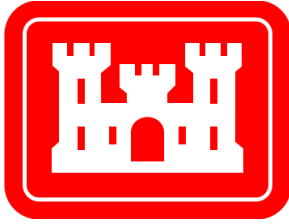


Curwensville Lake Master Plan



Draft Submittal
March 2022





**Curwensville Lake
Master Plan
Clearfield County, Pennsylvania**

Draft Submittal

March 2022

For:

Curwensville Lake
12903 Curwensville Tyrone Hwy
Curwensville, PA 16833

Prepared by:

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CURWENSVILLE LAKE MASTER PLAN

TABLE OF CONTENTS

FINDING OF NO SIGNIFICANT IMPACT	i
1 Introduction	1-1
1.1 Project Authorization.....	1-1
1.2 Project Purpose.....	1-1
1.3 Purpose and Scope of Master Plan.....	1-1
1.4 Description of Project and Watershed	1-3
1.5 Description of Lake	1-3
1.5.1 Embankment/Dam	1-4
1.5.2 Spillway.....	1-4
1.5.3 Flood Control Outlet Works	1-4
1.6 Hydropower Facilities.....	1-5
1.7 Project Access	1-5
1.8 Pertinent Prior Reports and Related Studies	1-5
1.9 Pertinent Project Information	1-8
2 Existing Conditions & Analysis	2-1
2.1 Physiographic Setting	2-1
2.1.1 Ecological Setting	2-1
2.1.2 Climate.....	2-1
2.1.3 Topography, Geology, and Soils	2-1
2.1.4 Hydrology and Groundwater	2-3
2.1.5 Borrow Areas.....	2-3
2.2 Ecoregion and Natural Resources Analysis	2-3
2.2.1 Vegetation.....	2-3
2.2.2 Wetlands	2-4
2.2.3 Wildlife	2-4
2.2.4 Threatened and Endangered Species	2-7
2.2.5 Other Protected Species.....	2-8
2.2.6 Invasive and Nuisance Species.....	2-8

2.2.7	Water Quality.....	2-10
2.3	Cultural Resources.....	2-12
2.3.1	Prehistoric.....	2-12
2.3.2	Historic.....	2-12
2.3.3	Previous Investigations at Lake.....	2-13
2.3.4	Recorded Cultural Resources.....	2-15
2.3.5	Long-Term Objectives for Cultural Resources.....	2-15
2.4	Demographic and Economic Resources.....	2-16
2.4.1	Current Demographics, Economics, Trends and Analysis.....	2-16
2.4.2	Population.....	2-16
2.4.3	Education and Employment.....	2-16
2.4.4	Households and Income.....	2-17
2.5	Recreation Facilities, Activities, and Needs.....	2-19
2.5.1	Zone of Influence.....	2-19
2.5.2	Visitation Profile.....	2-19
2.5.3	Recreation Facilities.....	2-20
2.5.4	Recreation Analysis.....	2-24
2.5.5	Recreation Carrying Capacity.....	2-25
2.6	Real Estate.....	2-25
2.7	Pertinent Public Laws.....	2-26
2.7.1	Federal Laws.....	2-26
2.7.2	Executive Orders.....	2-30
2.7.3	State Laws.....	2-30
2.7.4	State Management Plans.....	2-31
3	Resource Objectives.....	3-1
3.1	Introduction.....	3-1
3.2	Management Goals.....	3-1
3.3	Resource Objectives.....	3-3
4	Land Classifications.....	4-1
4.1	Land Allocation.....	4-1
4.2	Land Classification.....	4-1
4.2.1	Prior Land Classification.....	4-1
4.2.2	Proposed Land Classifications.....	4-3

4.3	Project Easements	4-8
4.4	Other Land Classifications	4-9
4.4.1	Unmerchantable or Unutilized Land	4-9
4.4.2	Highway and Railroad Relocations	4-9
4.4.3	Unmodified River Area	4-9
5	Resource Plan	5-1
5.1	Resource Plan Overview	5-1
5.2	Project Operations and Maintenance	5-2
5.3	High Density Recreation	5-2
5.3.1	Camping Areas	5-2
5.3.2	Day Use Area	5-3
5.4	Multiple Resource Management Lands	5-3
5.4.1	Low Density Recreation	5-3
5.4.2	Vegetation Management	5-3
5.4.3	Wildlife Management	5-4
5.5	Water Surface	5-4
5.5.1	Restricted	5-4
5.5.2	No-Wake Zones	5-4
5.5.3	Open Recreation	5-4
5.6	Project Easement Lands	5-5
5.7	Project Implementation Plan	5-5
5.7.1	Short-Range Implementation Strategy	5-5
5.7.2	Mid-Range Implementation Strategy	5-5
6	Special Topics, Issues, Considerations	6-1
6.1	Competing Interests on Natural Resources	6-1
6.2	Hydropower	6-1
6.3	Local Emergency Personnel Training	6-1
6.4	Recreational Events	6-1
7	Public and Agency Coordination Overview	7-1
8	Summary of Recommendations	8-1
8.1	Summary Overview	8-1
8.2	Land Reclassification Proposals	8-1
9	Appendix	9-1

Appendix A: Acronyms and Abbreviations	9-1
Appendix B: References.....	9-4
Appendix C: Kick-off Meeting Minutes.....	9-9
Appendix D: Public Notices and Pertinent Newspaper Articles	9-17
Appendix E: Summary of Public Comments and USACE Response to Public Comments	9-17
Appendix F: Land Classification and Recreational Asset Maps	9-17
Appendix G: NEPA Documentation	9-17

LIST OF TABLES

Table S-1. Proposed Changes to Land Classifications at Curwensville Lake	ii
Table 1-1. Water Storage Capacity and Related Pertinent Data at Curwensville Lake.....	1-8
Table 1-2. Proposed Land Classifications at Curwensville Lake Project	1-9
Table 2-1. Soil survey at Curwensville Dam.....	2-2
Table 2-2. Wetland areas within Curwensville Project Area	2-4
Table 2-3. Previous Cultural Resource Investigations.....	2-14
Table 2-4. Population Estimates and 2030 Projections.....	2-17
Table 2-5. Population Estimates by Gender.....	2-18
Table 2-6. Summary of Original Project Acreages	2-26
Table 4-1. Land Classification Summary.....	4-2
Table 5-1. Land Classification & Applicable Management Goals.....	5-1
Table 8-1. Land Classification Summary.....	8-2
Table 8-2. Proposed Changes to Land Classifications at Curwensville Lake Project.....	8-4

LIST OF FIGURES

Figure 1-1. Regional Vicinity Map	1-6
Figure 1-2. Site Vicinity Map.....	1-7
Figure 2-1. Pennsylvania Game Commission Management Areas	2-6
Figure 2-2. Age Distribution.....	2-18
Figure 2-3. Population Estimates by Race	2-19
Figure 2-4. Curwensville Lake Trail Descriptions.....	2-22
Figure 2-5. Curwensville Lake Trail Map	2-23
Figure 2-6. 2010 Visitation Data.....	2-24
Figure 4-1. Prior Land Classifications Map	4-4
Figure 4-2. Proposed Land Classification Map.....	4-5
Figure 4-3. Real Estate Map.....	4-6
Figure 5-1. Existing Features Map.....	5-6
Figure 5-2. Proposed Future Development Map	5-7

FINDING OF NO SIGNIFICANT IMPACT

Environmental Assessment for the Curwensville Lake 2022 Master Plan

Clearfield County, Pennsylvania

In accordance with the National Environmental Policy Act of 1969 (NEPA), including guidelines in 33 Code of Federal Regulations (CFR), Part 230 (Procedures for Implementing NEPA), the Baltimore District of the U.S. Army Corps of Engineers (USACE), has assessed the potential impacts of the 2022 Curwensville Lake Master Plan (2022 Master Plan). The Curwensville Lake Project was authorized and constructed for the primary purposes of flood risk management on the West Branch Susquehanna River. Secondary uses of the project lands and waters are water supply, water quality, recreation, and environmental stewardship of natural and cultural resources. Implementation of the 2022 Master Plan and proposed land changes must recognize and be compatible with the primary project mission of flood risk management, and the secondary purposes of water supply, water quality, recreation, and environmental stewardship of natural and cultural resources.

The 2022 Master Plan will provide guidance for stewardship of natural resources and management for long-term public access to, and use of, the natural resources at Curwensville Lake, including the land classification of the USACE-managed lands. USACE manages project lands in accordance with land classifications that have been determined in the 2022 Master Plan for the project lands. Thus, land classifications are fundamental to project lands management. Land classifications (see Table S-1) provide for development and resource management consistent with authorized purposes and other federal laws. The 2022 Master Plan provides a comprehensive description of Curwensville Lake (the Project), a discussion of factors influencing resource management and development, new resource management objectives, a synopsis of public involvement and input into the planning process, descriptions of existing development, and considerations of future development activities.

Under the No Action Alternative, USACE would take no action, which means no new resource analysis or land reclassifications would occur. The operation and management of the Project would continue as outlined in the 1968 Master Plan.

The Proposed Action includes adopting the 2022 Master Plan to reflect changes in land management and land uses, USACE regulations and guidance that have occurred since the release of the 1968 Master Plan, and coordination with the public. The 2022 Master Plan refines land classifications to meet authorized project purposes and current resource objectives. This includes a mix of natural resource and recreation management objectives that are compatible with regional goals established by stakeholders and USACE during the master planning process, recognize outdoor recreation trends, and are responsive to public comment. The purpose of the Proposed Action is to update the Curwensville Lake Master Plan. The action is needed as required by Engineer Regulation (ER) 1130-2-550 "Recreation Operations and Maintenance Policies," and Engineering Pamphlet (EP) 1130-2-550 "Recreation Operations and Maintenance Guidance and Procedures." The 2022 Master Plan

is intended to serve as a comprehensive land and recreation management plan for the next 15 to 25 years and is needed to update the Curwensville Lake Master Plan in accordance with January 2013 updates to the ER and EP 1130-2-550.

Table S-1 identifies the required land and water surface classification changes associated with the Proposed Action.

Table S-1. Proposed Changes to Land Classifications at Curwensville Lake

Classification	1968 Master Plan (acres)	2022 Master Plan (acres)	Description*
Project Operations	273.8	217.2	Lands are associated with the dam and spillway structures that are operated and maintained for the flood risk management mission of the Project. The project operations area has changed slightly along Curwensville Tyrone Highway. The change in acres of the Project Operations area is converted to Vegetative Management in the 2022 Master Plan to more accurately reflect the activities on this land.
High Density Recreation	314.6	300.7	Lands are currently developed for intensive recreational activities and include boat launches, day use areas, and campgrounds. The new criteria for this land classification includes areas developed specifically to support intensive recreational activities. This land classification has been developed to support concentrated visitation and use of the recreational facilities they host. Dependent on available space, funding, and public demand, these areas may support additional outdoor recreation development in the future.
Multiple Resource Management Land			
Low Density Recreation	0	213.5	Management of this land classification calls for maintaining a healthy, ecologically adapted vegetative cover to reduce erosion and improve aesthetics, while also supporting low impact recreational opportunities such as bank fishing, hiking, wildlife viewing, and access to the shoreline. Hunting may also be allowed in select areas that are a reasonable and safe distance from high density recreational areas, dam operations, and adjacent residential properties. The new land classification criteria exclude vegetation and wildlife management areas, leaving only areas with minimal development to support passive recreation use (i.e., primitive camping, hunting, trails, wildlife viewing, etc.).

Classification	1968 Master Plan (acres)	2022 Master Plan (acres)	Description*
Wildlife Management	1,290.6	(2,195.3)	This land classification was considered in the 1968 Master Plan and will continue in the 2022 Master Plan. However, because the wildlife management acres all overlap with other land classifications, the wildlife management acres are excluded from the total acres of the project. Wildlife management activities will continue to occur throughout the Curwensville Lake Project area. See Figure 2-1 in the Curwensville Lake 2022 Master Plan to see where wildlife management activities occur.
Vegetative Management	0	1,146.8	This land classification was not considered in the 1968 Master Plan. This classification includes an ecosystem-based management approach and is designated for stewardship of forest, prairie, and other native vegetative cover. These lands may or may not be protected from development. In general, vegetative resources on USACE lands are managed for multiple purposes, including wildlife habitat, recreational activities in parks, landscape aesthetics, and timber management.
Water Surface			
Designated No-Wake	0	142.3	Designated No-Wake areas are intended to protect environmentally sensitive shorelines and improve boating safety near key recreational water access areas such as boat ramps, mooring areas, swimming areas, and shallow areas. This change reflects new classification criteria and no actual change in water use. This designation has always existed at Curwensville Lake; however, it was included within the overall Conservation Pool acreage in the 1968 Master Plan. The 2022 Master Plan separates this designation into its own category within the Water Surface classification.
Restricted	0	1.4	Restricted water surface includes those areas where recreational boating is prohibited or restricted for project operations, safety, and security purposes. The Restricted water surface at Curwensville Lake includes a small area around the dam and intake tower. The restricted area is marked year-round by a cable across the intake channel with hanging restricted area signs. This change reflects new classification criteria and no actual change in water use. This

Classification	1968 Master Plan (acres)	2022 Master Plan (acres)	Description*
			designation has always existed at Curwensville Lake; however, it was included within the overall Conservation Pool acreage in the 1968 Master Plan. The 2022 Master Plan separates this designation into its own category within the Water Surface classification.
Open Recreation Area	772.8	629.1	Open Recreation area includes all water surface areas available for year-round or seasonal water-based recreational use. This change reflects new classification criteria and no actual change in water use. This area includes all remaining water surface area outside of the Restricted and No-Wake Zones.
Total	4,063.7*	4,016.1*	

** Mapping for the Master Plan update has been compiled using the best information available and is believed to be accurate. Prior land classification acres are based on original acquisition real estate deed records and mapping completed for the 1968 Master Plan. Due to improved mapping technologies, minor discrepancies exist when comparing prior and proposed land classification acreages.*

USACE chose the Proposed Action because it would meet regional goals associated with good stewardship of land and water resources, meet regional recreation goals, and allow for continued use and development of project lands without violating national policies or public laws.

USACE used the Environmental Assessment (EA) and comments received from other agencies to determine whether the Proposed Action requires the preparation of an Environmental Impact Statement (EIS). This included an assessment of environmental, social, and economic factors that are relevant to the recommended alternative considered in this assessment. The EA determined none/negligible impact would occur to the following resources: air quality, greenhouse gasses and climate, noise, geology, cultural resources, groundwater, utilities, hazardous materials and waste, socioeconomics and environmental justice, and traffic and transportation (see Section 3.1 of the EA). Minor impacts could occur to water resources, soils, and biological resources, primarily during construction of future master planning projects (See Sections 3.2 through 3.5 of the EA). Efforts would be made to reduce adverse impacts by using standard construction best management practices (BMPs) to reduce disturbance, soil erosion, and sedimentation into adjacent surface waters and wetlands. Construction and operations of future master planning projects would use BMPs associated with prevention of impacts to sensitive species. These recommendations would occur during the time future projects are proposed and would include environmental reviews of each project.

Beneficial impacts would occur to water resources, soils, biological resources, and land use and recreation due to land reclassification. Beneficial impacts to water, soil, biological resources, and land use and recreation would occur through the establishment of separating

the land classification between high and low density recreation areas, the vegetative management land classification, and no wake zone classification. Additional beneficial impacts to the land use and recreation would also occur with the separation of the water surface classifications in no wake zone, restricted, and open recreation area.

Conclusion

All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on this report, the reviews by other federal, state and local agencies, Tribes, input of the public, and the review of my staff, it is my determination that the Proposed Action alternative would not cause significant adverse effects on the quality of the human environment; therefore, preparation of an Environmental Impact Statement is not required.

Date

Esther S. Pinchasin
Colonel, U.S. Army
Commander and District Engineer

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1 INTRODUCTION

1.1 PROJECT AUTHORIZATION

The Curwensville Dam and Reservoir Project (hereafter “Curwensville Lake Project” or “Project”) was authorized by the Flood Control Act of 3 September 1954 in accordance with House Document 29, 84th Congress, 1st session, as a unit of the comprehensive flood control plan for the protection of communities in the West Branch Susquehanna River basin.

The Curwensville Lake Project was designed and constructed under the direction of the U.S. Army Corps of Engineers (USACE), Baltimore District. Construction for the necessary relocation of railroads and highways was initiated in May 1962. The construction of the dam and appurtenant works was started in April 1963 and was operationally complete in November 1965.

1.2 PROJECT PURPOSE

Curwensville Lake Project is a unit in the comprehensive flood control plan for the West Branch Susquehanna River. This reservoir has the primary objective of flood risk reduction for the West Branch Susquehanna River from the dam to the Main Stem Susquehanna River at Sunbury. Secondary uses of the Project lands and waters are water supply, water quality, recreation, and environmental stewardship of natural and cultural resources. In 1994, municipal and industrial water supply for downstream users was added as an authorized project purpose. Curwensville Lake Project lands not used for operation and maintenance of the Dam are leased to Clearfield County. Clearfield County leases 362 acres that they operate and maintain for recreation at the Curwensville Lake Project. The Pennsylvania Game Commission has a license to manage wildlife populations and habitat areas upstream of and around Curwensville Lake for the purpose of environmental stewardship. The recreational area, managed by Clearfield County, on Curwensville Lake Project lands are used for a variety of activities, such as swimming, camping, boating, hunting, fishing, hiking, picnicking, and wildlife viewing.

1.3 PURPOSE AND SCOPE OF MASTER PLAN

The purpose of this document is to update the Curwensville Lake Master Plan (MP), written in 1968. The Curwensville Lake Master Plan is the strategic land use management document that guides the comprehensive management and development of recreational, natural, and cultural resources throughout the life of the project. It is the basic document guiding USACE responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands, waters, and associated resources.

This update to the Master Plan is required per Engineer Regulation (ER) 1130-2-550 “Recreation Operations and Maintenance Policies,” and Engineering Pamphlet (EP) 1130-2-550 “Recreation Operations and Maintenance Guidance and Procedures.” USACE is also required to prepare the appropriate National Environmental Policy Act (NEPA) documentation to support the Master Plan.

Since the construction of the Curwensville Lake Project, the original objective of flood risk management continues to be achieved, allowing the increased opportunity for numerous

recreation activities on and around the lake. This Master Plan provides an analysis and guidance for future recreation enhancement and development activities at Curwensville Lake in response to the increased demand for improvements to existing recreation resources, as well as additional new recreation resources on the project site. Since the recreational area is an outgrant to Clearfield County, they manage current and future recreation opportunities and ensure USACE missions are protected while providing quality and safe recreational opportunities for the public.

This document presents an evaluation of the assets, needs, and potential of the Curwensville Lake Master Plan. This Master Plan reflects changes that have occurred to the project site, in the region, in recreation trends, and in USACE policy in the 53 years since the last master plan was published. It provides a management framework that balances the stewardship of natural resources and provision of high-quality recreation activities (managed by the Clearfield County) with the primary project purpose of flood risk management. This Master Plan addresses expressed public interest in the overall stewardship and management of project resources and shows the most desirable and feasible enhancements to existing facilities, as well as locations and types of new facilities needed to meet the identified needs. Any recreational improvements will be reviewed by USACE (including NEPA) but will be funded by Clearfield County and its partners.

Implementation of the Curwensville Lake Master Plan must recognize and be compatible with the primary project mission of flood risk management and secondary project missions of water supply, water quality, recreation, and environmental stewardship of natural and cultural resources.

The Master Plan update is a working document that will guide the use and development of the natural and constructed resources on USACE fee-owned lands for an estimated 15–25-year period (2022-2047). The Master Plan articulates USACE responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop the land, water, and associated resources. It is a dynamic and flexible tool designed to address changing conditions. The Master Plan focuses on carefully crafted, resource-specific goals and objectives.

It is important to note what the Master Plan does not address. Details of design, management and administration, and program implementation are not intended to be addressed within the scope of a master plan. Additionally, Master Plans are not intended to address the specifics of regional water quality, shoreline management, or water level management.

The master planning process encompassed a series of interrelated and overlapping tasks involving the examination and analysis of past, present, and future environmental, recreational, and socioeconomic conditions, and trends. Utilizing a generalized conceptual framework, the process, as intended, focused on four primary components as follows:

- Regional and ecosystem needs,
- Project resource capabilities and suitability,
- Expressed public interests that are compatible with Curwensville Dam and Curwensville Lake authorized purposes, and
- Environmental sustainability elements.

The MP includes an environmental assessment (EA) and Finding of No Significant Impact (FONSI), which has been prepared in accordance with NEPA; regulations of the Council on Environmental Quality; and USACE regulations, including Engineer Regulation 200-2-2: Procedures for Implementing NEPA. The EA and FONSI are separate documents that provide an analysis of possible impacts associated with the Master Plan and can be found in Appendix E. The FONSI is also included at the front of this Master Plan.

1.4 DESCRIPTION OF PROJECT AND WATERSHED

The Curwensville Lake Project is located on the West Branch of the Susquehanna River in Clearfield County, Pennsylvania. It is 13 miles southwest of Clearfield, Pennsylvania (as shown in Figure 1-1) and 30 miles southeast of DuBois, Pennsylvania. The Project occupies approximately 4,063 acres of land. The Curwensville Dam formed Curwensville Lake, which has a drainage area of 365 square miles. The dam manages 98 percent of the flow on the West Branch of the Susquehanna River at Curwensville (about 2 miles from the Curwensville Dam at borough center) and 75 percent of the flow at the borough of Clearfield (about 8 miles from Curwensville Dam at borough center). The Project reduces the flood risk along the West Branch of the Susquehanna River below the dam, supplies water downstream in support of the Susquehanna River Basin Commission's (SRBC) basin wide low flow management policies, and provides a lake for recreation, fish, and wildlife. Figure 1-2 is a site map of Curwensville Lake. Although Curwensville Dam was operationally complete in November 1965, recreational facilities did not become available until the spring of 1966. The total federal cost of the project was \$20.3 million in 1965.

The Curwensville Lake Project is located along a narrow valley with steep slopes in the downstream portion that become gentler in the upstream reaches. The surrounding ridges and slopes are wooded, and the valley floor above the limits of the recreation lake is well covered with light timber and brush. In the upper reaches of the reservoir, the valley floor was used for farming. Clay mining has been an important industry in this area and remains so to this day. Considerable strip mining was carried out in the reservoir area immediately upstream of the dam and on the adjacent hillsides. Most of the pits and spoil piles in the lake area resulting from this strip mining have been leveled, filled, and landscaped or are inundated by lake water. All spoil piles within the lake area were graded to elevation 1,150 ft so as not to present a boating hazard to recreational users.

1.5 DESCRIPTION OF LAKE

At the conservation pool level of 1,162 feet Project Construction Datum (PCD), the Curwensville Lake is 3,410 feet wide (at widest point), 6.5 miles long, has a 19.2-mile-long



Curwensville Dam and Reservoir

shoreline, and a surface area of 770 acres. At this level, the lake contains 7,483 acre-feet of water. If the reservoir reaches the spillway crest (top of the flood control pool) at 1,228 feet PCD, the reservoir surface area covers 2,877 acres and stores 119,467 acre-feet of water. Data on surface area and storage are based on a 2010 hydrographic survey. Since 1997, the pool is maintained year-round at 1,162 feet PCD to allow for multiple project purposes. Previously, seasonal pool level was held at a lower elevation (1,155 feet PCD) between December and April.

The Curwensville Lake Project is operated for the following purposes according to the Reservoir Regulation Manual (2020) for the Susquehanna River Basin: (1) reducing flood risk downstream on the West Branch Susquehanna River; (2) maintaining year round elevation of 1,162 feet PCD for purposes of municipal and industrial water supply; (3) neutralizing water quality due to acid mine discharges entering the West Branch Susquehanna River downstream of the dam, especially from Anderson and Clearfield Creeks, (4) allowing “pass through” of acid mine drainage treatment output from the Lancashire 15 Acid Mine Drainage (AMD) Treatment plant 45 miles upstream of the dam; and (4) recreation (USACE 2020a).

1.5.1 Embankment/Dam

The Curwensville Dam consists of a rolled earthfill embankment 2,850 feet long having a width at its top of 25 feet and a maximum height of 131 feet above the streambed. The top of the dam elevation is 1,257 feet PCD (USACE 2020a).



Curwensville Dam and Spillway

1.5.2 Spillway

The uncontrolled spillway is constructed in rock in a saddle adjacent to the left abutment. It is 480 feet long and has a crest elevation of 1,228 feet PCD. The spillway consists of a concrete sill excavated in a natural rock saddle. At design surcharge (elevation of 1,251 PCD), the spillway capacity is 203,126-acre feet under a total surcharge of 23 feet. To date, spillway flow has not occurred (USACE 2020a).



Curwensville Dam Stilling Basin

1.5.3 Flood Control Outlet Works

The outlet works are located on bedrock at the left end of the dam and consist of three hydraulic slide (flood) gates (5.5-ft by 12-ft each) located in the intake control tower, a 594-foot-long, 15-foot-diameter conduit that is under the main embankment, and a stilling basin. In addition, two 30-inch diameter bypass outlet gates are located on either side of the gated outlet system. The total length of the outlet works (tower, tunnel and stilling basin) is about 918 feet. The maximum discharge through these outlet works with the lake at spillway crest and all gates completely opened is 9,800 cfs (USACE 2020a).

1.6 HYDROPOWER FACILITIES

There are currently no hydropower facilities on project lands. Hydropower is not currently an authorized purpose at the Curwensville Dam. However, in 1984, the Nuclear Energy Group applied for a preliminary permit to study the feasibility of hydropower at the Curwensville Dam. The permit expired and the project did not move forward to construction. In 2019, Lock Hydro Friends Fund XXIXX, LLC. filed for and received an application for a preliminary permit, pursuant to section 4(f) of the Federal Power Act, to study the feasibility of the Curwensville Dam Hydropower Project No. 14981. The permit to study the feasibility of electric generation at the Project was approved in January 2020 and will expire in December 2023. The potential for hydropower to come to the Curwensville Dam in the future continues to be studied by others.

1.7 PROJECT ACCESS

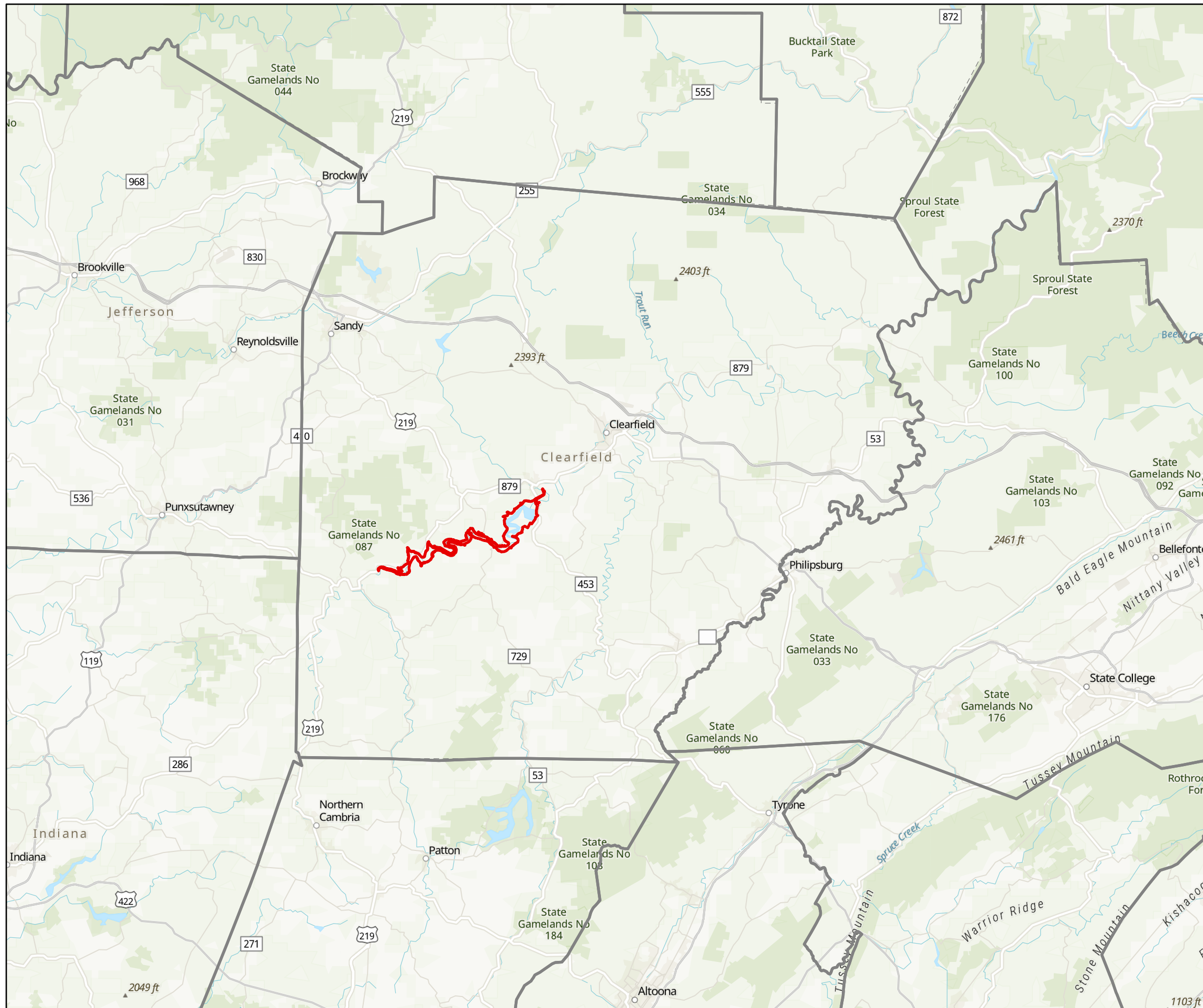
The Curwensville Lake Project can be accessed from Pennsylvania Route 453 that runs about 44 miles from Curwensville to Alexandria in Pennsylvania. Pennsylvania Route 453 connects directly to the Curwensville Dam access roads and within a mile of the Curwensville Lake recreation area road (Lake Drive). The Curwensville Lake recreation area can also be accessed by Pennsylvania Route 729 that runs 22 miles between Grampian and Smithmill. From Pennsylvania Route 729, River Road and then Lake Drive can be used to access the Curwensville Lake recreation area (managed by Clearfield County). Additionally, Pennsylvania Route 969 can be used to get to the dam or recreation sites. Pennsylvania Route 969 spans 10 miles between Grampian and Curwensville. From Pennsylvania Route 969, either Pennsylvania Route 729 or Pennsylvania Route 453 can be used to arrive at the dam or recreation sites.

1.8 PERTINENT PRIOR REPORTS AND RELATED STUDIES

Documents and studies related to the Master Plan update are listed in this section with the dates of publication. The Bibliography section contains the full annotation for each report or study.

- Curwensville Lake Master Plan, 1968
- Curwensville Lake Operation and Maintenance Manual, 1969, 1987
- Curwensville Lake Major Reservoir Study, 1979
- Curwensville Lake Reallocation Study, Feasibility Report and EIS, 1992
- Curwensville Lake Cultural Resource Investigation, 2002
- Curwensville Lake Water Storage Study 2010
- Curwensville Lake Park Master Plan 2011
- Curwensville Lake Regulation Manual, updated 2020

Figure 1-1 Regional Vicinity



Curwensville Lake Master Plan

Regional Vicinity

Legend

- Curwensville Study Area
- PA Counties



Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

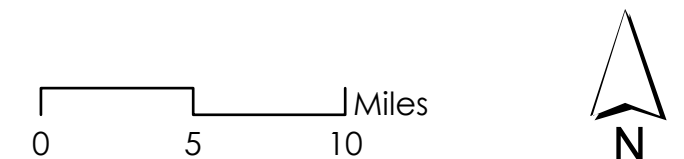
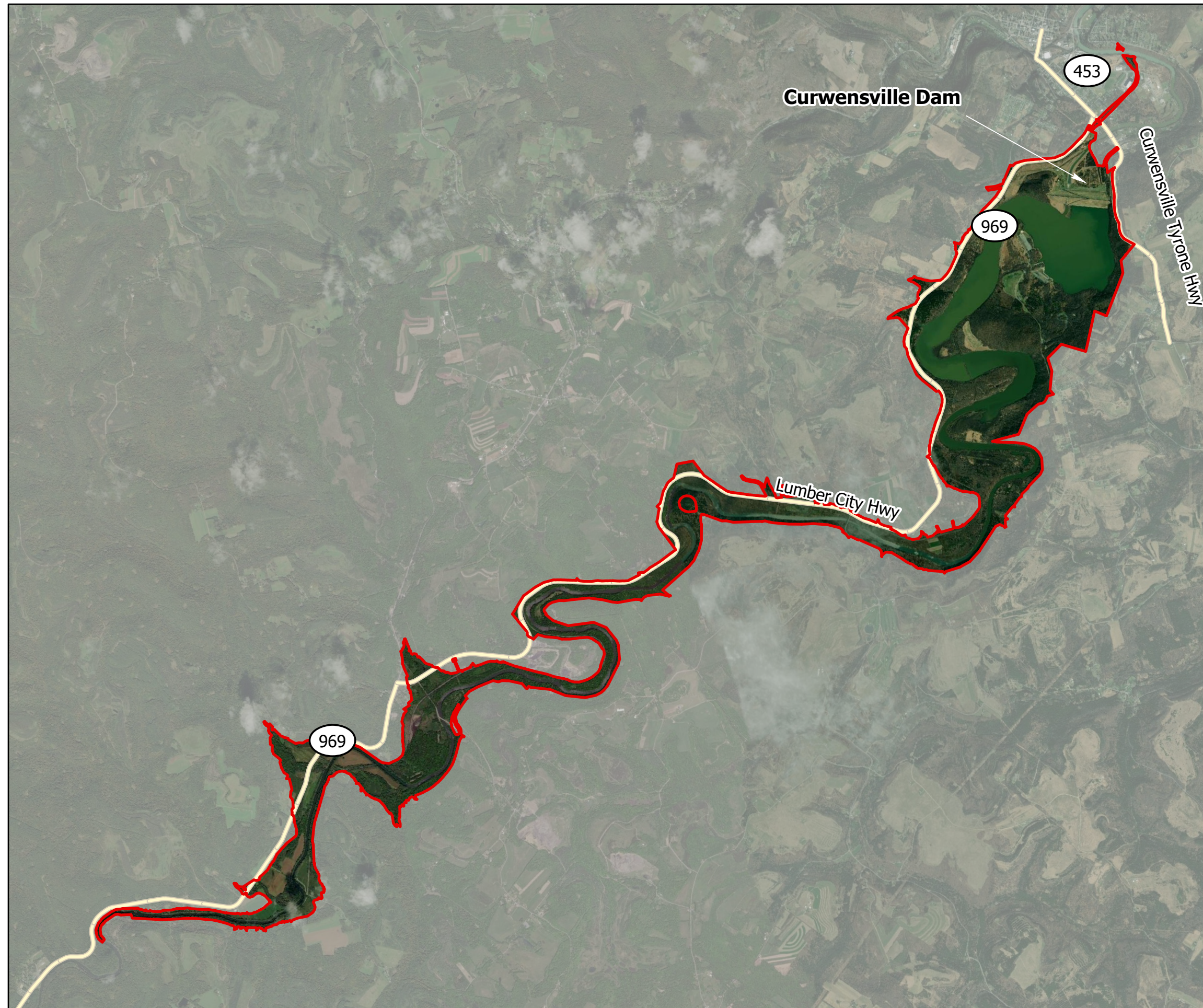


Figure 1-2 Site Vicinity



Curwensville Lake Master Plan

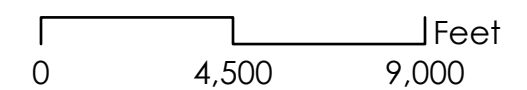
Site Vicinity

Legend

 Curwensville Study Area



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



1.9 PERTINENT PROJECT INFORMATION

Table 1-1 below provides pertinent information regarding existing storage capacity at Curwensville Lake. Based on a collection of geographic information system (GIS) data for this Master Plan, the water surface acreage at lake elevation 1,162 feet PCD was established to be 772.8 acres, which is higher than the current acreage of 770 acres that was established through a hydrographic survey completed in 2010. Until a detailed land survey is completed to determine the impact (i.e., increase of acres) to the surrounding recreational land classifications, this Master Plan update will maintain the acres determined from the GIS data collected. Table 1-1 reflects the most up to date storages and acreages based on the 2010 hydrographic survey, while Table 1-2 is based on collected GIS data for the land classifications.

Table 1-1. Water Storage Capacity and Related Pertinent Data at Curwensville Lake.

	Elevation (Feet PCD)	Storage (Acre-feet)	Acres
Top of Dam	1,257.0	224,016	4,088
Maximum Pool (Design Surcharge)	1,251.9	203,126	3,885
Full Flood Control (Spillway Crest)	1,228.0	119,467	2,877
Conservation Pool (all year)	1,162.0	7,483	770
Dead Storage	1,135	70	16

Source: 2020 Curwensville Lake Regulation Manual. Data based on 2010 hydrographic survey

All elevations cited in this plan unless otherwise noted, are referenced to the original project construction datum (PCD). In previous versions of the Curwensville Dam Water Control Manual, elevations were incorrectly referenced as NGVD29. In 2009, the Corps of Engineers began a Comprehensive Evaluation of Project Datums (CEPD). The CEPD effort was specifically intended to ensure that project elevations and datums are properly and accurately referenced to nationwide spatial reference systems used by other Corps Districts as well as federal, state, and local agencies. To that end, a new project benchmark was established and linked to the 1988 North American Vertical Datum (NAVD88). To convert PCD elevation for Curwensville Lake and its physical components to NAVD88, subtract 0.53 feet from the PCD elevation (USACE 2020a).

Table 1-2 provides pertinent information regarding acreages by proposed land classifications at the Curwensville Lake Project. See Table 4-1 for the prior land classifications. Acreages were calculated by Geographical Information Systems (GIS) data.

Table 1-2. Proposed Land Classifications at Curwensville Lake Project

Proposed Land Classifications	Acres
Project Operations ¹	217.2
High Density Recreation	300.7
Multiple Resource Management	1,360.7
Low Density Recreation	213.5
Wildlife Management ³	(2,195.3)
Vegetation Management	1,146.8
Flowage Easements	838.2
Highway and Railroad Relocations ⁵	345.6
Water Surface ¹	772.8
No-Wake ²	142.3
Restricted	1.4
Open Recreation	629.1
Unmodified River Area ¹	180.9
Total^{1,3,4,5}	4,016.1

¹Includes old Susquehanna Riverbed acreages before the Curwensville Dam was built, which created the Recreation Pool. Fee Simple and Easement Lands total to 3,700.9 acres (does not include old riverbed acreage). GIS calculated total for Land of Curwensville Lake Project lands is 3,714.4 acres (does not include old riverbed acreage). There is 0.5 additional acres in Multiple Resource Management Lands due to riverbed acreages.

²No-Wake Zone includes area by beach for swimmers, boat ramp, and boat mooring area (17.5 acres); area near old railroad crossing (21.7 acres); and along narrow, shallow riverbed and wetland areas (103.1 acres).

³Wildlife Management overlaps with the other land classifications. The Wildlife Management acres in the Proposed Land Classification column reflects the number of acres currently maintained by the Pennsylvania Game Commission for wildlife populations and their habitat areas upstream of and around Curwensville Lake. Since there is overlap the acres listed for Wildlife Management is not added to the total acres.

⁴ Mapping for the Master Plan update has been compiled using the best information available and is believed to be accurate. Prior land classification acres are based on original acquisition real estate deed records and mapping completed for the 1968 Master Plan. Due to improved mapping technologies, minor discrepancies exist when comparing prior and proposed land classification acreages.

⁵The Highway and Railroad Relocation land classification with 345.6 acres includes 231 acres of divested land by conveyance to Beech Creek Railroad Company and New York Central Railroad Company in March 1966. The divested acreage is not owned or managed by USACE.

2 EXISTING CONDITIONS & ANALYSIS

2.1 PHYSIOGRAPHIC SETTING

2.1.1 Ecological Setting

The Curwensville Lake Project at West Branch Susquehanna River is located within the Uplands and Valleys of Mixed Land Use level IV ecoregion within the Central Appalachian level III ecoregion covering a portion of Central Pennsylvania (Woods, Omernik, and Brown 2003). The Uplands and Valleys of Mixed Land Use ecoregion contains a mix of woodland and agriculture with rounded hills and low ridges ranging in elevation of 1,375 to 2,800 feet. The higher elevation tends to produce shorter growing seasons of approximately 135-165 days. Bituminous mines are abundant throughout the region (Woods, Omernik, and Brown 1999).

2.1.2 Climate

The Curwensville Lake Project is geographically located within the National Oceanic and Atmospheric Administration (NOAA) Climate Division 36-07 – Pennsylvania Central Mountains (NOAA 2020.). This area is characterized by a temperate climate, with the average annual temperature being between 38- and 58-degrees Fahrenheit and an average annual precipitation of 41.6 inches. The greatest monthly precipitation occurs from June through September. Most snowfall in the area occurs between December and February, with the area receiving on average of 45 inches of snowfall a year (U.S. Climate Data 2020).

2.1.3 Topography, Geology, and Soils

The Curwensville Lake Project is located within the Pittsburgh Low Plateau Section of the Appalachian Plateaus Province, which is characterized by smooth to irregular, undulating surface; narrow, relatively shallow valleys; strip mines and reclaimed land. The underlying rock type consists of shale, siltstone, sandstone, limestone, and coal. The origin of the landforms come from fluvial erosion, periglacial mass wasting, and strip mining (Sevan 2000).

The Curwensville Lake Project is located in a narrow valley with steep slopes at the downstream portion while becoming gentler sloping in the upstream reaches. The surrounding ridges and slopes are wooded, and the valley floor containing some agriculture and low density residential housing. Clay strip mining occurred previously but these areas have since been inundated by the reservoir (USACE 1968).

Soil complexes within the Curwensville Lake Project area range from occasionally flooded soils to extremely stony. Some of the soils commonly seen in floodplains that are occurring within the Curwensville study area are Atkins silt loam (At), Philo silt loam (Ph), and Pope loam (Po). Although, most of the soils found within the study area are located on gradual slopes such as Allegheny silt loam (AIB), Cavode silt loam (CaB), Monongahela silt loam (MoB), and Tyler silt loam (TyB) to name a few. There are some instances where moderately to very steep slopes and soils occur such as the Cedarcreek extremely channery loam (95D), Ernest silt loam (ErD), and Rayne-Gilpin complex (RcD) (USDA-NRCS, 2020).

Table 2-1. Soil survey at Curwensville Dam

Soil Name	Soil Description	Hydric Rating	K-Factor Rating	Farmland Classification
95C	Cedarcreek extremely channery loam, strongly sloping	0	0.05	Not prime farmland
95D	Cedarcreek extremely channery loam, moderately steep	0	0.05	Not prime farmland
AIB	Allegheny silt loam, 3 to 8 percent slopes	0	0.32	All areas are prime farmland
At	Atkins silt loam, 3 to 8 percent slopes, frequently flooded	85	N/A	All areas are prime farmland
BvB	Buchanan silt loam, 8 to 25 percent slopes, extremely stony	3	N/A	Not prime farmland
BvD	Buchanan silt loam, 0 to 8 percent slopes, extremely stony	3	N/A	Not prime farmland
CaB	Cavode silt loam, 3 to 8 percent slopes	5	0.37	Farmland of statewide importance
CaC	Cavode silt loam, 8 to 15 percent slopes	5	N/A	Farmland of statewide importance
ErB	Ernest silt loam, 3 to 8 percent slopes	5	N/A	Farmland of statewide importance
ErC	Ernest silt loam, 8 to 15 percent slopes	5	N/A	Farmland of statewide importance
ErD	Ernest silt loam, 15 to 25 percent slopes	3	N/A	Not prime farmland
GIB	Gilpin channery silt loam, 3 to 8 percent slopes	0	N/A	All areas are prime farmland
GIC	Gilpin channery silt loam, 8 to 15 percent slopes	0	N/A	Farmland of statewide importance
MoB	Monongahela silt loam 3 to 8 percent slopes	0	0.37	Farmland of statewide importance
Ph	Philo silt loam, 0 to 3 percent slopes, occasionally flooded	10	0.32	All areas are prime farmland
Po	Pope loam, 0 to 3 percent slopes, occasionally flooded	6	N/A	All areas are prime farmland
Pu	Purdy silt loam	75	0.37	Not prime farmland
RaC	Rayne silt loam, 8 to 15 percent slopes	0	0.32	Farmland of statewide importance
RbF	Rayne channery silt loam, 25 to 65 percent slopes	0	0.17	Not prime farmland
RcD	Rayne-Gilpin complex, 15 to 25 percent slopes	0	0.17	Not prime farmland
TyA	Tyler silt loam, 0 to 3 percent slopes	5	0.43	Farmland of statewide importance
TyB	Tyler silt loam, 3 to 6 percent slopes	10	0.31	Farmland of statewide importance
Ud	Udifluvents, sandy	10	0.10	Not Prime Farmland
Up	Udorthents, smoothed	5	0.10	Not prime farmland

Soil Name	Soil Description	Hydric Rating	K-Factor Rating	Farmland Classification
WhB	Wharton silt loam, 3 to 8 percent slopes	5	N/A	All areas are prime farmland
WhC	Wharton silt loam, 8 to 15 percent slopes	2	N/A	Farmland of statewide importance
WhD	Wharton silt loam, 15 to 25 percent slopes	0	N/A	Not Prime Farmland

Source:(USDA-NRCS, 2020)

2.1.4 Hydrology and Groundwater

The Curwensville Lake Project is located on the West Branch Susquehanna River approximately 0.5 mile downstream of Pennsylvania Route 453, which is on the outskirts of Curwensville. The dam is located within the Upper West Branch Susquehanna Watershed (HUC # 02050201). Curwensville Dam manages approximately 365 square miles or 98 percent of the flow on the West Branch of the Susquehanna River at Curwensville (about 2 miles from the Curwensville Dam at borough center) and 75 percent of the flow at the borough of Clearfield (about 8 miles from Curwensville Dam at borough center). The project reduces flood risk along the West Branch of the Susquehanna River below the dam, supplies water downstream in support of SRBC’s basin wide low flow management policies, and provides a lake for recreation, fish, and wildlife. Some immediate tributaries contributing to the reservoir include Anderson Creek and Montgomery Creek. The Stevenson Dam, Alvin R. Bush Dam, and Foster Joseph Sayers Dam are located on tributaries to the West Branch of the Susquehanna River that discharge downstream of the Curwensville project.

2.1.5 Borrow Areas

The Curwensville Lake Project site does not have any borrow areas.

2.2 ECOREGION AND NATURAL RESOURCES ANALYSIS

2.2.1 Vegetation

The Curwensville Lake Project supports numerous types of vegetation and habitats, including wetlands, open water features, grassy areas, fields, and forests. According to the U.S. Forest Service (USFS), North Central Pennsylvania is characterized by more forest than any other cover type (USFS 2017). The primary forest types are deciduous forests, with significant amounts of mixed and evergreen forests. Other major cover types include pasture/hay and cultivated crops. Nearly 50 percent of the forests in North Central Pennsylvania belong to the maple/beech/birch group. The primary species within this group include red maple, sugar maple, and black cherry. Other forest groups present in North Central Pennsylvania are the oak/hickory, white pine/red pine/hemlock, and aspen/birch groups.

Between 2009 and 2014, North Central Pennsylvania gained approximately 40,000 acres of forest, but lost approximately 70,000 acres, primarily due to development and conversion to agriculture, for a net decrease in forest acres of 0.6 percent. While most Pennsylvania forests are privately owned, North Central Pennsylvania has more federal and state-owned forests than any other Pennsylvania Region as well as a high degree of forest connectivity. This is primarily due to the presence of the Allegheny National Forest, which covers approximately 513,000 acres of land (USFWS 2017).

Several types of wetlands and open water features are present throughout the Project and include riverine, lacustrine, palustrine, and emergent systems (USFWS, 2020b). Each wetland classification creates a unique ecosystem for specific types of wetland plants and wildlife. In addition, wetland vegetation provides several beneficial uses which include enhancing water quality, filtering runoff, preventing localized erosion, and providing habitat and food sources for wildlife.

2.2.2 Wetlands

Natural wetlands are more uncommon around the dam due to the open recreation areas and fields. The United States Fish and Wildlife Service (USFWS) mapper captures 118.8 acres of wetland systems, not including lake or riverine systems (Table 2-2). The most dominant of the wetland types are freshwater forested/shrub wetland totaling 38.5 acres, with individual systems exceeding four to five acres each. The freshwater emergent wetlands and ponds are smaller in size with a few of the systems reaching one to two acres; however, most of the emergent and pond systems are less than an acre.

Table 2-2. Wetland areas within Curwensville Project Area

Wetland Type	Acres	Percent of Project Lands
Freshwater Emergent Wetland	12.3	0.3%
Freshwater Forested/Shrub Wetland	38.5	0.9%
Freshwater Pond	8.0	0.2%
Total Wetland	118.8	3.0%

Source: USFWS 2020b

2.2.3 Wildlife

The Curwensville Lake Project supports many habitat types including wetlands, grassy areas, fields, and forests, and therefore attracts several species of wildlife. Mammalian wildlife found on Project lands include white-tailed deer (*Odocoileus virginianus*), bobcat (*Lynx rufus*), river otter (*Lontra canadensis*), Eastern cotton tailed rabbit (*Sylvilagus floridanus*), fisher (*Pekania pennanti*), grey squirrel (*Sciurus carolinensis*), and groundhogs (*Marmota monax*). Common avian species include a variety of waterfowl and wading birds, woodpeckers and songbirds, as well as common game species including Wild Turkey (*Meleagris gallopavo*) and Ruffed Grouse (*Bonasa umbellus*) (DCNR, 2018).

The Pennsylvania Game Commission (PGC) has a license to perform wildlife management activities on approximately 2,195.3 acres over the Curwensville Project Area, shown in Figure 2-1. The PGC manages wildlife populations through maintaining fields (e.g., mowing), gates, fruit trees, signage, food plots, nesting structures, removal of fallen trees, and turkey tagging.

The PGC also manages the wild turkey population through trapping and leg tagging of wild turkeys occasionally around the Curwensville Lake Project. Tagging activities normally occur in late January through March.

Hunting and trapping is permitted on PGC licensed lands during any open season in accordance with the appropriate state and federal laws and regulations. All Pennsylvania

hunting and fishing laws apply throughout the entire project area. Common game species include elk (*Cervus canadensis*), white-tailed deer, ruffed grouse, eastern grey squirrel, black bear (*Ursus americanus*), and wild turkey (DCNR 2018).

Curwensville Lake and its tributaries support healthy populations of many native and stocked fish species. Species that are present within the reservoir include small and largemouth bass (*Micropterus dolomieu* and *Micropterus salmoides*), panfish (*Centrarchidae* spp.), tiger muskellunge (*Esox masquinongy* X *Esox lucius*), northern pike (*Esox lucius*), walleye (*Sander vitreus*), black crappie (*Pomoxis nigromaculatus*), brown bullheads (*Ameiurus nebulosus*), and channel catfish (*Ictalurus punctatus*) among others. Access to the lake for fishing is available throughout the year. The Pennsylvania Fish and Boat Commission (PFBC) manages the lake's fishery and stocks tiger muskellunge fingerlings in alternate years. Artificial fish habitat structures have been placed in the lake to improve its fishery and angling opportunities. Curwensville Lake supports recreational fisheries for bass, panfish, and tiger muskellunge. PFBC biologists sample the lake's fish populations periodically to guide management of the reservoir's fishery resources (DCNR 2020).



Figure 2-1. Pennsylvania Game Commission Management Areas

2.2.4 Threatened and Endangered Species

2.2.4.1 Federally listed species

As of 2020, two federally listed threatened or endangered species are known to exist within the project impact area, the Indiana bat (*Myotis sodalis*) and the Northern Long-eared bat (*Myotis septentrionalis*).

The Indiana bat is a small bat weighing only one-quarter of one ounce that was listed in 1967 and remains listed as federally endangered. In winter, Indiana Bats hibernate in caves and mines. In summer, their habitat includes small to medium river and stream corridors with well-developed riparian woods, woodlots within 1 to 3 miles of small to medium rivers and streams, and upland forests. Major threats to their populations include winter disturbance of hibernacula, commercialization of caves, pesticides and other contaminants, summer habitat destruction and mortality due to the white-nose syndrome fungus (USFWS 2019).



Myotis sodalis, Indiana Bat



Myotis septentrionalis, Northern long-eared bat

Northern long-eared bats are medium sized bats (about 3-4 inches in length) associated with mature, interior forest environments. Unlike most other bats, the northern long-eared bat forages along wooded hillsides and ridgelines – not above valley-bottom streams and along the edges of riparian forests. The species is listed as threatened throughout its range, primarily due to impacts of white-nose syndrome. Populations at northern long-eared bat hibernation sites have declined by 99 percent since the discovery of white-nose syndrome. Forest fragmentation and conversion are also major threats to the species due to its' association with large blocks of mature forest (USFWS 2020a).

2.2.4.2 Pennsylvania State Threatened & Endangered Species

According to the Pennsylvania Natural Heritage Program screening tool, the state threatened Allegheny woodrat (*Neotoma magister*) is known to occur in the project area (PNDI, 2020). The Allegheny woodrat is listed as threatened in Pennsylvania and vulnerable nationally. They are related to packrats found in the Western United States and can be distinguished from common Norway rats based on their furred tail, larger ears and eyes, heavier head, and longer whiskers. Their preferred habitat includes extensive expanses of abundant, closely spaced surface rock surrounded by unfragmented forest. While they may be found in deciduous, coniferous, or mixed forests, mast-producing trees are important as a food source. Rocky areas are important habitat for Allegheny woodrats, as they nest deep within rock outcrops, use rock crevices and protected ledges for storing food, and establish latrines on flat rock surfaces protected by an overhang. Several factors are thought to have

contributed to the population's decline, including the decline of the mast producing trees, such as the American chestnut (*Castanea dentata*) (reduced from chestnut blight) and oak trees (reduced from gypsy moth infestations); infection by the racoon roundworm parasite; predation pressure from increasing great horned owl populations; competition with growing porcupine populations for habitat; and forest fragmentation. Populations in some of the Allegheny woodrat's range, including North Central Pennsylvania, are thought to be relatively healthy (Butchkowski 2014).

2.2.5 Other Protected Species

Bald Eagles (*Haliaeetus leucocephalus*), a previously federally and state-listed endangered species, were removed from the federal list in August 2007 and Pennsylvania's list in 2013. Although this species is not listed as an endangered or threatened species, it is protected under the Bald and Golden Eagle Protection Act, as noted by the USFWS Information for Planning and Consultation (IPaC) system (USFWS 2020a). According to Cornell Lab of Ornithology's (2020) and Curwensville State Park staff, both immature and adult Bald Eagles were sighted at Curwensville Reservoir during the 2020 breeding season.

The timber rattlesnake (*Crotalus horridus*) is a state protected species in Pennsylvania. Killing timber rattlesnakes is prohibited by Pennsylvania Fish and Boat Commission (PFBC). Timber rattlesnakes are large snakes of the pit viper family that can be identified by their "V"-shaped dark bands on a grey, yellow, black, or brown body. In Pennsylvania, timber rattlesnakes are typically found at elevations greater than 1,800 feet. They prefer southern-facing upland forested areas with talus slopes, rocky ledges and outcrops, and boulder fields, which are used for basking (thermoregulation), and dens. Threats to timber rattlesnake populations include human activities related to habitat alteration, overhunting and poaching (Urban 2004).

2.2.6 Invasive and Nuisance Species

Invasive species are non-native species whose introduction into an ecosystem is likely to cause environmental, human, or economic harm. Non-native species may not be affected by existing predators, disease, or other limiting factors in their introduced range and therefore may thrive and outcompete native species. Non-native invasive species are therefore often difficult and expensive to manage. The Curwensville Lake and associated lands are experiencing several terrestrial invasive species. No aquatic invasive species are documented within the lake. Some of the invasive and nuisance species found at the project area are described in the paragraphs below.

2.2.6.1 Plants

Several non-native invasive plant species can be found on Project lands, including Japanese stiltgrass (*Microstegium vimineum*), reed canary grass (*Phalaris arundinacea*), multiflora rose (*Rosa multiflora*), garlic mustard (*Alliaria petiolata*), and Japanese barberry (*Berberis thunbergii*). Some of the Curwensville Lake recreation area is open field and wooded areas with minimal understory and herbaceous layers due to presence of campgrounds. No invasive species management mechanisms are currently in place at the Curwensville Lake Project.

2.2.6.2 Insects

Currently, the Project area has few problems with nonnative invasive insect pests; however, invasive insects have been damaging in the past and are likely to cause damage in the future. The emerald ash borer (*Agrilus planipennis* Fairmarie), for example, was destructive for many years at the Project area before the host species' (*Fraxinus* spp.) populations became too low to support emerald ash borer populations.



Agrilus planipennis, Emerald Ash Borer Beetle

Spotted Lanternfly (*Lycorma delicatula*) is another invasive insect native to China, Bangladesh, and Vietnam. The species was found in Pennsylvania in 2014 and has since spread to 34 counties, all of which are under a state-imposed quarantine. Clearfield County is not one of the counties that are affected yet; however, neighboring counties to the south and southeast are showing large numbers of the invasive pest (USDA Penn. 2020).

2.2.6.3 Birds

Both invasive and native nuisance bird species are present in the project area. The European starling (*Sturnis vulgaris*) was introduced to Central Park, New York City in 1890 and is now a common resident of both urban and rural areas in the United States. European starlings outcompete native cavity nesting species by evicting birds occupying a cavity and using it for their own nests (USDA APHIS 2017). Starlings are present in the Project but are not actively managed.

Canada geese (*Branta canadensis*) are common along both North American coastlines and throughout the central and lower United States and may exist in resident or migratory populations. Large populations of resident Canada geese can become a nuisance for many reasons, including causing damage to lawns, marshes, and cropland through overgrazing (USDA APHIS 2011). Canada geese have been historically problematic at the Project area and there are concerns of the geese causing elevated *Escherichia coli* (*E. coli*) levels in the lake. Curwensville recreation area are proposing nonlethal population control including harassment and egg addling, but these methods have yet to be implemented.

2.2.6.4 Mussels

Zebra Mussels (*Dreissena polymorpha*) were initially discovered at Curwensville Lake in March 2013, attached to the trash racks at the intake tower. The density and abundance of the Zebra Mussel population were characterized as low and sparse. Project staff has monitored the lake since the initial discovery and noted a decline in the population. No Zebra Mussels were seen from 2018 to 2020.

In April 2021, Zebra Mussels were spotted on woody debris that had been recently removed from the base of the intake tower. Coordination with PFBC's Aquatic Invasive Species Coordinator has been initiated and the sighting of the Zebra Mussels at the lake has been documented on both the State of Pennsylvania's Invasive Species website (<https://www.paimapinvasives.org/>) and the U.S. Geological Service Nonindigenous Aquatic Species website (<https://www.nas.er.usgs.gov/>). The USACE and Curwensville Lake park staff will continue to monitor the lake for the presence, density, and abundance of the species and continue to coordinate with PFBC.



2.2.7 Water Quality

The water quality in Curwensville Lake is generally good, with pH values ranging between 6.5 and 7.0. The water quality is denoted by the U.S. Environmental Protection Agency (EPA) waterway impairment mapper (US EPA 2020b) as a good waterway, and water quality is not impaired with no impairments regarding aquatic life, including fish and shellfish consumption (US EPA 2020b).

Land use in the watershed is devoted mainly to woodland, mining, and agriculture. Several small communities and activities from farming in the watershed contribute to some nutrient loading. There are sporadic algae blooms in the lake following minor nutrient loading. No harmful algal blooms have been reported at Curwensville Lake to current date. Historically, when there are high nutrient levels and depletion of oxygen in the hypolimnion or the bottom layer of water, Curwensville Lake becomes a eutrophic lake. Yet, submerged aquatic vegetation (SAV) typically establishes in shallower areas during the summer. Some sources of acid mine drainage still exist upstream of the lake. Presently, these have only a minimal effect on the lake's water quality.

2.2.7.1 Acid Mine Drainage

The main water quality concerns in regulating Curwensville Lake are the potential for large releases to cause an acid slug on the West Branch Susquehanna River downstream from the dam, and the need to dilute increases in acidic water entering the West Branch Susquehanna River from some downstream tributaries. While conditions have improved in the past decade,

acidic conditions remain a concern. From its confluence with Clearfield Creek at Clearfield downstream to its confluence with Sinnemahoning Creek, the West Branch Susquehanna River has historically been adversely affected by acid mine drainage (AMD) and provides only a marginal environment for aquatic life. Downstream from Sinnemahoning Creek, the water quality in the West Branch Susquehanna River improves somewhat as the effects of acid mine drainage are diluted by better quality tributary inflows. Downstream from Lock Haven, the effects of acid mine drainage are not a significant concern due to the neutralizing effects of the highly alkaline Bald Eagle Creek and management practices of the F.J. Sayers Reservoir. Curwensville Lake is regulated in conjunction with Stevenson, Bush, and Sayers Dams to prevent or lessen the impacts of acid mine drainage.

There is a former mining operation located upstream of Curwensville Lake along the drainage divide between the Ohio and Susquehanna River Basins. Acid mine drainage from this site was previously treated and discharged into Blacklick Creek within the Ohio River Basin. The Pennsylvania Department of Environmental Protection (PADEP), acting through its Bureau of Abandoned Mine Reclamation (BAMR), constructed a new treatment plant, The Lancashire 15 AMD Treatment Plant, to replace the previous system that was near the end of its useful life. The new treatment system was completed in the summer of 2012. The Lancashire 15 AMD Treatment Plant has previously been referred to as the Barnes and Tucker AMD treatment facility. The treated AMD water is now discharged into the West Branch Susquehanna River about 45 stream miles upstream of Curwensville Dam, and represents an interbasin transfer of water from the Ohio River Basin to the West Branch Susquehanna River Basin.

SRBC requested that the transferred water be allowed to “passthrough” Curwensville Lake, undiminished in quantity except for transit losses, so that it might be available to mitigate for downstream consumptive water uses during low flow periods. Minor modifications to reservoir regulation procedures at Curwensville Lake were necessary to accommodate this request, but they have a negligible impact on the project.

Additionally, Curwensville Lake releases are occasionally still used to help neutralize acid discharges entering the West Branch Susquehanna River downstream of the dam, especially from Anderson and Clearfield Creeks. Although water quality conditions have improved, maintaining a stable lake level for recreation and concurrently providing sufficient outflow for downstream water quality control during low flow periods can be challenging. (USACE 2020a).

2.2.7.2 Local nutrient input

Historically, high water events of three feet or more inundate a Curwensville Lake recreation area bathroom facility located near the beach, which leads to its septic tank leaking contents back up through the bathroom facility. During these events, nutrient loads increase due to inputs from the septic tank in addition to increased inputs from agricultural fields within the watershed. However, there is a plan in place for this tank to be pumped out leading up to highwater events to prevent septic leaks. The Curwensville Lake staff take weekly E. coli tests to ensure the water quality is safe for swimming in the lake. It is very rare that the beach will close for E.coli levels (only closed once, but sampling error was the likely explanation). However, park staff are concerned that goose feces on the beach, which is cleaned daily

during summer months, could lead to future problems and park staff are interested in employing management techniques.

2.3 CULTURAL RESOURCES

2.3.1 Prehistoric

General consensus places the first settlement of the Pennsylvania region during the Paleo-Indian Period (16,500 – 10,000 years Before Present (BP)), although the date of the first inhabitants is debated. Various studies have dated it to anywhere between 12,500 BP to as early as 16,500 BP (Carr and Moeller 2015). The prehistory of the Curwensville Lake Project area generally conforms to that of the Mid-Atlantic region and is divided into three main time periods: Paleo-Indian (16,500 – 10,000 BP), Archaic (10,000 BP – 3,000 BP), and Woodland (3,000 BP – 400 BP) (USACE 2011). The periods are normally characterized in the archaeological record as changes in material culture, such as variations in stone tool assemblages or pottery.

The Paleoindian Period is typically characterized by the presence of fluted spear points. Population groups during this time generally practiced less sedentary subsistence patterns by moving around to areas with predictable food resources. Some evidence also points to Paleoindians preferring high quality stone to make their tools. Archaeologists tracing sources of this stone have documented a range of over 200 miles per year in movement (PHMC 2015).

The Archaic Period is divided into the Early (10,000 BP – 8500 BP), Middle (8500 BP – 5000 BP), and Late (5000 BP – 3800 BP) Periods, with a Transitional Period (3800 BP – 2800 BP) immediately preceding the Woodland Period. Population groups during this time practiced increased sedentary hunting and gathering routines, ultimately establishing base camps with special purpose camps located around them (GAI 2002:65). Base camps were typically located on broad terraces along major streams, with smaller satellite sites situated along tributaries. As population increased through time, so did the utilization of locally available resources such as hickory, walnut, hazelnut, and acorn.

The Transitional Period represents the change from the Late Archaic to the Early Woodland, and is characterized by an increase in sedentism, intensification of food procurement and processing, and distinctive technological changes, such as rhyolite importation and the change to broad spear point types (USACE 1998:4). An increased use in steatite bowls is also noted during this period, indicating a desire to collect and store seasonally available foods (USACE 2011).

The Woodland Period is marked by the presence of pottery and can be divided into the Early (3000 BP – 2300 BP), Middle (2300 BP – 1000 BP), and Late (1000 BP – 400 BP) Periods. The frequency of upland sites increases during this time, as groups became increasingly more sedentary. Settlement continued to rely on more permanent base camps, with specialized camps for hunting or lithic collection and reduction. By the Late Woodland, there is an increased use and development of agricultural resources such as maize, squash, and beans (USACE 2011).

2.3.2 Historic

The south and southeastern portions of Clearfield County were first acquired by Pennsylvania via the 1768 Boundary Line Treaty of Fort Stanwix (Aldrich 1887). Moravian missionaries

including Christian Frederick Post, David Zeisberger, and John Ettwein explored the region, but it was not until 1785 that Pennsylvania acquired the remainder of Clearfield County via the 1784 Treaty of Fort Stanwix (ratified by the United States in 1785). The first European settlers arrived in the county shortly thereafter. Present-day Clearfield County was formed in 1804 from parts of Lycoming and Huntingdon Counties and included in its entirety Chincleclamousche Township. Chincleclamousche Township was divided into other townships beginning in 1807 and would continue to do so over the next century. The first permanent settlement took place within 25 years of the county's founding, principally along the West Branch of the Susquehanna River. The town of Curwensville was established in 1812 by John Curwen who immigrated to the region from Montgomery County (Aldrich 1887). Most of the land in the county was surveyed and divided into large tracts of 250 to 1,100 acres, of which a large part was given to soldiers for their service during the Revolutionary War. The early settlers came from the eastern part of the state. In later years many immigrants came directly from Europe (Hallowich 1988).

Practically all of the early settlers of Clearfield County were farmers. Later, the abundance of timber caused the development of extensive lumbering and greatly increased the immigration of people into the area. Following the development of mineral resource extraction (chiefly coal), large numbers of laborers came into the area and settled (Hallowich 1981). The economy of the newly populated region was based on agriculture and the rich mineral resources available in the county. Coal, iron, and timber resources promoted the early bituminous mining, charcoal iron, and lumbering industries. Coal was first mined in the county in 1804. Clearfield County became the largest producer of bituminous coal in the state and was also a leading producer of fire clay.

2.3.3 Previous Investigations at Lake

Thirteen cultural resources investigations have occurred at the Curwensville Lake Project. Seven of these were part of National Historic Preservation Act (NHPA) and Historic Sites Act cultural resources compliance actions, three were part of informant or amateur surveys, one was associated with institutional-based research, one was connected with a Pennsylvania Historical and Museum Commission (PHMC) grant, and one has an unknown name and survey type, but it resulted in the documentation of Site 36CD116. Table 2-3 lists known cultural resources investigations and their findings retrieved from the PHMC's Cultural Resource GIS. To date, a majority of the federal property above the flood pool has not been archaeologically investigated.

Table 2-3. Previous Cultural Resource Investigations.

Date	Name	Surveyor(s)	Type	Results
1963	An Archaeological Survey of the Valley of the West Branch of the Susquehanna River between Mahaffey and Curwensville, Pennsylvania	Temple University	Historic Sites Act compliance	No sites documented
1975	N/A	N/A	Informant/Amateur survey	Documentation of sites 36CD18, 36CD19, 36CD20, 36CD21, 36CD22, and 36CD37
1985	N/A	N/A	State or Federal compliance	Documentation of site 36CD35
1986	N/A	N/A	Informant/Amateur survey	Documentation of sites 36CD54, 36CD62, and 36CD68
1986	N/A	N/A	Institutional-based research	Documentation of sites 36CD66, 36CD69, and 36CD70
1987	N/A	N/A	Informant/Amateur survey	Documentation of sites 36CD45 and 36CD67
1987	N/A	N/A	PHMC grant	Documentation of sites 36CD65, 36CD76, and 36CD80
1989	Cultural Assessment of the Proposed Camping Areas at Curwensville Lake and Foster Joseph Sayers Lake, Clearfield and Centre Counties, Pennsylvania	U.S. Army Corps of Engineers, Baltimore District	Phase I NHPA compliance	No sites documented
1989	Phase I Archaeological Investigations of Proposed Recreational and Campground Sites at Curwensville Lake, Clearfield County, Pennsylvania	R. Christopher Goodwin and Associates	Phase I NHPA compliance	Documentation of sites 36CD48 and 36CD49

Date	Name	Surveyor(s)	Type	Results
1990	Phase I Archaeological Investigations, Curwensville Lake Reallocation Study, Curwensville Lake, Clearfield County, Pennsylvania	Louis Berger	Phase I NHPA compliance	No sites documented
1998	N/A	N/A	Federal compliance	Documentation of site 36CD100
2003	Cultural Resource Investigation of Tract 119, Curwensville Lake, Clearfield County, Pennsylvania	U.S. Army Corps of Engineers, Baltimore District	Phase I NHPA compliance	No sites documented
Unknown	Unknown	Unknown	Unknown	Documentation of site 36CD116

2.3.4 Recorded Cultural Resources

There are 22 known archaeological sites within the Curwensville Lake Project area. Eleven sites were documented through informant or amateur archaeological survey and feature unidentified prehistoric components. Three sites are associated with work completed as part of a PHMC research grant and are associated with unidentified prehistoric components. Three sites were documented through institutional-affiliated research and are associated with unidentified prehistoric components. Four sites were documented as part of Section 106 compliance excavations; two of these are nineteenth and early twentieth century, while the other two feature unidentified prehistoric components. One site originates from an unknown project but featured an unidentified historic component. None of these archaeological sites have been determined eligible for listing in the National Register of Historic Places (NRHP).

Known architectural or above-ground resources are associated with the Curwensville Dam such as the assistant dam tender's residence, the main office and maintenance building, the intake tower, spillway, and earthen embankment. Other above-ground resources include those associated with the Curwensville Recreation Area such as the main office, comfort stations, campgrounds, boat launches, and a beach. The Curwensville Dam and associated structures are currently being evaluated to determine its eligibility for inclusion in the NRHP.

2.3.5 Long-Term Objectives for Cultural Resources

- Identify and inventory any historic properties within the project area as funds permit.
- Create and maintain a Cultural Resources Management Plan as needed and as funds permit.
- Maintain compliance with federal cultural resources laws, including but not limited to, Sections 106 and 110 of the NHPA and the Archaeological Resources Protection Act (ARPA) within project area lands.
- Prevent unauthorized or illegal excavation and removal of cultural resources within project area lands.
- Increase public awareness and education of regional history.

2.4 DEMOGRAPHIC AND ECONOMIC RESOURCES

2.4.1 Current Demographics, Economics, Trends and Analysis

The zone of interest (ZOI) for the socio-economic analysis of the Curwensville Lake Project consists of eight Pennsylvania counties. The lake lies within Clearfield County and the surrounding counties include Centre, Cambria, Indiana, Jefferson, Elk, Cameron, and Clinton.

2.4.2 Population

According to the 2019 American Community Survey (ACS) 5-year Population estimate, the total population for the ZOI is 572,319, down from 589,660 in 2010 as shown in Table 2-4. The population in the ZOI is approximately 4.4 percent of the total Pennsylvania population (12,800,922 people). From 2019 through 2030, the population in the ZOI is expected to increase by 63,222, an annual growth rate of 0.39 percent per year. Of the ZOI counties, only Cameron and Elk, have a negative growth rate (-0.65 percent per year and -0.29 percent per year, respectively). Centre and Clinton Counties have the highest annual growth rates at 0.85 percent and 0.73 percent, respectively.

The distribution of the population among gender, according to the 2019 ACS, is approximately 49 percent female and 51 percent male within the ZOI, and approximately 51 percent female and 49 percent male for Pennsylvania as a whole. Most counties (6 out of 8) within the ZOI have nearly equal male and female populations (+/- 1 percent); however, Centre and Clearfield County have a relatively large difference in gender populations with an approximately 47 percent female to 53 percent male population as shown in Table 2-5 (USCB, 2019).

The median ages in Clearfield County and Pennsylvania are 46.3 years and 40.8 years, respectively, with ZOI median ages ranging from 31.7 years in Centre County to 52.2 years in Cameron County, as shown in Figure 2-2 (USCB, 2019).

The overwhelming majority of the ZOI population is white, with minority races making up 8.5 percent of the total population. Approximately 1.9 percent of the ZOI population identified as Hispanic or Latino (of any race), and 0.1 percent identified as American Indian of the Cherokee, Chippewa, Navajo, or Sioux tribal groupings, as shown in Figure 2-3 (USCB, 2019).

2.4.3 Education and Employment

In the ZOI, approximately 42.3 percent of the population aged 25 and older has obtained a high school diploma or equivalent. Approximately 13.7 percent have some college education but no degree, 9.2 percent have an Associate's degree, 15.1 percent have a Bachelor's degree, 10.8 percent have a Graduate degree or professional certification, 6.0 percent have a 9th to 12th grade education, and 2.8 percent have less than a 9th grade education (USCB, 2019).

The largest employment industry in the ZOI is educational services, and health care and social assistance at approximately 20.5 percent, followed by 11.8 percent in manufacturing, 8.1 percent in retail, and 5.8 percent in arts, entertainment, recreation, and accommodation and food services. All other industries make up 32.2 percent of employment. The civilian labor force unemployment rate within the ZOI is 5.2 percent, similar to the 5.8 percent unemployment rate for all of Pennsylvania (USCB, 2019).

2.4.4 Households and Income

There are approximately 275,097 households in the ZOI and 5,025,132 in Pennsylvania. The median household income in the ZOI (\$49,816) is lower than Pennsylvania overall (\$59,445). Of the ZOI counties, Cameron County has the lowest household income at \$41,165, and Centre County has the highest household income at \$60,403 (USCB, 2019).

Approximately 15 percent of persons living within the ZOI are below the poverty level, compared to 12.8 percent in all of Pennsylvania. Centre and Clinton Counties have the highest percentage of persons below the poverty level at 18.4 and 17.4 percent, respectively (USCB, 2019).

Table 2-4. Population Estimates and 2030 Projections

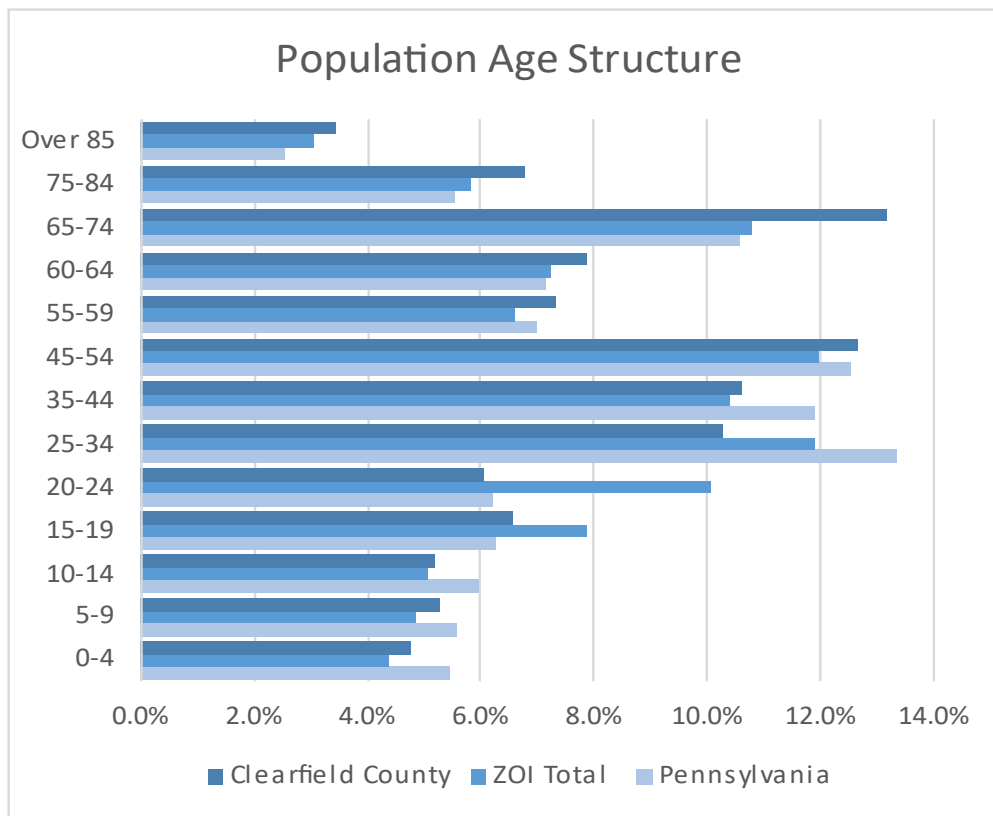
County	2010 Estimate		2019 Estimate		2030 Estimate		Growth rate
	Number	% of ZOI	Number	% of ZOI	Number	% of ZOI	
Pennsylvania	12,702,379	-	12,800,922	-	14,132,588	-	0.41%
Cambria County, PA	143,679	24.3%	130,192	22.7%	147,518	23.2%	0.13%
Cameron County, PA	5,085	0.9%	4,447	0.8%	4,422	0.7%	-0.65%
Centre County, PA	153,990	26.2%	162,385	28.4%	180,148	28.3%	0.85%
Clearfield County, PA	81,642	13.8%	79,255	13.8%	83,423	13.1%	0.11%
Clinton County, PA	39,238	6.7%	38,632	6.8%	44,973	7.1%	0.73%
Elk County, PA	31,946	5.4%	29,910	5.2%	30,081	4.7%	-0.29%
Indiana County, PA	88,880	15.1%	84,073	14.7%	99,756	15.7%	0.61%
Jefferson County, PA	45,200	7.7%	43,425	7.6%	45,220	7.1%	0.00%
ZOI Total	589,660		572,319		635,541		0.39%

Source: (USCB, 2019 & Behney, 2014)

Table 2-5. Population Estimates by Gender

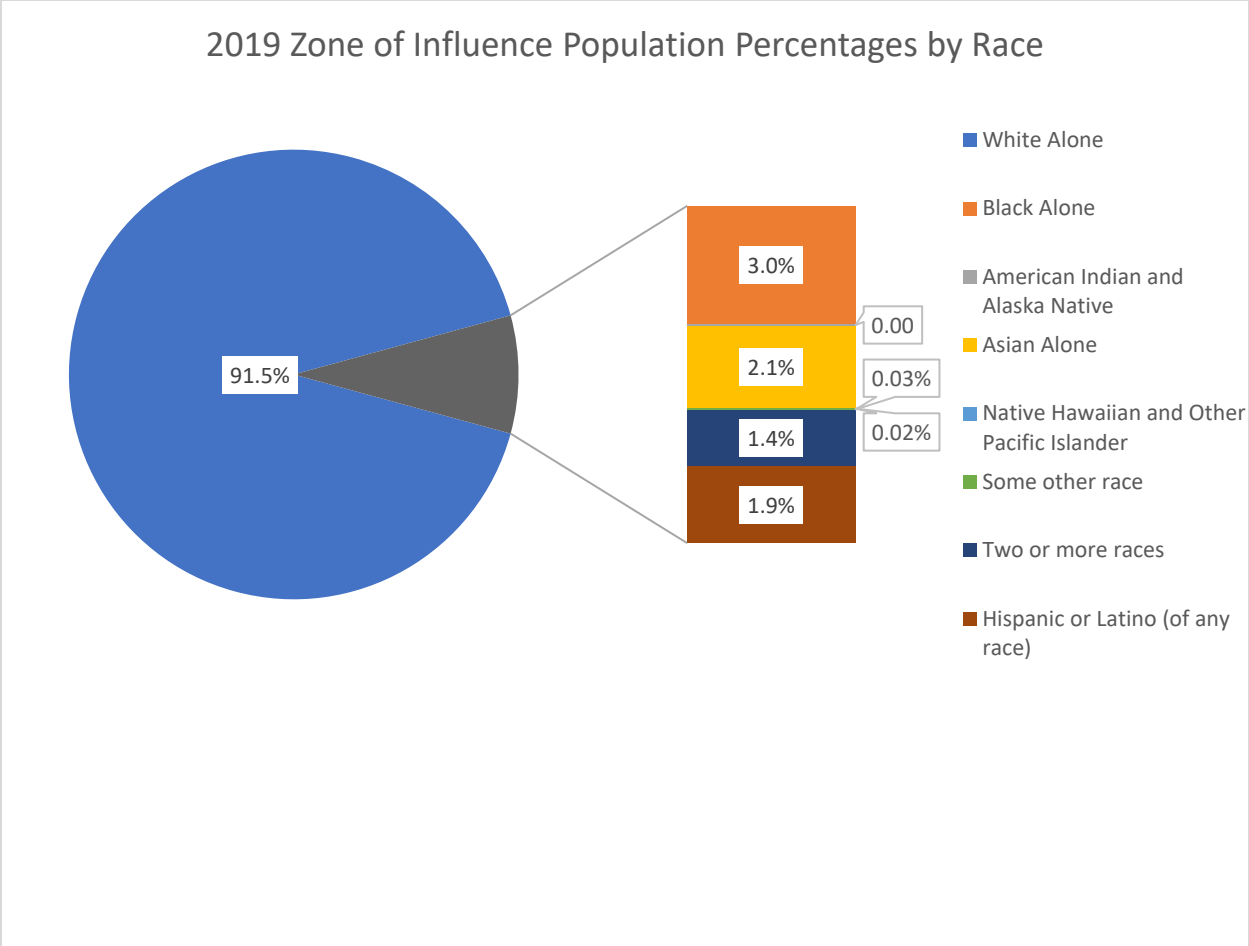
County	Population (K)	
	Female	Male
Pennsylvania	6,535.4	6,271.6
Cambria County, Pennsylvania	66.3	68.8
Cameron County, Pennsylvania	2.2	2.2
Centre County, Pennsylvania	77.0	85.4
Clearfield County, Pennsylvania	37.0	42.2
Clinton County, Pennsylvania	19.5	18.8
Elk County, Pennsylvania	15.0	15.3
Indiana County, Pennsylvania	42.0	42.0
Jefferson County, Pennsylvania	22.0	22.0
ZOI Total	280.9	297.0

Source: USCB 2019



Source: USCB 2019

Figure 2-2. Age Distribution



Source: USCB 2019

Figure 2-3. Population Estimates By Race

2.5 RECREATION FACILITIES, ACTIVITIES, AND NEEDS

2.5.1 Zone of Influence

The zone of influence for the Curwensville Lake Project area consists of eight Pennsylvania counties. Curwensville Lake lies within Clearfield County and the surrounding counties include Centre, Cambria, Indiana, Jefferson, Elk, Cameron, and Clinton County.

2.5.2 Visitation Profile

During the period October 2017 to September 2020, over 500,000 people visited the Curwensville Lake recreation area, with its heaviest visitation during summer and fall months. Even during the COVID-19 pandemic, Curwensville Lake recreation area saw a substantial increase in visitors and are expected to see a similar trend in 2021. The day users were the primary use type, but the Curwensville Lake recreation area does have high seasonal use of overnight camping areas. See Section 2.5.4 for activity breakdown at Curwensville Lake recreation area.

2.5.3 Recreation Facilities

The Curwensville Lake recreation area features various camping options with over 40 campsites, cabins, group camping, and primitive camping. Additionally, the recreation area has over 16 miles of hiking trails, 600-feet of beach, athletic fields, playgrounds, pavilions, parking areas, a disc golf course, over 60 shoreline boat mooring rental spaces, boat launches, fishing area, a dog park, a designated dog swimming area, and rentals for kayaks, paddleboards, and canoes. Most recreational types are seasonal from April through October. However, the boating, fishing, playgrounds, trails, and disc golf are open year-round.

2.5.3.1 Parking Areas

Various parking areas are offered throughout the recreational areas. The parking lots are located near each of the 5 pavilion locations, the boat launch, and the beach area.

2.5.3.2 Boat Launch and Mooring

The boat launch area is located near Pavilion 3. The area currently consists of a boat launch parking lot, 2 boat launch ramps with docks for loading and unloading, and mooring spaces for more than 60 vessels.

2.5.3.3 Swimming Area (Beach and Bath House)

A 600-foot beach area and a bath house are available to patrons along the northern peninsula of the recreation area. There is also a concessions area for the purchase of food and drinks.

2.5.3.4 Picnic and Other Day Use Areas

A total of 5 picnic/pavilion areas are located throughout the recreation area with playground and bathroom facilities near each pavilion. The pavilion/picnic areas include picnic tables and charcoal grills. Additionally, a volleyball court is located near the beach and swimming areas, horseshoe pits, and cornhole boards. Other large, open fields are located throughout the recreation area for various activities and sports. A disc golf course runs through some of the open field and wooded areas of the park as well. The park also offers rentals for kayaks, paddleboards, and canoes. The park is pet-friendly with a gated dog park area in a grass field and a designated dog swimming area.



Curwensville Lake Boat Launch and Mooring Area



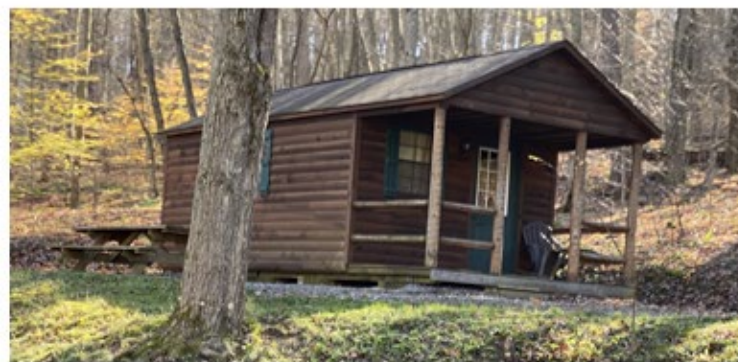
Curwensville Lake Beach

2.5.3.5 Camping Area

Curwensville staff manage over 40 campsites, ranging from sites with electric and charcoal grills to sites that provide a more primitive camping experience. There are camping opportunities for recreational vehicle (RV) campers with electric ranging from 30 to 50 amp. The park has an RV dump site for their RV campers. There are also 3 cabins available for rent. Most camp sites are located in the Campground Road loop; however, camp sites are spread throughout the park for camping in wooded areas, grassy areas, or with a lake view. Camping options are also available near the boat mooring areas for boaters to stay near their watercraft.



Pavilion 5 and Playground



Cabin 1

2.5.3.6 Hiking

Curwensville Lake Recreation area has approximately 16 miles of hiking trails, including 21 different trails classified into three different categories: easy, moderate, and difficult. The trails are further separated depending on which side of Lake Drive they are found. The easy trails are relatively flat with an occasional small hill. The moderate trails have small hills, rocks, slightly off-camber with steep descents or climbs. The difficult trails have long steep hills, long steep descents, narrow trails, more noticeable off-camber, and can contain steep gullies. See Figures 2-4 and 2-5 for description and map of trails at Curwensville Lake.



Eagles Nest Hiking Trail

WEST SIDE OF LAKE DRIVE

EASY

1. **JUNGLE TRAIL**—(Green—0.53 miles) This trail has a gully crossing but the majority of it is flat and comes very close to the lake numerous times. The name of the trail comes from the very high vegetation that can be found along the path.
2. **WOODCOCK TRAIL** (Red 0.57 miles) This trail is named for the numerous Woodcock birds that are found in the area. It is full of twists and turns and the faster you are able to cover it, the more fun it is!
3. **LAKEVIEW LANE**—(Brown—0.80 miles) This is the dirt road that travels around the peninsula, past some primitive camping areas and back onto Lake Drive.

MODERATE

4. **RIVER TRAIL**—(Yellow 1.11 miles) This trail offers some great views of the lake especially when the foliage is off the trees. It follows what appears to be an old tram road most of the way.
5. **BEE KIND TRAIL**—(White—1.45 miles) This is one of the most fun and flowing trails present at the lake. Nestled between the Eagle's Nest Trail and the River Trail, the Bee Kind Trail was designed to make you feel like you are deep in the middle of the woods.
6. **COAL MINE TRAIL**—(Orange 0.15 miles) This trail is named after the small coal mine that was explored in the area. In either direction you traverse this trail you will have to climb a small hill.
7. **UNDERCOFLER PASS**—(Purple—0.23 miles) This trail is flat and has easy terrain except for a small ditch that needs to be traversed. It is a nice little connector trail in the woods to get to the Traverse Trail without hiking through the field.

DIFFICULT

8. **CARNAHAN CALAMITY TRAIL**—(Black—0.46 miles) The difficulty in this trail is that it is narrow due to the fact it is cut in a very steep hillside. Good footing is a must.
9. **EAGLES NEST TRAIL**—(Blue 0.72 miles) This trail involves a steep hill climb in either direction. This trail provides the only access to Bee Kind Trail.
10. **TRAVERSE TRAIL**—(Pink—1.8 miles) This is the most remote trail at the lake. For half of the trail you will travel precariously close but uphill from the water. On the other part of the trail the terrain is flat and easy to traverse.
11. **THE "SPINE"**—(Green 0.68 miles) This trail climbs a very long and narrow hill. It is the most challenging hill of all the trails of the lake. Please be very mindful of staying on the marked trail as it borders private property.
12. **ASCENSION TRAIL**—(Red—0.10 miles) This is a very short but very steep trail. It will take you back up to Lake Drive if you do not wish to continue along the Traverse Trail.

EAST SIDE OF LAKE DRIVE

EASY

1. **NATURE TRAIL**—(Blue—0.62 miles) This trail connects the campground and the road to the boat launch area. Care must be taken crossing bridges when they are wet.
2. **GRANDVIEW TRAIL**—(Purple 0.33 miles) This is another trail that connects the campground with the boat launch area.

MODERATE

3. **FALCON CROSSING TRAIL**—(Pink—0.77 miles) This trail traverses some waste coal piles that require care going up and down. It travels along the hillside above the campground and crosses the power line several times.
4. **SPOOK HOWLOW TRAIL**—(Green—0.80 miles) This trail travels by the primitive campground area. There are several bridges and a very steep hill on this trail that requires care when navigating especially when wet.
5. **LAKESIDE TRAIL** (Red 0.96 miles) This trail follows along the lake offering some great views. Some sections of this trail will be underwater when flood control is enacted at the dam.
6. **KESTER KONNECTION**—(Yellow—0.76 miles) This trail goes through some flat, swampy areas and then begins to climb up near the campground. It also winds in the area east of the park office.
7. **WILLIAMS WAY**—(Orange 0.46 miles) Hiked in either direction there will be a hill to climb and a descent east of the campground.
8. **SUSAN SWAMP TRAIL**—(White 0.74 miles) Flat but can be very wet in sections during certain times of the year.

DIFFICULT

9. **SIDEWINDER TRAIL**—(Black—1.20 miles) As its name implies, the trail winds along some hillsides to the east of the campground. Except for a short flat section on top of the hill, the trail traverses along the side of the hills requiring good footing.



Trails at Curwensville Lake have been classified into 3 different categories:

Easy, Moderate and Difficult.

All trails can be a mixture of the 3 but the classification given represents the most extreme rating.

They are further separated depending in which side of Lake Drive they are found, west or east side of Lake Drive.

> **Easy - Trails under this category are relatively flat with an occasional small hill.**

> **Moderate - Trails under this category have small hills; rocks; slightly off-camber and steep, short descents or climbs.**

> **Difficult - Trails under this category have long, steep hills; long, steep descents; narrow trails; more noticeable off-camber and can contain steep gullies.**

Common Safety Tips -

- * Always let someone know where you are planning to hike especially when traveling alone. There is good cell phone coverage on all trails.
- * Never hike on a trail that is more difficult than your abilities.
- * Please stay on marked trails and respect private property.
- * Respect wildlife.
- * Carry out everything you carry in.
- * Ticks and poison ivy are very common at the lake so please take proper precautions.



THIS MAP WAS CREATED WITH
ASSISTANCE FROM THE CLEARFIELD
COUNTY CONSERVATION DISTRICT
AND THE
CLEARFIELD COUNTY GIS DEPARTMENT

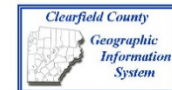
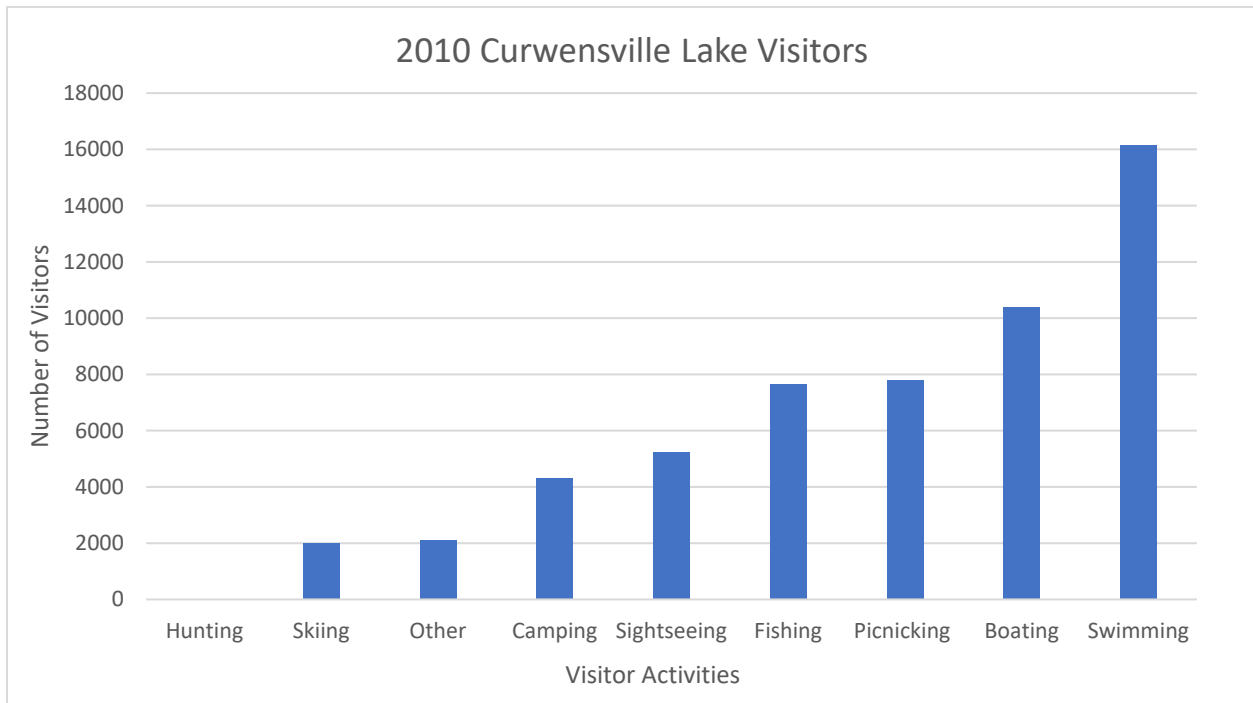


Figure 2-4. Curwensville Lake Trail Descriptions

2.5.4 Recreation Analysis

The Curwensville Lake Project is beneficial to the local economy through indirect job creation and local spending by visitors. In 2010, data was collected highlighting the social and economic benefits of the Curwensville Lake Project (USACE 2010). By providing opportunities for active recreation, the Corps-owned lake (recreation areas primarily leased to Clearfield County and licensed to PGC) helps promote physical activity, provides recreational programs, and offers opportunities for children to develop personal skills, social values, and increase water safety. See Figure 2-6 for a breakdown of how visitors spent their time at the Curwensville Lake Project area in 2010 (USACE, 2010). According to recreation use estimates for 2020 collected through USACE's Visitor Estimation and Reporting System, the most popular recreational activities still include camping, boating, swimming, fishing, sightseeing, picnicking, and hiking.



Source: USACE 2010

Figure 2-6. 2010 Visitation Data

The money spent by visitors to USACE projects on trip expenses adds to the local and national economies by supporting jobs and generating income. Visitor spending represents a sizable component of the economy in many communities around the project. In 2010, for the area within 30 miles of the project, visitations resulted in \$1,014,283 in visitor spending. The economic benefits have increased with additional park attendance observed over recent years. However, exact economic benefits attributable to the project have not been calculated since 2010.

2.5.5 Recreation Carrying Capacity

Recreational carrying capacity generally refers to the maximum level of use of a recreation resource that does not exceed either the resource capacity or social capacity of that resource. Resource capacity refers to the level of use beyond which deterioration and degradation of natural resources and/or the physical environment occurs, while social capacity refers to overcrowding to the level of visitor dissatisfaction (URDC 1980).

Recreational carrying capacity was not studied in-depth for this master plan, since recreation on USACE lands is managed by Clearfield County. However, use of the Curwensville Lake Project and surrounding lands is limited by the recreational area's resource capacity. For example, overnight use is limited by the number of campsites available, including overflow campsite areas. Day use is limited by the number of parking facilities and does not require permits or reservations except for the use of the pavilions. The use of Curwensville Lake by boaters is limited by parking facilities (day users), and/or the number of mooring facilities and campsites (overnight users). At this time there are no plans of actively limiting uses, and there is no evidence of facilities or natural resources being negatively impacted by overuse or overcrowding.

2.6 REAL ESTATE

According to the Real Property Survey Report completed in 1987, the land interests were acquired between 1963 and 1969 through purchase and condemnation from individual landowners. The real estate interest for Curwensville Lake totaled 3,697 acres. The acreage includes approximately 2,647.74 acres owned in fee and 817.79 acres in flowage easement acres. Additionally, 231.41 acres (a total of 229.12 acres in fee and 2.29 acres in easements) were acquired and conveyed to Beech Creek Railroad Company and New York Central Railroad Company in 1966 for relocation of the railroad. Highway relocations accounted for 159.90 acres within the project extent all lands which were acquired in fee and retained by the government for the management of the project. A summary of land acreage for the Curwensville Lake Project is summarized in Table 2-6.

Table 2-6. Summary of Original Project Acreages

Project Lands	Ownership Type	Acreage
Dam and downstream area for Operations	Fee Simple	254.27
Area below the conservation pool at El. 1162	Fee Simple	770.86
Area between El. 1162 and the spillway elevation of 1228	Fee Simple	1,090.25
Area between El. 1228 and 1233	Fee Simple	372.46
Highway Relocation	Fee Simple	159.90
Railroad Relocations (New York Central Railroad)	Fee Simple (Divested*)	229.12
Railroad Relocations (New York Central Railroad)	Easements (Divested*)	2.29
Flowage Easements	Easements	817.79
Riverbed	Not acquired	340.76
Total Acreage	All	4,037.7

Source: USACE, 1987b

*Lands acquired for railroad relocations were divested by the government by conveyance to Beech Creek Railroad Company and New York Central Railroad Company in March 1966.

Real estate acquisition for the Project occurred in three parts. Before actual construction of the dam started, lands were acquired to relocate transportation systems within the extent of the flood control pool. Approximately sixteen miles of the former New York Central Railroad (now serving Norfolk Southern), right-of-way and portions of Pennsylvania State Route Nos. 969 and 857 were relocated as part of the implementation of the project. The second phase of real estate acquisition included land acquisition for the construction area, work area, and borrow area. The third and final phase was the acquisition of land required for the reservoir and the public access areas.

There are a total of the 32 outgrants in the project consisting of easements/consents, easements, licenses, and leases for various purposes throughout the project. Two notable outgrants include the 362-acre lease to Clearfield County utilized for the operation of Curwensville Lake recreation area and a license to the PGC to perform wildlife management activities on approximately 2,195.3 acres over the Curwensville Project Area.

2.7 PERTINENT PUBLIC LAWS

2.7.1 Federal Laws

Public Law 59-209, Antiquities Act, 1906. The first federal law established to protect what are now known as "cultural resources" on public lands. It provides a permit procedure for investigating "antiquities" and consists of two parts: An act for the Preservation of American Antiquities and Uniform Rules and Regulations.

Public Law 74-292, Historic Sites Act, 1935. Declares it to be a national policy to preserve for (in contrast to protecting from) the public, historic (including prehistoric) sites, buildings, and objects of national significance. This act provides both authorization and a directive for the Secretary of the Interior, through the National Park Service, to assume a position of national leadership in the area of protecting, recovering, and interpreting national archeological historic resources. It also establishes an "Advisory Board on National Parks; Historic Sites, Buildings, and Monuments, a committee of eleven experts appointed by the Secretary to recommend policies to the Department of the Interior".

Public Law 78-534, Flood Control Act, 1944. Section 4 of the act as last amended in 1962 by Section 207 of Public Law 87-874 authorizes USACE to construct, maintain, and operate public parks and recreational facilities in reservoir areas and to grant leases and licenses for lands, including facilities, preferably to federal, state or local governmental agencies.

Public Law 85-624, Fish and Wildlife Coordination Act, 1958. This act as amended in 1965 sets down the general policy that fish and wildlife conservation shall receive equal consideration with other project purposes and be coordinated with other features of water resource development programs. Opportunities for improving fish and wildlife resources and adverse effects on these resources shall be examined along with other purposes which might be served by water resources development.

Public Law 86-717, Forest Conservation, 1960. This act provides for the protection of forest and other vegetative cover for reservoir areas under this jurisdiction of the Secretary of the Army and the Chief of Engineers.

Public Law 87-874, Rivers and Harbors Act, 1962. This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.

Public Law 88-578, Land and Water Conservation Fund Act, 1965. This act established a fund from which Congress can make appropriations for outdoor recreation. Section 2(2) makes entrance and user fees at reservoirs possible by deleting the words "without charge" from Section 4 of the 1944 Flood Control Act as amended.

Public Law 89-272, Solid Waste Disposal Act, as amended by PL 94-580, dated October 1976. This act authorized a research and development program with respect to solid waste disposal.

Public Law 89-665, Historic Preservation Act of 1966. This act provides for: (1) an expanded National Register of significant sites and objects; (2) matching grants to states undertaking historic and archeological resource inventories; and (3) a program of grants-in aid to the National Trust for Historic Preservation; and (4) the establishment of an Advisory Council on Historic Preservation. Section 106 requires that the President's Advisory Council on Historic Preservation have an opportunity to comment on any undertaking which adversely affects properties listed, nominated, or considered important enough to be included on the National Register of Historic Places.

Public Law 89-90, Water Resources Planning Act, 1965. This act established the Water Resources Council and gives it the responsibility to encourage the development,

conservation, and use of the Nation's water and related land resources on a coordinated and comprehensive basis. Title II of this act established the River Basin Commissions and stipulated their duties and authorities. The President of the United States signed the Susquehanna River Basin Compact into law on December 24, 1970, subsequent to its approval by Congress and the prior approval of the involved states. The Compact provided for the creation of a single administrative agency to coordinate water resources efforts and programs of federal, state, local and private interests in the basin.

Public Law 90-480, Architectural Barriers Act of 1969. This act ensures that certain buildings financed or leased by Federal agencies are constructed (or renovated) so that they will be accessible to the physically disabled.

Public Law 90-483, River and Harbor and Flood Control Act, Mitigation of Shore Damages, 1968. Section 210 restricted collection of entrance fee at USACE lakes and reservoirs to users of highly developed facilities requiring continuous presence of personnel.

Public Law 91-190, National Environmental Policy Act (NEPA), 1969. NEPA declared it a national policy to encourage productive and enjoyable harmony between man and his environment, and for other purposes. Specifically, it declared a "continuing policy of the Federal Government... to use all practicable means and measures...to foster and promote the general welfare, to create conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." Section 102 authorized and directed that, to the fullest extent possible, the policies, regulations and public law of the United States shall be interpreted and administered in accordance with the policies of the Act.

Public Law 91-611, River and Harbor and Flood Control Act, 1970. Section 234 provides that persons designated by the Chief of Engineers shall have authority to issue a citation for violations of regulations and rules of the Secretary of the Army, published in the Code of Federal Regulations.

Public Law 92-347, Golden Eagle Passbook and Special Recreation User Fees. This act revises Public Law 88-578, the Public Land and Water Conservation Act of 1965, to require federal agencies to collect special recreation user fees from the use of specialized sites developed at federal expense and to prohibit the Corps of Engineers from collecting entrance fees to projects.

Public Law 92-463, Federal Advisory Committee Act. The Federal Advisory Committee Act became law in 1972 and is the legal foundation defining how federal advisory committees operate. The law has special emphasis on open meetings, chartering, public involvement, and reporting.

Public Law 92-500, Federal Water Pollution Control Act Amendments, 1972. The Federal Water Pollution Control Act of 1948 (PL 805, 80th Congress), as amended in 1956, 1961, 1965 and 1970 (PL 91- 224), established the basic tenet of uniform State standards for water quality. Public Law 92-500 strongly affirms the federal interest in this area. "The objective of this act is to restore and maintain the chemical, physical and biological integrity of the Nation's waters."

Public Law 92-516, Federal Environmental Pesticide Control Act, 1972. This act completely revises the Federal Insecticide, Fungicide and Rodenticide Act. It provides for complete regulation of pesticides to include regulation, restrictions on use, actions within a single State, and strengthened enforcement.

Public Law 93-81, Collection of Fees for Use of Certain Outdoor Recreation Facilities, 1978. This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended to require each federal agency to collect special recreation use fees for the use of sites, facilities, equipment, or services furnished at federal expense.

Public Law 93-112, Rehabilitation Act of 1973, as amended. – The USACE responsibility to provide access to programs and activities for persons with disabilities is identified in the Rehabilitation Act of 1973 and its subsequent amendments, entitled the "Rehabilitation, Comprehensive Services and Development Disabilities Amendment of 1978."

Public Law 93-291, Archeological Conservation Act, 1974. The Secretary of the Interior shall coordinate all federal survey and recovery activities authorized under this expansion of the 1960 act. The federal construction agency may transfer up to one percent of project funds to the Secretary with such transferred funds considered non-reimbursable project costs.

Public Law 93-303, Recreation Use Fees, 1974. This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended, to establish less restricted criteria under which federal agencies may charge fees for the use of campgrounds developed and operated at federal areas under their control.

Public Law 93-523, Safe Drinking Water Act, 1974. The act assures that water supply systems serving the public meet minimum national standards for protection of public health. The act (1) authorizes the Environmental Protection Agency to establish federal standards for protection from all harmful contaminants, which standards would be applicable to all public water systems, and (2) establishes a joint federal-state system for assuring compliance with these standards and for protecting underground sources of drinking water.

Public Law 94-422, Amendment of the Land and Water Conservation Fund Act, 1965. Expands the role of the Advisory Council on Historic Preservation. Title 2 - Section 102a amends Section 106 of the Historical Preservation Act of 1966 to say that the Council can comment on activities which will have an adverse effect on sites either included in or eligible for inclusion in the NRHP.

Public Law 99-662, The Water Resources Development Act, 1986. Provides the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

Public Law 101-336, Americans With Disabilities Act of 1990 (42 U.S. C 12, 101- 12, 213). The purpose of the Act was to extend the rights, privileges, and protection that had been made available to the disabled on federal projects for many years prior to the ADA, to the private sector.

Public Law 103-66, Section 500. Omnibus Budget Reconciliation Act of 1993. This act authorizes USACE to expand its recreation user fee program.

2.7.2 Executive Orders

EO 11514, Protection and Enhancement of Environmental Quality – EO 11514 requires federal agencies to provide leadership in protecting and enhancing the quality of the Nation's environment to sustain and enrich human life.

EO 11593, Protection and Enhancement of Cultural Environment – EO 11593 requires federal agencies to administer the cultural properties under their control in a spirit of stewardship and trusteeship for future generations.

EO 11990, Protection of Wetlands – EO 11990 requires federal agencies to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in executing federal projects.

EO 11988, Floodplain Management – This EO directs federal agencies to evaluate the potential impacts of proposed actions in floodplains. The operation and management of the existing project complies with EO 11988.

EO 12898, Environmental Justice – This EO directs federal agencies to achieve environmental justice to the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review. Agencies are required to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

EO 13045, Protection of Children from Health Risks & Safety Risks – This EO directs federal agencies to evaluate environmental health or safety risks that may disproportionately affect children.

EO 13112, Invasive Species – This EO directs federal agencies to evaluate the occurrence of invasive species, the prevention for the introduction of invasive species, and measures of their control to minimize the economic, ecological, and human health impacts.

EO 13175, Consultation and Coordination with Indian Tribal Governments – This EO reaffirms the federal government's commitment to tribal sovereignty, self-determination, and self-government by ensuring agencies consult with Indian tribes and respect tribal sovereignty as they develop policy on issues that impact Indian communities.

EO 13186, Migratory Bird Habitat Protection – Sections 3a and 3e of EO 13186 direct federal agencies to evaluate the impacts of their actions on migratory birds, with emphasis on species of concern, and inform the USFWS of potential negative impacts on migratory birds.

EO 13508, Chesapeake Bay Protection and Restoration – This EO directs federal agencies to implement best management practices to restore and maintain the health of the Chesapeake Bay.

2.7.3 State Laws

Commonwealth of Pennsylvania, Act 170 Wild Resource Conservation Act, 1982. This law was passed to protect endangered plants and animals.

Commonwealth of Pennsylvania, Environmental Stewardship and Watershed Protection Act, 1999. This law provides money to protect open space and critical habitat, conserve river resources, create greenways, build community parks, and enhance tourism.

Commonwealth of Pennsylvania, Clean Streams Law, 1937. This law provided Pennsylvania with the authority to protect streams from pollution. It prohibits littering or dumping that effects the waters and can fine up to \$10,000 for offenses.

Commonwealth of Pennsylvania, Article 1 Section 27 Environmental Rights Amendment, 1969. This article provides two rights to a clean environment for Pennsylvania's citizens: a right to clean air, pure water, and the preservation of the natural, scenic, historic, and aesthetic values of the environment; and a right to have public natural resources conserved and maintained by the Commonwealth for the benefit of present and future generations.

2.7.4 State Management Plans

Pennsylvania statewide Comprehensive Outdoor Recreation Plan (SCORP), 2020-2024. The 2020 – 2024 outdoor recreation plan is Pennsylvania's strategic plan for how outdoor recreation should meet the needs of the state's residents and visitors. A State's outdoor recreation plans must be updated every five years for states to remain eligible for Federal Land and Water Conservation Fund. The 2020 – 2024 plan includes several goals, all of which center around a framework of five priorities, including health and wellness, recreation for all, sustainable systems, funding and economic development, and technology.

3 RESOURCE OBJECTIVES

3.1 INTRODUCTION

The purpose of the plan is to establish the guideline for sustainable stewardship of natural and recreational resources managed directly and indirectly on USACE owned lands. The resource objectives and goals are consistent with the authorized project purposes, federal laws and directives, regional needs, resource capabilities, and take public input into consideration. The goals presented in the plan express the overall desired end state of the cumulative land and recreation management programs at Curwensville Lake Project. The resource objectives specify task-oriented actions necessary to achieve the plan goals.

Overarching USACE management goals and environmental operating principles are presented in the following sections. Specific project-wide and Curwensville Lake recreation area resource objectives are presented in Section 3.3.

3.2 MANAGEMENT GOALS

The following goals are the priorities for consideration when determining management objectives and development activities. Implementation of these goals are based upon time, manpower, and budget. The objectives provide high levels of stewardship to USACE-owned lands and resources while still providing a high level of public service. These goals will be pursued using a variety of mechanisms such as: leases of land to Clearfield County and license to PGC for management, assistance from volunteer efforts, hired labor, contract labor, permit conditions, remediation, and special lease conditions. It is the intention of USACE Curwensville Lake Project staff to provide a realistic approach to the management of the resources present.

- **Goal A** – Provide the best management practices to respond to regional needs, resource capabilities and capacities, and expressed public interests consistent with authorized project purposes.
- **Goal B** – Protect and manage project natural and cultural resources through sustainable environmental stewardship programs.
- **Goal C** – Provide public outdoor recreation opportunities that support project purposes and public interests while sustaining project natural resources.
- **Goal D** – Recognize the unique qualities, characteristics, and potentials of the Project.
- **Goal E** – Provide consistency and compatibility with national objectives and other state and regional goals and programs.

In addition to the above goals, USACE management activities are guided by USACE-wide Environmental Operating Principles (EOPs) as follows:

- Strive to achieve environmental sustainability. An environment maintained in a healthy, diverse and sustainable condition is necessary to support life.
- Proactively consider environmental consequences of USACE programs and act accordingly in all appropriate circumstances.
- Seek balance and synergy among human development activities and natural systems by designing economic and environmental solutions that support and reinforce one another.
- Continue to meet corporate responsibility and accountability under the law for activities and decisions under our control that impact human health and welfare and the continued viability of natural systems.
- Seek ways and means to assess and mitigate impacts to the environment; consider the environment in employing a risk management and systems approach to the full life cycle of our projects and processes.
- Build and share an integrated scientific, economic and social knowledge base that supports a greater understanding of the environment and impacts of our work in a collaborative manner.
- Employ an open, transparent process that respects the views of individuals and groups interested in USACE activities; listen to them actively and learn from their perspective in the search to find innovative win-win solutions to the nation's problems that also protect and enhance the environment.

3.3 RESOURCE OBJECTIVES

Resource objectives are defined as clearly written statements that respond to identified issues and that specify measurable and attainable activities for resource development and/or management of the lands and waters under USACE jurisdiction. The objectives stated below support the Master Plan's goals, USACE EOPs, and applicable national performance measures. They are consistent with authorized project purposes, federal laws and directives, regional needs, resource capabilities, and they take public input into consideration.

The objectives in this Master Plan are intended to provide project benefits, meet public needs, and foster environmental sustainability for the Curwensville Lake Project to the greatest extent possible. Clearfield County leases and manages the primary recreation area for the Curwensville Lake Project. Thus, the supporting objectives were identified by the Curwensville Lake park managers for future objectives on the recreational area leased by Clearfield County. Any recreational improvements will be reviewed by USACE, but will be funded by Clearfield County and its partners.

- **Resource Objective 1** Improve infrastructure and utilities.
 - Supporting Objectives:
 1. Improve reliability of electrical infrastructure
 2. Address key safety concerns

- **Resource Objective 2** Enhance existing recreation sites and amenities.
 - Supporting Objectives:
 1. Expand hiking trails
 2. Repair and add new roads
 3. Improve and add new lighting
 4. Improve and add new campsites
 5. Improve and add new sports courts or fields
 6. Improve bathroom facilities
 7. Improve or replace playground facilities
 8. Improve pavilion facilities
 9. Remove tree stumps

- **Resource Objective 3** Expand recreational opportunities in key areas.
 - Supporting Objectives:
 1. Expand hiking trails
 2. Improve and add new campsites
 3. Add new roads to new campsites
 4. Improve or replace playground facilities
 5. Improve and add new sports courts or fields

- **Resource Objective 4** Invest in key operational and support facilities.
 - Supporting Objectives:
 1. Maintain dam works and administrative/maintenance facilities.

4 LAND CLASSIFICATIONS

4.1 LAND ALLOCATION

All project lands for USACE water resource development projects are allocated by USACE into one of four categories, in accordance with the congressionally authorized purpose for which the project lands were acquired. There are four possible categories of allocation identified in the USACE regulations (EP 1130-2-550) including Operations, Recreation, Fish and Wildlife, and Mitigation. The Curwensville Lake Project was established for flood risk management in downstream communities located along the West Branch of the Susquehanna River. The Curwensville Master Plan was completed as Design Memorandum Number 13 in 1968. The 1968 Master Plan included lands for operations, recreation, fish and wildlife management, mineral rights, and other uses including outleasings for agricultural purposes. A large portion of the total land area of the Project lies above the recreation pool elevation for Curwensville Lake. These lands support recreation, fish and wildlife management, and other uses.

4.2 LAND CLASSIFICATION

The objective of classifying Project lands is to identify how a given parcel of land in the project shall be used now and in the foreseeable future. Land classification is a central component of this Master Plan, and once a particular classification is established any significant change to that classification would require a formal process including public review and comment.

Land classifications were designated for any project parcel owned in fee by USACE. Lands held in easements are described in Section 4.3. Ongoing and planned management practices for each classification are outlined in Chapter 5 – Resource Plan.

4.2.1 Prior Land Classification

Land classification was completed following the construction of the Project. The classification process refines the land allocations to fully utilize project lands and must consider public desires, legislative authority, regional and project specific resource requirements, and suitability.

The 1968 Master Plan for the Curwensville Lake Project included a simplified land classification identified in USACE regulations. Since then, the surrounding land use, recreational opportunities, and regional recreation trends have changed, thus revisions of land classification are necessary to accommodate multiple use needs of surrounding communities. A summary of prior land classification and proposed land classifications are provided in Table 4-1 below.

Table 4-1. Land Classification Summary

Prior Land Classifications (1968)	Acres	Proposed Land Classifications	Acres
Project Operations ¹	273.8	Project Operations ¹	217.2
Intensive Recreation ¹	314.6	High Density Recreation	300.7
Wildlife Management ^{1,3}	1,290.6	Multiple Resource Management	1,360.8
Flowage Easements	838.2	Low Density Recreation	213.5
Highway and Railroad Relocations ⁵	345.6	Wildlife Management ³	(2,195.3)
Unutilized/Unmerchantable Property ⁶	47.1	Vegetation Management	1,146.8
Conservation Pool ¹	772.8	Flowage Easements	838.2
Unmodified River Area ¹	180.9	Highway and Railroad Relocations ⁵	345.6
Total^{1,3,4,5,6}	4,063.7	Water Surface ¹	772.8
		No-Wake [#]	142.3
		Restricted	1.4
		Open Recreation	629.1
		Unmodified River Area ¹	180.9
		Total^{1,3,4,5,6}	4,016.1

¹Includes old Susquehanna Riverbed acreages before the Curwensville Dam was built, which created the Recreation Pool. Fee Simple and Easement Lands total to 3,700.9 acres (does not include old riverbed acreage). GIS calculated total for Land of Curwensville Lake Project lands is 3,714.4 acres (does not include old riverbed acreage). There is 0.5 additional acres in Multiple Resource Management Lands due to riverbed acreages.

²No-Wake Zone includes area by beach for swimmers, boat ramp, and boat mooring area (17.5 acres); area near old railroad crossing (21.7 acres); and along narrow, shallow riverbed and wetland areas (103.1 acres).

³Wildlife Management overlaps with the other land classifications. The Wildlife Management acres in the Proposed Land Classification column reflects the number of acres currently maintained by the Pennsylvania Game Commission for wildlife populations and their habitat areas upstream of and around Curwensville Lake. Since there is overlap the acres listed for Wildlife Management is not added to the total acres.

⁴ Mapping for the Master Plan update has been compiled using the best information available and is believed to be accurate. Prior land classification acres are based on original acquisition real estate deed records and mapping completed for the 1968 Master Plan. Due to improved mapping technologies, minor discrepancies exist when comparing prior and proposed land classification acreages.

⁵The Highway and Railroad Relocation land classification with 345.6 acres includes 231 acres of divested land by conveyance to Beech Creek Railroad Company and New York Central Railroad Company in March 1966. The divested acreage is not owned or managed by USACE.

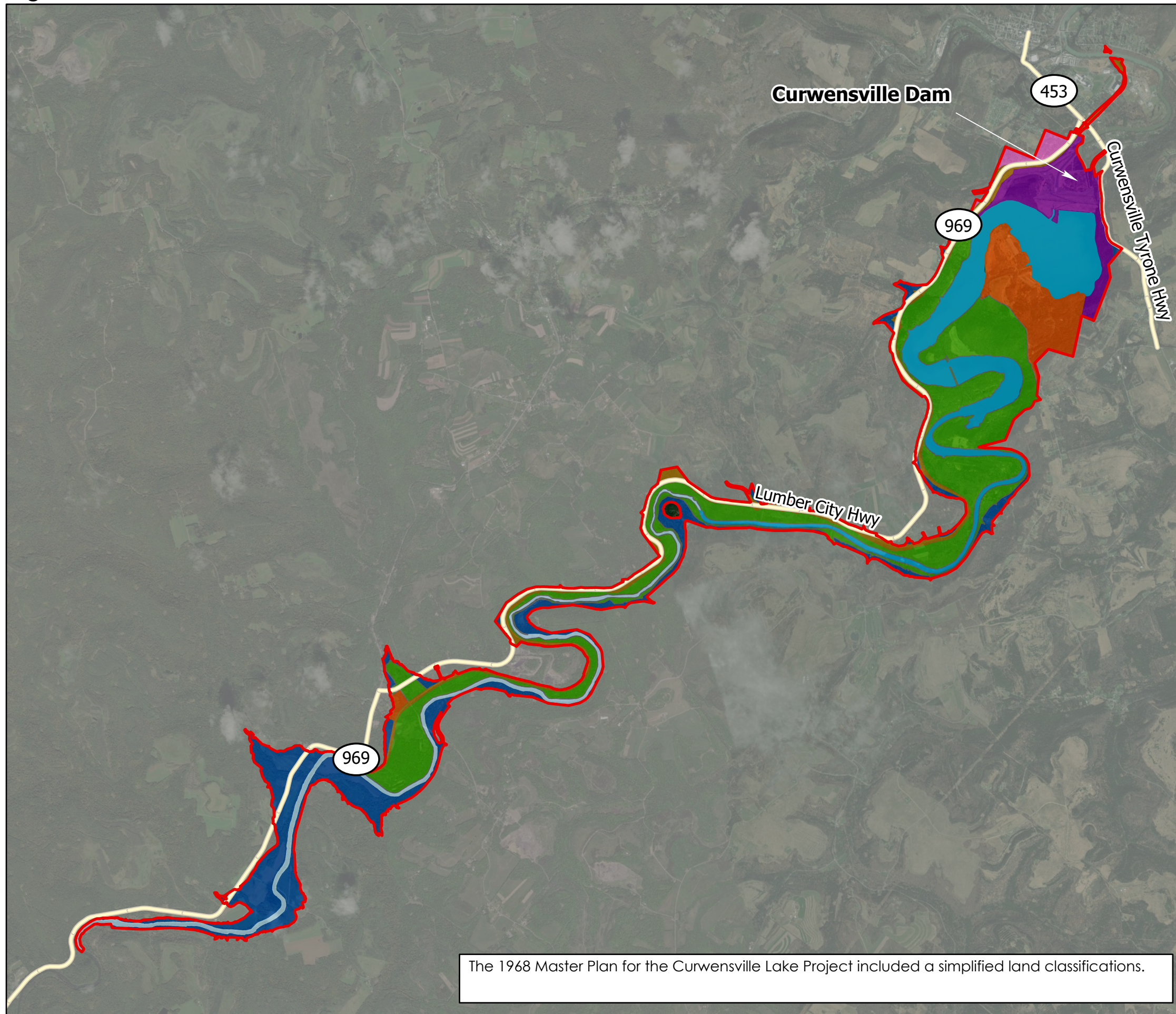
⁶The Unutilized/Unmerchantable Lands (47.1 acres) were sold in 2006 and 2007, so these lands are not included in the 2022 project land totals but are included in the 1964 project land totals.

4.2.2 Proposed Land Classifications

Land Classification indicates the primary use for which project lands are managed. There are 4 categories of classification identified in USACE regulation EP 1130-2-550, Chapter 3, including: Project Operations, High Density Recreation, Multiple Resource Management Lands, and Water Surface. Figure 4-1 shows the prior break-down of land classifications at the Curwensville Lake Project. Figure 4-2 shows the proposed breakdown of total land acreages and Figure 4-3 shows the real estate map, in fee or under easement, for the site. Project Easements are also explained in Section 4.3.

Proposed land classifications were determined by identifying the prior land classifications in the 1964 Master Plan, evaluating the primary use the lands are managed for, and identifying the land classification that would apply to those areas.

Figure 4-1 Prior Land Classifications



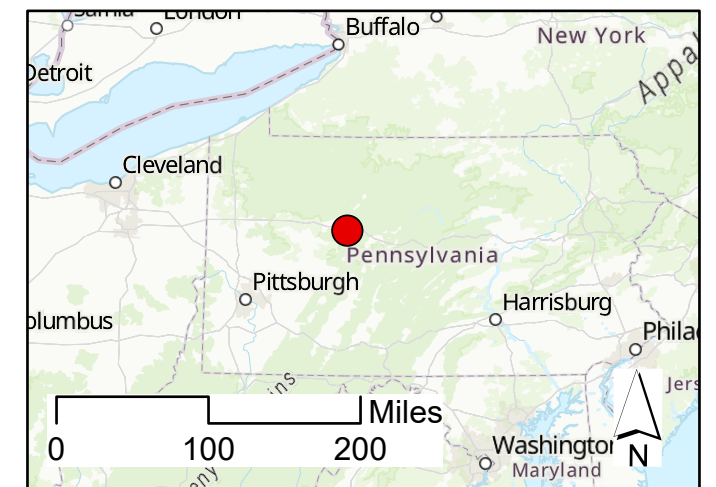
The 1968 Master Plan for the Curwensville Lake Project included a simplified land classifications.

Curwensville Lake Master Plan

Prior Land Classifications

Legend

- Curwensville Study Area
- Land Classifications**
- Operations
- Intensive Recreation
- Riverbed
- Conservation Pool
- Flowage Easement
- Wildlife Management
- Highway and Railroad Relocations
- Unutilized/Unmerchantable Land



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

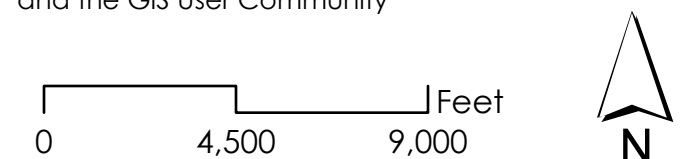
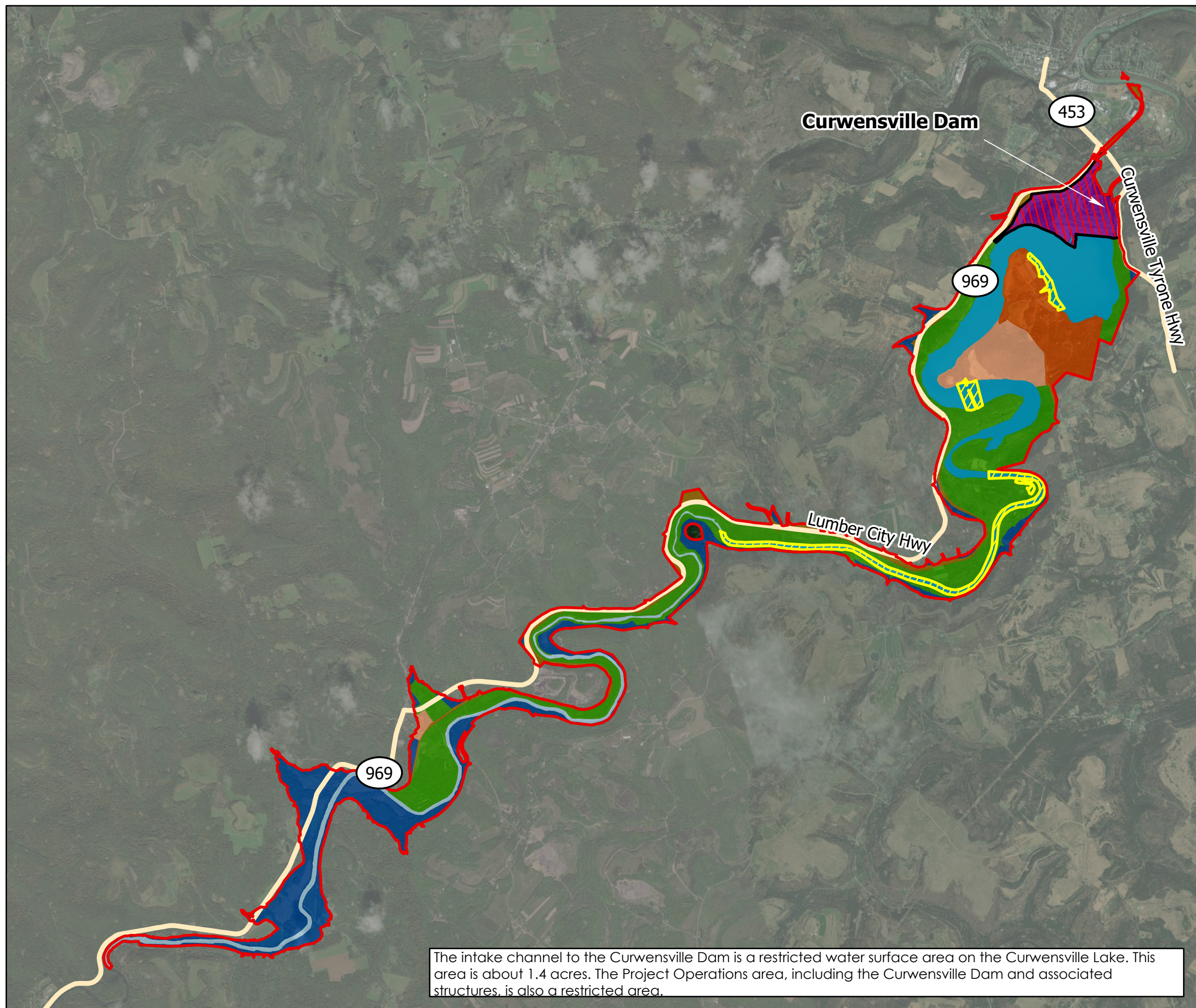


Figure 4-2 Proposed Land Classifications



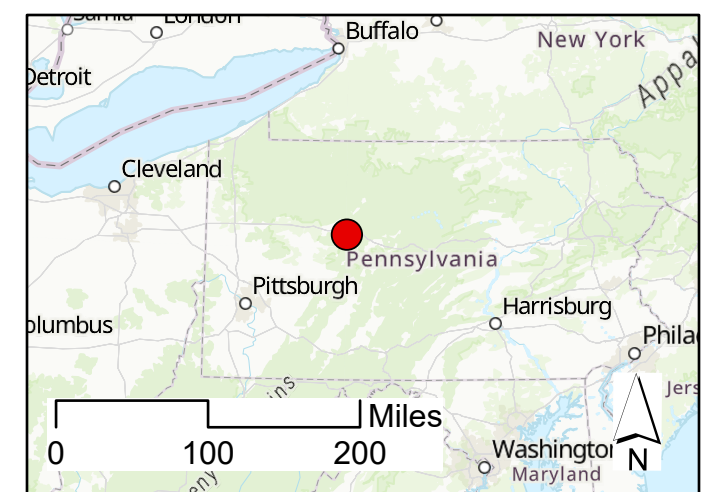
The intake channel to the Curwensville Dam is a restricted water surface area on the Curwensville Lake. This area is about 1.4 acres. The Project Operations area, including the Curwensville Dam and associated structures, is also a restricted area.

Curwensville Lake Master Plan

Proposed Land Classifications

Legend

- Curwensville Study Area
- Proposed Land Use Classifications**
- Project Operations
- High Density Recreation
- Highway and Railroad Relocations
- Restricted
- Multiple Resource Management Lands**
- Low Density Recreation
- Vegetative Management
- Water Surface**
- Open Recreation
- Flowage Easement
- River
- Designated No Wake Zone



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

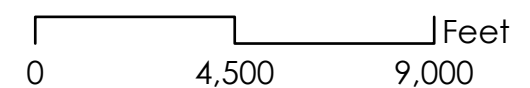
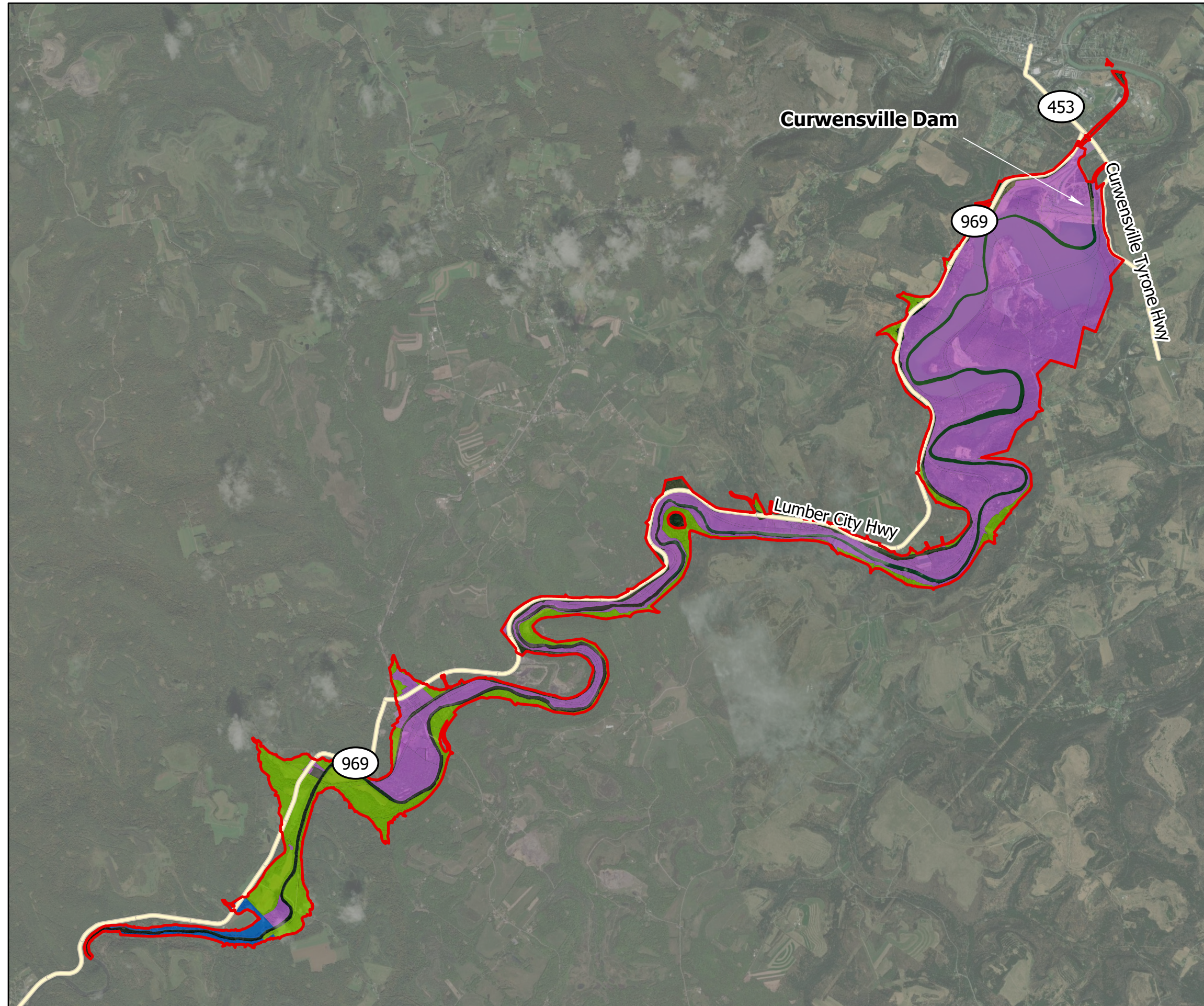


Figure 4-3 Real Estate

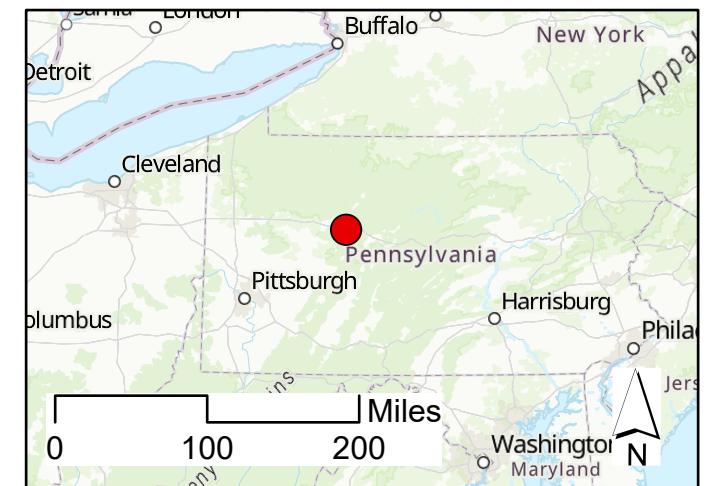


Curwensville Lake Master Plan

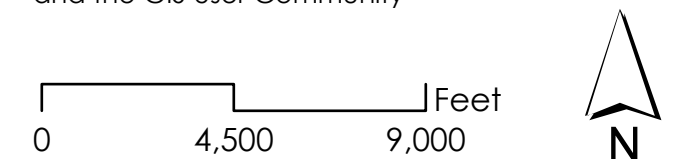
Real Estate

Legend

- Curwensville Study Area
- Tract Areas
 - Fee
 - Permanent Easement
 - Permanent Flowage Easement
 - Unknown



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



4.2.2.1 Project Operations

This classification category includes the project land required for the structure, operation, administration, or maintenance of the project and must be maintained to carry out the authorized purpose of flood risk management. There are 217.2 acres at the Curwensville Lake Project allocated to project operations, including the dam, control tower, operations offices, and maintenance facilities. Other operational units include the spillway, restricted access roads, and utility rights of way.

4.2.2.2 High Density Recreation

The High Density Recreation category includes lands developed for intensive recreational activities for the visiting public including the campgrounds, visitor center, day use/picnic area, boat launch and mooring areas. This category includes 300.7 acres of land at the Curwensville Lake Project.

4.2.2.3 Multiple Resource Management

This classification category identifies the predominant use of an area with the understanding that the other compatible uses can occur within the area. This classification is divided into four sub-classifications identified as: Low Density Recreation, Vegetative Management, Wildlife Management, and Future Recreation. A given tract of land may be classified using one or more of these sub-classifications. There are 1,360.8 acres of land that are under this classification. The proposed land classification map (Figure 4-2) reflects the predominant sub-classification. The following identifies the amount contained in each sub-classification of Multiple Resource Management Lands.

4.2.2.3.1 Low Density Recreation

These are lands with minimal development or infrastructure that support passive public recreation use, like fishing, hunting, wildlife viewing, or hiking. There are 213.5 acres of low density recreation areas on Project lands, which include hiking trails East of Lake Drive that range from easy to difficult.

4.2.2.3.2 Vegetation Management

These are lands designated for stewardship of forest, prairie, and other native vegetative cover. There may be overlap in low density recreation areas and vegetation management areas, especially in some of the hiking trail areas. There are 1,146.8 acres under the vegetation management land classification.

4.2.2.3.3 Wildlife Management

Wildlife management areas overlap with multiple land classifications throughout the Project site. The PGC has a license to perform wildlife management activities on approximately 2,195.3 acres over the Curwensville Project Area. For more information on wildlife management activities, see Section 2.2.3.

4.2.2.3.4 Future Recreation

These are lands with site characteristics compatible with potential future recreation development. Some of these areas may have never been developed or were developed and subsequently closed or remain open but are no longer maintained. These areas will be managed as Multiple Resource Management Lands – Vegetative Management until there is

a need or opportunity to develop or reopen these areas. There are no acres under this classification at the Curwensville Lake Project.

4.2.2.4 Water Surface

In accordance with national USACE guidance set forth in EP 1130-2-550, the water surface of the lake at the recreation pool elevation may be classified using the following four classifications: Restricted, Designated No-Wake, Fish and Wildlife Sanctuary, and Open Recreation. In the Curwensville project area, only three of the water surface classifications are present: Restricted, Designated No-Wake, and Open Recreation. Based on a collection of GIS data for this Master Plan, the water surface acreage at lake elevation 1,162 feet PCD was established to be 772.8 acres, which is higher than the current acreage of 770 acres that was established through a hydrographic survey completed in 2010. Until a detailed land survey is completed to determine the impact (i.e., increase of acres) to the surrounding recreational land classifications, this Master Plan update will maintain the acres determined from the GIS data collected. Table 4-1 is based on collected GIS data for the land classifications.

4.2.2.4.1 Restricted

Restricted water surface includes those areas where recreational boating is prohibited or restricted for project operations, safety, and security purposes. The Restricted water surface at Curwensville Lake includes a small area around the dam and intake tower. The total acreage of Restricted water surface is 1.4 acres. The restricted area is marked year-round by a cable across the intake channel with hanging restricted area signs. The acreage is captured under the previous 1968 Conservation Pool classification. The 2022 Master Plan now separates this designation as a stand-alone class within the overall Water Surface classification.

4.2.2.4.2 Designated No-Wake

No-Wake areas are intended to protect environmentally sensitive shorelines and improve boating safety near key recreational water access areas such as boat ramps. No-Wake areas at Curwensville Lake include beach areas, boat launch, mooring area, area near the old railroad crossing, and the shallow narrow riverbed area. No-Wake areas encompass 142.3 water surface acres. These areas are marked with standard United States Coast Guard regulatory buoys. No-Wake area acreage was captured under the previous 1968 Conservation Pool classification. The 2022 Master Plan now separates this designation as a stand-alone class within the overall Water Surface classification.

4.2.2.4.3 Open Recreation

Open Recreation includes all water surface areas available for year-round or seasonal water-based recreational use. Apart from the Restricted and No-Wake areas described in the above paragraphs, the remaining water surface of 629.1 acres at Curwensville Lake is designated as Open Recreation.

4.3 PROJECT EASEMENTS

Easement lands include all lands for which USACE holds an easement interest but not fee title. These could describe a situation in which USACE agreed to easement rights on fee title property, or pursued easement rights on land outside the original fee simple purchase.

Flowage easements are easements purchased by USACE giving the right to temporarily flood private land during flood risk management operations. Flowage easement lands are generally located between elevations 1,190 and 1,233 feet PCD, which represents five feet above the spillway crest height at Curwensville Dam. There are 838 acres of flowage easement lands located at the Curwensville Lake Project. See Figures 4-2 and 4-3 to reference the locations of the flowage easement at the Curwensville Lake Project.

4.4 OTHER LAND CLASSIFICATIONS

4.4.1 Unmerchantable or Unutilized Land

The Curwensville Lake Project has additional land classifications to reflect the land use of the Project area. There is unutilized/unmerchantable property near the project operations area on the other side of Pennsylvania Route 969 that was sold off in 2006 and 2007. This area is 47.1 acres and is primarily steep sloped with dense tree cover. This land is not included in the 2022 project lands, but are shown in Figure 4-1 for prior land classifications.

4.4.2 Highway and Railroad Relocations

In preparation of the construction of the Curwensville Dam, some surface transportations (highways and railroads) were relocated within the Project area in the 1960's. No further relocations are planned. The highway and railroad areas in the Project area total 345.6 acres (including the 230 acres divested from railroad relocations). See Section 2.6 for additional details on highway and railroad relocations with the Curwensville project area. There are no plans to modify this land.

4.4.3 Unmodified River Area

Upstream of the Curwensville Lake recreation pool, there are 180.9 acres of unmodified river area within the Curwensville Lake Project area. There are no plans to modify this area.

5 RESOURCE PLAN

5.1 RESOURCE PLAN OVERVIEW

This chapter sets forth a resource plan describing, in broad terms, how each land classification within the Master Plan will be managed. The management goals are included below and described in Section 3.2.

Project management goals:

- **Goal A** – Provide the best management practices to respond to regional needs, resource capabilities and capacities, and expressed public interests consistent with authorized project purposes.
- **Goal B** – Protect and manage project natural and cultural resources through sustainable environmental stewardship programs.
- **Goal C** – Provide public outdoor recreation opportunities that support project purposes and public interests while sustaining project natural resources.
- **Goal D** – Recognize the unique qualities, characteristics, and potentials of the Project.
- **Goal E** – Provide consistency and compatibility with national objectives and other state and regional goals and programs.

Management of lands, recreation facilities, and related infrastructure must take into consideration the effects of pool fluctuations associated with the authorized flood risk management mission. Management actions are dependent on congressional appropriations, the financial capability of lessees and other key stakeholders, and the contributions of labor and other resources by volunteers. The land classifications and applicable goals for each classification for the Curwensville Lake Project include the following in Table 5-1:

Table 5-1. Land Classification & Applicable Management Goals

Land Classification	Goals
Project Operations	A, E
High Density Recreation	A, B, C, D, E
Multiple Resource Management Lands For:	
• Low Density Recreation	A, B, C, E
• Vegetative Management	B, E
• Wildlife Management	B, D, E
Water Surface:	
• Restricted Area	A, E
• Designated No-Wake	A, C, E
• Open Recreation	A, C, E

5.2 PROJECT OPERATIONS AND MAINTENANCE

This land is associated with the dam and spillway structures that are operated and maintained for the purpose of the flood risk management mission of Curwensville Lake Dam. There are 217.2 acres of lands under this classification, all of which are managed by USACE.

There are currently several planned improvements in Project Operation lands that are part of routine operation and maintenance of a flood risk management dam. These improvements include replacing safety railing at some locations and resealing of paving on top of the dam and parking areas.

5.3 HIGH DENSITY RECREATION

Lands classified for High Density Recreation are currently developed for intensive recreational activities. The Curwensville Lake Project has one distinct area included in this classification. Depending on available space, funding, and public demand, lands classified for High Density Recreation may support additional outdoor recreation development in the future. These areas include boat launches, day use areas, multi-use trails, and recreational fields. These areas have been developed to support concentrated visitation and use of the recreational facilities.

There are 301 acres of High Density Recreation within project lands, all of which are leased and managed by Clearfield County at the Curwensville Lake park recreation area. Previously, these lands were leased and managed by the Pennsylvania Department of Forests and Waters, now known as the Pennsylvania Department of Conservation and Natural Resources, until termination of that lease in the 1980s.

USACE does not provide direct maintenance within these areas but does review requests and ensure compliance with applicable laws and regulations for proposed activities. USACE works with Clearfield County to ensure that the recreation areas are managed and operated in accordance with the goals and objectives prescribed in Chapter 3. A description of the amenities is provided as follows, along with a description of future plans within these areas identified by the Curwensville Lake park managers.

5.3.1 Camping Areas

The Curwensville Lake recreation area includes more than forty-three campsites for group camping, RV camping, cabins, and primitive camping areas. Electricity hookup is available at the group/RV campsites in the campground. Additional amenities include restrooms, boat camping, parking, charcoal grills, playgrounds, a dump site for RVs, and access to multiple trailheads. Campsites are open seasonally from April through October.

The park staff plan to expand and upgrade camping areas due to the large influx of interest over the summer of 2020. Campsite expansion is proposed near the southeastern portion of the recreation area along Lake View Bend. Additionally, park staff plan to expand camping opportunities near the boat launch area and Pavilion 2, including improved and expanded road access. Any recreational improvements will be reviewed by USACE, but will be funded by Clearfield County and its partners.

5.3.2 Day Use Area

The Day Use area encompasses a large recreational area that includes parking, restrooms, picnic shelters, playgrounds, pavilions, a volleyball court, a dog park, a disc golf course, hiking trails, a swimming beach, a dog beach, and the boat launch and mooring area. Recent improvements completed by the Clearfield County and local interest groups, include restroom repairs, and completion of the disc golf course. Several planned improvements include:

- Repave roads
- Upgrade from gravel to paved road near marina camping/trailer storage area.
- Expand road near Pavilion 2
- Upgrade bathroom facilities
- Expand lighting in park
- Upgrade playgrounds
- Replace pavilion roofs
- Replace Park Office roof
- Remove undesirable trees, including remaining stumps
- Improve volleyball court
- Add tennis court and cornhole area
- Add a trail with workout stations

Figure 5-1 illustrates all existing recreational interests, including the high density recreation amenities stated above and the low density recreation amenities discussed in the next section.

5.4 MULTIPLE RESOURCE MANAGEMENT LANDS

Multiple Resource Management Lands (MRML) are, as the name implies, lands that serve multiple purposes, but that are sub-classified and managed for a predominant use. There are 1,360.8 acres of land under this classification. The following paragraphs describe the various sub-classifications of these lands at the Curwensville Lake Project, the number of acres in each sub-classification, and the management plan for these lands.

5.4.1 Low Density Recreation

Future management of low density lands calls for maintaining a healthy, ecologically adapted vegetative cover to reduce erosion and improve aesthetics while also supporting low impact recreational opportunities. The public may use these lands for bank fishing, hiking, wildlife viewing, and for access to the shoreline. Hunting is allowed in select areas that are a reasonable and safe distance from high density recreational areas, dam operations, and adjacent residential properties. There are currently 213.5 acres of Low Density Recreation at Curwensville Lake. Primarily the areas with hiking trails near Curwensville Lake have this classification.

5.4.2 Vegetation Management

These are lands designated for stewardship of forest, prairie, and other native vegetative cover. There is overlap in low density recreation areas and vegetation management areas, especially in some of the hiking trail areas.

In general, vegetative resources on USACE lands are managed for multiple purposes including wildlife habitat, recreational activities, landscape aesthetics, and timber. Management of forest on USACE lands nationwide is guided, in part, by policy set forth in Public Law 86-717, the Forest Cover Act, which states that "...project lands shall be developed and maintained to assure a future supply of timber through sustained yield programs to the extent that such management is practicable and compatible with other uses of the project." Additional forest management guidance is set forth in USACE regulations ER & EP 1130-2-540, which specifies that stewardship of project land shall be ecosystem based.

Current recreational use of these lands includes, but is not limited to hunting, bank fishing, canoe/kayak launches, and hiking. Future uses include all existing uses with the possibility of creating expanded trails. There are 1,146.8 acres of Vegetative Management at Curwensville Lake.

5.4.3 Wildlife Management

Wildlife management areas overlap with multiple land classifications throughout the Curwensville Lake Project. The PGC manages about 2,195 acres of land for wildlife populations. For more information on wildlife management activities, see Section 2.2.3.

5.5 WATER SURFACE

Per USACE policy set forth in EP 1130-2-550, the water surface of the lake at the recreation pool elevation may be classified as Restricted, No-Wake, or Open Recreation. Based on a collection of GIS data for this Master Plan, the water surface acreage at lake elevation 1,162 feet PCD was established to be 772.8 acres, which is higher than the current acreage of 770 acres that was established through a hydrographic survey completed in 2010. Until a detailed land survey is completed to determine the impact (i.e., increase of acres) to the surrounding recreational land classifications, this Master Plan update will maintain the acres determined from the GIS data collected. The following water surface classifications are designated at Curwensville Lake.

5.5.1 Restricted

Restricted water surface includes those areas where recreational boating is prohibited or restricted for project operations, safety, and security purposes. The Restricted water surface at Curwensville Lake includes a small area around the dam and intake tower. The total acreage of Restricted water surface is 1.4 acres.

5.5.2 No-Wake Zones

No-Wake areas are intended to protect environmentally sensitive shorelines and improve boating safety near key recreational water access areas such as boat ramps. No-Wake areas at Curwensville Lake include areas near the beach, boat launch, mooring area, the old railroad crossing, and the shallow narrow riverbed area. No-Wake areas encompass 143.2 water surface acres.

5.5.3 Open Recreation

Open Recreation includes all water surface areas available for year-round or seasonal water-based recreational use. Except for the Restricted areas described in the above paragraphs,

the remaining water surface of 629.1 acres at Curwensville Lake is designated as Open Recreation.

5.6 PROJECT EASEMENT LANDS

Future management of the 838.2 acres of flowage easement lands at the Curwensville Lake Project includes routine inspection of these areas to ensure that the Government's rights specified in the easement deeds are protected. Placement of any structure that may interfere with the USACE flood risk management mission may be prohibited.

5.7 PROJECT IMPLEMENTATION PLAN

The proposed improvement projects in Section 5 occur on lands leased to and managed primarily by Clearfield County. Clearfield County manages future project development. The implementation timeframe for projects discussed in this 2022 Curwensville Lake Master Plan are subject to funding and execution decisions made primarily by grant programs through Pennsylvania Department of Conservation and Natural Resources-Bureau of Recreation and Conservation, although USACE and Clearfield County coordinate to ensure compliance with applicable regulations and authorities.

As part of the Curwensville Lake Master Plan, future projects are categorized as short- and midrange opportunities based on status, funding, and urgency, as understood today. Short-range projects are planned for execution within the next 5 years and mid-range projects are planned for execution within the next 6 to 10 years. Projects may shift between short- and mid-range as priorities shift or funding becomes available.

5.7.1 Short-Range Implementation Strategy

The Short-Range Implementation Strategy includes projects that enhance the existing recreational amenities and facilities. The projects within this time frame include improving recreational fields and courts and improving/expanding campsites near southeastern portion of recreation area (Lakeview Bend).

5.7.2 Mid-Range Implementation Strategy

The Mid-Range Implementation Strategy includes a continuation of projects within the Short-Range time frame, including enhancing and adding to the existing recreational amenities and facilities. The main projects within this time frame are to expand camp sites near the boat launch and Pavilion 2 with new or upgraded roads to complement them; upgrade bathroom facilities; upgrade lighting in the park; upgrade pavilion and park office roofs; upgrade playgrounds, add trails with workout stations, and repave roadways in the park.

Figure 5-1 Existing Features

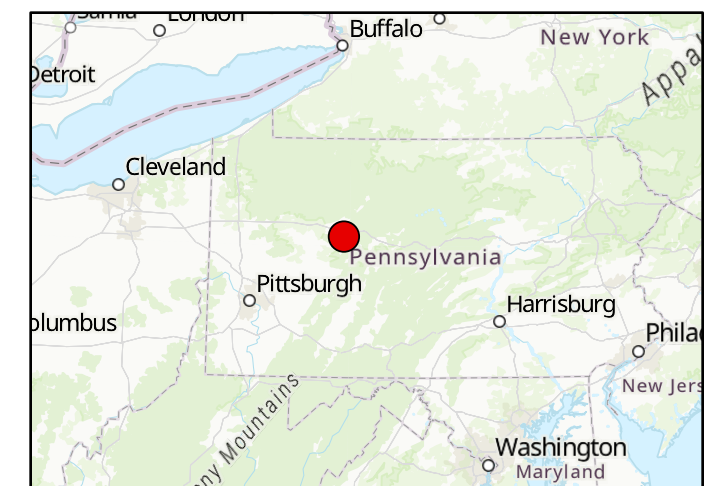


Curwensville Lake Master Plan

Existing Features

Legend

- Curwensville Study Area
- No Wake Zone
- Restricted Area
- Existing Landmarks**
- Boat Ramp
- Camping
- Mooring Area
- Park Office
- Picnic Shelter
- Picnic Shelter/Picnic Area
- Playground
- Swimming Area
- Trailer Sanitation
- Curwensville Dam
- Trailer Parking
- Parking
- Restroom
- Overflow Camping
- Group Camping
- Disc Golf
- Soccer Field
- Dog Swim
- Beach House
- Volleyball Court
- Hiking Trail
- Cabin
- Dog Park



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

For existing trail data and locations, see **Figures 2-4** and **2-5**.

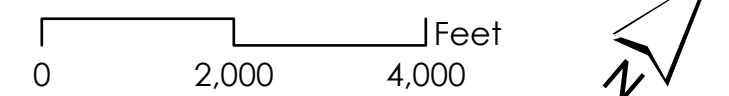


Figure 5-2 Proposed Future Development



Curwensville Lake Master Plan

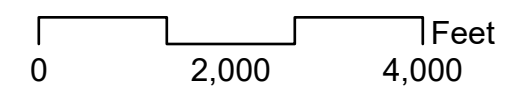
Proposed Future Development

Legend

- Curwensville Study Area
- Proposed Development**
- Improve New Campsites
- Improve/Add Courts
- Improve/New Playground
- New Roof on Park Office
- New Roofs on all Pavilions



Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



Road and parking lot improvements throughout the entirety of Curwensville Lake recreation area are anticipated.

6 SPECIAL TOPICS, ISSUES, CONSIDERATIONS

6.1 COMPETING INTERESTS ON NATURAL RESOURCES

The Curwensville Lake Project is a large multi-purpose project with numerous authorized purposes. The authorized purposes accommodate the needs of federal, state, and municipal users that have developed over time and have contractual rights that must be honored. The benefits provided are critical to the local and regional economies and are of great interest to the public. Aside from operating the lake to meet the needs of those entities with contractual rights, there are many competing interests for the utilization of federal lands including recreational users, adjacent landowners, utility providers, and all entities that provide and maintain public roads. A major challenge is balancing the interests of each of these groups to ensure that valid needs are met while simultaneously protecting natural and cultural resources. The purpose of this Master Plan is to guide management into the foreseeable future to ensure the responsible stewardship and sustainability of the project's resources for the benefit of present and future generations.

6.2 HYDROPOWER

There are currently no hydropower facilities on project lands. Hydropower is not currently an authorized purpose at the Curwensville Dam. However, in 1984, the Nuclear Energy Group applied for a preliminary permit to study the feasibility of hydropower at the Curwensville Dam. The permit expired and the project did not move forward to construction. In 2019, Lock Hydro Friends Fund XXIXX, LLC. filed for and received an application for a preliminary permit, pursuant to section 4(f) of the Federal Power Act, to study the feasibility of the Curwensville Dam Hydropower Project No. 14981. The permit to study the feasibility of electric generation at the Project was approved in January 2020 and will expire in December 2023. The potential for hydropower to come to the Curwensville Dam in the future continues to be studied by others.

6.3 LOCAL EMERGENCY PERSONNEL TRAINING

In 2019, the local fire companies used the Curwensville Lake dam control tower for emergency entrapment extrication training. The local fire companies included Curwensville Volunteer Fire Department, Clearfield Volunteer Fire Department, Curwensville Emergency Medical Services, and Clearfield Emergency Medical Services. The local fire companies would like to make this training an annual event.

6.4 RECREATIONAL EVENTS

The Curwensville Lake park managers host a wide variety of events at the Curwensville Lake recreation area from March to October each year. Some of the event themes include (but are not limited to): pirates, dinosaurs, princesses, carnival fun, meteor showers, painting, bingo, Halloween, bonfires, s'mores, Easter egg hunts, Christmas in July, wildlife viewing, fishing, and local musical events. One the bigger events of the summer is the annual fireworks show.

7 PUBLIC AND AGENCY COORDINATION OVERVIEW

USACE policy guidance in ER 1130-2-550, Change 7, January 30, 2013 and EP 1130-2-550, Change 5, January 30, 2013 requires thorough public involvement and agency coordination throughout the Master Plan revision process including any associated environmental assessment process. Public involvement is especially important at the Curwensville Lake Project to ensure that future management actions are both environmentally sustainable and responsive to public outdoor recreation needs within the region. The following milestones provide a brief look at the overall process of revising the Curwensville Lake Master Plan.

- June 7, 2019, USACE published a Public Notice of Intent to Prepare an Environmental Assessment (EA) on to the USACE web site and was distributed to project stakeholders, agencies, and the public.
- November 04, 2020, the planning team visited Curwensville Lake where initial introductions, site orientation, a site tour, and discussions took place.
- ____-Draft Master Plan & EA Submittal (Public Review).
- ____ -A Public Review—Town Hall Meeting was held on at _____. This meeting was intended to give stakeholders the opportunity to discuss the Draft Master Plan with the project team and USACE representatives.
- ____-Final Master Plan and EA Submittal.

[This section will be updated in subsequent submittals to provide an accurate description of all review milestones and public engagement initiatives]

8 SUMMARY OF RECOMMENDATIONS

8.1 SUMMARY OVERVIEW

The preparation of the Curwensville Lake Master Plan follows the USACE master planning guidance in ER 1130-2-550 and EP 1130-2-550, both dated 13 January 2013. Three major requirements set forth in the current guidance include (1) the preparation of contemporary Resource Objectives, (2) Classification of the project lands using the newly approved classification standards, and (3) the preparation of a Resource Plan describing in broad terms how the land in each of the land classifications will be managed into the foreseeable future. Additional important requirements include public involvement throughout the process, and consideration of regional recreation and natural resource management priorities identified by other federal, state, and municipal authorities. The study team followed this guidance to prepare a master plan that will meet the project's primary purpose of flood risk management and support the secondary purposes of water supply, water quality, recreation, and environmental stewardship of natural and cultural resources. Clearfield County manages the recreation area at the Curwensville Lake Project. Factors considered in the plan were identified through discussions with project representatives, USACE, Clearfield County, PGC, PFBC, other project stakeholders, and the public. This Master Plan will ensure the long-term sustainability of natural resources associated with Curwensville Lake Project.

8.2 LAND RECLASSIFICATION PROPOSALS

While proposed changes in land classification at the Project, as presented in Section 4, are indicative of future development initiatives at the Curwensville Lake Project, it should be noted that the majority of land classification changes at the Project reflect classification criteria change more than any planned development. A summary of land classification changes is provided in Table 8-1.

Table 8-1. Land Classification Summary

Prior Land Classifications (1968)	Acres	Proposed Land Classifications	Acres
Project Operations ¹	273.8	Project Operations ¹	217.2
Intensive Recreation ¹	314.6	High Density Recreation	300.7
Wildlife Management ^{1,3}	1,290.6	Multiple Resource Management	1,360.8
Flowage Easements	838.2	Low Density Recreation	213.5
Highway and Railroad Relocations ⁵	345.6	Wildlife Management ³	(2,195.3)
Unutilized/Unmerchantable Property ⁶	47.1	Vegetation Management	1,146.8
Conservation Pool ¹	772.8	Flowage Easements	838.2
Unmodified River Area ¹	180.9	Highway and Railroad Relocations ⁵	345.6
Total^{1,3,4,5,6}	4,063.7	Water Surface ¹	772.8
		No-Wake [#]	142.3
		Restricted	1.4
		Open Recreation	629.1
		Unmodified River Area ¹	180.9
		Total^{1,3,4,5,6}	4,016.1

¹Includes old Susquehanna Riverbed acreages before the Curwensville Dam was built, which created the Recreation Pool. Fee Simple and Easement Lands total to 3,700.9 acres (does not include old riverbed acreage). GIS calculated total for Land of Curwensville Lake Project lands is 3,714.4 acres (does not include old riverbed acreage). There is 0.5 additional acres in Multiple Resource Management Lands due to riverbed acreages.

²No-Wake Zone includes area by beach for swimmers, boat ramp, and boat mooring area (17.5 acres); area near old railroad crossing (21.7 acres); and along narrow, shallow riverbed and wetland areas (103.1 acres).

³Wildlife Management overlaps with the other land classifications. The Wildlife Management acres in the Proposed Land Classification column reflects the number of acres currently maintained by the Pennsylvania Game Commission for wildlife populations and their habitat areas upstream of and around Curwensville Lake. Since there is overlap the acres listed for Wildlife Management is not added to the total acres.

⁴Mapping for the Master Plan update has been compiled using the best information available and is believed to be accurate. Prior land classification acres are based on original acquisition real estate deed records and mapping completed for the 1968 Master Plan. Due to improved mapping technologies, minor discrepancies exist when comparing prior and proposed land classification acreages.

⁵The Highway and Railroad Relocation land classification with 345.6 acres includes 231 acres of divested land by conveyance to Beech Creek Railroad Company and New York Central Railroad Company in March 1966. The divested acreage is not owned or managed by USACE.

⁶ *The Unutilized/Unmerchantable Lands (47.1 acres) were sold in 2006 and 2007 so they are no longer included in the project land totals.*

Land classification criteria is now more specific and conservative than previous versions of Master Planning guidance. The new land classifications represent changes to descriptive language, rather than modification of land use at the site. For example, Table 8-1 suggests a reduction in total Project Operations land from 273.8 to 217.2 acres. In reality, the new land allocation guidance introduces vegetative management within the Multiple Resource Management category and retains low density recreation as areas with minimal development supporting passive recreation activities. The land was always maintained for vegetation instead of being directly needed for Project Operation purposes. This nuance allows for the reclassification of undeveloped open space in the vegetative management category while identifying key areas to support low density recreation activities.

The key substantive change in land classification from the 1968 Master Plan to the 2022 Master Plan is the identification of the Multiple Resource Management Land category. This classification allows for the designation of a predominant use with the understanding that other compatible uses may also occur on these lands, such as low density recreation, wildlife management, future/inactive recreation areas, and vegetation management. Wildlife management, for example, overlaps with multiple land classifications.

A summary of land classification changes and justification is provided in Table 8-2.

Table 8-2. Proposed Changes to Land Classifications at Curwensville Lake Project

Classification	1968 Master Plan (acres)	2022 Master Plan (acres)	Description
Project Operations¹	273.8	217.2	Lands are associated with the dam and spillway structures that are operated and maintained for the flood risk management mission of the Project. The project operations area has changed slightly along Curwensville Tyrone Highway. The change in acres of the Project Operations area is converted to Vegetative Management in the 2022 Master Plan to more accurately reflect the activities on this land.
High Density Recreation	314.6	300.7	Lands are currently developed for intensive recreational activities and include boat launches, day use areas, and campgrounds. The new criteria for this land classification includes areas developed specifically to support intensive recreational activities. This land classification has been developed to support concentrated visitation and use of the recreational facilities they host. Dependent on available space, funding, and public demand, these areas may support additional outdoor recreation development in the future.
Multiple Resource Management Land			
Low Density Recreation	0	213.5	Management of this land classification calls for maintaining a healthy, ecologically adapted vegetative cover to reduce erosion and improve aesthetics, while also supporting low impact recreational opportunities such as bank fishing, hiking, wildlife viewing, and access to the shoreline. Hunting may also be allowed in select areas that are a reasonable and safe distance from high density recreational areas, dam operations, and adjacent residential properties. The new land classification criteria exclude vegetation and wildlife management areas, leaving only areas with minimal development to support passive recreation use (i.e., primitive camping, hunting, trails, wildlife viewing, etc.).
Wildlife Management³	1,290.6	(2,195.3)	This land classification was considered in the 1968 Master Plan and will continue in the 2022 Master Plan. However, because the wildlife management acres all overlap with other land classifications, the wildlife management acres are excluded from the total acres of the project. Wildlife management activities will continue to occur throughout the Curwensville Lake Project area. See

Classification	1968 Master Plan (acres)	2022 Master Plan (acres)	Description
			Figure 2-1 to see where wildlife management activities occur.
Vegetative Management	0	1,146.8	This land classification was not considered in the 1968 Master Plan. This classification includes an ecosystem-based management approach and is designated for stewardship of forest, prairie, and other native vegetative cover. These lands may or may not be protected from development. In general, vegetative resources on USACE lands are managed for multiple purposes, including wildlife habitat, recreational activities in parks, landscape aesthetics, and timber management.
Water Surface¹			
Designated No-Wake²	0	142.3	Designated No-Wake areas are intended to protect environmentally sensitive shorelines and improve boating safety near key recreational water access areas such as boat ramps, mooring areas, swimming areas, and shallow areas. This change reflects new classification criteria and no actual change in water use. This designation has always existed at Curwensville Lake; however, it was included within the overall Conservation Pool acreage in the 1968 Master Plan. The 2022 Master Plan separates this designation into its own category within the Water Surface classification.
Restricted	0	1.4	Restricted water surface includes those areas where recreational boating is prohibited or restricted for project operations, safety, and security purposes. The Restricted water surface at Curwensville Lake includes a small area around the dam and intake tower. The restricted area is marked year-round by a cable across the intake channel with hanging restricted area signs. This change reflects new classification criteria and no actual change in water use. This designation has always existed at Curwensville Lake; however, it was included within the overall Conservation Pool acreage in the 1968 Master Plan. The 2022 Master Plan separates this designation into its own category within the Water Surface classification.
Open Recreation Area	772.8	629.1	Open Recreation area includes all water surface areas available for year-round or seasonal water-based recreational use. This change reflects new classification

Classification	1968 Master Plan (acres)	2022 Master Plan (acres)	Description
			criteria and no actual change in water use. This area includes all remaining water surface area outside of the restricted and No-Wake Zones.
Total^{1,3,4,5,6,7}	4,063.7	4,016.1	

¹Includes old Susquehanna Riverbed acreages before the Curwensville Dam was built, which created the Recreation Pool. Fee Simple and Easement Lands total to 3,700.9 acres (does not include old riverbed acreage). GIS calculated total for Land of Curwensville Lake Project lands is 3,714.4 acres (does not include old riverbed acreage). There is 0.5 additional acres in Multiple Resource Management Lands due to riverbed acreages.

²No-Wake Zone includes area by beach for swimmers, boat ramp, and boat mooring area (17.5 acres); area near old railroad crossing (21.7 acres); and along narrow, shallow riverbed and wetland areas (103.1 acres).

³Wildlife Management overlaps with the other land classifications. The Wildlife Management acres in the Proposed Land Classification column reflects the number of acres currently maintained by the Pennsylvania Game Commission for wildlife populations and their habitat areas upstream of and around Curwensville Lake. Since there is overlap the acres listed for Wildlife Management is not added to the total acres.

⁴Mapping for the Master Plan update has been compiled using the best information available and is believed to be accurate. Prior land classification acres are based on original acquisition real estate deed records and mapping completed for the 1968 Master Plan. Due to improved mapping technologies, minor discrepancies exist when comparing prior and proposed land classification acreages.

⁵The Highway and Railroad Relocation land classification with 345.6 acres includes 231 acres of divested land by conveyance to Beech Creek Railroad Company and New York Central Railroad Company in March 1966. The divested acreage is not owned or managed by USACE.

⁶The Unutilized/Unmerchantable Lands (47.1 acres) were sold in 2006 and 2007 so they are no longer included in the project land totals, but are included in the 1964 project land totals. .

⁷Other land classifications exist at Curwensville Lake Project, such as flowage easements, highway and railroad relocations, and unmodified river area. Thus, total project acres are not reflected in the above table, only the areas impacted by the update in land reclassification. For more information on the other project areas, see the Curwensville Lake 2022 Master Plan.

9 APPENDIX

APPENDIX A: ACRONYMS AND ABBREVIATIONS

ac	Acres
ACS	American Community Survey
ADA	Americans with Disabilities Act
AMD	Acid Mine Drainage
ARPA	Archaeological Resources Protection Act
BAMR	Bureau of Abandoned Mine Reclamation
BP	Before Present
cfs	Cubic Feet Per Second
CEPD	Comprehensive Evaluation of Project Datums
CRMP	Cultural Resources Management Plan
DCNR	Pennsylvania Department of Conservation and Natural Resources
EA	Environmental Assessment
ECL	Environmental Conservation Law
EOPs	Environmental Operating Principles
EP	Engineering Pamphlet
ER	Engineering Regulation
EIS	Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
ft	Feet
FY	Fiscal Year

GIS	Geographic Information Systems
HDC	Hydroelectric Design Center
IPaC	Information for Planning and Consultation
MRML	Multiple Resource Management Lands
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NGVD	National Geodetic Vertical Datum
NOAA	National Oceanic and Atmospheric Administration
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
OMP	Operations Management Plan
PADEP	Pennsylvania Department of Environmental Protection
PCD	Project Construction Datum
PFBC	Pennsylvania Fish and Boat Commission
PGC	Pennsylvania Game Commission
PNDI	Pennsylvania Natural Diversity Index
PHMC	Pennsylvania Historical and Museum Commission
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SRBC	Susquehanna River Basin Commission
SOP	Standard Operating Procedure

UFC	Unified Facilities Criteria
USACE	United States Army Corps of Engineers
USCB	United States Census Bureau
USDA APHIS	United States Department of Agriculture, Animal & Plant Health Inspection Service
USDA NRCS	United States Department of Agriculture, Natural Resources Conservation Service
USDA USFS	United States Department of Agriculture, United States Forest Service
USFWS	United States Fish and Wildlife Service
ZOI	Zone of Interest

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APPENDIX C: KICK-OFF MEETING MINUTES

Objectives

- 1) Dam
 - a. Introductions with Dam Tenders
 - b. Get a tour of the dam
 - c. Ask questions on dam operations for that portion of the plan
 - d. Photos
- 2) Park
 - a. Meet with Park Managers
 - b. Tour the recreational areas and familiarize ourselves with recreation portion of the sites,
 - c. Future needs for recreation
 - d. Photos

Questions for Curwensville Site Visit

1. USACE-Baltimore District Intro

- a. Introduce group
- b. Discuss purpose of the updates
 - i. Revise Land Classifications-change wording not what each land is used for, new terminology.
 - ii. Curwensville Lake and Dam's current Master Plan originates from 1968 and uses outdated terminology for its Land Classifications

Current Classification	Proposed Classification	Description of Proposed Classification
Project Operations	Project Operations	Lands required for the dam, spillway, offices, and other areas used solely for the operation of the reservoir.
Recreation-Intensive acreage	Recreation-High Density	Lands acquired and designed for the use as parks or other areas for intensive recreational activities by the visiting public.
Recreation-Medium Density, Recreation-Low Density and Wildlife Management	Multiple Resource Management Lands-Low Density Recreation and Multiple Resource Management Lands-Wildlife Management	<p>Multiple Resource Management Lands: This classification allows for the designation of a predominant use with the understanding that other compatible uses may also occur on these lands; these additional uses may include:</p> <ul style="list-style-type: none"> a. Low Density Recreation: lands classified for use for activities such as hiking trails, primitive camping, limited lake access points, and other similar activities by the visiting public. b. Wildlife Management: lands allocated as habitat for fish and wildlife, and are generally open for hunting and fishing. c. Future/Inactive Recreation Areas: lands intended for recreation, but which were never developed or have been closed. d. Vegetative Management: lands designated for stewardship of forest, prairie, and other native vegetative cover.
Historic Preservation	Environmentally Sensitive Areas	Lands designated for areas where scientific, ecological, cultural, and aesthetic features have been identified. These areas are managed to protect environmental resources.
Summer Pool Acreage—Restricted	Water Surface—Restricted	These are water areas restricted for project operations, safety, and security purposes. This would include the waters directly adjacent to the dam.
Summer Pool Acreage—Unrestricted	Water Surface—No Wake Zone	Water areas designated to protect environmentally sensitive shoreline areas, recreational water access areas from disturbance and public safety. Typically, these areas are located around marinas, ports, boat ramps, and some narrow overpasses.
	Water Surface—Open Recreation	All water surface that is not included in the categories above are, by default, considered “Open Recreation”.

- c. Master Plan Guidelines:
 - i. Primary goals of the Master Plan are to prescribe an overall land use management plan, resource objectives, and associated design and management concepts
 - ii. Also preparing an Environmental Assessment
 - iii. Not include changes to operation and maintenance of project operation facilities, flood risk management, navigation, or water supply functions
 - iv. No proposed actions at this time just new land classification terminology
 - v. Does not consider specific future development.
 - vi. Any action proposed for consideration must be consistent with the mission of the Corps and the purposes for which the project was established
- d. Process/Schedule
 - i. Picking up from Scoping in Spring 2019,
 - ii. Draft when ready be available likely Summer 2021 for comment/review Public Notice will be posted on the project's website, in local newspapers, on social media, and sent out via individual mailings, (30 days),
 - iii. Final Winter 2021

3 PHASES OF THE PLANNING PROCESS



2. Meeting with Curwensville Dam Operators and USACE Baltimore District Planning and Operations Divisions

- a. November 04, 2020 @1200-1400
- b. Design of Dam
 - i. Explain design of dam
 1. 15 ft. discharge pipes
 2. 3 gates, each 5 feet by 12 feet with 2 bypass gates
 3. Earth dam

- 4. Relief wells are downstream of dam,
- 5. Bypass is 30" pipe- used at summer low flows because easier to regulate
- ii. Stats
 - 1. Spillway flow is 1228ft
 - 2. Highest height (1972) 1214 ft.
 - 3. Normal 1162 feet.
- iii. Hydropower
 - 1. Permit to conduct feasibility study
- iv. Only USACE dam on the West Branch Susquehanna River
 - 1. Sayers and Bush Dams are on tributaries to the Susquehanna.
- v. Area
 - 1. No trespassing 300 yards(estimated) downstream of dam.
- c. Current Purposes
 - i. Flood control (Flood Risk Management)
 - ii. Improve downstream water quality by minimizing acid mine pollution effects
 - 1. Minimum flow at 65 cfs to minimize acid mine drainage effects
 - 2. Min flow used to be 50 cfs, but was bumped up to 65 cfs
 - 3. (Look up: Company name of acid mine drainage treatment)
 - a. Treatment occurs upstream of the Dam site.
 - b. Adds 10 to 11 cfs of input at plant location upstream lake inflow
 - c. Discharged into river not directly into the pool
 - iii. Water Supply (in partnership with Susquehanna River Basin Commission [SRBC]) request releases at periods of low flow to meet needs of SRBC.
 - iv. Other purposes?
 - 1. Recreation
 - a. No releases for downstream recreation purposes (rafting, etc.).
 - v. Release ranges
 - 1. At time of site visit, 80 to 100cfs
 - 2. At normal lake level, max cfs is 4800.
- d. When do you do releases?
 - i. No release schedule, keep the pond level the same
 - ii. Weather
 - 1. More/less rain/no rain
 - 2. *Release extra 1 to 2x per year*
 - 3. *2012 closed gates when flow was high in Harrisburg but at the dam it was at dam conditions for rain events.*
 - 4. *Downstream sensitive to flooding below Clearfield. Clearfield has other flooding problems (not just from W. Susquehanna R.)*
 - iii. Emergency
 - 1. Hurricane or other flood release all for structural purposes
 - a. 2018 Hurricane- Florence?
 - i. 35 extra feet in the lake
 - ii. 3rd highest pool on record
 - b. Highest pool of record was 1972 Agnes

- 3. Reseal asphalt on top of dam and the parking area.
- ii. No sediment blockages
- j. Special Topics
 - i. Any special topics? Special considerations? Big events?
 - ii. Emergency exercise performed in dam control tour with the fire company

3. Meeting with Curwensville Park Managers and USACE Baltimore District Planning and Operations Divisions

- a. November 04, 2020 @1400-1630
- b. History of site development
 - i. The Curwensville Lake site was a state park in the 80's then USACE took over, county manages (leases) it now.
- c. Inventory of current facilities at the site-> Note: USACE Brochure Map OUTDATED. Curwensville Lake gave us new hard copies.
 - i. Camping - >40 sites
 - 1. Sites, cabins, group camping, primitive
 - 2. Most sites are primitive, group camping has electric.
 - 3. 3 Stationary restrooms near group camping, 1 restroom in camp area. 1 shower near camping
 - 4. 1 dump station for RV's
 - 5. RV camping
 - 6. Marina camping available, so people can see their boats.
 - a. Trailer right, boat camping on left
 - ii. 600' beach
 - 1. Swimming
 - iii. Dog park
 - iv. Volleyball court
 - v. Athletic fields
 - vi. Hiking Trails- >16 miles
 - vii. Picnic shelters
 - 1. Pavillions-5
 - viii. Restrooms- 5
 - 1. By Pavilion composting toilet
 - 2. Pit toilets
 - ix. 70 shoreline mooring rental spaces
 - x. Courtesy dock
 - xi. Playground
 - 1. All Playgrounds need replacement bc they are all old
 - 2. Playground improvements require 50% match, so still really expensive.
 - xii. Disk Golf Course- by Friends of the Lake
 - xiii. Fishing Areas
 - 1. Allowed most areas except near swimming beach, dog beach, and near boat launch area.
 - xiv. Trailer with food concessions

1. Did not open stationary food concession area but used trailer in 2020 season.
- d. Recent improvements
 - i. Exhaust fans added to restrooms-> dried floor out, was always damp
 - ii. Friends of the Lake
 1. Recent Projects by them
 - a. New Disk Golf Course
 - b. Bathroom floor redone
 - c. New toilets
 2. Friends of the Lake help supplement funds
 3. Do events and put the money back into the Lake Recreation areas.
 - iii. Paintings from Curwensville High School
 - iv. Have wagon for hayrides and to move people for parking @events.
 - v. Levelled off new camp sites (Lake view near dog park),
 - vi. Trails
 1. Adopt a trail
 2. Did a great job maintaining
 3. Notify if need major tree removal
- e. Distribution-> USACE Brochure Map OUTDATED.
- f. Which things are Seasonal vs. Open year round
 - i. Seasonal
 1. Swimming
 2. Camping- April 1st to October 31st
 3. Kayak/Canoe-rentals
 4. Volley ball court
 5. Left fork road that accesses swimming, dog beach, beach camping, lake camping is closed October-April/May, open April/May to October.
 - ii. Yearly
 1. Boating
 2. Fishing
 3. Playgrounds
 4. Disk Golf←NEW
- g. How is site managed? Who? How many?
 - i. Curwensville Lake Recreation Staff of 4-5 people.
 1. Willie- Interim Park Manager
 2. Susan
 3. Cody
 4. Randy
 - ii. 1 main maintenance guy year round, depending on weather.
 - iii. Park Manager position will be advertised.
 1. Deals with campers, day visitors, on call, manage store.
 - iv. Had 36 people on payroll (2020 summer), not at same time.
- h. Park Users
 - i. Numbers/Popularity of the various recreational activities at the site

- ii. Do you keep visitation records or do visitation surveys? Peak numbers when? Certain days? Certain times of year?
 - iii. Visitation near capacity for certain facilities? Certain things always full? Etc.
 - iv. 2020 Booked Solid all summer for campsites, found unofficial primitive camp sites to set people up on during Labor Day weekend.
 - v. Dog park-heavily used but never full
 - vi. Park entrance fee \$3 day/car and \$5 day/car with watercraft.
 - vii. Comment cards given to all campers, day users did not fill them out usually.
 - 1. Air compressor is a top request.
- i. Species of Concern
 - i. Threatened or endangered
 - ii. None on T&E
 - iii. Bald Eagle, not listed, they are a least-concern species. (A least-concern species is a species that has been categorized by the International Union for Conservation of Nature as evaluated as not being a focus of species conservation. They do not qualify as threatened, near threatened, or conservation dependent.)
 - iv. Bank Swallows eat bugs.
- j. Cultural features (Environmentally sensitive areas)?
 - i. None known on site
- k. Current Issues
 - i. Water Quality
 - 1. Water quality ever an issue for any type of recreational activity on site?
 - 2. Test e. coli weekly at beach
 - 3. Closed once due to high e. coli reading-however upon further investigation it was likely a bad reading.
 - 4. Goose poop is a problem, especially for beach. Needs to be picked up each day at peak of season.
 - ii. Erosion problems?
 - 1. A little erosion near beach
 - iii. Road degraded- needs improvements
 - iv. Bathroom facilities degraded.
 - v. Need new pavilion roofs
- l. Future Opportunities/Development Ideas←Note Curwensville Lake Staff new, not familiar with the 2011 plan, so not a talking point comparison during site visit.
 - i. Current Needs/ Opportunities for improvement
 - 1. Road repaving
 - 2. Bathroom facilities improvements
 - 3. New pavilion roofs
 - 4. Tree Stumps need to be ground out, 2 trees to be taken down
 - 5. Need more storage space for equipment
 - 6. New Roof on Park Office
 - 7. More Lighting
 - 8. Add road by Pavilion 2

9. Add Camping near Pavilion 2
 10. Potential workout stations on a trail with a circuit
 11. Camping online reservation system could decrease budget
 12. Add tennis Court, volleyball court (improve), cornhole
 13. Levelled off new camp sites (Lake view near dog park), to be finished summer 2021?, primitive
 - a. Plant trees between sites in this field
 14. Like to have goose management via trapping or hunting, could game commission help?
- m. Special Topics
- i. Any special topics? Special considerations? Big events?
 - ii. Summer 2020- Theme Nights with Food Trucks (advertised on Facebook).
 - iii. July 4th Fireworks show

APPENDIX D: PUBLIC NOTICES AND PERTINENT NEWSPAPER ARTICLES

APPENDIX E: SUMMARY OF PUBLIC COMMENTS AND USACE RESPONSE TO PUBLIC COMMENTS

APPENDIX F: LAND CLASSIFICATION AND RECREATIONAL ASSET MAPS

APPENDIX G: NEPA DOCUMENTATION



Draft Submittal
March 2022

