of environmentally sensitive areas may result in restrictions or constraints for resource development but may provide interpretative, educational, or eco-tourism opportunities.

4.0 RECREATION PROGRAM ANALYSIS

This section contains the results of an analysis of the recreation program at the Project. The intent of the analysis was to identify the current and future recreational demands that may affect the resources at the Project. Changes in population, preferences, and alternative recreational facilities may change the demand for the recreational activities in the region.

This section begins with the information that was used as a baseline for the analysis. Section 4.1 is an overview of the Project areas, Section 4.2 is a summary of the recreational activities currently available to visitors and the number of visitors, Section 4.3 defines the recreational area of influence, and Section 4.4 describes comparable activities that occur in the area of influence

The results of the analysis are presented in the remainder of Section 4. The results consist of recreational trends (Section 4.5), potential recreational activities at the Project (Section 4.6), projected demand for recreational activities at the Project (Section 4.7), and the implications of the projected demand (Section 4.8).

4.1 Overview of the Project Areas

The Project comprises several areas that are managed by Federal, State, county, and private entities (see Figure 4-1). This section describes the primary areas, subareas, and existing amenities. The primary areas and managing entities are listed in Table 4-1. Table 1-1 lists the acreages of each area and the major facilities and activities (not including Fishtrap Lake), and Section 7.0 contains figures showing the features of the areas.

The areas listed in Table 4-1 that do not support recreation (Millard-East Shelbiana Volunteer Fire & Rescue Department and the Kentucky Division of Forestry Offices) are small outgrant areas used for State or municipal functions or offices. Since these areas do not support recreation and are not expected to in the future, they are not considered further in this Master Plan.

Table 4-1: Primary Areas of the Project and the Managing Entities

Primary Area	Managing Entity	Supports Recreational Activities
Dam Site Area	USACE	Yes
Lick Creek Launch Ramp	USACE	Yes
Grapevine Creek Campground	USACE	Yes
Feds Creek Recreation Area	Pike County	Yes

Primary Area	Managing Entity	Supports Recreational Activities
Lick Creek Recreation Area	Pike County	Yes
Grapevine Recreation Area	Pike County	Yes
Appalachian Marina	Appalachian Marina, Inc.	Yes
Wildlife Management Area	KYDFWR	Yes
Fishtrap Lake State Park	Kentucky Department of Parks	Yes
Millard-East Shelbiana Volunteer Fire & Rescue Department	Millard-East Shelbiana Volunteer Fire & Rescue Department, Inc.	No
Kentucky Division of Forestry Offices	Kentucky Division of Forestry	No
Fishtrap Lake	USACE	Yes

KYDFWR = Kentucky Department of Fish and Wildlife Resources

USACE = U.S. Army Corps of Engineers

4.1.1 Dam Site Area

The 61-acre Dam Site Area is divided into the upper area and tailwater area. The upper area has a 36-foot-wide boat ramp with three lanes. A courtesy dock in the launch area can be used to load passengers and gear and can accommodate up to three boats. There are two parking lots adjacent to the boat ramp; one lot has space for 33 vehicles and the other lot can accommodate 54 vehicles with trailers and 39 passenger vehicles.

The tailwater area has a Visitor Center that offers an interpretive exhibit with native fauna of the area, boating safety tips, hunting and fishing guides, and brochures on local attractions and entertainment (see Photograph 4-1). The Visitor Center has restrooms for men and women and nine parking spaces for visitors.



Photograph 4-1: Visitor Center at the Dam Site Area

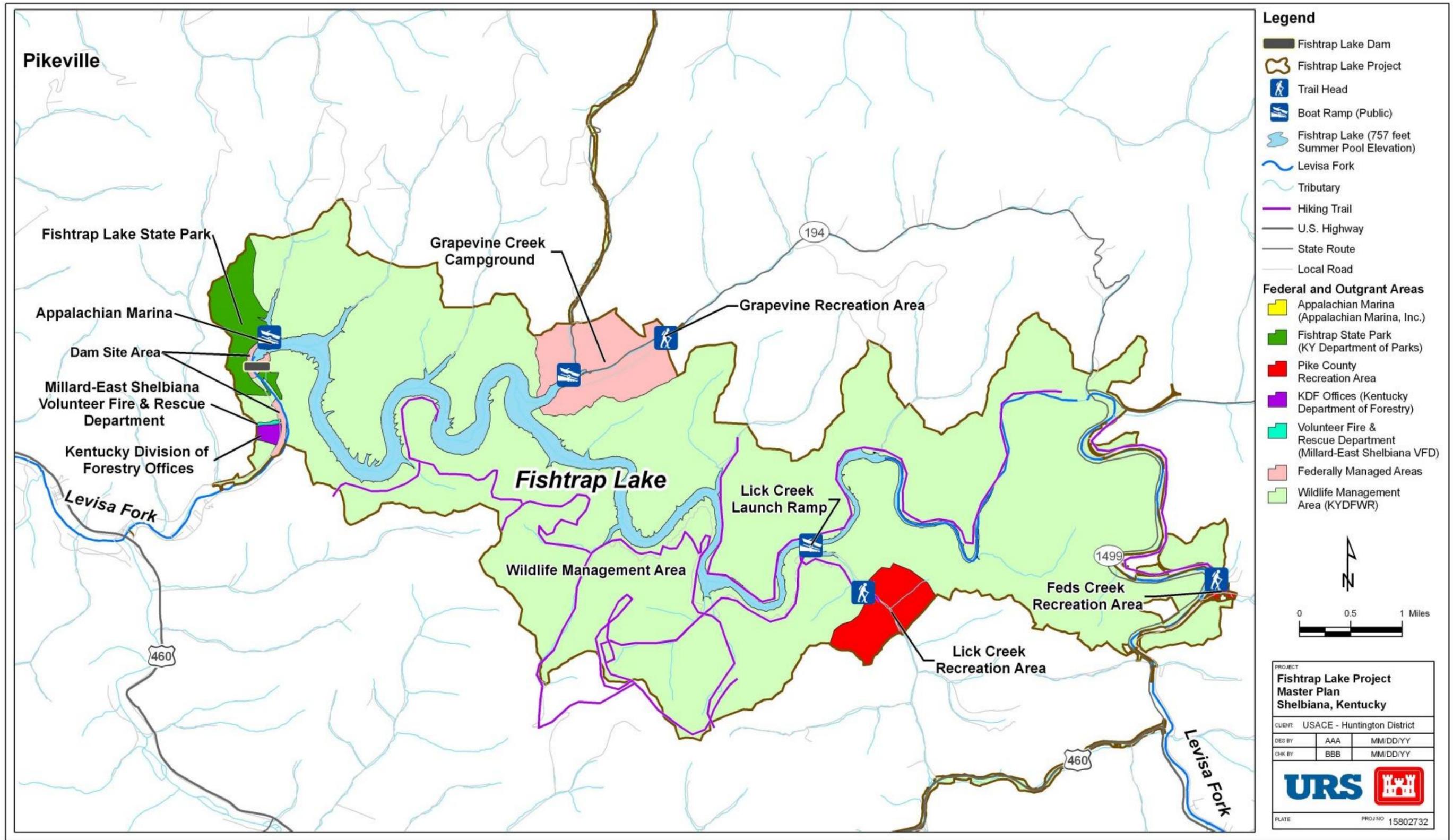


Figure 4-1: Existing Recreational Areas and Major Facilities

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Adjacent to the Visitor Center is a small open area for recreation and picnicking. The Project office and maintenance buildings are near the Visitor Center.

The tailwater area has two picnic shelters. One picnic shelter has six wooden picnic tables, grills, water spigot, playground, horseshoe pits, and a nearby restroom. Adjacent to the shelter is a 30-vehicle parking lot. The other shelter contains nine 12-foot-long wooden picnic tables, two grills, trash receptacles, horseshoe pits, and playground. A 43-space parking lot is near the shelter, and a restroom is adjacent to the picnic shelter. Additional picnic tables, grills, and trash receptacles are located throughout the area.

The tailwater area is popular for fishing, and the KYDFWR regularly stocks the tailwater with rainbow trout. Concrete and gravel paths along the tailwater provide access for fishing and sightseeing. Benches and trash receptacles are located throughout the area.

4.1.2 Lick Creek Launch Ramp

The Lick Creek Launch Ramp has a seasonal boat ramp, courtesy dock, and fishing pier (see Photograph 4-2). The 15-foot-wide, concrete boat ramp has one lane. The boat ramp was designed for use when the elevation of Fishtrap Lake is at the normal summer pool and is therefore not usable during the winter months. A wooden courtesy dock adjacent to the ramp allows for tying off when launching a boat. A gravel lot adjacent to the boat ramp provides parking space for six vehicles with trailers. This area also has three 9-foot-long wooden benches, a fishing pier, and trash receptacles. The fishing pier is in a “T” shape and is approximately 12 feet by 4 feet at the top of the “T.” The approach road to the site is narrow and winds through woods and provides occasional glimpses of the lake. There are multiple benches along the road for walkers using the road as a 1-mile, each-way path.



Photograph 4-2: Lick Creek Launch Ramp

4.1.3 Grapevine Creek Campground

The Grapevine Creek Campground has camping facilities, picnic facilities, a playground, and a boat ramp. Grapevine Creek Campground has two campgrounds. One is near the lake and has

eight tent campsites that are flat and have a fire ring. The campground also has a small playground and a restroom.

The second campground has 24 recreational vehicle (RV) campsites (sites that can accommodate RVs or tents) and 5 tent campsites. Each campsite has a fire ring and lantern hook. Nineteen of the RV campsites are equipped with electrical service and a water spigot. A bathhouse with laundry facilities is centrally located. A sanitary dump station is provided for RVs.



Photograph 4-3: Grapevine Creek Campground

Immediately outside the campground is a large field for open recreation (see Photograph 4-3). The area includes a picnic shelter, multiple picnic tables, charcoal grills, horseshoe pits, and a wooden play structure. The picnic shelter has eight picnic tables, a charcoal grill, electrical receptacles, and trash receptacles. Adjacent to the open area is a restroom and a gravel parking lot that can accommodate 17 vehicles.

The campground also has a two-lane seasonal boat ramp, which is not usable when the lake level is at the winter pool elevation. An asphalt parking for vehicles with trailers is provided adjacent to the ramp.

4.1.4 Feds Creek Recreation Area

The Feds Creek Recreation Area, also known as Lundy Rowe Memorial Park, is managed by Pike County and comprises picnic, sports, and other day-use facilities.

The area has four picnic shelters. Two are in the northern portion of the area, and each one has two 6-foot-long wooden picnic tables, overhead lights, and trash receptacles. A playground, miniature golf course, baseball diamond, and restrooms are adjacent to the shelters. The miniature golf course is surrounded by asphalt and has a 5-foot-long wooden bench for spectators. The holes are each surrounded by concrete curbs and have an astro-turf-type finish.

The other two picnic shelters are in the southern portion of the area. One shelter has two 6-foot-long wooden picnic tables, two octagonal wooden picnic tables, overhead lights, electrical receptacles, charcoal grill, and trash receptacles (see Photograph 4-4). The other picnic shelter has two picnic tables, overhead lights, trash receptacles, wooden benches, and two charcoal grills.



Photograph 4-4: Picnic Shelter at Feds Creek Recreation Area

Adjacent to the area with the two picnic shelters are a baseball diamond, tennis court, 675-foot asphalt walking track, playground, 5-foot-long wooden bench, and horse shoe pits. Restrooms are a portable chemical toilet and a split-face block building with a water spigot.

Parking in the area is limited, with 11 parking spaces along the road. Visitors often park at the lot for the Feds Creek Volunteer Fire Department Station #2, which is also part of the Feds Creek Recreation Area. Visitors also park at the Feds Creek Elementary school, which is adjacent to the Feds Creek Recreation Area. Parking at the Feds Creek Recreation Area is not adequate for the number of visitors, but the parking lots at Volunteer Fire Department and the Elementary School provide for sufficient parking.



Photograph 4-5: Mini-Golf at Feds Creek Recreation Area

The Feds Creek Recreation Area also has a park caretaker who lives on-site.

4.1.5 Lick Creek Recreation Area

The Lick Creek Recreation Area, also known as Bobby O. Abshire Recreation Area, is managed by Pike County and has picnic facilities, a playground, sports facilities, campground, and trails. It is a well-used and high-quality recreational area.

Lick Creek Recreation Area has three picnic shelters. The largest has thirteen 6-foot-long picnic tables, an octagonal picnic table, overhead lights, two charcoal grills, electrical receptacles, and trash receptacle. The two smaller shelters contain a total of ten 6-foot-long picnic tables, overhead lights, charcoal grills, electrical receptacles, and trash receptacles.

The playground is well maintained and has ample room around each piece of equipment, which includes a merry-go-round, slide, spring-mounted rides, swing set, and a 6-foot-long plastic bench (see Photograph 4-6). An 8-foot-wide figure-eight walking path surrounds the playground. The playground also has horseshoe pits.



Photograph 4-6: Lick Creek Recreation Area

The sports facilities are full-size asphalt basketball and tennis courts.

Lick Creek Recreation Area has horse trailer camping. Eight campsites are for horse trailer camping only. All campsites are spaced at 45 feet on center and have electrical receptacles. Two of the sites have a fire ring.

The Lick Creek Recreation Area serves as the trailhead for the South Lake Trail System, which comprises six multi-use trails. The trails are primarily in the WMA; only a small portion of the system is in the Lick Creek Recreation Area. The trails are popular for horseback riding. The Lick Creek Recreation Area serves as the staging area for group rides and rodeos.

An asphalt parking lot provides parking for 12 vehicles, and a gravel lot provides space for approximately 60 vehicles and can accommodate vehicles with trailers. The restrooms for the recreation area are in a split-face concrete block building.

4.1.6 Grapevine Recreation Area

Grapevine Recreation Area, also known as Grapevine Community Park, is managed by Pike County and comprises day-use and sports facilities. The many facilities are close to each other in a compact area.

Day-use facilities include picnic facilities, a playground, an amphitheater, and a gazebo. Picnic facilities include one picnic shelter with seven 6-foot-long wooden picnic tables, a 44-inch-wide

wooden picnic table, two charcoal grills, overhead lights, electrical receptacles, and trash receptacles. Twelve other picnic tables are dispersed throughout the park. Grapevine Recreation Area also has a community meeting room.

The playground has slides, swings, spring-mounted horses, a castle-shaped structure, and two benches. The amphitheater consists of a 20-foot by 16-foot covered stage with lighting.

Sports facilities include a basketball court with two sets of wooden bleachers. The park also contains horseshoe pits, a nine-hole miniature golf course, and a walking track (see Photograph 4-7).



Photograph 4-7: Grapevine Recreation Area

The site has one asphalt parking lot and one gravel parking lot that can accommodate approximately 40 vehicles. Restrooms are in a concrete block building. The site also contains various storage buildings and a park caretaker who lives on-site.

4.1.7 Appalachian Marina

The Appalachian Marina is managed by Appalachian Marina, Inc., and comprises boat slips, a store, slip rentals, boat rentals, food, drinks, live bait, gas, and boat supplies. The marina has 54 standard boat slips and 30 houseboat slips for rental (see Photograph 4-8). There is one fuel pump and one sanitary dump station to serve houseboats. Visitors use the parking lots associated with the boat ramp at the Dam Site Area.



Photograph 4-8: Appalachian Marina

4.1.8 Wildlife Management Area

The Wildlife Management Area (WMA), which is managed by the KDFWR, is characterized by very steep ridges, deep hollows, and narrow ridgetops. Elevations range from 757 to 2,040 feet. The WMA covers approximately 15,000 acres of land. Because of effective habitat and species

restoration and management practices, the WMA supports a great diversity of wildlife. Animal species in the WMA include cerulean warblers, black-throated green warblers, blue-headed vireos, bears, elk, deer, and wild turkeys. Reptiles such as the venomous northern copperhead and timber rattlesnake are also present.

The WMA is primarily forested, but scattered openings along creek bottoms and approximately 600 acres of current and reclaimed mine land also occur. Habitat in openings and mine land consists primarily of grasses and shrubs. The WMA provides opportunities for hunting a variety of wildlife such as deer, bear, elk, turkey, squirrel, and grouse. Hunting in the WMA is regulated closely to maintain wildlife populations (see Photograph 4-9). There are also opportunities for fishing from the shore.



Photograph 4-9: Wildlife Management Area

The WMA contains several multi-use trails. The northeastern part of the WMA has an approximately 30-mile trail that provides access for hunting and fishing. The southern part contains the South Lake trail system, which comprises six multi-use loop trails. The trails originate from the Lick Creek Recreation Area and are 8.6, 11.5, 15.5, 18, 20, and 29 miles long. The trails are popular for horseback riding. Access to the WMA and the lake is provided by mining and service roads. Many of the roads are gated, and visitors using the roads often park near the gates.

The WMA has two primitive camping areas that are accessible only by trails and are intended for horseback riding camping. The campgrounds are basically open fields, and the only facilities are portable chemical toilets. These campgrounds are used sporadically.

4.1.9 Fishtrap Lake State Park

Fishtrap Lake State Park is leased to the Kentucky Department of Parks and subleased to Pike County. The park has a campground, two picnic shelters, basketball court, baseball diamond, and playground equipment.

The campground has eight RV campsites, which can accommodate RVs or tents, and two tent campsites. The RV campsites each have two gravel parking pads (one for the RV and one for a

passenger vehicle), a 6-foot-long composite plastic picnic table, fire ring, charcoal grill, 6-foot-long bench, lantern hook, water spigot, trash receptacle, and electricity service. There is a dump station for sanitary disposal.

The tent campsites each have a 6-foot-long wooden picnic table on a metal frame and fire ring. One of the sites has a wooden tent platform and charcoal grill and a nearby water spigot and trash receptacle. One portable chemical toilet serves the campground.

One picnic shelter is near the marina. The shelter is a wooden structure and contains seven picnic tables, trash receptacles, and a grill (see Photograph 4-10). Parking for approximately 15 vehicles is adjacent to the shelter. Another picnic shelter and a baseball diamond are located at the base of the dam. The picnic shelter contains three 16-foot-long picnic tables, grill, overhead lights, water spigot, electrical receptacles, and trash receptacles. The baseball diamond has lights, dugouts, bleachers, and an announcer's booth. A playground is adjacent to the picnic shelter. A parking lot in this area can accommodate approximately 40 vehicles. Adjacent to the parking lot is a footbridge over the tailwater providing access to an open area in the dam spillway.



Photograph 4-10: Fishtrap Lake State Park

4.1.10 Fishtrap Lake

Fishtrap Lake is used for boating and fishing. Views of the lake are excellent, both on and off the lake. However, the lake has a large amount of floating trash and woody debris, which detract from the aesthetic appeal of the lake. The trash and debris are occasionally collected with skimmers. An area near the dam is used as a trash collection point.

The summer pool of the lake is approximately 1,130 acres but drops to 744 acres during the winter. The lake is used primarily by people with motorized boats. During the summer, approximately 795 acres of the lake are designated for unrestricted boat use, and approximately 160 acres are restricted to idle speed. The lake is used for waterskiing, but it is limited by the debris in the water, which can damage boats and injure skiers.

The lake supports an active fishing environment and fishing tournaments. Swimming in the lake takes place from shore and from watercraft. However, because of perceived water quality issues, floating trash, and woody debris, swimming is not a popular activity.

Boat access to the lake is provided by three boat ramps with a total of six lanes: three lanes at the Dam Site Area, one at Lick Creek Launch Ramp, and two at Grapevine Creek Campground. The boat ramps at both the Dam Site Area and the Grapevine Campground are popular and traffic volumes are moderate. Traffic volumes at Lick Creek Launch Ramp are moderate to low.

4.2 Current Outdoor Recreational Activities and Visitation at the Project

This section identifies the recreational activities that are currently available and the number of visitors who participate in these activities.

4.2.1 Outdoor Recreational Activities

The Project provides opportunities for a wide range of outdoor recreational activities. Table 4-2 lists the major recreational activities that are available, locations, and facilities. Figure 4-1 shows the locations.

Table 4-2: Outdoor Recreational Activities, Locations, and Facilities

Activity	Location	Facilities
Boating	Dam Site Area	<ul style="list-style-type: none"> • Three-lane boat ramp • Courtesy dock • Parking
	Lick Creek Launch Ramp	<ul style="list-style-type: none"> • One-lane seasonal boat ramp • Courtesy dock • Parking
	Grapevine Creek Campground	<ul style="list-style-type: none"> • Two-lane seasonal boat ramp • Parking
	Appalachian Marina	<ul style="list-style-type: none"> • 54 standard boat slips • 30 houseboat slips for rental • Boat rentals • Boat supplies
	Fishtrap Lake	<ul style="list-style-type: none"> • 795 acres designated for unrestricted boat use during the summer • 160 acres restricted to idle speed during the summer

Activity	Location	Facilities
Camping	Grapevine Creek Campground	<ul style="list-style-type: none"> • 29 RV campsites • 5 tent campsites • Bathhouse and laundry facility • Electricity service • Water spigot • Fire ring and lantern hook • Sanitary dump station for RVs • Restrooms
	Lick Creek Recreation Area	<ul style="list-style-type: none"> • 8 horse trailer campsites • Electricity service • Fire ring
	WMA	<ul style="list-style-type: none"> • Two primitive camping areas that are accessible only by trails • Portable chemical toilets
	Fishtrap Lake State Park	<ul style="list-style-type: none"> • 8 RV campsites • 2 tent campsites • Fire ring and charcoal grill • Lantern hook • Water spigot • Electricity • Trash receptacle • Dump station for sanitary disposal • Portable chemical toilet
Fishing	Dam Site Area	<ul style="list-style-type: none"> • Tailwater area stocked with rainbow trout
	Lick Creek Launch Ramp	<ul style="list-style-type: none"> • Fishing pier
	WMA	<ul style="list-style-type: none"> • Shore fishing
	Fishtrap Lake	<ul style="list-style-type: none"> • Fishing from shore, pier, and boats
Hunting	Wildlife Management Area	<ul style="list-style-type: none"> • Designated 15,000 acre hunting area for variety of game
	Fishtrap Lake	<ul style="list-style-type: none"> • Waterfowl hunting
Other activities (e.g., hiking, horseback riding, golf)	Dam Site Area	<ul style="list-style-type: none"> • Playground • Horseshoe pits
	Grapevine Creek Campground	<ul style="list-style-type: none"> • Playground • Horseshoe pits
	Feds Creek Recreation Area	<ul style="list-style-type: none"> • Playground

Activity	Location	Facilities
		<ul style="list-style-type: none"> • Miniature golf course • Tennis court • Horseshoe pits • Walking track • Baseball diamond
	Lick Creek Recreation Area	<ul style="list-style-type: none"> • Trailhead for access to WMA • Basketball court • Tennis court • Playground • Horseshoe pits
	Grapevine Recreation Area	<ul style="list-style-type: none"> • Playground • Amphitheater • Gazebo • Basketball court • Horseshoe pits • Miniature golf course • Walking track
	WMA	<ul style="list-style-type: none"> • More than 100 miles of multi-use trails
	Fishtrap Lake State Park	<ul style="list-style-type: none"> • Baseball diamond • Basketball court • Playgrounds
Picnicking	Dam Site Area	<ul style="list-style-type: none"> • 2 picnic shelters • 18 picnic tables • Grills • Water spigot • Trash receptacles
	Grapevine Creek Campground	<ul style="list-style-type: none"> • 1 picnic shelter • 8 picnic tables • Grills • Electrical receptacle • Trash receptacle
	Feds Creek Recreation Area	<ul style="list-style-type: none"> • 4 picnic shelters • 8 picnic tables • Overhead lights • Grills • Electrical receptacle • Trash receptacle

Activity	Location	Facilities
	Lick Creek Recreation Area	<ul style="list-style-type: none"> • 3 picnic shelters • 24 picnic tables • Grills • Overhead lights • Electrical receptacles • Trash receptacles
	Grapevine Recreation Area	<ul style="list-style-type: none"> • 1 picnic shelter • 19 picnic tables • 2 grills • Overhead lights • Electrical receptacles • Trash receptacles
	Fishtrap Lake State Park	<ul style="list-style-type: none"> • 2 picnic shelters • 10 picnic tables • Grills • Overhead lights • Water spigot • Electrical receptacles • Trash receptacles
Sightseeing	Dam Site Area	<ul style="list-style-type: none"> • Excellent views of mountains and lake
Swimming	Fishtrap Lake	<ul style="list-style-type: none"> • Swimming from the shore and boats
Waterskiing	Fishtrap Lake	<ul style="list-style-type: none"> • Approximately 795 acres for waterskiing during the summer

4.2.2 Visitation by Recreational Area

The Project reports visitation data through the Visitor Estimation Reporting System (VERS) (see Section 1.7.9). Visits are a “head count” of visitors based on a count of vehicles and a statistical analysis of the number of people in a vehicle. A visit represents the entry of one person into a recreational area or site to participate in one or more recreational activities.

Project visitation data reflect estimates of the number of visits to each primary recreational area. Table 4-3 shows the baseline number of visits made to the recreational areas. The “Dispersed Area” category includes use that occurs outside developed recreational areas such as the WMA.

Table 4-3: Baseline Distribution of Visits by Primary Recreational Area

Area	Number of Visits	Percent
Dam Site Area	263,000	53%
Grapevine Recreation Area	93,000	19%
Feds Creek Recreation Area	34,000	7%
Lick Creek Recreation Area	96,000	19%
Dispersed Use	10,000	2%
Total	496,000	100%

Sources: VERS and resource managers

4.2.3 Activity Distribution

Table 4-4 shows the baseline number of participants by recreational activity. Because visitors to the Project participate in various activities, the number of visitors (Table 4-4) to the Project may not be the same as the number of participants.

Table 4-4: Baseline Number of Participants for Recreational Activities

Activity	Number of Participants
Boating	20,800
Camping	7,300
Fishing	53,900
Hunting	500
Other activities	49,400
Picnicking	37,300
Sightseeing	311,800
Swimming	9,400
Water skiing	3,200
Total	493,600

Source: VERS and resource managers

4.3 Area of Influence

The area of influence is defined as the area where the majority of the people who visit the Project live. Determining the area of influence and evaluating the demographic characteristics of the area is an important part of projecting the future demand for recreational facilities at the Project.

4.3.1 Identifying the Area of Influence

Based on the nature of the recreational activities provided at the Project, the vast majority of the visitors to the Project will reside within a 2-hour driving distance (see Figure 4-2). Therefore, this distance was used to define the area of influence.

For planning purposes, the area of influence was divided into three subareas:

- **Primary** – within a 30-minute drive of the Project. Because of their proximity to the Project, residents in the primary area of influence are expected to make the Project a destination for all of the recreational opportunities that are available.
- **Secondary** – between a 30- and 60-minute drive of the Project. Residents in the secondary area of influence are expected to visit the Project for specific reasons (e.g., golf) but are not expected to make the Project a destination solely for general day-use activities, such as picnicking, that are also available in their local area.
- **Tertiary** – between a 1- and 2-hour drive of the Project. Residents in the tertiary area of influence are expected to make the Project a destination for activities that are unique, provide a high-quality recreational experience, or are significantly different from those available in their local area (e.g., boating, fishing) or for overnight activities (e.g., camping).

Ninety percent of the primary subarea of influence is located in Kentucky and the remaining 10 percent is in Virginia. The secondary subarea of influence includes portions of Kentucky (67 percent), Virginia (29 percent), and West Virginia (4 percent). The tertiary subarea of influence includes portions of Kentucky (48 percent), Virginia (32 percent), and West Virginia (20 percent).

4.3.2 Demographic Characteristics in the Area of Influence

Demographic data (population, age, and income) were compiled from data from the U.S. Census Bureau and regional and State data centers. These data were analyzed to determine the population within the area of influence and how the population is projected to change by 2020. Population data were collected for each census block group within the area of influence. The populations were summed to determine the total population. The percent change in population

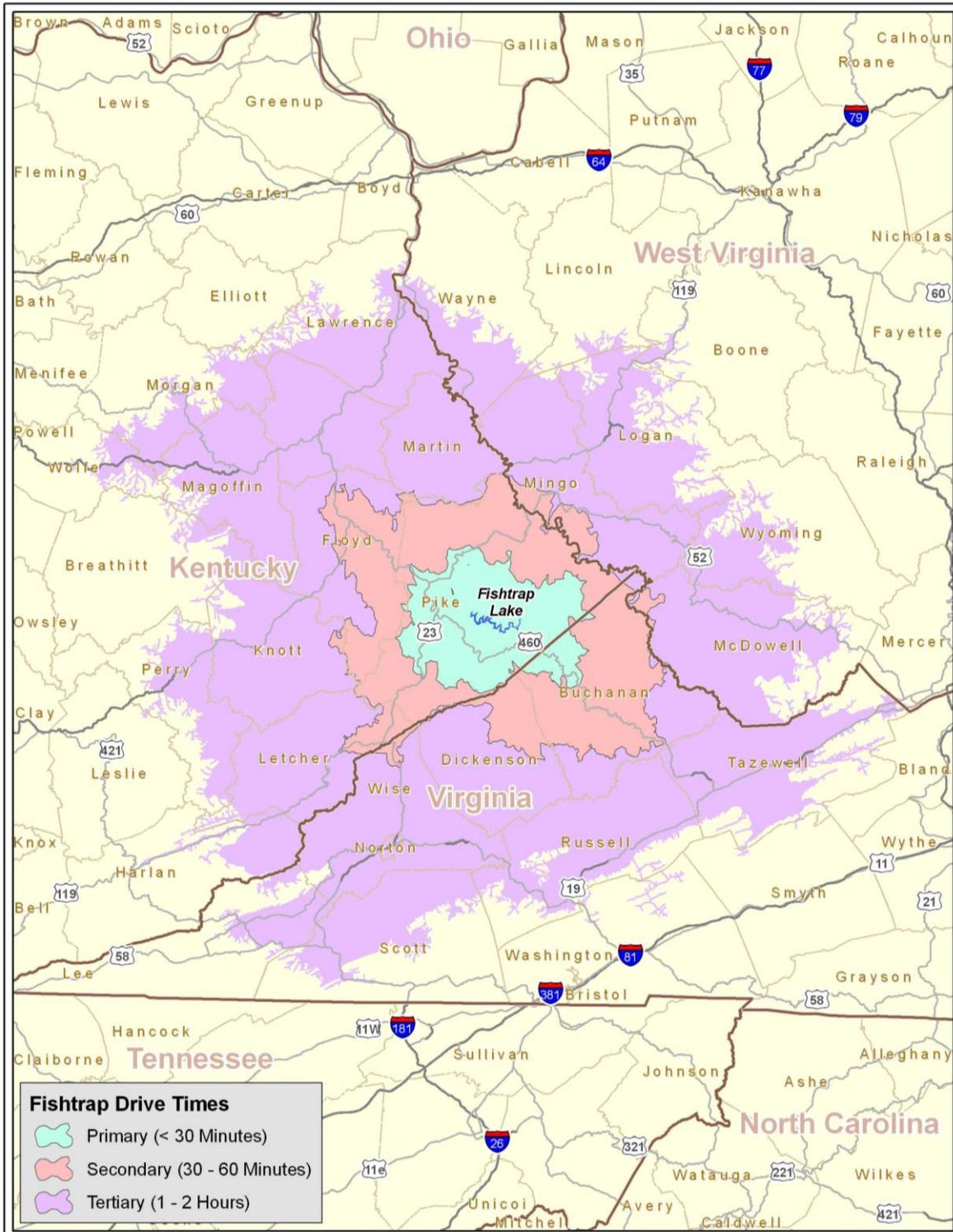
from 2000 to 2010 at the county level was assumed to apply to the block group level (e.g., a 3 percent increase in population at the county level would result in a 3 percent increase in population at the block group level).

The population for 2020 for each subarea was projected based on growth rates between the 2010 population and 2020 county level projections provided by the U.S Census Bureau. The populations of the counties in the area of influence are projected to increase at different rates.

The projected growth rate was determined for the three subareas of influence based on the change in the estimated population in each county.

Similar to the population data, changes in age at the county level were assumed to apply to the block group. The population in each age group was estimated based on the block group level. Changes in the percentage of the population in each age group in the block group were based on projected changes at the county level. The analysis used estimates of the percent change in each age group for the three subareas of influence.

Median incomes were calculated by taking a weighted average of the median incomes of the counties in areas of influence. Median incomes of the counties were compiled from 2008 U.S. Census Bureau data. The median income of each county in the three subareas of influence was multiplied by the percentage of the region's population that resides in each county to calculate a weighted median income for each county. The weighted median incomes were then summed to find the overall weighted median income.



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<small>G:\Projects\USACE\Huntington_reel_esb\Locat_Maps\Projects\MP_Directory\4_Fishtrap_Drive_Time.usd</small>			PLATE	DATE
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	CHK BY BBB MM/DD/YY			
	PROJ NO 15802728			

Figure 4-2: Area of Influence

4.3.2.1 Primary Subarea of Influence

The primary subarea of influence includes portions of four counties, two in Kentucky and two in Virginia. The estimated populations for the primary subarea of influence are shown in Table 4-5. The population in the primary subarea of influence is projected to decrease by 5.4 percent from 2010 to 2020.

Table 4-5: Population in the Subareas of Influence

Subarea	2010 Population	2020 Population (Projected)	Population Growth 2010–2020
Primary	38,924	36,811	-5.4%
Secondary	91,625	89,502	-2.3%
Tertiary	368,215	365,932	-0.6%

Projected changes in the age of the population in the primary subarea of influence were calculated (see Table 4-6). The results of the analysis are that the percentage of people 17 years old and under will decrease from 23 percent in 2000 to 19 percent by 2020. The population over 50 years old is projected to increase from 29 percent in 2000 to 43 percent by 2020. Age distribution across other age groups is projected to remain fairly constant.

Table 4-6: Age Distribution of Population in the Subareas of Influence

Age	Primary			Secondary			Tertiary		
	2000	2010	2020	2000	2010	2020	2000	2010	2020
<5	6%	6%	5%	6%	6%	6%	6%	6%	6%
5–17	17%	15%	14%	17%	15%	15%	18%	15%	15%
18–21	5%	5%	4%	6%	5%	5%	6%	6%	5%
22–29	11%	10%	9%	10%	10%	9%	10%	10%	9%
30–39	15%	13%	12%	15%	13%	13%	14%	13%	12%
40–49	16%	14%	13%	16%	14%	13%	16%	14%	12%
50–64	17%	23%	23%	17%	23%	20%	17%	22%	21%
65–Up	12%	14%	20%	12%	14%	20%	13%	15%	20%

The median incomes of the households in the primary subarea of influence were estimated using a weighted average of the average 2008 median incomes² of the counties in the area. The weighted median income of the primary subarea of influence is \$32,113 (see Table 4-7). The incomes in the primary subarea of influence were lower compared to the median household income of approximately \$41,000 for the Commonwealth of Kentucky.

Table 4-7: Median Household Income in the Subareas of Influence

Subarea	Median Income (2008)
Primary	\$32,113
Secondary	\$30,620
Tertiary	\$31,434

Source: Developed from data obtained from the U.S. Census Bureau.

4.3.2.2 Secondary Subarea of Influence

The secondary subarea of influence includes portions of nine counties (4 in Kentucky, 3 in Virginia, and 2 in West Virginia). The estimated populations for the secondary subarea of influence are shown in Table 4-5. The population in the secondary subarea of influence is projected to decrease by 2.3 percent by 2020.

Changes in the age of the population in the secondary subarea of influence were calculated (see Table 4-6). The results of the analysis are that the percentage of people 21 years old or under will decrease from 29 percent in 2000 to 26 percent by 2020. The percentage of people over 65 years old is projected to increase from 12 percent in 2000 to 20 percent by 2020. The percentage of people between 50 and 64 years is projected to increase by 3 percent by 2020. A slight decrease in population is projected in the other age groups.

The weighted median income of the secondary subarea of influence is \$30,620 (see Table 4-7). Most of the counties in the secondary subarea of influence are in Kentucky; the incomes in the secondary subarea of influence were lower compared to the median household income of approximately \$41,000 for the Kentucky. Counties in Virginia and West Virginia also exhibited lower household incomes compared to incomes reported within their respective states, which were approximately \$59,000 for Virginia and \$37,000 for West Virginia.

² 2010 Census data on median household income were not available at the time of this report.

4.3.2.3 Tertiary Subarea of Influence

The tertiary subarea of influence includes portions of 34 counties in three states (15 in Kentucky, 11 in Virginia, and 8 in West Virginia). The estimated populations for the tertiary subarea of influence are displayed in Table 4-5. The population in the tertiary subarea of influence is projected to decrease by 0.6 percent by 2020.

Changes in the age of the population in the tertiary subarea of influence were calculated (Table 4-6). The results of the analysis are that the percentage of people 21 years old or under will decrease from 30 percent in 2000 to 26 percent by 2020. The percentage of people older than 50 years of age is projected to increase from 30 percent in 2000 to 41 percent by 2020. A slight decrease in population is expected in the other age groups.

The weighted median income of the tertiary subarea of influence is \$31,434 (see Table 4-7).

4.4 Outdoor Recreational Opportunities at Comparable Facilities

Recreational opportunities provided at comparable facilities within a 2-hour drive of the Project were identified and reviewed to understand the recreational opportunities available to people living within the area of influence. A total of 13 facilities were identified (3 in the secondary subarea of influence and 10 in the tertiary subarea of influence). No recreational facilities providing similar opportunities were identified within the primary subarea of influence.

Table 4-8 lists the facilities, operating agency, and approximate acreage. Figure 4-3 shows the locations of the facilities.

Table 4-8: Comparable Recreational Facilities

Subarea	Name	State	Operating Agency	Approximate Size (acres)
Secondary	Breaks Interstate Park	VA, KY	VDCR, KDP	4,600
	Dewey Lake	KY	USACE	9,200
	Panther State Forest	WV	WVDNR	7,820
Tertiary	Berwind Wildlife Management Area	WV	WVDNR	18,000
	Cabwaylingo State Forest	WV	WVDNR	8,100
	Carr Creek Lake	KY	KDP	29
	Chief Logan State Park	WV	WVDNR	4,000
	Clinch Mountain State Wildlife Management Area	VA	VDCR	25,477
	John W. Flannagan Reservoir	VA	USACE	1,145
	Kingdom Come State Park	KY	KDP	1,027

Subarea	Name	State	Operating Agency	Approximate Size (acres)
	North Fork Pound River Reservoir	VA	USFS	154
	Paintsville Lake	KY	USACE	13,100
	R.D. Bailey Lake	WV	USACE	19,000

KDP=Kentucky Department of Parks
 USACE = U.S. Army Corps of Engineers
 USFS = U.S. Forest Service
 VDCR=Virginia Department of Conservation and Recreation
 WVDNR = West Virginia Division of Natural Resources

These 13 facilities support a variety of recreational activities similar to those offered at the Project. Table 4-9 lists the recreational activities at the 13 facilities. The information is based on the *Statewide Comprehensive Outdoor Recreation Plan* (Commonwealth of Kentucky, 2008), which is referred to as SCORP.³ Several amenities were also reviewed and are listed in Table 4-9. Amenities are services or features that can increase the enjoyment of visitors. The reviewed amenities are:

- High-speed Internet access
- Lodge and/or cabins
- Marina
- Onsite restaurant
- Outdoor theater

³ The SCORP contains the estimated participation in recreational activities among residents of Kentucky (Commonwealth of Kentucky, 2008). Estimates are based on a scientific survey and the median number of times in a year a household participates in an activity.

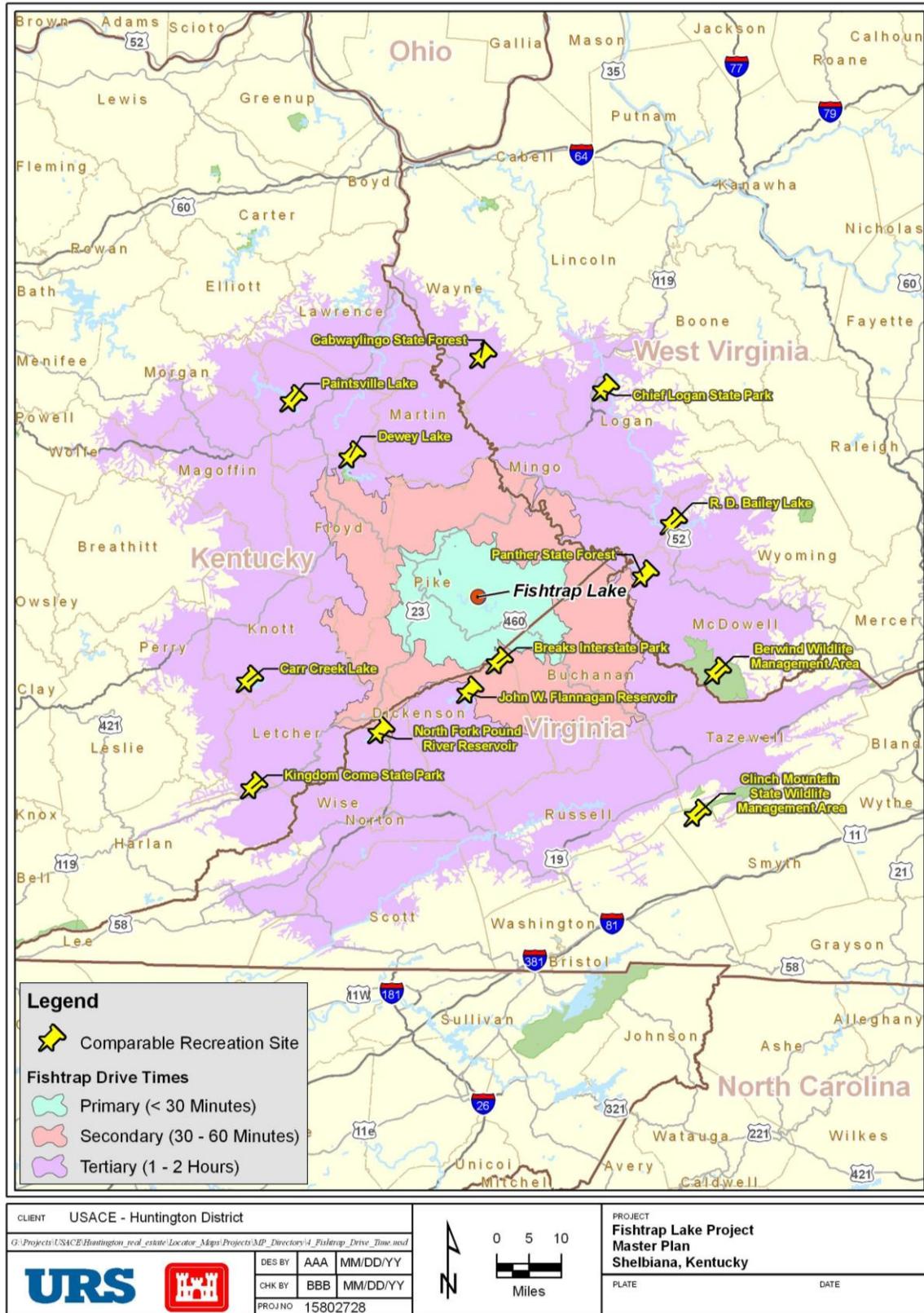


Figure 4-3: Comparable Recreational Facilities

Table 4-9: Recreational Activities at the Fishtrap Lake Project and Comparable Facilities

Area of Influence/ Activities/Amenities		Fishtrap Lake Project	Breaks Interstate Park	Dewey Lake	Panther State Forest	Berwind Wildlife Management Area	Cabwaylingo State Forest	Carr Creek Lake	Chief Logan State Park	Clinch Mountain State Wildlife Management Area	John W. Flannagan Reservoir	Kingdom Come State Park	North Fork Pound River Reservoir	Paintsville Lake	R.D. Bailey Lake
Area of influence		N/A	S	S	S	T	T	T	T	T	T	T	T	T	T
Activities	ATV trails														
	Boating	✓	✓	✓		✓		✓			✓	✓	✓	✓	✓
	Birdwatching/wildlife viewing/sightseeing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Bicycling on bike trail		✓	✓					✓		✓	✓		✓	
	Camping	✓	✓	✓		✓	✓	✓	✓		✓		✓	✓	✓
	Court activities	✓			✓		✓		✓			✓		✓	
	Fishing	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
	Golfing		✓												
	Hiking	✓	✓	✓	✓		✓			✓		✓		✓	✓
	Horseback riding	✓	✓	✓						✓	✓			✓	✓
	Hunting	✓		✓	✓	✓	✓			✓				✓	✓
	Miniature golf	✓							✓			✓			
	Nature preserve/trail/historic site			✓					✓					✓	✓
	Off-road 4-wheel driving														
	Open field events	✓	✓				✓							✓	
	Picnicking	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
	Playground	✓		✓			✓		✓			✓		✓	✓
	Rock climbing														
	Summer camps/daily rec events														
Swimming	✓	✓		✓	✓	✓	✓	✓					✓		
Target shooting									✓					✓	
Winter activities															
Amenities	High-speed Internet access								✓						
	Lodges and/or cabins		✓				✓		✓						
	Marina	✓						✓			✓			✓	
	Onsite restaurant		✓						✓					✓	
	Outdoor theatre	✓	✓						✓			✓			

Definitions

Area of influence	S = secondary, T = tertiary
ATV trails/riding	All-terrain vehicle
Boating	Includes boat ramps, boating activities, and/or waterskiing
Birdwatching/wildlife viewing/sightseeing	Activities that involve observing or photographing wildlife, nature, or historic areas located within a site, whether walking or driving
Camping	Backpack camping, camping at a campsite without electricity or water, and camping with electricity and water (recreational vehicle)
Court activities	Activities that require a court setup, including but not limited to basketball, tennis, and volleyball
Golfing	Golf courses and/or driving ranges
Hiking	Hiking, walking, and exercising on a fitness trail
Horseback riding	Horseback riding on trails or in designated areas; horses may or may not be provided
Nature preserve/ trail/historic site	Nature preserves, historic sites, visitor centers with educational tools/presentations
Open field events	Activities that can be performed on an open field, including but not limited to softball, soccer, lacrosse, cornhole/corn toss, football, disc golf, flying a kite, track and field events, and horseshoes
Summer camps/daily recreational events	Summer camps, horseback riding camps, events/presentations offered on a regular basis
Swimming	Designated swimming area (e.g., beach, pool)
Winter activities	Activities performed in winter, such as outdoor ice skating, snow sledding/snowshoeing, ice fishing, skiing, snowboarding, and snowmobiling
Lodges and/or cabins	Areas for overnight stay that provide more than basic shelter, such as electricity, plumbing, and furnishings
Outdoor theatre	Amphitheaters, areas for outdoor festivals/concerts/reenactments, and outdoor stages

As shown in Table 4-9, the recreational activities and amenities at the Project and the comparable facilities are similar . The comparison of the Project to Breaks Interstate Park, Dewey Lake, and Panther State Forest is particularly relevant because these three comparable facilities are closest to the Project and therefore would have the greatest impact on visitation at the Project. Several comparable facilities in the tertiary subarea of influence offer more activities and/or amenities than the Project, but because these facilities are quite far from the Project, they have only a minor effect on the recreational patterns of the residents in the primary subarea of influence. The only significant difference in recreational activities offered by the facilities in the secondary and tertiary subareas of influence compared to the Project is that many of them offer swimming that tends to be a day-use activity that draws visitors from the immediate area around the facility. Several of the comparable facilities in the secondary and tertiary subareas of influence offer an onsite restaurant. This amenity increases the enjoyment of visitors at the facilities but is not expected to cause a significant shift in visitation patterns.

A review of the planned changes to the recreational activity opportunities at the comparable facilities in the area of influence indicated that no significant changes are anticipated for the near future, such as the addition or removal of an existing recreational activity or the construction of a new facility. Minor changes may occur at the comparable facilities, but none were identified that are expected to affect current visitation patterns.

In addition to the recreational activities provided at the Project and the comparable facilities, the area of influence has a number of national and State trail systems. These trail systems are on lands typically owned and managed by Federal, State, and private entities and provide access to day-use recreational activities such as hiking, ATV riding, and mountain biking. Although these systems provide access to outdoor recreational activities, they do not provide the same recreational experience (e.g., boating, fishing, swimming) as the comparable facilities and are not expected to affect the number of visitors at the Project. The significant trail system in the area of influence is the Hatfield-McCoy Trails System.

4.5 Trends in Outdoor Recreational Activities

There has been much speculation in recreational literature that participation in all nature-based activities is declining because of a decrease in free time and increased technology in people's everyday lives. However, a study by Cordell (2008) on trends in outdoor recreation indicated that while the national interest in nature and outdoor activities has changed over the last 60 years, overall it has not declined.

The discussion of participation trends in this section focuses on changing preferences for recreational activities. Changing preferences were identified by reviewing literature on trends in Kentucky and across the country. Changing preferences for a specific activity at the Project were identified through discussions with resource managers.

4.5.1 Age

Age can influence the preference for recreational activities. For example, as the population ages, there is a greater demand for RV camping and lodging and less demand for tent camping. In addition, older populations transition from active sports to less strenuous activities such as walking (Virginia Department of Conservation and Recreation, 2007).

4.5.2 Fishing and Hunting

According to the Recreational Boating and Fishing Foundation (2010), age does not affect participation in recreational fishing. Despite these findings, there is evidence that across all age categories, participation in both fishing and hunting is decreasing. The SCORP indicates a decrease of 7 percent in the rate of participation in fishing and hunting since 2000 (Commonwealth of Kentucky, 2008). Similarly, the USFWS found that nationwide participation in fishing decreased by about 16 percent and hunting decreased by about 11 percent between 1991 and 2006 (USFWS, 2006).

The decrease in fishing and hunting is further supported by a U.S. Forest Service (USFS) study, *Outdoor Recreation in American Life: An Assessment of Demand and Supply Trends* (Cordell et al., 1999). The study contains projections of outdoor recreational participation through the year 2050 and accounts for increases in participation due to population growth. The study projects fishing visits will increase by 36 percent through 2050, but this is marginally less than the projected population growth of 44 percent. Therefore, the overall participation rate is actually projected to decrease over the next 40 years. Similarly, the study projects that participation in hunting will decrease by 11 percent.

4.5.3 Summer Activities

According to the SCORP, the participation rate for horseback riding and trail hiking is increasing, but the rate of increase is not specified (Commonwealth of Kentucky, 2008). The USFS projects that participation in both hiking and horseback riding will increase marginally faster than the population (Cordell et al., 1999).

The rate of participation in picnicking, swimming, camping, boating, waterskiing, and sightseeing has been found to be steady (Bowker et al., 1999). While the participation rate for camping in general is steady, there is an increase in camping in an RV with electricity and water, as opposed to camping in tents. The USFS is projecting that primitive camping will increase at a slower rate than population growth and will therefore have a decrease in the rate of participation. However, developed camping is projected to increase at a greater rate than population growth (Cordell et al., 1999).

Observing nature has been increasing and is expected to continue to increase. The USFS projects that participation in non-consumptive wildlife activities, including bird watching, photography, and other forms of wildlife viewing will increase through 2050 (Cordell et al., 1999). The number of participants is anticipated to increase more rapidly than the population for these activities. Similar to non-consumptive wildlife activities, sightseeing and visiting historic places are projected to be two of the fastest growing outdoor recreational activities.

4.6 Identifying Potential Recreational Activity Opportunities

Identifying potential recreational activity opportunities at the Project is important to development planning and future investment. This section examines the recreational activities that are available at the Project, activities that may be a viable option in the future, and activities that cannot be considered because they are inconsistent with policy (USACE, 1996a) and environmental conservation goals.

The rate of participation in a particular activity may not correlate with the value people place on the activity. For example, people may place great value on camping, but it requires a large time commitment and typically people can participate only a few weekends a year. Camping can be considered as having high value but a low participation rate. Alternatively, people may play tennis more often because it requires much less time per event and can be enjoyed in the local neighborhood. Tennis can be considered as having a lower value, but a high participation rate. Therefore, although ranking the activities by rate of participation provides a general guide to the value people place on certain activities, the activities need to be evaluated carefully when planning for current and future recreational activities at the Project.

The resources available at the Project provide the opportunity for visitors to participate in many of the activities identified in the SCORP. However, some of the activities may not be consistent with resource capabilities or water and outdoor resource based recreational policy. Therefore, the activities in the SCORP are categorized as follows for planning purposes:

- **Available** – Resources and supporting facilities for these activities are currently available at the Project.
- **Potential** – Facilities for these activities are not currently available at the Project, but they are consistent with planning goals and may be considered as potential future activities. Facilities for these activities may be cost shared by the USACE or constructed wholly by a non-Federal entity.
- **Inconsistent** – Facilities for these activities are not currently available at the Project and conflict with policy and environmental conservation goals.

Table 4-10 lists the activities identified in the SCORP (in decreasing order of participation) and identifies whether an activity is currently available at the Project, has potential as a future activity, or is inconsistent with policy and environmental conservation goals.

Table 4-10: Recreational Activities at the Project

Activity	Available	Potential	Inconsistent
Bird watching/wildlife viewing	✓		
Walking	✓		
Gardening		✓	
Driving (sightseeing)	✓		
Fishing from shore, pier, or boat	✓		
Golfing		✓	
Hiking on a trail	✓		
Hunting with firearms or bows	✓		
Exercising on fitness trail	✓		
Playing basketball	✓		
Playing soccer		✓	
Playing tennis	✓		
ATV riding			✓
Off road 4-wheel driving			✓
Track and field events		✓	
Camping with electricity and water (for RV use)	✓		
Cross-country skiing		✓	
Driving range/practice range		✓	

Activity	Available	Potential	Inconsistent
Horseback riding on trail	✓		
Motor boating/jet skiing/waterskiing	✓		
Orienteering or geo-caching	✓		
Picnicking	✓		
Sightseeing or photography	✓		
Swimming in a lake/river/stream	✓		
Target shooting with firearms or bow		✓	
Bicycling on bike trail		✓	
Corn toss/corn hole	✓		
Playing at a playground	✓		
Playing baseball or softball	✓		
Playing football		✓	
Playing volleyball		✓	
Skateboarding/BMX Bicycling		✓	
Swimming at a public/club pool		✓	
Visiting a dog park		✓	
Berry/mushroom picking			✓
Rock climbing		✓	
Visiting historic site		✓	
Attending a summer camp/horseback riding camp		✓	
Backpack camping	✓		
Camping at a campsite without electricity or water	✓		
Camping in a cabin		✓	
Ice skating outdoors		✓	
In line/roller skating	✓		
Mountain biking		✓	
Playing disc golf	✓		
Picnicking at a shelter	✓		

Activity	Available	Potential	Inconsistent
Sailing, canoeing, kayaking, river rafting	✓		
Snow sledding/snowshoeing	✓		
Visiting a nature preserve		✓	
Visiting a nature aquarium/zoo			✓
Flying a kite	✓		
Playing horseshoes	✓		
Playing lacrosse		✓	
Downhill skiing/snowboarding		✓	
Playing in a wave pool/lazy river/spray park		✓	
Paragliding/sky diving			✓
Playing miniature golf	✓		
Playing paintball			✓
Attending outdoor festivals/concerts/reenactments	✓		
Attending outdoor racing events			✓
Snowmobiling			✓

As shown in Table 4-10, the Project provides opportunities for more than half of the activities listed in the SCORP, including 7 of the top 9 recreational activities that are the most popular in terms of participation rate (i.e., number of times in a year that a household participates in an activity) among residents of Kentucky.

The activities listed as potential are consistent with policy and environmental conservation goals and could be provided at the Project, although a large number identified as potential can currently be enjoyed in a nonorganized or family event setting using the existing resources, such as playing soccer in open field areas. The potential activities could be formally developed by a local sponsor, but a determination on the suitability of the activity would be done on an individual basis.

4.7 Recreational Demand Analysis

The recreational demand analysis included a review of several factors that can change the demand for recreational activities. Changes in the following factors could result in a shift in demand for recreational activities at the Project or affect the number of visitors:

- Change in the opportunities available to participants, such as the development of new *comparable facilities* near the Project
- Change in preferences for activities, such as *national and State participation trends* showing a decrease in hunting
- Change in the *demographic characteristics* in the area of influence including a change in population and in the median age of the population; such changes can affect the preferred activities (e.g., older visitors may prefer RV camping to tent camping)

4.7.1 Impact of Comparable Facilities

The Project and the comparable facilities in the area of influence have been open and operating for many years. This, and a fairly stable visitation to the Project over the last few years, is an indication that the demand for particular activities offered at the Project is in a mature state (i.e., demand has reached an equilibrium). As noted earlier, no significant planned changes are anticipated at the comparable facilities, and no new comparable facilities are anticipated. Therefore, the effect of the comparable facilities is not expected to change the existing demand for recreational activities at the Project.

4.7.2 Impact of Trends in Participation Rates in Recreational Activities

Trends in recreation were reviewed to identify potential changes in demand for recreational activities at the Project. In general, the rate of participation in consumptive resource uses, such as hunting and fishing, has been declining and is anticipated to continue declining. However, the rate of participation for nonconsumptive resources uses, such as nature trails and sightseeing, has been increasing. Based on these trends, the following assumptions were used to forecast future activities and participation:

- The participation rate for “other” recreational activities, including hiking, horseback riding, and golf, will increase 5 percent between 2010 and 2020.
- The participation rate for fishing and hunting will decrease 7 percent between 2010 and 2020
- Although the participation rate for camping is anticipated to remain stable, there will be an increased preference for camping in an RV as opposed to a tent.

- As a population ages, there will be a shift to less physical activities, such as walking.
- The participation rate for sightseeing, including observing nature and visiting historic places, will increase 5 percent between 2010 and 2020.

4.7.3 Impact of Demographic Changes

The population change in the area of influence over the next decade is projected to be small—an overall decrease of 1.3 percent. In addition to the population decrease, the age of the population is projected to increase. Based on the projected population, change in the demographics, and observations at the Project, the following assumptions were used to forecast future activities and participation:

- The population in the primary subarea of influence is projected to decrease by 5.4 percent between 2010 and 2020.
- The population in the secondary subarea of influence is projected to decrease by 2.3 percent between 2010 and 2020.
- The population in the tertiary subarea of influence is projected to decrease by 0.6 percent between 2010 and 2020.
- The demand for RV accessible campsites will increase because of preferences for RV camping as opposed to tent camping among older campers.
- The shift to an older population will create a demand for shorter walking and hiking trails with smooth surfaces and minimal slopes that are easy to traverse.

4.7.4 Projected Participation by Activity

A multi-step approach was used to project the participation in each recreational activity at the Project. The approach accounts for anticipated changes in the rate of participation in specific activities and the estimated change in population in each subarea of influence. In the first step, the rate of participation for the current visitors engaged in the activities (see Table 4-3) was adjusted to estimate the impacts of preference changes on the current users.

In the second step, the estimated number of participants was adjusted to account for projected population changes within each subarea of influence. The rate of participation of the current population was assumed to be representative of the rate of the participation for new people to the area (e.g., if 15 percent of the current population participates in camping, it is assumed that 15 percent of the new people to the area would participate in camping). The current population engaged in the activities was divided among the three subareas of influence based on the

assumption that 80 percent of visitors live in the primary subarea of influence;⁴ 10 percent live in the secondary subarea of influence; and 10 percent live in the tertiary subarea of influence. The current rate of participation in each activity was applied to the change in the population to estimate the number of visitors who would participate in an activity in 2020. The estimated number of people for each activity was also adjusted based on projected preference changes.

The estimated number of participants in each activity in 2020 (based on changes in preferences) was added to the estimated new entrants (or decline) from a change in population. Table 4-11 shows the baseline and projected number of visitors for each of the primary activities, sorted by subarea of influence.

Table 4-11: Baseline and Projected Visitors by Recreational Activity and Subarea of Influence

Activity	Subarea of Influence	Baseline Participation*	Projected Participation for 2020*	Change
Boating	Primary	16,710	15,810	-900
	Secondary	2,090	2,040	-50
	Tertiary	2,090	2,080	-10
	Subtotal	20,890	19,900	-990
Camping	Primary	5,840	5,520	-320
	Secondary	730	710	-20
	Tertiary	730	720	-10
	Subtotal	7,290	6,960	-330
Fishing	Primary	43,340	38,130	-5,210
	Secondary	5,420	4,920	-500
	Tertiary	5,420	5,010	-410

⁴ The distribution of the population for each subarea of influence is based on observations by resources managers. These observations, listed below, are consistent with the demographic characteristics of the area and the location of comparable facilities:

- The primary subarea of influence has a number of small towns, whose residents visit the Project, which includes three community-oriented parks (Lick Creek Recreation Area, Grapevine Recreation Area, and Feds Creek Recreation Area).
- Comparable facilities have a greater impact on the recreational destination to those living farther from the Project, such as in the tertiary subarea of influence.
- People may be unwilling to cross State lines for recreational purposes, especially for hunting and fishing, which would require the purchase of a nonresident license.

Activity	Subarea of Influence	Baseline Participation*	Projected Participation for 2020*	Change
	Subtotal	54,180	48,060	-6,120
Hunting	Primary	440	390	-50
	Secondary	60	50	-10
	Tertiary	60	50	-10
	Subtotal	550	490	-60
Other	Primary	39,670	39,400	-270
	Secondary	4,960	5,090	130
	Tertiary	4,960	5,170	110
	Subtotal	49,580	49,660	80
Picnicking	Primary	29,980	28,360	-1,620
	Secondary	3,750	3,660	-90
	Tertiary	3,750	3,730	-20
	Subtotal	37,480	35,750	-1,910
Sightseeing	Primary	250,600	248,920	-1,680
	Secondary	31,330	32,130	800
	Tertiary	31,330	32,690	1,360
	Subtotal	313,250	313,750	500
Swimming	Primary	7,530	7,120	-410
	Secondary	940	920	-20
	Tertiary	940	940	0
	Subtotal	9,410	8,980	-430
Waterskiing	Primary	2,530	2,400	-130
	Secondary	320	310	-10
	Tertiary	320	320	0
	Subtotal	3,170	3,020	-150
	Total	495,840	486,600	-9,240

*Values are rounded

As indicated in Table 4-11, overall participation is expected to decrease by 9,250 visits (approximately 1.9 percent), by 2020 and the activities undertaken by the visitors are anticipated to change. The only increases in participation are anticipated to be in the sightseeing and other categories.

4.7.5 Lake Carrying Capacity

The number of people participating in fishing is projected to decrease by 11 percent, and boating is expected to decrease by 5 percent by year 2020. The carrying capacity of Fishtrap Lake for boating was analyzed to determine whether the lake capacity is adequate for current and future demand. Carrying capacity refers to the number of boats that might use the lake at one time. If the number of boats exceeds the carrying capacity of the lake, boaters would not experience a reasonable level of satisfaction in the boating experience or a reasonable level of safety.

Because of shallow water, narrow portions of the lake, docks, and other constraints, 5 percent of Fishtrap Lake is estimated to be unsuitable for boating. Although some of the unsuitable area can be used safely by non-motorized boats or motorboats fishing close to shore, the area was removed from the lake carrying capacity analysis. The summer pool lake is 1,131 acres; therefore, the estimated number of acres available for boating in the summer months is:

$$\text{Acres available for boating during summer} = 1,131 - (0.05) * 1,131 = 1,074 \text{ acres}$$

Non-motorized boats (e.g., canoes, rowboats) require less lake space than motorboats for safety, and motorboats require more space than non-motorized boats for boating enjoyment. Based on observations by resource managers, it is estimated that the distribution of boats on the lake at any one time is 90 percent motorboats and 10 percent non-motorized boats.

The carrying capacity of Fishtrap Lake was estimated for three scenarios: high, medium, and low density of boats (Table 4-12), which is consistent with carrying capacity analyses conducted for the Lucky Peak Master Plan in Walla Walla, Washington (USACE, 2006).

Table 4-12: Space Assumptions for Safe and Enjoyable Boating

Type of Boat	Low-Density Requirement Per Boat	Medium-Density Requirement Per Boat	High-Density Requirement Per Boat
Non-motorized	2.5 acres	1.3 acres	0.5 acres
Motorboat	20 acres	10 acres	5 acres

Based on these assumptions, the number of boats that might comfortably be accommodated on Fishtrap Lake at any one time for each scenario is estimated as follows.

For each scenario:

$$L + M = T$$

Where:

$$L = \text{number of non-motorized boats} = 0.1 * T$$

$$M = \text{number of motorboats} = 0.9 * T$$

$$T = \text{total number of boats}$$

$$\text{Low-density scenario: } (L * 2.5 \text{ acres/boat}) + (M * 20 \text{ acres/boat}) = 1,074 \text{ acres}$$

$$\text{Medium-density scenario: } (L * 1.3 \text{ acres/boat}) + (M * 10 \text{ acres/boat}) = 1,074 \text{ acres}$$

$$\text{High-density scenario: } (L * 0.5 \text{ acres/boat}) + (M * 5 \text{ acres/boat}) = 1,074 \text{ acres}$$

Table 4-13 displays the number of boats that could use Fishtrap Lake at any one time for each density scenario.

Table 4-13: Numbers of Boats at Different Densities

Type of Boat	Number of Boats		
	Low Density	Medium Density	High Density
Non-motorized	6	12	24
Motorboats	53	106	212
Total Boats	59	118	236

The numbers of boats that could fit comfortably on the lake in the low-, medium-, and high-density scenarios were compared to the estimated number of boats (based on the estimated number of boaters) that use the lake on a weekend day during peak season. Weekend days during peak season were targeted in order to estimate the number of boaters on Fishtrap Lake during periods of highest volume.

An analysis was performed to evaluate the effect of the number of boats on the lake’s carrying capacity. The number of boats was derived based on the following assumptions, which are based on observations from resource managers:

- Peak boating season is 6 months long
- 80 percent of the total boaters for the season use the lake during peak season
- 2 boaters per boat
- 70 percent of boating activities occur on a summer weekend

- 8 weekend days per month
- Duration of each boat trip is 6 hours or half of a summer day

Table 4-14 shows the projected number of boats on the lake at any one time on a summer weekend day based on these assumptions. As shown on the table, a total of 61 boats are projected to use the lake at any one time on a summer weekend day, which reflects low-density usage with the capacity to accommodate additional boats.

Table 4-14: Estimated Number of Boats and Boaters During Peak Season, Baseline and 2020 Projection

Peak Season	Boaters per Month	Boats per Month	Boats on Weekend Day	Boats at One Time on Weekend Day
Baseline	2,785	1,392	122	61
2020 Projection	2,656	1,328	116	58

The total number of boats on the lake at any one time was also examined for a summer weekend day in 2020. Based on the assumptions presented above and a projected 2,656 boaters per month during peak season, it is estimated there will be a total of 58 boats at any one time during a summer weekend day. The projected number of boats is similar to the baseline number of boats estimated to use Fishtrap Lake on a weekend day, indicating that overcrowding is not anticipated to be an issue in the future.

4.8 Implications of Projected Demand on Recreational Activities

Based on previously discussed trends and changing demographics, demand for recreational activities at the Project is expected to change over the next 10 years. This section describes the implications of the trend and the demand analysis on recreational activities at the Project.

4.8.1 Boating

The number of boaters is anticipated to decrease as the population in the area declines. The analysis of the carrying capacity of Fishtrap Lake indicates that the current and future use falls between the low- and moderate-density scenarios.

The lake can accommodate the number of current and projected future boaters. Demand is limited because of the floating trash and woody debris in the lake. Debris and trash can damage boats and detract from the recreational experience.

4.8.2 Camping

The multiple camping areas at the Project provide a wide range of opportunities for camping experiences. Grapevine Creek Campground has 29 RV campsites and 5 tent campsites. Fishtrap Lake State Park has 8 RV campsites and 2 tent campsites. Lick Creek Recreation Area has eight campsites for campers with horse trailers. The WMA has two primitive camping areas that are intended for horseback riding camping.

The RV campsites are typically full on the weekends from May through August, and the tent campsites are reserved during summer holiday weekends. The occupancy is less than 50 percent during the week. The horse-focused campgrounds are used less. In addition, camping is projected to decrease slightly.

Trends in camping show that more campers are moving from tent camping to RV camping. With the increased use of RVs, there is greater demand for campsite utilities, such as electric, water, and sewer. Some of the RV campsites have utilities, and resource managers have indicated that these campsites are more popular. Adding utilities at other RV campsites would increase the satisfaction of visitors.

4.8.3 Fishing

Projections indicate a decrease in fishing visits at the Project. Fishing occurs on Fishtrap Lake from boat and shore. Although Fishtrap Lake is considered a good fishery, there are advisories on the consumption of fish, which limits its appeal for recreational fishing. Even with the consumption restrictions, the lake supports fishing tournaments throughout the fishing season. The lake is regularly stocked by the KYDFWR. The tailwater area at the Dam Site Area is also stocked and provides opportunities to fish for trout and other species.

4.8.4 Hunting

Hunting is popular at the Project, especially for deer and turkey, but projections indicate a decrease in visits for hunting at the Project. Hunting in the WMA is closely regulated to maintain wildlife populations, which limits the amount of hunting. Because the size of the WMA adequately addresses the current demand (no areas of congestion or conflict were identified), the current facilities are adequate to meet future demand.

4.8.5 Other Activities

Visitors engage in many activities that are included in the “Other” category, such as walking, hiking, sports, miniature golf, and horseback riding. The rate of participation in this category is

expected to grow marginally, leading to an increased number of participants engaged in these activities at the Project.

Facilities that support the current participation level in these activities appear to be appropriate for the current needs. While the trails are not congested, changing demographics and preferences are anticipated to shift the activities that visitors participate in to less strenuous forms of activities, indicating a further increase in demand for walking and nature trails that are shorter in length and easier to traverse. There are multiple walking paths at the Project to meet the demand. Scenic views, wildlife viewing opportunities, and interpretive signage should be considered when developing and managing walking and nature trails.

Horseback riding is a popular activity at the Project. However, the number of trailheads that support horse-related activities are limited. Providing additional trailheads and trails to support horseback riding would increase the use and enjoyment of participants. Most of the horse-related activities originate in the Lick Creek Recreation Area, which provides access to the trails and has a campground for vehicles with horse trailers. Providing additional trailheads and access trails would provide better access to the trails for visitors with trailers and other visitors.

The Project provides a wide range of sports-related opportunities, including baseball, basketball, horseshoe pits, and tennis. These facilities are used primarily by people from the communities that are near the facilities. No areas of congestion or overcrowding were reported for these facilities.

ATV riding is a popular activity in the communities surrounding the Project, leading to frequent requests to open to the public portions of the Project for ATV use. Public ATV riding is not allowed at the Project because it conflicts with USACE policy and environmental conservation goals and with the environmental management objectives of the KYFWDR. Because ATV riding is inconsistent with recreational policy and resource use of the WMA, the development of designated ATV trails was not considered for this Master Plan.

4.8.6 Picnicking

Picnicking is a popular activity at the Project, but demand is anticipated to decrease slightly by 2020 as the population declines and ages. Picnicking is associated primarily with shelters, which are typically fully reserved on weekends during spring, summer, and fall. Meeting the current demand is estimated to require constructing four additional shelters, but the decline in future participation indicates that three shelters would be appropriate. Parking at the shelters is generally not a concern, except at the Feds Creek Recreation Area where parking is limited.

4.8.7 Sightseeing

Sightseeing, including wildlife viewing, is the most popular recreational activity at the Project. There are a number of areas along roads and trails that provide scenic views to visitors. By 2020, the number of sightseers is expected to increase because of changes in trends. This demand could be met by providing additional access to viewsheds.

4.8.8 Swimming

The Project does not have any designated swimming beaches. Visitors who swim do so in Fishtrap Lake from the shore or while boating. Although opportunities for swimming are limited, the demand for a beach is not expected to be high because of concerns about the perceived water quality of Fishtrap Lake.

4.8.9 Waterskiing

Waterskiing takes place on Fishtrap Lake during the summer months, but it is not a significant recreational activity compared to other activities. Waterskiing is limited by the woody debris and trash in the lake. Waterskiing at the lake is not anticipated to increase until the debris and trash issues are resolved.

5.0 Resource Use Objectives

The objectives for the use of Project resources, both manmade and natural, are presented in this section. The objectives are used to guide development in the Project area and also guide resource management to obtain the greatest possible benefit through meeting the needs of the public and protecting and enhancing the environment. In the development of the objectives, the following were considered: authorized Project purposes, applicable Federal laws and directives, regional needs, resource capabilities, and expressed public desires. The information in Sections 2.0, 3.0, and 4.0 form much of the basis for the resource use objectives.

While implementing the following objectives opportunities should be sought to increase efficiencies, cost effectiveness, and innovation at the Project. Consistent with EO 13514, specific measures to pursue include energy efficiencies, reduction of water consumption, reduction of carbon emissions and reduction of operations and maintenance costs.

5.1 Resource Use Objective 1

Enhance the recreational use of Fishtrap Lake and increase opportunities for recreational boating and fishing opportunities.

5.1.1 Measures to Achieve Objective

1. Decrease the amount of trash and debris in water.

5.1.2 Justification

Boating is one of the popular activities on the lake. Results of the public scoping meeting indicate a desire to reduce the amount of trash and debris that is in the lake. Although the lake provides good opportunities for boating, the boating experience is limited and the utility reduced due to the trash and woody debris. The trash is unsightly and reduces the aesthetic value of the lake. The woody debris in the lake damages boats and limits/reduces boating and waterskiing that could take place on the lake. The capacities of the boat ramps located around Fishtrap Lake are adequate for the number of current and future use of the lake. The carrying capacity of Fishtrap Lake indicates that additional recreational boating activities can be supported.

5.2 Resource Use Objective 2

Enhance quality and diversity of overnight visitation opportunities.

5.2.1 Measures to Achieve Objective

1. Provide additional utilities at campsites.

5.2.2 Justification

The recreational program analysis results show a projected decrease in participation in camping; however, the preferences for camping is anticipated to change from tent camping to RV camping. Portions of the RV campsites have basic utilities (water, electricity). Extending the utilities to additional campsites would increase enjoyment by visitors. Resources managers noted an increase in the use of campsites when utilities were provided.

The current number of campsites throughout the Project is sufficient for demand.

5.3 Resource Use Objective 3

Enhance recreational day-use activities.

5.3.1 Measures to Achieve Objective

1. Provide additional picnic facilities, such as shelters, to meet current and future demand.
2. Provide walking and hiking opportunities consistent with aging demographics, such as providing shorter and trails that are easier to traverse.
3. Increase parking to accommodate visitors to the facilities.
4. Provide additional trailheads that can accommodate vehicles with horse trailers.

5.3.2 Justification

Demand for picnic shelters is high, with shelters typically reserved every weekend during the recreation season. Providing additional shelters would increase the enjoyment of visitors and increase use of the facilities.

The Project is host to interesting topography, scenic resources, and abundant wildlife that provide a quality environment for trail hiking, sightseeing, and associated eco-tourism activities. Walking and hiking are popular activities in Kentucky, with trends showing an increase in participation in these activities.

Parking is limited at the Feds Creek Recreation Area; therefore visitors often park at the adjacent Feds Creek Elementary School and the Feds Creek Volunteer Fire Department. There is limited space available at Fed Creek to construct additional parking facilities.

As noted in Section 4.8.5, ATV riding is a popular activity in the communities surrounding the Project, leading to frequent requests to open to the public portions of the Project for ATV use. ATV riding is not allowed at the Project and it conflicts with USACE policy and environmental conservation goals. In addition, the use of ATVs in the WMA conflicts with the environmental management objectives of the KYFWDR. Because it is inconsistent with recreation policy and resource use of the WMA, the development of designated ATV trails was not considered for this master plan.

5.4 Resource Use Objective 4

Support unique and environmentally sensitive ecosystems.

5.4.1 Measures to Achieve Objective

1. Manage habitat to support a selected number of regionally important neotropical migrant species that are in decline.
2. Identify and delineate the location, size, and type of wetlands.
3. Enhance existing wetlands or/and create new wetlands.
4. Protect, enhance, and create bottomland hardwoods ecosystems.
5. Prevent introduction of invasive species and, where present, control and monitor.
6. Restore native species and habitat conditions in ecosystems that have been invaded by non-native species.

5.4.2 Justification

In addition to supporting the laws and EOs described in Section 1.0 that require the conservation of wildlife and plant species and prohibit the destruction of wetlands, there are opportunities at the Project to provide support for environmentally sensitive areas. Conservation of the natural habitat within the Project would maintain the rich ecological diversity of the area and also attract visitors to the Project.

5.5 Resource Use Objective 5

Coordinate mining activities associated with Project areas.

5.5.1 Measures to Achieve Objectives

1. Continue coordination with mineral lease holders conducting mining activities at the Project to ensure that there are minimal impacts to recreational and environmental resource activities and objectives.

5.5.2 Justification

Mining activities are currently being conducted at the Project and they are expected to continue. Coordination with the mining lease holders will ensure that current and future recreational and environmental activities and objective are taken into consideration during the planning and operation of the mines.

6.0 Land Allocation and Land Classification

The land allocation and land classification information presented in this section provides for the orderly development, use, and management of Project lands and waters. Land allocation and classification categories are established for USACE projects and are based on Engineer Regulation (ER) 1130-2-550, *Recreation Operations and Maintenance Policies* (USACE, 1996b).

6.1 Land Allocation

Land allocations identify the authorized purposes for which project lands were acquired. The entire Project has a land allocation of Operations. Operations lands are lands that are acquired to provide safe, efficient operation of the Project for its authorized purposes. The Project purposes are flood risk management, recreation, water quality improvement, low flow augmentation, and fish and wildlife conservation. No separable lands for recreation, fish and wildlife, or mitigation were acquired for the Project.

6.2 Land Classification

Allocated Project lands are further classified to provide for development and resource management consistent with the authorized Project purposes and the provisions of NEPA and other Federal laws. The classification process refines the land allocation to fully use Project lands and considers public desires, legislative authority, regional and Project-specific resource requirements, and suitability. General land classification categories as defined in ER 1130-2-550 (USACE, 1996b) include:

1. Project Operations
2. Recreation
3. Mitigation
4. Environmentally Sensitive Areas
5. Multiple Resource Management
 - (a) Recreation – Low Density
 - (b) Wildlife Management General
 - (c) Vegetative Management
 - (d) Inactive and/or Future Recreational Areas
6. Easement Lands

Table 6-1 identifies land classifications per ER 130-2-550 and the Project areas included in the classifications and the associated acreages. The land classifications are discussed below, and the land classifications in the Project area are shown in Figure 6-1.

Table 6-1: Land Classifications and Project Areas

Land Classification		Project Area	Acreage
1	Project Operations	Dam and overlook; USACE offices, maintenance buildings and visitor center; KY Division of Forestry Offices	37
		Total	37
2	Recreation – Intensive Use	Appalachian Marina	15
		Tailwater area	61
		Grapevine Creek Campground	47
		Total	123
3	Mitigation	No applicable lands	0
4	Environmentally Sensitive Areas	Environmentally Sensitive Areas occur intermittently throughout the Project area in other land classification areas and are shown on Figure 3-10	0
5	Multiple Resource Management (a) Recreation – Low Density	Fishtrap Lake State Park	331
		Lick Creek Launch Ramp	10
		Feds Creek Recreation Area	3
		Lick Creek Recreation Area	312
	(b) Wildlife Management General	WMA (includes land allocated toward Group Use)	15,000
	(c) Vegetative Management	No applicable lands	0
	(d) Inactive and/or Future Recreational Areas	No applicable lands	0
		Total	15,656
6	Industrial Use	Mining-related activities	1,413
7	Easement Lands	Easement lands	203

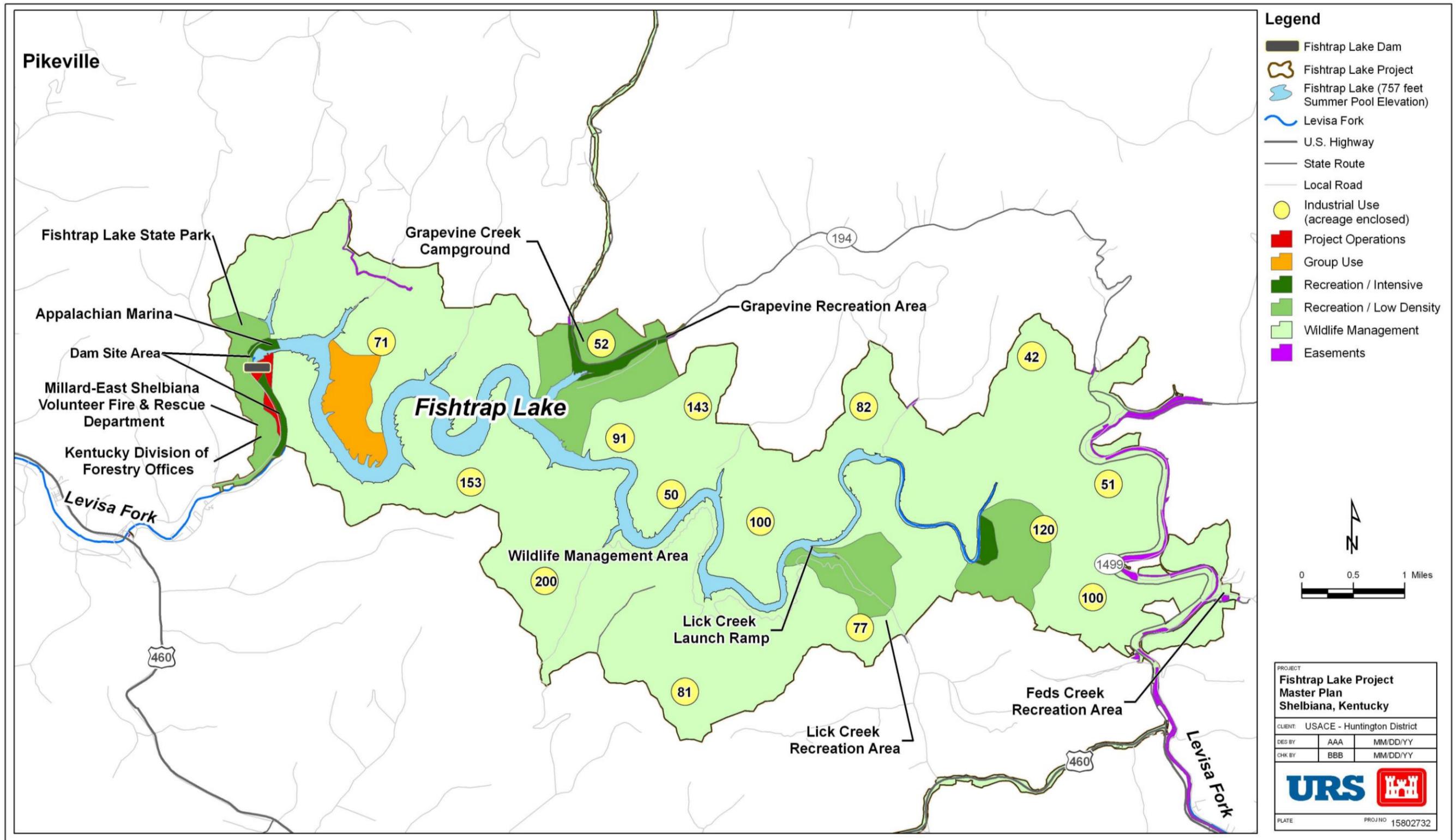


Figure 6-1: Land Classification Map

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6.2.1 Project Operations

The Project Operations classification includes lands required for the dam and associated structures, operations center, administrative offices, maintenance compounds, and other areas that are used to operate and maintain the Project. When compatible with operational requirements, Project Operations lands may be used for wildlife habitat management, recreational use, or agricultural activities. Licenses, permits, easements, or other outgrants are issued only for uses that do not conflict with operational requirements.

6.2.2 Recreation – Intensive Use

The Recreation – Intensive Use classification includes lands that are designated for intensive levels of recreational use to accommodate and support the recreational needs and desires of visitors. These lands include lands on which existing or planned major recreational facilities are located and allow for developed public recreational facilities, concession development, and high-density or high-impact recreational use.

In general, no uses of these lands are allowed that would interfere with public enjoyment of recreational opportunities. Low-density recreational and wildlife management activities compatible with intensive recreational use are acceptable, especially on an interim basis. No agricultural uses are permitted on these lands except on an interim basis for maintenance of scenic or open space values. Permits, licenses, and easements are not issued for noncompatible manmade intrusions such as pipelines, overhead transmission lines, or non-Project roads, except when warranted by the public interest

6.2.3 Mitigation

The Mitigation classification includes land acquired or designated specifically for mitigation. No mitigation lands exist at the Project.

6.2.4 Environmentally Sensitive Areas

The Environmentally Sensitive Area classification includes areas where scientific, ecological, cultural, or aesthetic features have been identified. Public use is normally limited or prohibited to ensure that the sensitive areas are not adversely affected. Agricultural and grazing uses are not permitted. Environmental Sensitive Areas are located intermittently throughout the Project within other land classification areas.

6.2.5 Multiple Resource Management

The Multiple Resource Management classification includes lands that are managed for one or more of the following subcategories: (a) low-density recreation, (b) wildlife management, (c) vegetative management, and (d) inactive and/or future recreation. However, management is not limited to these activities to the extent they are compatible with the primary allocation(s).

6.2.5.1 Recreation – Low Density

The Recreation – Low Density subclassification includes lands that are designated for dispersed and/or low-impact recreational use. Development of facilities on these lands is limited. Emphasis is on providing opportunities for non-motorized activities such as walking, fishing, hunting, or nature study. Site-specific, low-impact activities such as primitive camping and picnicking are allowed. Facilities may include boat ramps, boat docks, trails, parking areas and vehicle controls, vault toilets, picnic tables, and fire rings.

Manmade intrusions, including powerlines, non-Project roads, and water and sewer pipelines, may be permitted under conditions that minimize adverse effects on the natural environment. Vegetation management, including agricultural activities that do not greatly alter the natural character of the environment are permitted for a variety of purposes, including erosion control, retention and improvement of scenic qualities, and wildlife management. When not in conflict with the safety of visitors and project personnel, hunting and fishing are allowed pursuant to tribal or State fish and wildlife management regulations.

6.2.5.2 Wildlife Management General

The Wildlife Management General subclassification includes lands that are designated for wildlife management. These lands contain valuable wildlife habitat components that are maintained to yield habitat suitable for a designated wildlife species or group of species. These lands may be administered by other public agencies under a lease, license, permit, or other formal agreement.

Private use of wildlife lands is prohibited except for agricultural activities undertaken to improve wildlife habitat. Licenses, permits, and easements are not allowed for manmade intrusions such as pumping plants, pipelines, cables, transmission lines, or non-Project roads. Exceptions are allowed when necessary for the public interest. Wildlife lands are available for sightseeing, wildlife viewing, nature study, and hiking. Consumptive uses of wildlife, including hunting, fishing, and trapping, are allowed when compatible with the wildlife objectives for a given area and with Federal and State fish and wildlife management regulations.

At the Project, the KYDFWR has primary jurisdiction for wildlife management activities, and the USACE supports these activities.

6.2.5.3 Vegetative Management

The Vegetative Management subclassification includes lands that are designated for vegetative management. Management activities focus on the protection and development of forest resources and vegetative cover.

The Project has no project lands in this subcategory, but all Project lands are managed to protect and develop vegetative cover in conjunction with other lands.

6.2.5.4 Inactive and/or Future Recreational Areas

The Inactive and/or Future Recreational Areas subclassification includes lands that are designated recreational areas that are planned or that contain existing recreational areas that have been closed temporarily.

The Project has no project lands in this subcategory.

6.2.5.5 Industrial Use

The Industrial Use subclassification includes lands where mining-related activities have degraded and/or continue to degrade project resources.

6.2.6 Easement Lands

The Easement Lands classification includes all lands for which USACE holds an easement interest but no fee title. Planned use and management of easement lands will be in strict accordance with the terms and conditions of the easement estate acquired for the Project.

Significant flowage easements have been acquired beyond the Project area and are shown in Figure 6-1.

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7.0 Resource Plan

This section presents the plan for resource use and development at the Fishtrap Lake Project. The plan includes identified issues and the recommended actions or strategies to address each issue. The issues and recommendation are presented in Table 7-1. Table 7-1 contains the following information for each Project area:

- **Land Classification** – Land use classification. See Section 6.0 for more information on land classifications.
- **Management Agency** – Agency or agencies directly responsible for managing a Project area.
- **Issues** – Identified issues, which are based on input from the public and interested agencies. Each issue relates to the resource use objective (RUO) listed in Section 5.0.
- **Recommendations** – Proposed actions or strategies to address the identified key issues. Recommendations are conceptual in nature and will be translated into operational terms in the Operational Management Plans. Prior to the implementation of any development activity, additional environmental studies and economic analysis may be conducted if necessary. The recommendations relate to the Project-specific measures that are intended to achieve the objective listed in Section 5.0.

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Table 7-1: Resource Plan for the Fishtrap Lake Project

Project Area	Land Classification	Management Agency	Issue	Recommendations
Dam Site Area	Project Operations	USACE	Recreational facilities do not meet the needs and demands of visitors. Shelters are reserved throughout the recreation season. (RUO 3)	<ul style="list-style-type: none"> Construct a picnic shelter to meet demand. Develop the site with picnic tables, charcoal grills, and trash receptacles. A potential area for the picnic shelter is at the open area between the two existing picnic shelters. Road access is currently available, but a parking lot with 20 spaces would be needed. See Figure 7-1
Lick Creek Launch Ramp	Project Operations and Recreation	USACE	No concerns were identified regarding the facilities.	<ul style="list-style-type: none"> No additional development is recommended.
Grapevine Creek Campground	Project Operations and Recreation	USACE	Current camping facilities do not meet demand and needs. There are frequent requests for utilities. (RUO 2)	<ul style="list-style-type: none"> Extend the utility hook-ups to remaining RV campsites. Utility hook-up are popular and frequently requested, however only a portion of the campsites have this service. Provide wireless Internet service throughout the campground. Wireless Internet is an amenity that is becoming more popular and would be used by a wide variety of visitors.
			Recreational facilities do not meet the needs and demands of visitors. Shelters are reserved throughout the recreation season. (RUO 3)	<ul style="list-style-type: none"> Construct an additional picnic shelter to meet demand. Develop the site with picnic tables, charcoal grills, and trash receptacles. Potential area for the picnic shelter adjacent to the existing shelters. See Figure 7-2
Feds Creek Recreation Area	Recreation (Low Density)	Pike County	Parking is not sufficient to meet the needs of visitors, who often park at the adjacent elementary school or at the volunteer fire department. (RUO 3)	<ul style="list-style-type: none"> Available space for additional parking is very limited. It is recommended that an additional half acre of land be acquired from the WMA to construct a parking lot for visitors. See Figure 7-3.
Lick Creek Recreation Area	Recreation (Low Density)	Pike County	Recreational facilities do not meet the needs and demands of visitors. Shelters are fully reserved throughout the recreation season and parking is not sufficient to meet the needs of visitors, who often park in grass area used for overflow parking. (RUO 3)	<ul style="list-style-type: none"> Construct an additional picnic shelter to meet demand. Develop the site with picnic tables, charcoal grills, and trash receptacles. Potential area for the picnic shelter adjacent to the existing shelters. See Figure 7-4. Construct asphalt parking lot to accommodate visitors.
Grapevine Recreation Area	Recreation (Low Density)	Pike County	No concerns were identified regarding the facility.	<ul style="list-style-type: none"> No additional development is recommended.
Appalachian Marina	Recreation (Low Density)	Appalachian Marina, Inc.	No concerns were identified regarding the facility.	<ul style="list-style-type: none"> No additional development is recommended.
Wildlife Management Area	Multiple Resource Management, Wildlife Management General	KYDFWR	Recreational facilities do not meet the needs and demands of visitors. Multi-use trails are limited to south side of the lake and there are limited trailheads that can accommodate vehicles with horse trailers. (RUO 3)	<ul style="list-style-type: none"> Create additional trailheads that can accommodate vehicles with horse trailers.
			The Project area includes unique habitats such as wetlands, habitat that supports neotropical migratory birds, and bottomland hardwood. The locations and extent of the various ecosystems are not well known, which hinders the ability to provide effective management. (RUO 4)	<ul style="list-style-type: none"> Conduct baseline study that identifies habitats throughout the Project (e.g., wetland delineation) and develop monitoring program. The amount and range of the habitats would allow losses or gains to be tracked.

Table 7-1: Resource Plan for the Fishtrap Lake Project

Project Area	Land Classification	Management Agency	Issue	Recommendations
Fishtrap Lake State Park	Recreation (Low Density)	Kentucky Department of Parks	No concerns were identified regarding the facility.	<ul style="list-style-type: none"> • No additional development is recommended.
Fishtrap Lake	Project Operations	USACE	Enhance the recreational use of Fishtrap Lake and increase opportunities for recreational boating and fishing opportunities. (RUO 1)	<ul style="list-style-type: none"> • Remove trash and debris on lake by regular cleaning and disposal.

KYDFWR = Kentucky Department of Fish and Wildlife Resources
 USACE = U.S. Army Corps of Engineers



Figure 7-1: Dam Site Recreation Area



Figure 7-2: Grapevine Creek Campground



Figure 7-3: Feds Creek Recreation Area



Figure 7-4: Lick Creek Recreation Area

8.0 Special Programs

According to EP 1130-2-550, Recreation Operations and Maintenance Guidance and Procedures (USACE, 1996a), special programs are programs or situations that should be identified and discussed in a Master Plan but are not covered in the other sections of the plan. Future development of utility corridors at the Project was identified for consideration as a special program.

The Energy Policy Act of 2005 (PL 109-58) directed the Secretaries of Agriculture, Commerce, Defense, Energy, and Interior to identify corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on Federal lands and to schedule prompt action to identify, designate, and incorporate the corridors into the applicable land use plans. In 2009, the USACE issued a Non-Recreational Outgrant Policy (USACE, 2009b), which states that the primary rationale for authorizing any future non-recreational outgrant request for use on USACE lands or waters will be (1) there is no viable alternative to the activity or structure being located on Civil Works land or waters or (2) it will directly benefit the Federal Government. Public utilities including power lines and gas and fuel pipelines are examples of outgrant requests. Although no proposal has been made for either a major underground or aboveground utility line through the Project, such proposals may be presented in the future.

Developing a utility corridor for a major electrical transmission line or pipeline is a complex undertaking and must take into account numerous engineering and environmental issues as well as acquisition of rights-of-way and easements. The evaluations of many of these issues are guided by criteria developed by regulating agencies, including Federal, State, and municipal entities.

The focus of this section is to present factors that should be considered if a proposal for a utility is presented. The factors identified do not replace or take precedence over criteria that are used by regulating agencies, but provide a guide to reducing the recreational and environmental impacts to the Project. The following key factors should be reviewed and assessed to identify potential locations that would cause the least disruption to the recreational and environmental goals of the Project:

1. Existing utility corridors
2. Intensive-use recreation areas
3. Environmentally or culturally sensitive areas

4. Existing roadways
5. Footprint on Project lands
6. Mining Areas

Existing Utility Corridors

The use of existing utility corridors should be evaluated to determine if the proposed utilities can be placed along the same corridor. Although no major existing corridors were identified within the Project, the use of an existing corridor would cause less disruption to Project lands than constructing a new corridor. Future utilities should be grouped into the same corridor to reduce the recreational and environmental impacts.

Intensive-Use Recreation Areas

One of the primary objectives of the Project is recreational use. The presence of a utility corridor would disrupt the use and enjoyment of the Project by visitors. Therefore, Project areas listed as intensive-use (Figure 8-1, see Table 6-1) should be avoided to cause the least disruption to the recreational use of the Project by visitors.

In addition to direct impacts on recreational use, utility corridors may affect the natural beauty of the Project lands. Even if a utility corridor does not cross an intensive-use recreation area, it may impact visitors using the intensive-use areas. For example, an overhead transmission line crossing the lake may impair the view shed of visitors. Therefore, the visual impacts in areas that have intensive recreational use should be evaluated.

Although Fishtrap Lake is not listed as a recreation area, the lake receives significant use from boaters and fisherman. Locating certain types of utilities, such as an overhead transmission line, would cause considerable disruption and loss of aesthetic value to the users. If the lake must be crossed by the utilities, the narrow portions of the lake should be promoted.

Environmentally or Culturally Sensitive Areas

There are a number of environmentally and culturally sensitive areas located throughout the Project (Figure 8-1). These areas are unique and should be maintained; therefore, potential utility corridors should avoid these areas.

Existing Roadways

Roadways are present throughout the Project to provide access to the Project and to allow residents to pass through the area (Figure 8-1). These roadways represent areas that have already

been removed from recreational use and have encountered environmental impacts. Placing utility corridors adjacent to existing roadways would decrease the recreational and environmental impacts to the Project.

Footprint on Project Lands

The width of the Project varies throughout the Project area (Figure 8-1). If a utility corridor must pass through the Project, the option that presents the smallest footprint on Project lands should be selected.

Mining Areas

Mining activities, both historic and present, exist throughout the Project (Figure 8-1). Mining activities can cause considerable disruption to the environment resulting from the extraction and transportation of the product. For historic mining activities, the transportation corridors and lands left following the mining activities may be a potential utility corridor because the environment has already been disturbed and few recreational activities are likely occurring in the area.

The placement of a utility corridor through an active mining operation should be reviewed. The same corridor used for the mining operation could be used for a utility corridor, which would minimize the environmental and recreational impacts. However, if using the same corridor presents a safety or operational issue for the mine operator, it should be avoided.

Once a formal proposal is received, an evaluation should be conducted using the factors above to identify potential impacts. Recommendations for alternative utility corridor locations should be based on the evaluation.

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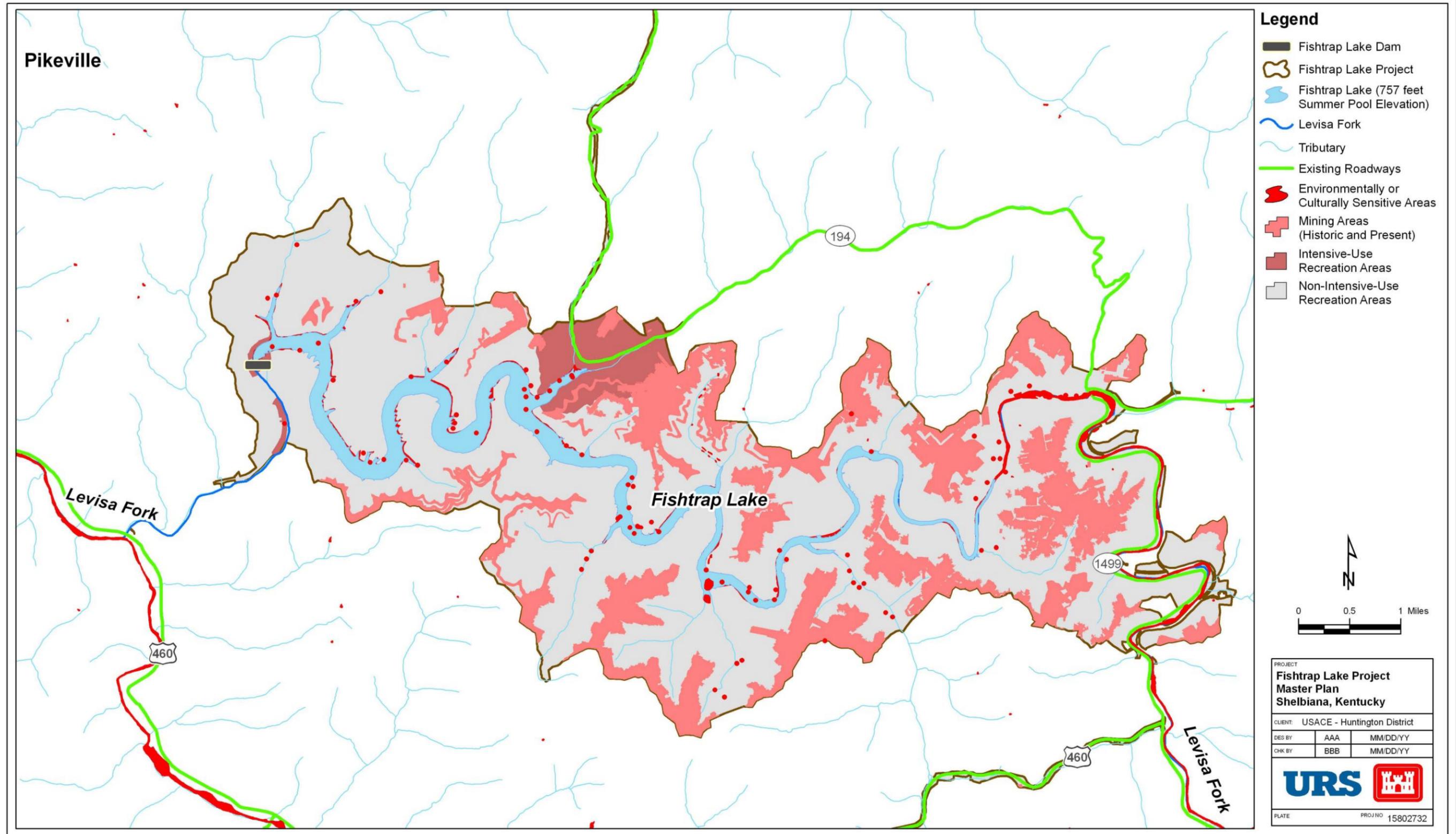


Figure 8-1: Locations of Evaluation Factors

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Appendix A
Acronyms and Abbreviations

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ADA	Americans with Disabilities Act
AMSL	above mean sea level
ATV	all-terrain vehicle
BLM	Bureau of Land Management
BMP	best management practice
CFR	Code of Federal Regulations
Commonwealth	Commonwealth of Kentucky
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FY	fiscal year
GIS	Geographical Information System
HPMP	Historic Properties Management Plan
KSNPC	Kentucky State Nature Preserves Commission
KYDFWR	Kentucky Department of Fish and Wildlife Resources
n.d.	no date
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NHPA	National Historic Preservation Act
NPS	National Park Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
OMP	Operational Management Plan
PL	Public Law
Project	Fishtrap Lake Project
RUO	resource use objective
RV	recreational vehicle
SCORP	<i>Statewide Comprehensive Outdoor Recreation Plan</i> (Commonwealth of Kentucky, 2008)
spp.	species pluralis (multiple species)
SR	State Route
U.S.C.	U.S. Code
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture

USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
VERS	Visitor Estimation Reporting System
WMA	Wildlife Management Area

Appendix B

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Appendix C
Summary of Public Scoping Meetings

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SCOPING MEETING NOTES

Fishtrap Lake Public Meeting Minutes

Thursday, August 6, 2009

Attendees:

Dan Bock, U.S. Army Corps of Engineers, Huntington District

Kim Barnett, U.S. Army Corps of Engineers, Huntington District

Alison Rogers, U.S. Army Corps of Engineers, Huntington District

Sam Harlan, U.S. Army Corps of Engineers, Huntington District

Rodney Holbrook, U.S. Army Corps of Engineers, Huntington District, Fishtrap Lake

Kelly Stoll, URS

Jagadish Prakash, URS

Jack Bunja, URS

See attendee sign-in sheet

COMMENTS/ISSUES

Flood Damage Reduction (11 comments)

1. Trash removal - 10
2. Dredge lake of sediment - 1

Recreation (39 comments)

1. ATV trails and access - 29
2. Upgrade campground and amenities (shelters) - 2
3. More boat access at Island Creek - 2
4. Island creek and Miller Creek areas need development - 1
5. Develop road around the lake - 1
6. Road to public access lands - 1
7. Public pool at dam - 1
8. Additional trails - 1
9. Develop adventure tourism with state - 1

Fish & Wildlife Recreation (12 comments)

1. Better access to lake for boats and trucks - 6
2. Less harassment in fish and wildlife areas - 2
3. Identify and mark wildlife viewing areas and incorporate education - 1
4. Restock fish - 1
5. Remove boat launch fee - 1
6. Open to all hunting - 1

Other (6 comments)

1. More oversight of coal mining industry- 2
2. Allow coal companies to develop recreation - 1
3. Paved trails/more roadways for disabled- 1
4. Road to Grapevine - 1
5. Environmental impact study to determine heavy metals and bacteria in water - 1

Key Issues

- The amount of trash in the area is a significant issue for the public. Many are willing to volunteer and assist the Corps in generating ideas to address the issue. Some suggest purchasing a boat with a grinder.
- Increased ATV access
- More access for cars and boats – remove some of the gates on the property
- ADA accessibility
- Better control over mining companies

Attachments

1. Comment card from Thomas E. Bellamy, returned immediately following the meeting.
2. Comment card from Francis Bartley, returned immediately following the meeting.
3. Comment card from W. Keith Hall, returned immediately following the meeting.
4. Comment card from Kelly E. Justice, returned via mail following the meeting.

Attendees:

Asst. Judge Executive John Doug Hayes, Pike County

Ken Marks, Kentucky Department of Parks

Sam Harlan, U.S. Army Corps of Engineers, Huntington District

Dan Bock, U.S. Army Corps of Engineers, Huntington District

Kim Barnett, U.S. Army Corps of Engineers, Huntington District

Alison Rogers, U.S. Army Corps of Engineers, Huntington District

James Allmon, U.S. Army Corps of Engineers, Huntington District

Rodney Holbrook, U.S. Army Corps of Engineers, Huntington District, Fishtrap Lake

Glinda Robinson, U.S. Army Corps of Engineers, Huntington District, Fishtrap Lake

Kelly Stoll, URS

Jagadish Prakash, URS

Jack Bunja, URS

KEY POINTS:

Project purpose of Fishtrap Lake as authorized:

1. Flood damage reduction
2. Fish and wildlife recreation
3. Recreation

The Fishtrap Lake Master Plan looks at 3 key items:

1. Regional Need
2. Resource Management
3. Local Input

COMMENTS/ISSUES

State Parks Department

- Clarify the borders of state leased land and county operated land
- There are no plans for future development at Fishtrap Lake

Pike County

- Involve more local clubs to clean up the Lake
- Add more hiking trails
- Add more primitive campground areas along trails
- Add more horse trails

QUESTIONS / DISCUSSIONS

1. The county commissioner set aside \$1 million from coal service tax to develop the county leased lands
 - The county currently has two picnic shelters, playground equipment and the campground with water, electric and sewage
 - Volunteer fire department runs campground
2. The state would like to define the boundaries of its leased lands with Pike County
 - The state's budget is on a six year rolling schedule and is re-budgeted every two
3. Pike County has plans for new projects and Summit Engineering laid out plans for new hiking trails and primitive camp areas on the acre county lease
4. The current state administration is interested in horse trails
 - Currently 100 miles of connecting roads are on the project
 - An old ATV trail could be widened for a horse trail
5. The county and state will meet to discuss their lease/sub-lease
6. Hydropower is not an option for Fishtrap due to its size

KEY ISSUES

1. Use of ATVs on lands around the lake
2. Overdevelopment
3. Debris and trash in the lake (90-95% is natural)
4. Lighting at Lick Creek
5. Old infrastructure

Attendees:

Chris Stanley, Teco Energy

Sam Harlan, U.S. Army Corps of Engineers, Huntington District

Dan Bock, U.S. Army Corps of Engineers, Huntington District

Kim Barnett, U.S. Army Corps of Engineers, Huntington District

Alison Rogers, U.S. Army Corps of Engineers, Huntington District

James Allmon, U.S. Army Corps of Engineers, Huntington District

Rodney Holbrook, U.S. Army Corps of Engineers, Huntington District, Fishtrap Lake

Glna Robinson, U.S. Army Corps of Engineers, Huntington District, Fishtrap Lake

Kelly Stoll, URS

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Jack Bunja, URS

KEY POINTS:

Project purpose of Fishtrap Lake as authorized:

1. Flood damage reduction
2. Fish and wildlife recreation
3. Recreation

The Fishtrap Lake Master Plan looks at 3 key items:

1. Regional Need
2. Resource Management
3. Local Input

COMMENTS/ISSUES

Teco Energy

1. Remove coal previously mined piles from Fishtrap area and make into wildlife areas
2. Plant more trees to reclaim land
3. Provide maps to the Corps as needed

QUESTIONS/DISCUSSIONS

1. Working to clean up piles of material in areas around Fishtrap. These are spoil piles and they will remove the rock and extract the coal. Once clean, these will be wildlife areas
2. Once mining is complete in an area, Teco replants trees – minimum of 500 trees per acre
 - Using white oak, sugar maples and other hardwoods
3. Auger mines are cut at a minimum of 60 feet – wide enough for equipment
 - After auger mining is complete, trees are planned on the slopes
 - A contractor from Georgia helps determine what trees to plant
4. Mine fires can burn as long as oxygen is available
 - Many pre-law coal seams are open and vulnerable
 - If an auger mine is open, it is vulnerable to a forest fire
 - NASA can detect hot spots for potential fires
5. Mr. Stanley committed to providing their GIS maps for the master plan efforts

KEY ISSUES

1. Use of ATVs on lands around the lake
2. Overdevelopment
3. Debris and trash in the lake (90-95% is natural)
4. Lighting at Lick Creek
5. Old infrastructure

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