

United States Army Corps of Engineers  
Louisville District

# Clarence J. Brown Dam and Reservoir Master Plan

2020



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## **CHAPTER 1 - INTRODUCTION**

### **1.1 PROJECT AUTHORIZATION**

Congress authorized the Clarence J. Brown (formerly Buck Creek) Dam and Reservoir (Project) for flood protection in the Mad River Valley above Huffman Dam in Ohio by the Flood Control Act approved 23 October 1962 (Public Law 87-874. 87<sup>th</sup> Congress, 76 Stat. 1190).

Recreation, as a project purpose, was included in the formulation studies made in connection with the advanced engineering and design planning efforts for Clarence J. Brown Reservoir in accordance with the provisions of Section 4 of the Flood Control Act approved 24 July 1946 (Public Law 526, 79th Congress, 2nd Session, R.R. 6597) and Senate Document No. 47. Water quality control has been included as a project purpose under the purview of the Water Pollution Control Act of 1961 (Public Law 87-82). Thus, Clarence J. Brown Reservoir was constructed to serve the authorized purposes of flood protection, recreation, and water quality control.

### **1.2 PROJECT PURPOSE AND DESCRIPTION**

The Louisville District of the U.S. Army Corps of Engineers (Corps), designed, built, and operates Clarence J. Brown Dam and Reservoir. The lake serves as one unit of the comprehensive plan for the Ohio River Basin to reduce flood stages downstream from the dam. The lake provides water supply storage and operates to increase natural low-flow conditions downstream of the dam in the interest of water quality control. The Corps conducts an active natural resource management program to preserve natural areas and to provide suitable habitat for native fish and wildlife. Lastly, Clarence J. Brown Dam and Reservoir provides regional recreational opportunities to the surrounding area.

### **1.3 PURPOSE AND SCOPE OF MASTER PLAN**

In accordance with Engineering Regulation (ER) 1130-2-550 Change 07, dated 30 January 2013 and Engineering Pamphlet (EP) 1130-2-550 Change 05, dated 30 January 2013, master plans are required for most USACE water resources development projects having a federally owned land base.

The U.S. Army Corps of Engineers (USACE) produces and operates under master plans to guide the responsible stewardship of USACE-administered lands and resources. A master plan presents an inventory and analysis of land resources, resource management objectives, land use classifications, resource use plans for each land use classification, current and projected facility needs, an analysis of existing and anticipated resource use, and anticipated influences on overall project operation and management. USACE land use classifications provide for development and resource management consistent with authorized purposes and other Federal laws.

This revision of the Clarence J. Brown Dam and Reservoir Master Plan (Master Plan) is intended to bring the Master Plan up to date to reflect current ecological, socio-demographic, and outdoor recreation trends that are affecting the lake. It is a vital tool for responsible stewardship and sustainability of the facility's resources for the benefit of present and future generations. This

Master Plan guides and articulates USACE responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop the land, water, and associated resources. It is dynamic and flexible based on changing conditions. This revision of the Master Plan is intended to not only bring the Master Plan up-to-date, but also to guide the comprehensive management, development, and use for recreation, natural resources, and cultural resources.

The Master Plan is distinct from the project-level implementation emphasis of the Operations Management Plan (OMP). Policies in the Master Plan are guidelines that will be implemented through provisions of the OMP or any other planning mechanisms.

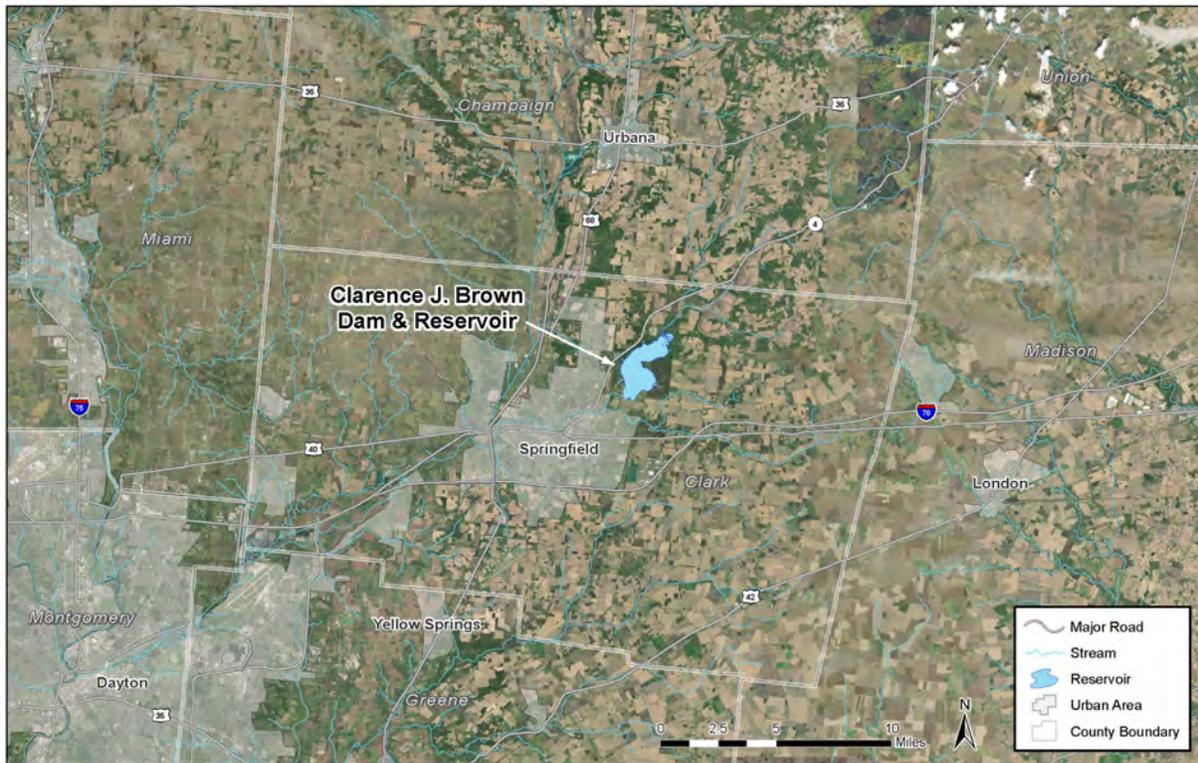
The broad objectives of this Master Plan are to:

1. Determine appropriate uses and intensities of development for project resources;
2. Provide a framework within which the OMP or other planning mechanisms can be updated and implemented; and
3. Establish a basis on which outgrants and recreational development proposals can be evaluated.
4. Update previous land classification not consistent with current Federal Regulations.

The Master Plan also does not address details of design, management and administration, and implementation. These are specifically addressed in the Project OMP. In addition, the Master Plan does not address the specifics of regional water quality, shoreline management with respect to private actions conducted by adjoining landowners such as vegetation modification. The operation and maintenance of primary project operations facilities, including but not limited to the dam, spillway, and gate-controlled outlet, are also not included in this Master Plan.

#### 1.4 GENERAL WATERSHED DESCRIPTION

The Project is located near Buck Creek State Park in west central Ohio, approximately 40 Miles west of Columbus, 25 miles east of Dayton and just two miles northeast of Springfield (Figure 1). It is about 70 Air miles northeast of Cincinnati, Ohio. The dam site is on Buck Creek, a tributary of the Mad River, about 703 miles above the confluence of the two streams. The Mad River is one of the eastern tributaries of the Miami River which enters the Ohio River at the southwestern corner of the State of Ohio. The reservoir area lies entirely within Clark County, abutting the northeast limits of the city of Springfield.



*Figure 1: Location of Clarence J. Brown Dam and Reservoir.*

Of the 4,115 acres of land acquired for Clarence J. Brown Dam and Reservoir, approximately 2,120 acres would be water surface at seasonal pool (summer pool) and approximately 2,000 acres are located above the seasonal pool. The winter pool covers approximately 1,940 acres. The shoreline is approximately 14.15 miles.

The reservoir is in the Great Miami River watershed (Figure 2); it impounds Buck Creek and drains an area of 82 square miles. Construction by the U.S. Army Corps of Engineers began in September 1966 and was completed in fall 1973. The gates were closed on January 2, 1974, and the lake was filled to approximately 1,000 acres by spring. The lake was held at this level throughout the summer to permit construction of a beach, and to allow channel construction and building of islands in the north end. The lake was filled to seasonal pool in spring 1975. The lake was lowered in fall 1979 to build a marina and to place 16 piling groups for fish habitat structure.

The earthen dam is 6,200 feet long and 72 feet high at the highest point. An open-cut spillway allows the release of excess water to prevent flow over the dam. The maximum water depth is 50 feet at the dam. The control tower on the upstream side of the dam has inlets at the bottom which allow the water to pass through a conduit under the dam. See Table 1 for pertinent project data.

The eastern shore slopes more gently than the western shore, which drops off rapidly to 30 feet. The upper end of the reservoir, north of the Buck Creek Lane crossing, is very shallow. Standing trees in some of the coves along the western shoreline provide most of the fish cover in the lake.

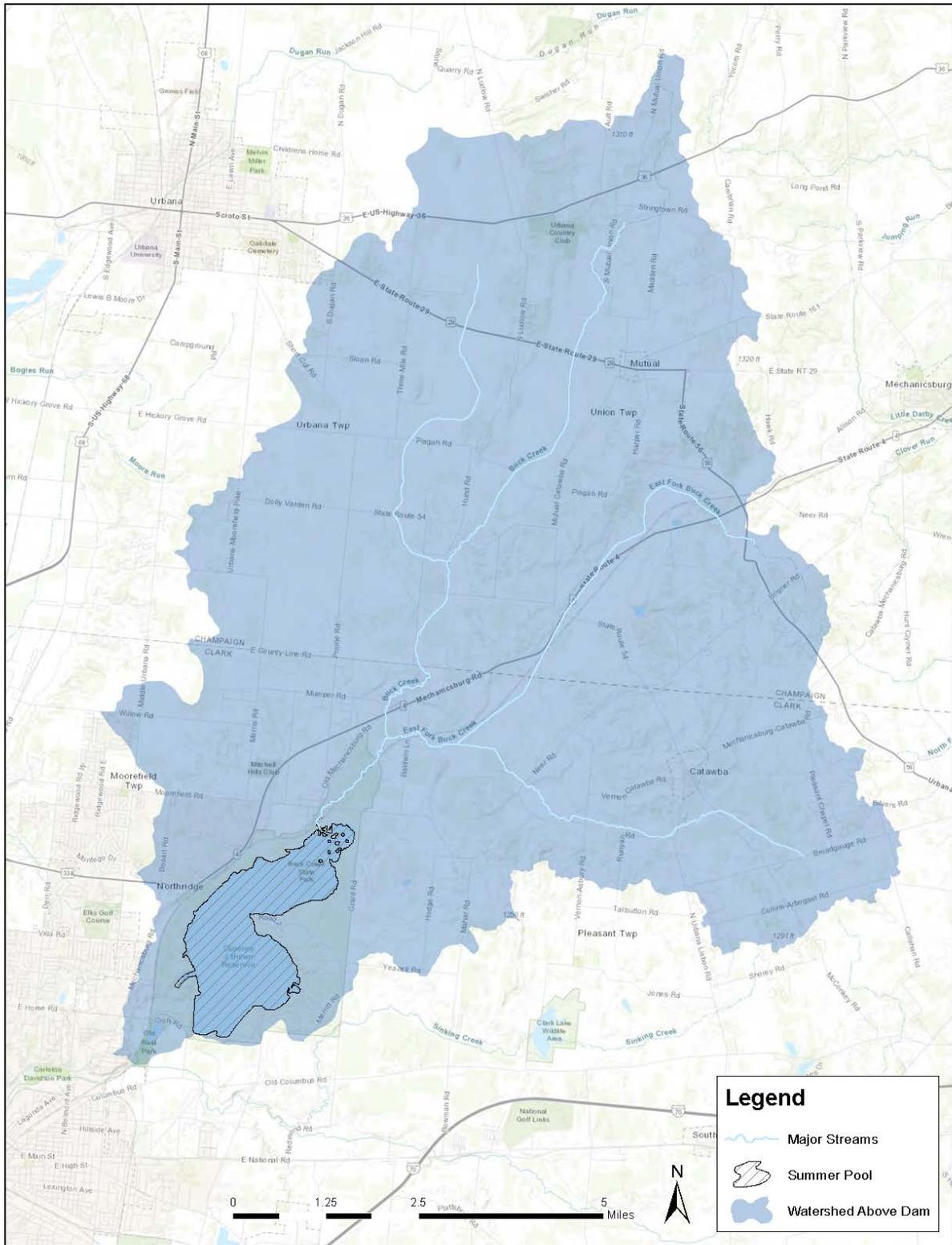


Figure 2: Clarence D. Brown Dam and Reservoir Watershed.

Table 1: Summary data of Clarence J. Brown Dam and Reservoir

| Pertinent Project Data  |                    |                 |   |                 |
|-------------------------|--------------------|-----------------|---|-----------------|
| Drainage Area           |                    | 82 square miles |   |                 |
| Reservoir               |                    |                 |   |                 |
| Pool                    | Elevation (ft msl) | Surface Area    | Capacity (acre-ft)  | Runoff (inches) |
| Minimum                 | 995                | 1010            | 10,000  | .087            |
| Permanent (winter) Pool | 1009               | 1940            | 30,800  | 2.28            |
| Seasonal                | 1012               | 2120            | 36,900  | 3.64            |
| Flood                   | 1023               | 2720            | 63,700  | 9.44            |
| Dam                     |                    |                 |   |                 |
| Type                    |                    |                 | Earthen fill  |                 |
| Length (ft)             |                    |                 | 6,200   |                 |
| Top elevation (ft msl)  |                    |                 | 1,040   |                 |
| Maximum height (ft)     |                    |                 | 72  |                 |
| Spillway                |                    |                 |   |                 |
| Type                    |                    |                 | Open-cut through glacial till; on right abutment ridge    |                 |
| Crest Elevation (ft)    |                    |                 | 1,023   |                 |
| Base width of Cut (ft)  |                    |                 | 475   |                 |
| Outlet Works            |                    |                 |   |                 |
| Type                    |                    |                 | Circular conduit, with control gates in headworks intake. |                 |
| Diameter (ft)           |                    |                 | 11  |                 |

## 1.5 PROJECT ACCESS

Primary access to the Project is from Croft Rd. which connects to Ohio State Route 4. Ohio State Route 4 runs along the western border of the Project and has direct access to US Hwy 40 and Interstate 70, which connect the larger municipalities of Columbus and Dayton.

## 1.6 LISTING OF PRIOR DESIGN MEMORANDUMS

The original Master Plan for Clarence J. Brown Dam and Reservoir (Buck Creek Reservoir Preliminary Master Plan) was completed in 1966 as Design Memorandum No. 6A. An update to this master plan (Clarence J. Brown Dam and Reservoir Public Use Plan) was approved in 1971 as Design memorandum No. 12. A supplement was added in 1981 to address the inclusion of an area of management for natural preservation. This report serves to revise the 1971 master plan by updating land use and applicable statutes. It does not negate projects proposed in the 1971 master plan. As a master plan is a high-level planning document, detailed projects to be proposed under this revised master plan will be addressed in the OMP. See Table 2 for a complete listing of issued design memoranda pertaining to Clarence J. Brown Dam and Reservoir.

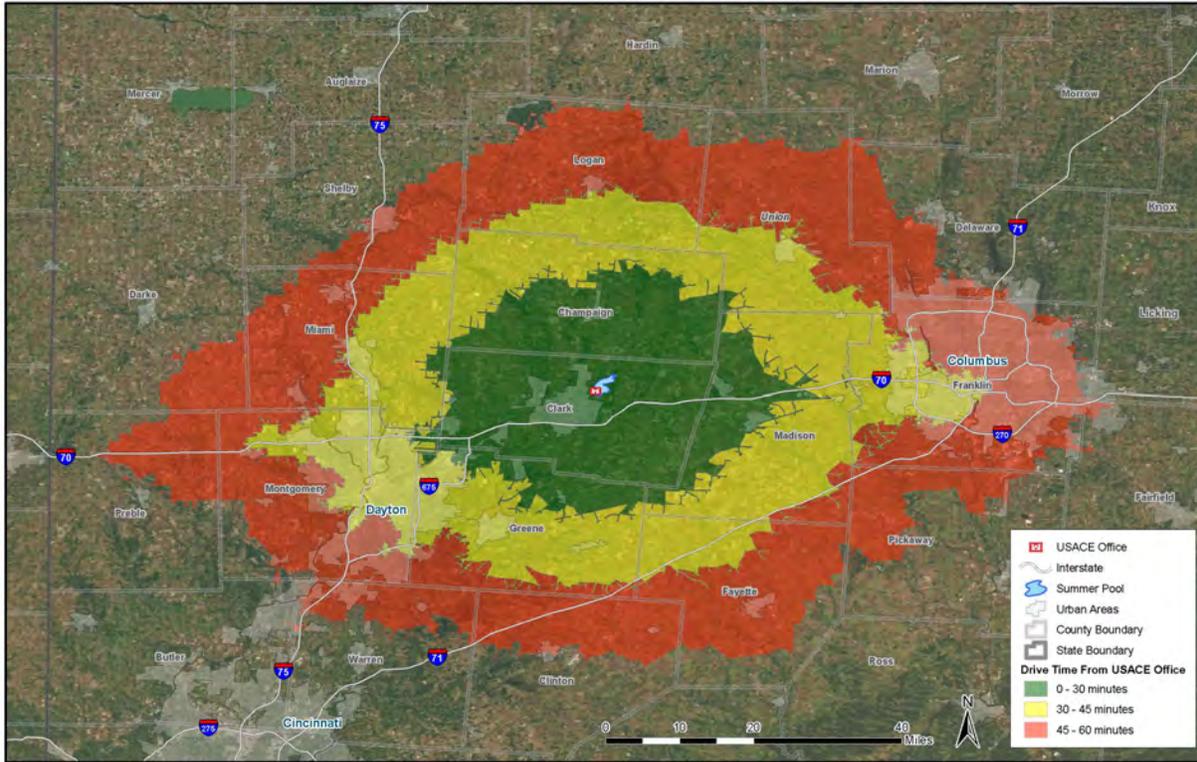


Figure 3: Drive-time map for Clarence J. Brown Dam and Reservoir.

## 1.7 LISTING OF PERTINENT PROJECT INFORMATION

The Louisville District Engineer and Chief of Operations have delegated responsibility and authority for the management of land and facilities at Clarence J. Brown Dam and Reservoir to an onsite project manager. The overall natural resources and park management responsibilities within the boundaries of the lake are assigned to Operation Division personnel stationed at Clarence J. Brown Dam and Reservoir.

The Corps of Engineers holds title to 4,085 acres of land and water that comprise Clarence J. Brown Dam and Reservoir. In addition, the Corps has 318.36 acres of flowage easement lands. Of the fee land, 3,769.5 acres are leased to the State of Ohio, Department of Natural Resources for public park and recreation (Buck Creek State Park), natural area preservation, fish, wildlife, and forest management purposes. The George Rogers Clark Heritage Association leases land for operation of the historic Crabill Homestead (8 acres). The Prairie Road Fen (94.49 acres) and Crabill Fen (25 acres) are both environmentally sensitive areas that are managed as nature preserves by the Ohio Department of Natural Resources, Division of Natural Areas and Preserves.

Table 2: Previous Design Memorandum.

| <b>Previously Issued Design Memoranda</b> |  |
|---|--|
| <b>Design Memorandum No.</b>              | <b>Title</b>   |
| 1   | Structure Site Selection   |
| 2   | General Design Memorandum  |
| 3   | Concrete Aggregate and Riprap Sources  |
| 4   | Reservoir and Spillway Capacities, Flood Control, Seasonal Regularities, Hydroelectric Power |
| 5   | Embankment, Spillway and Outlet Works  |
| 6a  | Preliminary Master Plan  |
| 6b  | Real Estate for Construction Area  |
| 7   | Relocation of NYC RR   |
| 8   | Preliminary Master Plan, DM #6A  |
| 9   | Real Estate for Parts of Segment 1 and Segments 2-5  |
| 10  | County and Township Relocations  |
| 11  | Relocations of Utilities   |
| 12  | Public Use Plan  |

Areas that are not leased comprise the Operations Area that is directly managed by of the U.S. Army Corps of Engineers and is managed for a variety of purposes. The Corps Operations Area (307.5 acres) include the flood risk management structures consisting of the dam, spillway, and tailwater area. The area operated by the Corps of Engineers also includes a class B visitor center, maintenance buildings, fishing platforms, trails, a playground, comfort stations, paved multi-use trails, picnic sites, reservable shelters, overlook and parking areas.

The Buck Creek valley was once a patchwork of wetland fens, prairie meadows, oak savannas, and open oak woodlands. Today, the 2,120 acre Clarence J. Brown Reservoir is surrounded by varied habitats, from brushy old fields, to restored prairie, to forest. The Clarence J. Brown Dam and Reservoir was designated an Ohio Important Bird Area in 2004. There are many recreational opportunities to enjoy at the lake including fishing, hiking, biking, wildlife watching, and picnicking. At nearby Buck Creek State Park, visitors also enjoy swimming, boating, and camping.

## CHAPTER 2 - PROJECT SETTING AND FACTORS INFLUENCING MANAGEMENT AND DEVELOPMENT

### 2.1 DESCRIPTION OF RESERVOIR

The reservoir was designed to store floodwaters and slow the release downstream, reducing flood risk in the Mad River Basin and ultimately along the Ohio River. Figure 4 shows inundation areas between the seasonal and flood stage pool. Permanent, or winter, pool level is 1009 feet above mean sea level (msl), seasonal pool level is 1012 msl, and the flood control level and spillway is 1023 msl. The top of the dam is at 1040 msl. Based on the inundation areas displayed in Figure 3, the most significant flooding will occur upstream of the main basin. The highest water event occurred in January 2005 and reached 1015.6 msl. When the lake is at winter pool, approximately 160 acres of land is exposed. This is primarily in the form of mudflats at the far north end. Fluctuations between the pool levels contribute to minor shoreline erosion visible a few places at the Project.

The USACE must release a minimum of 5 cubic feet per second (cfs) of lake flow during normal operations. When the reservoir is above an elevation of 995 msl, up to 120 cfs can be released when requested to maintain low flow augmentation on the Great Miami River at Miamisburg. The USACE operates the lake under the approved water control plan as required by 33 C.F.R. § 222.5 and Engineering Regulation (ER) 1110-2-240.

### 2.2 HYDROLOGY (SURFACE WATER, GROUNDWATER)

Clarence J. Brown Dam and Reservoir is a 2,720 acre project fed by Buck Creek. The tailwater drains into Buck Creek, which flows generally southwest for approximately seven miles before reaching its confluence with the Mad River. The lake gathers stormwater runoff from an 82 square mile watershed, in Champaign and Clark counties. The major tributary of the drainage is Buck Creek. The East Fork of Buck Creek and Dugan Ditch flow into Buck Creek ca. 1.5 and 4.5 miles upstream of the lake respectively. Land use of the watershed is primarily agricultural.

#### 2.2.1 Tailwater Area

The tailwater area is located downstream of the dam. The minimum flow from the dam is five (5) cfs; but release depends on the river level at the Eagle City gauge station located on the Mad River. The maximum release level is 2,000 cfs with pool level is above elevation 1017-feet msl. The tailwater area has facilities to promote bank fishing and picnicking. Additionally, there is a low-head dam located in the tailwater. This low-head dam was identified as detrimental to water quality by the Ohio EPA; causing the pooling of nutrients and chemicals in agricultural runoff. There have been three other low-head dams modified or removed from Buck Creek, downstream from the Project, and this is the last remaining.

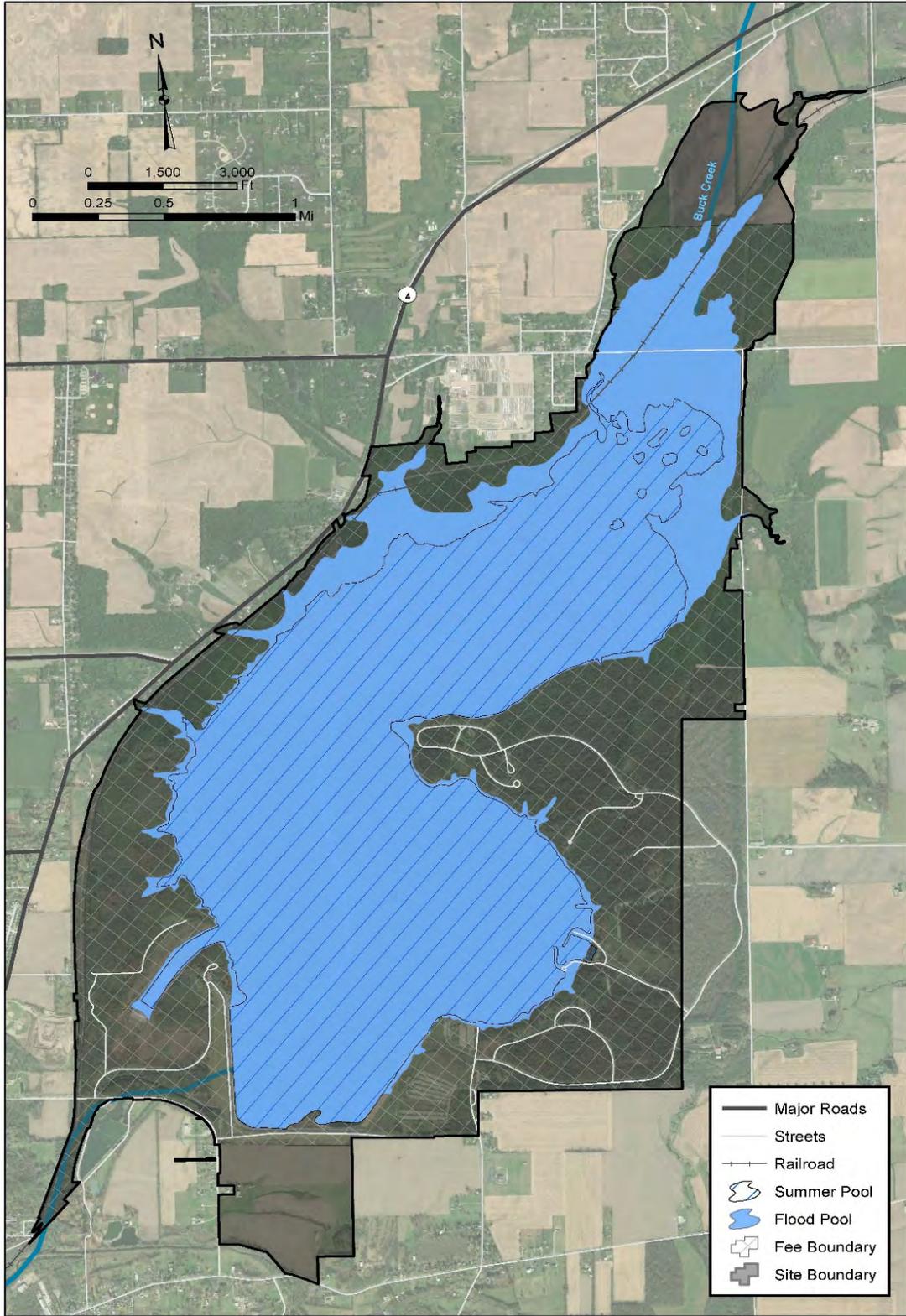


Figure 4: Inundation map for Clarence J. Brown Dam and Reservoir

## 2.2.2 Groundwater

Four aquifers are present in the Project area that have the potential to yield 100 to 300 gallons of water per minute. Along the areas influenced by Buck Creek there are thick deposits of sand and gravel at depths ranging from 35 to 155 ft. The southern portion of the Project area contains thin layers of sand and gravel in unconsolidated glacial deposits at depths ranging from 75 to 205 ft. In the eastern and western parts of the Project area there are glacial drift deposits that range in depth up to 215 ft., below that lies a carbonate rock aquifer at depths above 315 ft. Water wells can be found around the Project boundaries (See Aquifer Map in Appendix C).

## 2.3 SEDIMENTATION AND SHORELINE EROSION

There are three areas on the Project that have issues with erosion. They are all along the shoreline of the lake and erosion is caused by the increase and decrease in lake levels during yearly lake operations. These areas are within soil types that are classified as prime farmland. For a more detailed description of soils and erosion, see the Environmental Assessment in Appendix A of this document.

## 2.4 WATER QUALITY

Water quality at Clarence J. Brown Dam and Reservoir varies greatly depending on seasons, runoff volume, pollution sources, and lake capacity. Dam and Reservoir around the lake and in the Buck Creek drainage above the lake, wastewater treatment is primarily done with septic tanks. Septic tanks are known to affect lake water quality due to failure, often caused by home expansion without septic expansion. Sewage from failing septic systems can cause nutrient loading of nitrogen and phosphorus in surface waters. Additionally, the upper Buck Creek drainage, which feeds the lake, is primarily agricultural. Agricultural runoff is also known to increase nutrient loading of phosphorus and nitrogen, due to the use of fertilizer and livestock in streams. Elevated nutrient levels result in high microbial populations in surface waters, and those contaminated by sewage often exceed the maximum allowance under the Environmental Protection Agency's (EPA) standards and may result in harmful algal blooms (HABs) and high levels of *Escherichia coli* (E. coli).

The Ohio Environmental Protection Agency (Ohio EPA) determines water quality standards based on the designated beneficial uses of the water body. Clarence J. Brown Reservoir and Buck Creek's designations are for cold water habitat and recreation. In 2009 the Ohio EPA released Total Maximum Daily Loads (TMDL) for the Mad River Watershed. The Buck Creek watershed was classified as impaired, for its designated uses, due to direct habitat alterations, flow alterations, and bacteria. Buck Creek above East Fork Buck Creek and East Fork Buck Creek need nitrate reductions of 42 and 38 percent, respectively to be in attainment for its designated uses. Habitat and flow alteration are causing some impairment in macroinvertebrate communities in Buck Creek downstream of the Clarence J. Brown Reservoir. Ammonia discharging from the reservoir is likely caused by nitrate entering the reservoir, which is converted to ammonia in the water. Nitrate reductions upstream of the reservoir are therefore likely to reduce ammonia outputs. Additionally, the low head dam located in the tailwater negatively affect water quality by reducing dissolved

oxygen levels and creating lentic conditions which promote the pooling of nutrients and buildup of algae biomass. Recommended BMPs for the watershed to reduce nutrient loading are:

- Installation of grass swales
- Riparian buffer restoration
- Grazing land protection
- Land preservation through conservation easements
- Removal of low head dam to restore more natural flow
- Inspection and maintenance of onsite septic systems

## 2.5 CLIMATE

The climate for the Project is continental with a rather wide range of temperatures from winter to summer. A precipitation maximum occurs during late spring and early summer, with a late summer and early fall minimum. January is the month with the highest average snowfall at 9.9 inches. Snow cover can last for over a month, but usually comes and goes in shorter periods of time. In general, snow is only a minor contributing factor to floods.

Summers are moderately hot and humid with an average of 15 days with a temperature of 90 degrees Fahrenheit or higher. During summer afternoons, the humidity is often in the 60-70 percent range, increasing the heat index. Winters are fairly cold with an average temperature about 29 degrees Fahrenheit. The fall season of the year is very pleasant with an abundance of sunshine, and comfortable temperatures. The mean annual temperature for the area is 51 degrees Fahrenheit. January is the coldest month with an average temperature of 26 degrees and July is the warmest with an average of 74 degrees.

Precipitation in the area varies widely from year to year; however, it is normally abundant and well distributed throughout the year. The mean annual precipitation is approximately 40 inches; of this amount, about 9 inches falls during the winter, 11 inches during spring, 11 inches during summer, and 9 inches during fall. Runoff from rainfall in the late winter and early spring can cause flooding due to frozen or saturated soils. During the rest of the year, soil infiltration increases to the extent that runoff is very limited. Showers and thunderstorms account for most of the rainfall during the primary recreation season, May through October. The average snowfall is around 22 inches. Snowfall, however, fluctuates widely from this annual mean with about one out of five winters having at least 30 inches of snow. Cloudiness is greatest in winter and least in summer. This seasonal variation in cloudiness is most clearly illustrated by the percentage of possible sunshine which is about 67 percent in July but 32 percent in December. During the primary recreation season, it is sunny over 65 percent of the time. The prevailing wind direction for the year is south southwest, with average speed 6 - 8 mph. The freeze free period lasts on the average 187 days from mid-April to the latter part of October.

## 2.6 TOPOGRAPHY AND GEOLOGY

Clarence J. Brown Dam and Reservoir is underlain by bedrock of Silurian to Devonian age (359-445 million years ago). The Silurian aged bedrock is mostly comprised of Dolomite, which supports some carbonate aquifers in the region. The Devonian aged bedrock is mostly comprised of shale of the Ohio Shale group.

Above the bedrock lies deposits of glacial till. All drift exposed at the surface in Clark County was deposited during the Wisconsin stage, however, there are some Illinois deposits buried beneath the Wisconsin tills. The Wisconsin glacier was split into two lobes by highlands in the vicinity of Bellefontaine, Logan County. Its southward advance was concentrated along two main valleys, the Scioto Valley in central Ohio, and the Miami Valley in western Ohio. From these principal routes the ice lobes spread outward and entered Clark County from two directions, the Scioto lobe from the east and the Miami lobe from the northwest. When the valleys became free of ice they were drainage courses for meltwater which deposited pervious sand and gravel, called valley-train deposits. Valley-train deposits vary from less than 1/2 mile to 1 mile wide in the Buck Creek flood plain. These deposits are 20 - 25 foot thick at the damsite.

## 2.7 SOILS

According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), there are 29 soil associations at the Project (see the Environmental Assessment in Appendix A). The Project area is 4,250.43 acres. Of that, 1,968; 1,864; and 563 acres are classified as open water, prime farmland soils, and not prime farmland soils respectively (Appendix A). Prime farmland soils include those classified by the NRCS as “all areas are prime farmland”, “farmland of local importance”, and “prime farmland if drained”. The five most common soil associations are listed in Table 4, and have been divided into two development suitability categories.

1. Suitable for development
2. Unsuitable for development

*Table 3: Most Common Soil Associations in order of Predominance.*

| Most Common Soil Associations in Order of Predominance |                   |  |
|--|-------------------|--|
| Soil Association                                       | Typical slope     | Suitability Based on Slope and Soil Type   |
| Eldean silt loam                                       | Gentle - Moderate | <i>Suitable.</i> May have some limited suitability due to depth to saturated zone. |
| Lippincott silty clay loam                             | Flat              | <i>Unsuitable.</i> Characterized by floodplains and prone to frequent flooding     |
| Ockley silt loam                                       | Flat              | Suitable. There are no development limitations for this soil association.          |
| Rodman gravelly loam                                   | Very Steep        | Unsuitable. Characterized by very steep slopes which do not allow for development. |
| Sloan silt loam  | Flat              | <i>Unsuitable.</i> Characterized by floodplains and prone to frequent flooding.    |

Sand and gravel are available at the Project site as a mineral resource. There were two abandoned gravel pits that were inundated when the reservoir was created. Additionally there are two active sand and gravel quarries west of the Project in Springfield. There are no other known mineral resources available at the site.

## 2.8 RESOURCE ANALYSIS

### 2.8.1 Fish and Wildlife Resources

The Clarence J. Brown Dam and Reservoir area lies within the Till Plains physiographic region of Ohio. This region has generally smaller wildlife populations (numbers of individuals, not species) than adjacent areas to the east and south because of intense agricultural usage and the close proximity to several metropolitan centers. It is interesting to note that some groups of animals have larger numbers of species in the southern Till Plain than in some other areas of Ohio. This is because physiographic regions are located near the Till Plains (the Blue Grass Region and the Glaciated and Unglaciated Allegheny Plateau), thereby creating a diversity of habitat types in this section of the state. Intensive agricultural usage in the Clarence J. Brown Dam and Reservoir area has had a definite but variable effect upon animal populations. The effects include a decrease of forest dwelling species, resulting from clearing of the forests, and an increase in species preferring grass and croplands.

Draining of wetlands for agricultural purposes has also reduced habitat resulting in reduced populations of wetland species. Species of animals able to live in harmony with man have also increased at the expense of those species requiring some degree of solitude.

Thirty-four (34) species of mammal are recorded as occurring in the Mad River Basin, including the Buck Creek and Clarence J. Brown Dam and Reservoir areas. Raccoon, mink, white-tailed deer, thirteen-lined ground squirrel, white-footed mouse, meadow vole, muskrat, cottontail rabbit, opossum, woodchuck, gray and fox squirrel, and red and grey fox are abundant in this region. Beavers and coyotes are becoming common in the basin. Trapping for mink, fox, muskrat, and other fur-bearing animals is low in the area.

The Clarence J. Brown Dam and Reservoir area has a rich bird fauna with over 275 species recorded by the Clark County Audubon Society. In 2004, Clarence J. Brown Reservoir/Buck Creek State Park was listed as an Ohio Important Bird Area by Audubon Ohio. Waterfowl are abundant with Notable species that have been spotted in the area include long-tailed duck, immature golden eagles, and American white pelicans.

The potentially occurring reptiles and amphibians of the Clarence J. Brown Dam and Reservoir area include 32 reptiles (10 turtles, 3 lizards, and 19 snakes) 24 amphibians (9 frogs and 2 toads, and 13 salamanders). The eastern massasauga rattlesnake, the kirtland's snake and the spotted turtle can be found in Prairie Road Fen and may be found in other areas throughout the Project that provide the proper habitat. These three species have status on Ohio's rare and endangered species list.

Hunting, trapping, and fishing at Clarence J. Brown Dam and Reservoir and state park is managed by the ODNR. Hunting and trapping are allowed within designated areas during the hunting season (Figure 5). Areas with heavy recreational use are closed to hunting, and hunting may not take place within 400ft of a designated hiking trail. Species available for sport fishing include muskellunge, walleye, channel catfish, bullhead catfish, white crappie, black crappie, bluegill, sunfish, largemouth bass, white bass, and carp. In 1979, lake levels were lowered to allow for the

construction of a marina, as well as 16 piling groups for fish habitat (Figure 6).

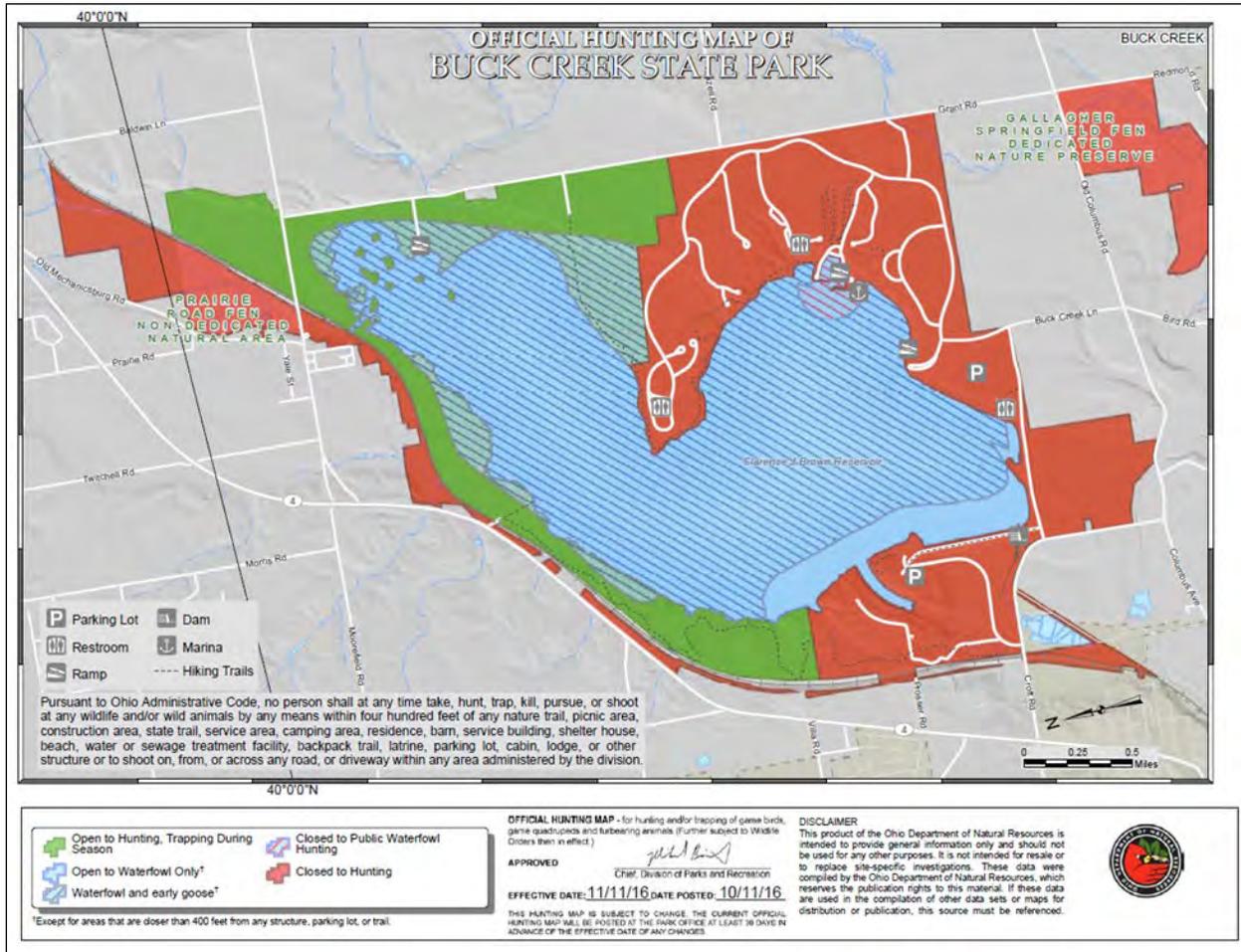


Figure 5: Hunting Map for the Clarence J. Brown Dam and Reservoir Project. Map provided by ODNR.

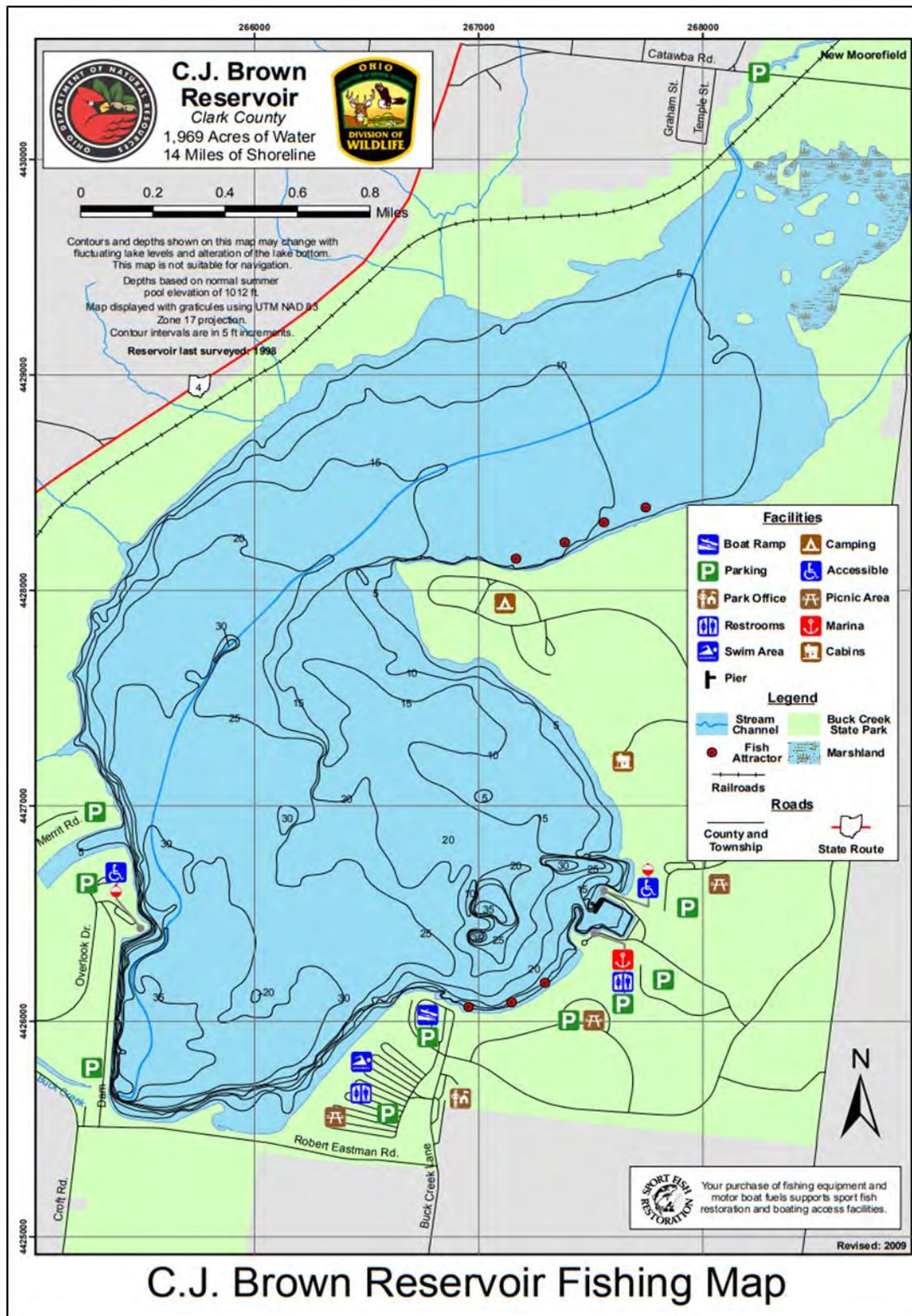


Figure 6: Fishing Map for the Clarence J. Brown Dam and Reservoir Project. Map provided by ODNR.

## 2.8.2 Vegetative Resources

There are six broad plant communities at the Clarence J. Brown Dam and Reservoir Project. They are described below and include descriptions of wildlife that utilize them.

### **Wetlands**

Described below in Section 2.8.6.

### **Oak-hickory Forest**

Forest habitat makes up the majority of the Project. The forests on the Project are second growth, i.e. they have been cut before and are not old growth. In the uplands the forest is described as oak-hickory with common species including black cherry, black oak, black walnut, bur oak, hackberry, honey locust, pignut hickory, mockernut hickory, red oak, shagbark hickory, and white oak. Forests are important for a number of wildlife including eastern fox squirrel, eastern grey squirrel, owl species, pileated woodpeckers, raccoon, Cooper's hawk, southern flying squirrel, Virginia opossum, warbler species, white-tailed deer, and various other raptors, songbirds, and woodpeckers.

### **Maple-cottonwood-sycamore floodplain forest**

The bottomlands are described as maple-cottonwood-sycamore floodplain forests with common species including American elm, black willow, boxelder maple, cottonwood, green ash, hackberry, honey locust, Ohio buckeye, sandbar willow, sycamore, and white ash. The wildlife use of this forest type is similar to the oak-hickory forest type described above.

### **Managed grassland**

This habitat is present in three plots that were established through the seeding of native grassland mix in the 1980's and are maintained through prescribed mowing and burning. These plots total 30.8 acres and consist of a variety of native forbs and grasses including big bluestem, little bluestem, Indian grass, switch grass, black eyed Susan, purple coneflower and more. Wildlife species may include cottontail rabbit, white-tailed deer, coyotes, foxes, thirteen-lined ground squirrel, turkey, grouse, wrens, sparrows, and other various songbirds. Additionally, this habitat type is utilized by bobwhite quail, whose range-wide population has dramatically dropped likely due to habitat loss caused by modern farming techniques.

### **Old field**

This habitat is maintained on the site through periodic mowing. Old fields are successional habitats characterized by the majority of the vegetation being herbaceous with some woody species beginning to establish. The habitat is characterized by aster species, big bluestem, fleabane species, goldenrod species, little bluestem, oxe-eye daisy, black-eyed susan, and switchgrass. Common woody species include black raspberry and Pennsylvania blackberry. Wildlife use of this habitat is similar to managed grassland.

### **Successional shrubland**

Successional shrublands are areas that were once open herbaceous habitat and are being allowed to succeed into woody growth. This habitat differs from old fields in that it is primarily dominated by woody growth and is beginning to transition into a young forest. Prior to the introduction to the

many non-native invasive species that disrupt the natural process of succession, many native ruderal woody species would have colonized these areas including: American elm, black cherry, black gum, black locust, black raspberry, eastern redbud, flowering dogwood, Pennsylvania blackberry, persimmon, red mulberry, and white ash. Today non-native invasive species often take over these shrubland habitats limiting space for the prior mentioned species, and permanently altering the successional trajectory of habitat, i.e. the area may never develop into a natural forest type without management. Common invasive species include: amur honeysuckle, autumn olive, Bradford pear, bush honeysuckle, multiflora rose, and white mulberry. These habitats are still useful for wildlife including bobwhite quail, brown thrashers, eastern cottontail rabbit, coyote, fox, indigo buntings, sparrow species, white-tailed deer, wild turkey, wren species, and yellow-breasted chats.

### 2.8.3 Threatened & Endangered Species

Lists of threatened, endangered and species of special concern are maintained by the USFWS and the State of Ohio. Under the Endangered Species Act (ESA) of 1973 (16 U.S.C. §§ 1531-1544), endangered species are defined as any species in danger of extinction throughout all or portions of its range. A threatened species is any species likely to become endangered in the foreseeable future. The ESA defines critical habitat of the above species as a geographic area that contains the physical or biological features that are essential to the conservation of a particular species and that may need special management or protection. This section also covers birds listed under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C §§ 703-712) as birds of conservation concern.

The USFWS maintains lists of rare plants and wildlife that occur in each county of the US. The State of Ohio maintains a separate inventory of state-ranked endangered, threatened, and species of special concern. Lists of state listed species by county can be obtained through the ODNR Division of Wildlife website.

An official threatened and endangered species list from the USFWS, dated March 31, 2020, for the Project area included five species: the Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), eastern massasauga (*Sistrurus catenatus*), rayed Bean (*Villosa fabalis*), and eastern prairie-fringed orchid (*Platanthera leucophaea*).

Indiana bat has a range that intersects with the Project. In the spring, bats emerge from hibernation and migrate to summer roost sites. During the summer months, female Indiana bats establish maternity colonies of up to 100 bats under the loose bark of trees and in tree cavities. Loss and fragmentation of forest habitat are among the major threats to Indiana bat populations. Other threats include white-nose syndrome, winter disturbance, and environmental contaminants (USFWS, 2006).

The northern long-eared bat has a range that intersects with the Project. It was listed as threatened in 2015 due to declines mostly associated with white-nose syndrome. The bats spend winter hibernating in caves and mines. During the summer the bats roost singly or in colonies underneath bark or in cavities of both snags and live trees.

The eastern massasauga was listed as threatened in 2016 and is known to occur on the Project. Its habitat is primarily open prairie wetlands. Massasaugas also use the adjacent uplands around wetlands for part of the year. In the winter they hibernate in crayfish or small mammal burrows. Loss of wetland habitat as well as invasion of wetland habitat by invasive woody shrubs is a major threat. Mowing and prescribed burning are recommended for the prairies they occur on, however the timing should be prior to their emergence from hibernation (USFWS 2016).

The rayed bean is a small (less than 1.5 inches) freshwater mussel that has a range that overlaps with the Project, however it is not known if this species occurs in Buck Creek above or below the reservoir, or if it occurs in reaches of the watershed downstream from the Project. It can be found in smaller headwater streams, but may also be found in larger rivers or wave-washed areas of glacial lakes. It prefers gravel or sand substrate, and is often found around roots of aquatic vegetation. The rayed bean is threatened by dams and altered flow regimes, pollution from agricultural and private septic runoff, sedimentation, and invasive species (USFWS, 2012).

The eastern prairie fringed orchid has a range that overlaps with the Project, however it is not known if it occurs on the Project. It is a vascular plant that occurs in open prairie wetlands, including fens like those that are on the Project. It requires full sun for optimum growth and can tolerate little to no woody encroachment. This species is threatened mainly due to habitat loss and invasion of woody invasive species. Additionally, collection is a threat, as with many orchids.

Bald eagles are known to nest within the vicinity of the Project, and have been sighted at the Project. These birds are protected under the MBTA and the Bald and Golden Eagle Protection Act (BGEPA).

#### 2.8.4 Invasive Species

USFWS defines invasive species as one that is “not native to an ecosystem and which causes or is likely to cause economic or environmental harm or harm to human health.” Invasive species out-compete native plants and wildlife, degrading, changing or replacing native habitats (USFWS, 2012). The ODNR maintains lists of invasive species found in Ohio on their website.

Table 5 lists invasive species that are either high-priority species or have a high potential to impact the Project. This list does not include all invasive species present at the site. The ODNR Division of Natural Areas and Preserves (DNAP) and USACE actively manage for invasive species including several invasive plants found in management units throughout the site. See Appendix A: Environmental Assessment for more detailed information.

Table 4: Invasive Species in the Vicinity of Clarence J. Brown Dam and Reservoir.

| Taxonomy       | Common Name             | Scientific Name                 | Effect  | Presence                                    |
|----------------|-------------------------|---------------------------------|---|---|
| <b>Insects</b> | Asian longhorned beetle | <i>Anoplophora glabripennis</i> | Kills a wide variety of native hardwood trees                   | Present in southwest Ohio (Clermont County) |
|                | Gypsy moth              | <i>Lymantria dispar</i>         | Tree defoliation which may result in eventual mortality         | Found at Project                            |
|                | Emerald ash borer       | <i>Agrilus planipennis</i>      | Causes 100% mortality of all species of ash                     | Found at Project                            |
| <b>Plants</b>  | Dogwoods*               | <i>Cornus spp.</i>              | Can become dominant in wetlands and crowd out sensitive species | Managed by DNAP at Project                  |
|                | Glossy buckthorn        | <i>Frangula alnus</i>           | Crowds out native species                                       | Managed by DNAP at Project                  |
|                | Reed canarygrass        | <i>Phalaris arundinacea</i>     | Crowds out native species                                       | Managed by DNAP at Project                  |
|                | European buckthorn      | <i>Rhamnus cathartica</i>       | Crowds out native species                                       | Managed by DNAP at Project                  |
|                | Narrow-leaf cattail     | <i>Typha angustifolia</i>       | Crowds out native species                                       | Managed by DNAP at Project                  |
|                | Common cattail*         | <i>Typha latifolia</i>          | Crowds out native species                                       | Managed by DNAP at Project                  |

A \* indicates that a species is native but is being managed for due to its ability to crowd out sensitive species. Sources: Crabill Fen State Nature Preserve Master Plan (1987); Prairie Road Fen State Nature Preserve Management plan (2008).

### 2.8.5 Ecological Setting

The biology of the Project area may be generally interpreted as a very rich representation of mid-western flora and fauna generated by various current factors. This diversity generally has been impacted by habitat changes from develop around the lake and impoundment of the lake. Since construction of the dam, plant and animal species which have a low tolerance for slack water situations have either disappeared, or persist as a remnant or peripheral populations. There are various stages of vegetative succession present around the Project, however, mature deciduous forest is the dominant stage. This abundance of forested land provides habitat for numerous species of plants and animals

### 2.8.6 Wetlands

There are a number of wetlands located on the Project. Many wetlands are located in floodplains surrounding the lake and tailwater. Typical wetland flora may include various sedges, cattail, spikerush, smartweed, knotweed, arrowhead, pickerelweed, pondweed, naid, watermilfoil, bladderwort, duckweed and waterlily. Trees such as willow, cottonwood, sycamore, maple, ash, and oak may also be common. There is also two high quality fens on site, which are grassy wetlands with peat soils and a basic pH. These fen wetlands are incredibly diverse and contain profusion of wildflowers, insects, and reptiles. Other common animals found in wetlands include red-winged blackbird, muskrats, mink, beaver, amphibians, as well as a wide range of waterfowl.

## 2.9 BORROW AREAS AND UTILITIES

There are no current borrow areas for the Project. There is one electric transmission line that follows the eastern Project boundary (Figure 7).

### 2.10 PALEONTOLOGY

There are no known paleontological resources at the Clarence J. Brown Project site. The geology of the area is mostly glacial till, and therefore paleontological resources are not expected, however there have been no known expeditions to find such resources at the time this document was written.

### 2.11 CULTURAL RESOURCES

The relative location of Clarence J. Brown Dam and Reservoir has a spatiotemporal occupation of Native Americans spanning from the Paleoindians around 14,000 years before present (BP) into the early 19<sup>th</sup> century with Shawnee Indians; with Euro-American contact with Native Americans occurring around AD 1750. An all-inclusive chronology of the eastern United States –pertaining to Clarence J. Brown Dam and Reservoir—divides this general chronological sequence into the following periods: Paleoindian (12,000-8,000 BC); Archaic (8000-1000 BC); Woodland (1000 BC to AD 1000); Fort Ancient (AD1000-1750); and Ethnographic (European contact and settlement, AD1750-Present).

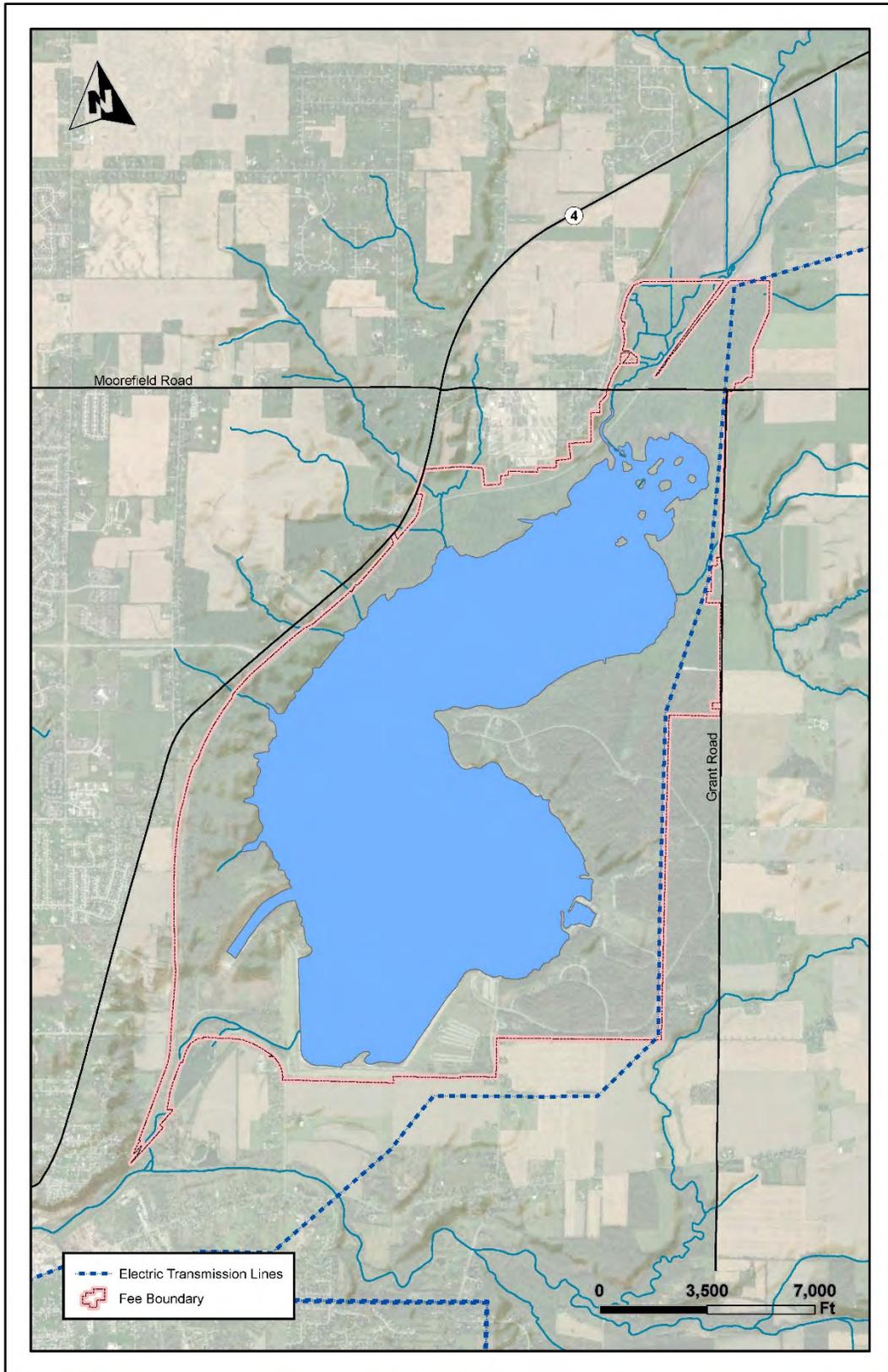


Figure 7: Utilities map for Clarence J. Brown Dam and Reservoir.

These periods represent culturally distinct techno-complexes relating to human adaptation in and around the area surrounding Clarence J. Brown Dam and Reservoir. Because cultural resources associated with these periods have the potential to be considered Historical Properties—defined by the National Historic Preservation Act (NHPA) as “any historic or prehistoric district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior”—the requirements of Section 106 of the NHPA for Federal agencies to consider effects of their undertakings on Historic Properties may be triggered by specific undertakings implemented under this revised Master Plan.

### 2.11.1 Historic Setting

By the beginning of the 18<sup>th</sup> Century, increasing settlements on the Eastern seaboard of the North American continent and intertribal warfare in the east caused a general migration westward. As the Iroquois moved westward, Miami Indians moved into the river valley now bearing that name. During this period of Indian migration, four important tribes occupied land which later became the State of Ohio—the Miami’s, the Shawnees, the Wyandots, and the Delawares. Old Chillicothe, near the present Oldtown in Greene County, was the site of a major Shawnee settlement, around which many military campaigns were waged. It is reported that the famous Shawnee Chief, Tecumseh, was born there.

The first reported European entry in the area was by the French explorer, La Salle, whose exploration took him south from Lake Erie to the Ohio River and part of its valley during the latter part of the 17<sup>th</sup> century. French fur traders entered the area in 1692 but discontinued their work there because of the great distance to the Great Lakes and the presence of the Iroquois tribes. However, British traders from Albany, Philadelphia, and Charleston were undaunted, and developed an extensive fur trade in the area by the 1740’s. Because of its geographic location and the network of navigable waterways, the Ohio Valley was considered the key to control of interior America.

The British capitalized on the conflict between the Indians and the colonists during the American Revolution, by enlisting the aid of many Indians. Even so, only minor skirmishes were fought in Ohio. The Battle of Piqua was the only major battle of the Revolution to take place in the Little Miami River Valley.

Some of the first settlers to the Clark County area arrived ca. 1795. Settlers continued to arrive to Clark County and established settlements and farms in 1799 in the areas around the Clarence J. Brown Dam and Reservoir. Settlement of the areas in the late 1700s was primarily by Virginians, Pennsylvanians, and New Englanders of English, German, and Scotch-Irish descent. The state of Ohio was founded in 1803 and the local economy continued to be dependent on agricultural activities (Hawkins and Ruter 1995).

The National Road, which connected Clark County to Maryland, was opened in 1832. In 1846, the Little Miami Railroad, the first railroad that ran through the county, was completed. In 1864, the Atlantic and Great Western Railroad opened operations throughout Clark County.

Beginning in the early 1800s and extending throughout the 19<sup>th</sup> century, the area that now makes up Clarence J. Brown Dam and Reservoir was composed of entirely of agricultural bottomlands and relatively flat agricultural fields. By the 1870s, these farms were divided into large parcels owned mostly by a half dozen landholders, generally staying within the same families (Hawkins and Ruter 1995). This pattern of large farms continued into the 20<sup>th</sup> century. Clarence .J. Brown Reservoir was impounded in 1973 which created flood control and recreational opportunities for the areas. Even with the addition of the lake, the area in and around it remains rural today, with an emphasis on agriculture.

### 2.11.2 Previous Investigations at the Clarence J. Brown Dam and Reservoir

All of the previous investigation at the Clarence J. Brown Dam and Reservoir were carried out as part of compliance with Section 106 under the NHPA. The earliest archeological investigations in the Clarence J. Brown Dam and Reservoir area were undertaken after the impoundment of the Clarence J. Brown Reservoir. The Ohio Historical Society carried out an archaeological survey of the Clarence J. Brown Dam and Reservoir of exposed soils and areas identified as high probability to contain prehistoric habitations or mounds. The 1976 survey did not identify any sites. A recommendation was made for additional survey and testing at site 33CL16 (prehistoric mound) to determine if any additional habitation features related to the mound were still present. The survey also recommended additional testing at the David Crabill House to search for any outbuildings, features, or subsurface deposits related to the house (Chapman and Otto 1976).

In 1989, Archaeological Services Incorporated, Inc. carried out an archaeological survey of 27 acres associated with a project in support of the Clarence J. Brown Dam and Reservoir. The survey did not identify any sites within the lake boundary. Archaeological Services Incorporated recommended no more archaeological work for the project (Beamer 1989).

In 1994, Algonquin Consultants, Inc. carried out a Phase I archaeological survey of the low pool shoreline along the Clarence J. Brown Reservoir (Hawkins and Ruter 1995). Algonquin Consultants survey identified five sites during their survey (33CL283–287). Additional testing was recommended for sites 33CL284 and 33CL287 and monitoring of site 33CL283 was recommended if any ground disturbing activities are planned within its vicinity. They recommended no further work for sites 33CL285 and 33CL286 (Hawkins and Ruter 1995).

In 1996, the Corps carried out limited archaeological investigations at the NRHP listed David Crabill House. The investigation consisted of a series of shovel tests along with general surface collection at a proposed well site and associated pipeline route. The majority of artifacts recovered during the survey date to the 20<sup>th</sup> century. Few of the items recovered during the survey could be dated to the 19<sup>th</sup> century. The Corps recommended developing a management plan for the house and to conduct additional testing (Ball and Bader 1996).

In 1998, 3D Environmental Services conducted a cultural resources survey of 6.5 miles of the redesignation of a 6.5-mile long snowmobile trail to a dual use snowmobile I bridle trail for the Ohio Department of Natural Resources. The survey did not find any historic properties within the trail and recommended no further cultural resources work for the project (Striker 1998).

In 2002, the Corps carried out cultural resource surveys for a picnic shelter, vault toilet, and well at the Horseman's Staging Area and ahead of the installation of primitive campground spaces, several campground pull-ins, and a gravel looped path at the Buck Creek State Park (Keeney 2002a; 2002b). The surveys found no evidence of cultural resources within the two areas surveyed and recommended no additional surveys for the projects.

In 2002, ASC Group conducted a cultural resources survey of the proposed Buck Creek State Park Marina and Dock Improvements in Moorefield Township, Clark County, Ohio (Gibbs 2002). The 2002 survey did not uncover any cultural resources within the area of the proposed marina and dock improvements and recommended no further cultural resources work for the project.

In 2013, Weller and Associates carried out a Phase I cultural resources survey of 3.5 miles of bridle trails at Buck Creek Park (Zink and Weller 2013). The Weller and Associates survey did not uncover cultural resources during their survey and recommended no further work in regards to historic properties.

In 2017 and 2018, Ch2M Hill Engineers, Inc. carried out a Phase I archaeological reconnaissance of the East Springfield-Tangy 138 kV Loop to Broadview Substation (Greenburg et al. 2018). A portion of the transmission line crossed portions of the Clarence J. Brown Dam and Reservoir property. Ch2M's survey did not identify any archaeological sites on the Clarence J. Brown Dam and Reservoir property. Ch2M recommended no further work on the portion of the line that crossed Clarence J. Brown Dam and Reservoir property.

### 2.11.3 Recorded Cultural Resources

Currently there is one NRHP listed historic property located within the reservoir's boundary (David Crabill House). This property is listed on the NRHP for its local historical significance—David Crabill was veteran of the War of 1812 and one of the founding members of Clark County—and also because of its excellent example of late Federal architectural style. There is a potential for subsurface structures or middens associated with this property suggesting specific care must be taken if any actions or undertakings are proposed in the immediate vicinity of this property.

In addition to the Crabill House, four (4) other historic era sites (33CL284–287) and one (1) historic cemetery (33CL283) have been recorded within the reservoir boundary. Three of the four historic sites (33CL284, 33CL286, and 33CL287) are believed to represent past homesteads dating between the mid-19<sup>th</sup> to the mid-20<sup>th</sup> centuries. The other historic site (33CL285) is a historic scatter of artifacts dating from the mid-19<sup>th</sup> to the mid-20<sup>th</sup> centuries. The cemetery (33CL283) is associated with the David Crabill house, but may have been used well into the 1900s. A second cemetery locally known as the Foley Family Cemetery was also located on project lands before impoundment; all human remains from both cemeteries were reportedly exhumed and buried at the Moorefile Township Cemetery just north of the project.

Known prehistoric sites are limited within the reservoir's boundary. The Engle mound site (33CL16) was destroyed by gravel-quarrying operations before the dam's construction. Furthermore, a single isolated find of a gorget fragment (Late Archaic to Early Woodland period) was recovered at one of the historic homestead sites (33CL284). The artifact could have been part

of a collection held by the historic residents or may have been secondary deposited from elsewhere. Lastly, the Chenoweth Site (33CL161) is a prehistoric burial of unknown age.

#### 2.11.4 Long-term Cultural Resource Objectives

As funding allows, a Cultural Resources Management Plan (CRMP) shall be developed and incorporated into the Operational Management Plan in accordance with EP 1130-2-540. The purpose of the CRMP is to provide a comprehensive program to direct the historic preservation activities and objectives at Clarence J. Brown Dam and Reservoir. A full inventory of cultural resources at Clarence J. Brown Dam and Reservoir has been completed in compliance with Section 110 of the NHPA.

#### 2.11.5 Implications of Historic Resource Development

Prior to the implementation of any ground disturbing activity or federal undertaking, proposed actions shall comply with Section 106 of the NHPA. A federal undertaking, as defined by 36 CFR Part 800.16(y), is "...any project, activity, or program funded in whole or part under the direct or indirect jurisdiction of a Federal Agency, including those carried out by or on behalf of a Federal Agency; those carried out with Federal Assistance; and those requiring a Federal permit, license, or approval." Section 106 compliance shall be conducted by USACE. In the event of unanticipated historic or prehistoric resources are encountered, all work must cease immediately and the USACE archaeologist shall be contacted before work may resume.

### 2.12 INTERPRETATION / VISUAL QUALITIES

The Project includes a variety of aesthetic natural resources. The Prairie Road Fen State Nature Preserve has a boardwalk which offers unique views of rare habitat, wildflowers, and wildlife that are difficult to find anywhere else in Ohio. Overlook Drive and other roads on the Project offer panoramic views of the Clarence J. Brown Dam and Reservoir and the wildlife that occupy it, including waterfowl. Additionally, the various open and forested habitats offer opportunities to view wildlife, including birds, at the Project, which is designated as an important bird area by the Ohio Audubon Society.

### 2.13 DEMOGRAPHICS

The area immediately surrounding the Clarence J. Brown Dam and Reservoir is rural in character and the towns within close proximity are agriculturally oriented. A change in the character of land use around the lake perimeter is evidenced by the tourist-related business located along SR 101. In addition to recreational development of the area, permanent homes are also being developed in the area.

### 2.14 ECONOMICS

#### 2.14.1 Income and Poverty Status

Table 5 shows the median household incomes and poverty rate in the primary and secondary Areas

of Influence (AOI; see Section 2.15.1 for definition), the state of Ohio, and the United States. Generally the AOI has a higher median income and lower poverty rate than the state of Ohio. The AOI also has a lower poverty rate than the United States. However, median income is slightly less than the national median.

*Table 5: The 2018 Median Household Income and Poverty Rate of the AOI, Ohio, and US.*

| Area of Influence | Income   | % of Families in Poverty |
|-------------------|----------|--------------------------|
| Primary           | \$57,175 | 9.18                     |
| Secondary         | \$60,343 | 8.63                     |
| State of Ohio     | \$52,407 | 10.80                    |
| United States     | \$63,179 | 11.80                    |

#### 2.14.2 Economic Impact of Recreation Related Spending

USACE recognizes the importance of Clarence J. Brown Dam and Reservoir and the activities on USACE lands and waters as being an important part of the local economy. Besides the economic savings through flood risk management and development advantages through water supply, businesses can see investment opportunities, and people are drawn to the natural areas surrounding USACE lakes, as is evidenced by the growing number of residents adjacent to USACE properties. Nationally, USACE lakes attract about 350 million recreation visits every year, with direct economic benefits on local economies within a 30 mile radius. Table 6 outlines the estimated economic benefits of Clarence J. Brown Reservoir and surrounding communities from 2016 and 2019.

### 2.15 RECREATION FACILITIES, ACTIVITIES AND NEEDS

Clarence J. Brown Dam and Reservoir offers a wide variety of facilities including campgrounds, day use and picnic areas, boat ramps, information center, hunting and multi-use trails provided by USACE and partners. The lake provides facilities for water-based recreation, such as boating, sailing, and kayaking; and multi-use trail use for cyclists and hikers.

Clarence J. Brown Reservoir is a primary location for water-related recreation, providing the public with a location for boating, canoeing/kayaking, paddle boarding, and swimming in the area. Periodically, USACE estimates visitation to the Project by activity. Table 7 presents counts from 2016 and 2019 with over half a million visitors estimated in 2016 and over two-thirds of a million visitors in 2019.

#### 2.15.1 Area of Influence

Nearly all the visitation to Clarence J. Brown Dam and Reservoir comes from within 60 road miles of the Project. USACE defines the primary area of influence (AOI) as counties within 30 minutes of travel from the Project and the secondary AOI as counties within 60 minutes of travel from the Project. This AOI includes 17 counties in Ohio (see Figure 8): four in the primary AOI and 13 in the secondary. Urban areas in the AOI include Springfield, Dayton, and Columbus Ohio. These

urban communities have experienced substantial growth in the last few decades and are expected to continue growth. Table 8 shows historic populations as well as population projections for each AOI and displays the projected population change from 2020 to 2040.

The population is expected to shrink slightly within the primary AOI, while it is expected to grow significantly within the secondary AOI. The majority of population growth is expected to be in the Columbus metropolitan area in Franklin and Delaware Counties. This is consistent with the general nationwide trend of rural areas decreasing or remaining relatively stable, while urban areas increase in population.

*Table 6: Economic benefits of Clarence J. Brown Dam and Reservoir*

| <b>Economic Benefits</b>  |   |
|---|---|
| <b>Economic Data in FY 16</b>   | <b>Economic Data in FY 19</b>   |
| <ul style="list-style-type: none"> <li>· \$11,320,244 in visitor spending within 30 miles of Clarence J. Brown Reservoir.</li> <li>· \$6,808,064 in sales within 30 miles of the Clarence J. Brown Reservoir.</li> <li>· 116 jobs within 30 miles of the Clarence J. Brown Reservoir.</li> <li>· \$2,868,857 in labor income within 30 miles of the Clarence J. Brown Reservoir.</li> <li>· \$3,542,245 in value added within 30 miles of the Clarence J. Brown Reservoir.</li> <li>· \$5,004,412 in National Economic Development Benefits.</li> </ul> | <ul style="list-style-type: none"> <li>· \$29,734,124 in visitor spending within 30 miles of Clarence J. Brown Reservoir</li> <li>· \$14,431,551 in sales within 30 miles of the Clarence J. Brown Reservoir.</li> <li>· 251 jobs within 30 miles of the Clarence J. Brown Reservoir.</li> <li>· \$5,794,504 in labor income within 30 miles of the Clarence J. Brown Reservoir.</li> <li>· \$7,629,385 in value added within 30 miles of the Clarence J. Brown Reservoir.</li> <li>· \$6,557,535 in National Economic Development Benefits.</li> </ul> |
| <p><b>With multiplier effects, visitor trip spending resulted in:</b></p> <ul style="list-style-type: none"> <li>· \$10,016,283 in total sales.</li> <li>· 143 jobs.</li> <li>· \$3,868,414 in labor income.</li> <li>· \$5,313,733 in value added (wages &amp; salaries, payroll benefits, profits, rents, and indirect business taxes).</li> </ul>  | <p><b>With multiplier effects, visitor trip spending resulted in:</b></p> <ul style="list-style-type: none"> <li>· \$21,436,198 in total sales.</li> <li>· 309 jobs.</li> <li>· \$7,997,052 in labor income.</li> <li>· \$11,484,542 in value added (wages &amp; salaries, payroll benefits, profits, rents, and indirect business taxes).</li> </ul>   |
| <b>Benefits in Perspective</b>  |   |
| <p>The money spent by visitors at Clarence J. Brown Reservoir 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 Clarence J. Brown Reservoir.</p> <p>(<a href="https://www.iwr.usace.army.mil/Missions/Value-to-the-Nation/">https://www.iwr.usace.army.mil/Missions/Value-to-the-Nation/</a>)</p>   |   |

Table 7: Visitation counts and social benefits from Clarence J. Brown Dam and Reservoir.

| <b>Social Benefits</b>   |   |
|--|---|
| <b>Facilities in FY2016</b>  | <b>Facilities in FY2019</b>   |
| <ul style="list-style-type: none"> <li>• 5 Recreation areas</li> <li>• 6 picnic sites</li> <li>• 111 camping sites</li> <li>• 4 playgrounds</li> <li>• 2 swimming areas</li> <li>• 8 trails</li> <li>• 22 trail miles</li> <li>• 0 fishing docks</li> <li>• 2 boat ramps</li> <li>• 188 marina slips</li> </ul>  | <ul style="list-style-type: none"> <li>• 5 Recreation areas</li> <li>• 6 picnic sites</li> <li>• 117 camping sites</li> <li>• 4 playgrounds</li> <li>• 2 swimming areas</li> <li>• 11 trails</li> <li>• 25 trail miles</li> <li>• 3 fishing docks</li> <li>• 2 boat ramps</li> <li>• 188 marina slips</li> </ul>  |
| <b>Visits (person-trips) in FY 2016</b>  | <b>Visits (person-trips) in FY 2019</b>   |
| <ul style="list-style-type: none"> <li>• 522,484 in total</li> <li>• 19,640 picnickers</li> <li>• 3,276 campers</li> <li>• 26,516 swimmers</li> <li>• 6,917 water skiers</li> <li>• 5,153 boaters</li> <li>• 296,966 sightseers</li> <li>• 108,651 anglers</li> <li>• 14,704 hunters</li> <li>• 62,708 others</li> </ul>   | <ul style="list-style-type: none"> <li>• 688,731 in total</li> <li>• 163,731 picnickers</li> <li>• 58,023 campers/overnight visitors</li> <li>• 220,681 swimmers</li> <li>• 168,982 walkers/hikers/joggers</li> <li>• 115,657 boaters</li> <li>• 146,046 sightseers</li> <li>• 75,034 anglers</li> <li>• 49,250 special event attendees</li> <li>• 28,464 others</li> </ul> |
| <b>Public outreach in FY 2016</b>  | <b>Public outreach in FY 2019</b>   |
| <ul style="list-style-type: none"> <li>• 9,162 public outreach contacts</li> </ul>   | <ul style="list-style-type: none"> <li>• 5,134 public outreach contacts</li> </ul>  |
| <b>Benefits in Perspective</b>   |   |
| <p>By providing opportunities for active recreation, Clarence J. Brown Reservoir helps combat one of the most significant national health problems: lack of physical activity.</p> <p>Recreational programs and activities at Clarence J. Brown Reservoir also help strengthen family ties, and friendships; provide opportunities for children to develop personal skills, social values, and self-esteem; and increase water safety.</p> |   |

Table 8: Population estimates for the AOI for Clarence J. Brown Dam and Reservoir

| Area of Influence | 2000 Population | 2010 Population | 2020 Population | 2030 Population | 2040 Population | % Change (2020-2040) |
|-------------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------------|
| Primary           | 371,731         | 383,438         | 381,940         | 379,940         | 376,470         | -1.43                |
| Secondary         | 2,347,453       | 2,557,558       | 2,717,400       | 2,851,150       | 2,975,090       | 9.48                 |
| Total             | 2,719,184       | 2,940,996       | 3,099,340       | 3,231,090       | 3,351,560       | 8.14                 |

Source: Ohio Development Services Agency



### 2.15.2 Related Visitation Profile

National and regional variables affect the way people decide to spend their leisure time. For that reason, Clarence J. Brown Dam and Reservoir visitation can fluctuate from year to year. Table 9 presents historic visitation data dating from Fiscal Year (FY) 2013-14 to FY 2019-20. Generally, there is a trend of increased visitation seen from 2014 to 2019, with one year, 2015, showing a decrease. Visitation data for 2017 was unavailable.

*Table 9: Visitation Data 2014-2019*

| Fiscal Year | Project Visitation |
|-------------|--------------------|
| <b>2014</b> | 507,783            |
| <b>2015</b> | 425,096            |
| <b>2016</b> | 518,230            |
| <b>2017</b> | 955,001            |
| <b>2018</b> | 553,010            |
| <b>2019</b> | 688,731            |

The Project affords its visitors many choices for outdoor recreation. Table 10 lists all activities available to visitors, with location and capacity for each.

Table 10: Recreational Activities at Clarence J. Brown Dam and Reservoir

| <i>Recreational Activities at Clarence J. Brown Dam and Reservoir</i> |   |  |
|---|---|--|
| <b>Activity</b>   | <b>Location</b>                           | <b>Description</b>   |
| Boating   | Buck Creek Ln Boat Ramp                   | Five-lane boat launch  |
|   | Buck Creek State Park Marina              | Marina with over 180 slips, fuel, snack bar, and bait shop           |
| Camping/Lodging   | Buck Creek State Park Campground          | 89 electric sites, 22 non-electric sites                             |
|   | Buck Creek State Park Cabins              | 26 two bedroom cabins  |
|   | Clarence J. Brown Dam and Reservoir       | Boat camping available   |
| Fishing   | Overlook Drive                            | Bank access and handicap accessible fishing pier                     |
|   | Buck Creek Ln boat ramp                   | Bank access  |
|   | Buck Creek State Park Marina              | Bank access and handicap fishing pier                                |
| Hunting and Trapping  | Buck Creek State Park hunting area        | Approximately 330 acres of land available for hunting and trapping   |
|   | Clarence J. Brown Dam and Reservoir       | The majority of the lake is open to waterfowl hunting (See Figure 6) |
| Picnicking  | Lake View Shelter                         | 12 picnic tables   |
|   | Meadow View Shelter                       | 12 picnic tables   |
|   | Prairie View Shelter                      | 14 picnic tables   |
|   | USACE visitor center and surrounding area | 50 picnic tables   |
| Swimming  | Buck Creek State Park Beach               | 2,400 foot sand beach and swimming area                              |
| Hiking  | Buck Creek State Park                     | 13.29 miles of moderate trails                                       |

Source: USACE data from the Operations and Maintenance Business Information Link, 2020

### 2.15.3 Recreation Areas and Facilities

Clarence J. Brown Dam and Reservoir has five designated recreation areas. These areas are listed and described below.

1. Clarence J. Brown Dam
  - a. Managed by: USACE
  - b. Total area (acres): 308
  - c. Total recreational area (acres): 20
  - d. Description: The Clarence J. Brown Dam site includes the Visitor Center and three recreation areas providing reservable picnic shelters, restroom facility, playground, and shoreline fishing access with a universally accessible pier. A paved bike trail connects to a regional network of trails, and several miles of hiking trails meander through woodlands and a restored prairie. Canoe and kayak access to Buck Creek is also available.
  
2. Fishing Access Site
  - a. Managed by: Ohio Department of Natural Resources
  - b. Total area (acres): 1158
  - c. Total recreational area (acres): 10
  - d. Description: This area provides access to sections of Buck Creek State Park with a trailhead for the hiking/bridle trails on the northern third of the park. There is a small picnic shelter with tables available. Parking for horse trailers along with hitching posts are provided at the Grant Road access.
  
3. Merritt Site
  - a. Managed by: Ohio Department of Natural Resources
  - b. Total area (acres): 480
  - c. Total recreational area (acres): 60
  - d. Description: Buck Creek State Park, operated by the Ohio Department of Natural Resources, features a large swimming beach, a 5-lane boat ramp, picnic areas, a Class A campground with both electric and non-electric sites, cabins, a marina that offers seasonal dock rental, disc golf, playground, and hiking/biking trails.
  
4. Stilling Basin
  - a. Managed by: Ohio Department of Natural Resources
  - b. Total area (acres): 10
  - c. Total recreational area (acres): 1
  - d. Description: Access to the stilling basin below the Clarence J. Brown Dam is provided by two parking areas connected by a section of the paved Buck Creek Trail. Trails also connect the tailwater area of the Dam and the Visitor Center recreation areas.
  
5. Visitor Center
  - a. Managed by: USACE
  - b. Total area (acres): 2

- c. Total recreational area (acres): 2
- d. Description: The Clarence J. Brown Visitor Center features exhibits illustrating the history of the Springfield area, the missions of the US Army Corps of Engineers, and the purpose of the Dam. Exhibits also celebrate the natural history and wildlife of the area, and describe how the Corps manages for conservation of its resources. The Visitor Center sits at the northwest end of the Dam, adjacent to two picnic areas.

#### 2.15.4 Recreation Analysis: Trends

Ohio’s 2018 Statewide Comprehensive Outdoor Recreation Plan (SCORP) was developed to assist recreation providers and state funding offices to strategically work towards delivering recreational opportunities and facilities that Ohioans want and that create outdoor recreational experiences that provide personal, social, health, and economic benefits. The planning horizon for this SCORP is 2018 through 2023. The 2018 - 2023 Ohio SCORP presents a summary and analysis of the state’s outdoor recreation resources with five strategic goals:

- Advance the trail network with the focus on completing long-distance trails, filling-in gaps, and building trail connections to community neighborhoods and assets;
- Improve and adapt recreational facilities to enhance existing recreational facilities to stay relevant into the future;
- Emphasize rivers, lakes, and wetlands with an emphasis on providing access and recreational opportunities related to Ohio’s waters and increasing paddling opportunities;
- Improve awareness and access to outdoor recreation opportunities to increase familiarity of close-to-home parks and recreational facilities and increase engagement and participation in outdoor recreation; and
- Protect and sustain the natural environment to continue the legacy of conserving high quality natural resources and providing appropriate outdoor recreation opportunities and experiences in areas that can sustain use.

A public participation survey was completed in 2017 in support of the development of the 2018 Ohio SCORP. The Participation Survey identified the following outdoor recreation activities that Ohio residents currently participate in with trail activities being the most popular with 97.5% of households utilizing Ohio’s trails. Other popular activities were scenic driving, bicycling, touring historic/heritage sites and farms, and swimming. More passive outdoor activities including picnicking, birdwatching, nature photography, night sky viewing, and attending outdoor festivals, concerts and plays also ranked in the top 15 of the 87 surveyed activities. These are listed below in order of most popular to least popular.

1. Walking/Hiking - Natural Surface Trail
2. Walking/Hiking -Paved Trail
3. Walking/Hiking - Finely Ground Pebble
4. Scenic Driving
5. Wildlife Viewing
6. Touring Historic /Heritage Sites & Farms
7. Picnicking- No Shelter

8. Picnicking- Shelter
9. Bicycling - Paved Trail
10. Outdoor Festival/Concert/Play
11. Swimming - Lake/Pond/River
12. Birdwatching
13. Nature Photography
14. Night Sky Viewing
15. Swimming - Outdoor Pool

The survey also identified residents' perspective of the supply of existing recreation areas and facilities on public lands in their communities. The survey asked if specific outdoor recreational facilities were adequate in number, adequate in number but needed rehabilitated, or there was a need for more facilities. Natural surface trails and water trails topped the list of identified public needs. Below are the top ten facilities identified for increases:

1. Natural Surface Trails
2. Canoe & Kayak Access, Facilities & Water Trails
3. Wildlife Viewing & Birding Areas
4. Paved, Multi-Use Trails
5. Primitive, Undeveloped Campgrounds
6. Finely Crushed Stone Trails
7. Mountain Biking Trails
8. Developed Campgrounds
9. Equestrian Trails
10. Outdoor Pools

In addition to public surveys, focus groups were held throughout the state in support of the 2018 Ohio SCORP. Overall the focus group responses correlated to the SCORP survey. The focus groups discussed observed trends in their areas and developed the following five priorities for outdoor recreation funding:

- Develop more trails, complete existing trails, and connect trails to build long-distance trails.
- Improve trail access, information, awareness, signage, lighting, parking areas, trailheads, restrooms, and safety features.
- Provide more facilities and access for paddle sports.
- Rehabilitate, update, and improve existing outdoor recreation facilities and integrate technology and safety enhancements.
- Acquire land for habitat preservation, nature enjoyment, and passive recreational activities such as birdwatching and hiking.

#### 2.15.5 Recreational Analysis: Needs

Clarence J. Brown Dam and Reservoir offers an array of recreational opportunities. Public comments received during the master planning process would indicate that there is a desire to have more recreational facilities to enhance the current outdoor recreation experience, such as

extensions of the trail network within the Project, connections to other trail networks outside the Project (i.e. Little Miami Trail), and to maintain and update existing facilities. Public feedback also supported increasing access to canoe and kayak opportunities at the lake. The Ohio SCORP supports the need for hiking, biking, and in general more water-based outdoor activities. USACE relies on partnerships for recreational amenities, and as time, partnerships, and budget allows, will integrate more facilities to accommodate the public. These activities are balanced with the primary missions of the Project, namely flood risk management, and the inherent mission of environmental stewardship.

#### 2.15.6 Recreational Carrying Capacity

Recreational carrying capacity is considered by USACE to ensure that visitors have a high quality and safe recreational experience, and that natural resources are not irreparably damaged. An example of a carrying capacity consideration at Clarence J. Brown Dam and Reservoir is the management of public hunting on USACE lands wherein hunting activity may be restricted by species or by area, depending on population and/or habitat conditions.

The plan formulated herein proposes to provide a variety of activities and to encourage optimal use of present public use areas, where possible, based on the carrying capability of the land. The carrying capability of the land is determined primarily by the distinct characteristics of the site. These characteristics, both natural and manmade, are development constraints that often determine the type of facilities that should be provided.

Having facilities that cater to a variety of tastes and different members of the family will encourage visitors to enjoy the lake. Presently, USACE manages recreation areas using historic visitation data combined with best professional judgment to address recreation areas considered to be overcrowded, overused, underused, or well balanced.

USACE will continue to identify possible causes and effects of overcrowding and overuse and apply appropriate best management practices including: site management, regulating visitor behavior, and modifying visitor behavior.

#### 2.16 RELATED RECREATIONAL, HISTORICAL AND CULTURAL AREAS

In addition to Clarence J. Brown Dam and Reservoir, recreationists have several other water-based recreational facilities available within the AOI. Some of these resources are managed by the Corps (Caesar Creek Lake, West Fork Lake, Deer Creek Lake, and Alum Creek Lake) with several other state managed parks and lakes nearby as well. Table 11 lists the other parks and recreational areas within the Clarence J. Brown Dam and Reservoir AOI.

Table 11: Recreational Areas surrounding Clarence J. Brown Dam and Reservoir.

| <b>Other Recreation areas in Vicinity</b>           |   |  |
|---|---|--|
| <b>Area</b>   | <b>Air Miles from Clarence J. Brown Reservoir</b> | <b>Activities</b>                                  |
| <b>Kiser Lake</b>                                   | 20  | Picnicking, fishing, boating and camping           |
| <b>Madison Lake Reserve</b>                         | 22  | Picnicking, swimming, fishing, boating and camping |
| <b>Spring Valley Lake</b>                           | 30  | Fishing and camping                                |
| <b>Lake Loramie</b>                                 | 40  | Picnicking, swimming, fishing, boating and camping |
| <b>Scioto River</b>                                 | 40  | Picnicking, fishing and boating                    |
| <b>Hoover Reservoir</b>                             | 45  | Picnicking, fishing and boating                    |
| <b>Delaware Reservoir</b>                           | 50  | Picnicking, fishing and boating                    |
| <b>Rocky Fork Lake</b>                              | 55  | Picnicking, swimming, fishing, boating and camping |
| <b>Lake St. Marys</b>                               | 55  | Picnicking, swimming, fishing, and boating         |
| <b>Other Authorized Corps of Engineers Projects</b> |   |  |
| <b>Caesar Creek Lake</b>                            | 30  | Picnicking, swimming, fishing, boating and camping |
| <b>Deer Creek Reservoir</b>                         | 35  | Picnicking, swimming, fishing, boating and camping |
| <b>Alum Creek Reservoir</b>                         | 55  | Picnicking, swimming, fishing, boating and camping |
| <b>West Fork Lake</b>                               | 80  | Picnicking, swimming, fishing, boating and camping |

## 2.17 REAL ESTATE AND ACQUISITION POLICY

The Clarence J. Brown Dam and Reservoir is a part of the flood protection plan for the Whitewater, Miami and Ohio River valleys, adopted by the Flood Control Act approved 28 June 1938 (Public Law 761, 75th Congress, Chapter 795, 3rd Session (H.R. 10618)).

Current fee acreage totals 4,250.43 acres located in Clark County, Ohio.

### 2.17.1 Easement Lands

There are lands in which only an easement interest was acquired. There are 345.94 acres of easement lands at Clarence J. Brown Dam and Reservoir located in Clark County, Ohio consisting of occasional flowage and utility/pipeline purposes

#### **Flowage Easement**

These are easements purchased by the USACE which grants the Government the right to occasionally or permanently flood private land during risk management operations. There are currently 345.3 acres of occasional flowage easement at Clarence J. Brown Dam and Reservoir. The purpose of these easements is to provide adequate storage for flood waters. The upper guide for flowage easement acquisition is elevation 1028.

#### **Utility/Pipeline Easement**

Utility easements allow the government to construct, install and maintain utilities/pipeline to Corps-owned land. There is 0.64 acres for sewer pipeline easement purposes at Clarence J. Brown Dam and Reservoir.

### 2.17.2 Disposals

The following real property interests have been disposed.

- 5.3 acres (Tract No. 144E) conveyed to the Ohio Edison Company by Quitclaim Deed dated September 30, 1974. This disposal was in accordance with Relocation Agreement No. DACW27-68-C-0203. The United States reserved a perpetual flowage easement over the entire 5.3 acres (Tract 149E).
- 9.06 acres (Tract Nos. 121E, 128E, 129E, 130E, 131E, 132E, 133E, 134E-1, 136E, 137E, 138E, 139E, 142E) conveyed to the Board of Commissioners of Clark County, Ohio by Quitclaim Deed dated July 6, 1976. This disposal was in accordance with Relocation Agreement No. DACW27-68-C-0148. The United States reserved a perpetual flowage easement over the entire 9.06 acres (Tracts 150E-1 and 150E-2).
- 0.16 acres (portion of Tract No. 126) conveyed to Stanley H. and Daisy Gray by Quitclaim Deed dated January 7, 1977.
- 0.321 acres (portion of Tract 302-2) conveyed to Lester F. and Penelope K. Peterman by Quitclaim Deed dated September 1, 1989.

- 0.307 acres (portion of Tract 302) conveyed to John F. and Sandra K. Wing by Quitclaim Deed dated September 1, 1989.
- 0.393 acres (portion of Tract 302) conveyed to Timothy Adkins by QCD dated 1 September 1989 and recorded December 14, 1989 in Clark County (Document No. 8926097).
- 2.47 acres (portion of Tract 302) conveyed to Lorenzo and Gladys Jara by Quitclaim Deed dated eptember 19, 1990.
- 7.61 acres (portion of Tract 305) conveyed to Thomas H. Lagos by Quitclaim Deed dated October 17, 1990. The United States reserved a perpetual flowage easement below elevation 1,028 feet msl over approximately 1.80 acres (Tracts 306E-1, 306E-2, and 306E-3).
- 30.67 acres (portion of Tracts 108, 111, 119, 300-1, 302 and all of 302-2) conveyed to Thomas H. Lagos by Quitclaim Deed dated October 17, 1990. The United States reserved a perpetual flowage easement below elevation 1,028 feet m.s.l. over approximately 2.00 acres (Tracts 148E-1, 148E-2, 306E-4 and 306E-5).
- 8.53 acres (portion of Tracts 100, 107 and 114) conveyed to the City of Springfield, Ohio by Quitclaim Deed dated September 19, 1997. The United States reserved a perpetual flowage easement over the entire 8.53 acres (Tract 151E).

### 2.17.3 Outgrants

Outgrants allow use of federally-owned land by state and local agencies as well as private corporations and individuals. Outgrants specify what types of activities are allowed on Federal lands and all Federal regulations still apply

#### Leases

The USACE leases approximately 3,743 fee acres at Clarence J. Brown Dam and Reservoir to the State of Ohio under Lease No. DACW27-1-75-075 for public park and recreational purposes. The term of the lease is fifty (50) years, beginning January 1, 1974 and ending December 21, 2023. The State of Ohio currently provides the following services: marina, frisbee golf course, seasonable camping, beach, boat ramps, picnic shelters, and a playground. The State of Ohio has entered into a third party agreement with Wrights Concessions, LLC to operate a marina and restaurant. The term of this third party agreement is for the period of April 19, 2019 and ending December 31, 2020.

The USACE also leases 22 acres (portion of Tract 111) at Clarence J. Brown Dam and Reservoir to the George Rogers Clark Heritage Association under Lease No. DACW27-1-12-004 for the preservation, restoration and exhibition of a historical site known as the Crabill Homestead Site. The lease term is for ten (10) years, beginning October 1, 2011 and ending September 30, 2021.

## Easements

Numerous easement outgrants are issued to various entities for the construction, operation, and maintenance of water, sewer, electric, telephone, and cable lines. Other easements grant various entities the right to construct, operate and maintain roads and bridges.

*Table 12: Easements located at Clarence J. Brown Dam and Reservoir.*

| <b><u>Outgrant Number</u></b> | <b><u>Grantee</u></b>                      | <b><u>Purpose</u></b>                            | <b><u>Term</u></b>    |
|-------------------------------|--|--|-----------------------|
| DACW27-2-75-029               | Board of Commissioners, Clark County, Ohio | Road right-of-way (Croft/Morefield-Catawba Road) | perpetual             |
| DACW27-2-75-032               | West Central Ohio Port Authority           | railroad   | perpetual             |
| DACW27-2-75-037               | Ohio Edison Company                        | electric   | perpetual             |
| DACW27-2-77-122               | Inland Corporation                         | cathodic protection facilities                   | perpetual             |
| DACW27-2-83-139               | Ohio Edison Company                        | Electric   | 5/23/1983 – 5/22/2033 |
| DACW27-2-94-020               | City of Springfield, Ohio                  | Road right-of-way (Old Reid Park)                | perpetual             |
| W912QRC204001150              | Board of Commissioners, Clark County, Ohio | road right-of-way (Robert Eastman Road)          | perpetual             |

## Consent to Easements

The following are consent to structures located on Government acquired easement tracts of land.

*Table 13: List of Consent to Easements at Clarence J. Brown Dam and Reservoir.*

| <b><u>Outgrant Number</u></b> | <b><u>Grantee</u></b>                       | <b><u>Purpose</u></b> | <b><u>Term</u></b> |
|-------------------------------|---|-----------------------|--------------------|
| DACW27-3-81-164               | John Shuman                                 | grain bin             | perpetual          |
| DACW27-9-18-389               | American Transmission Systems, Incorporated | poles, electric lines | perpetual          |

## 2.18 PERTINENT PUBLIC LAWS

Revision of the Clarence J. Brown Dam and Reservoir Master Plan will achieve compliance with all applicable environmental laws and regulations, described below, upon coordination of this Master Plan and Environmental Assessment (EA) with appropriate agencies, organizations, and individuals for their review and comments. Implementation of any potential future projects in accordance with the revised Master Plan (including future modifications to existing infrastructure or new features) will undergo separate environmental review and would not commence until the proposed actions achieve compliance with the applicable environmental laws and regulations.

- a. National Historic Preservation Act of 1966, approved 15 October 1966 (PL 665 89th Congress) (16 U.S.C. § 470), as amended, states a policy of preserving, restoring and maintaining cultural resources and requires that federal agencies take into account the effect any undertaking may have on sites that may be eligible for inclusion on the National Register of Historic Places.
- b. Archaeological and Historic Preservation Act of 1974 (54 USC § 312501, et seq.) (Reservoir Salvage Act, Public Law 86-532, 27 June 1960, as amended) provides for the preservation of historical and archaeological data that might otherwise be lost or destroyed as the result of flooding or any alteration of the terrain caused as a result of any federal construction projects.
- c. Archeological Resources Protection Act of 1979 approved October 31, 1979 (PL 95 96th Congress) (16 USC § 470aa, et seq.) as amended. This law protects archaeological resources and sites that are on public lands and Indian land, and fosters increased cooperation and exchange of information between governmental authorities, the professional community, and private individuals.
- d. American Indian Religious Freedom Act, approved 11 August 1978 (PL 341 95th Congress) 42 USC § 1996, amended 1994. As stated in the implementing guidance, Chapter 6 of ER and EP 1130-2-540, the Commander shall consult with affected tribes, groups or individuals regarding appropriate action for project effect upon sacred sites, important to the practice of Native American religion.
- e. Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, 1983, 48 FR 44716-44742 are intended to provide technical advice about archeological and historic preservation activities and methods. These standards and guidelines are not regulatory and do not set or interpret agency policy.
- f. Native American Graves Protection and Repatriation Act, approved 16 November 1990 (PL 601 101st Congress) requires federal agencies and museums to inventory human remains and associated funerary objects and to provide culturally affiliated tribes with the inventory of collection. The Act requires repatriation, on request, to the culturally affiliated tribes and establishes a grant program within the Department of the Interior to assist tribes in repatriation and to assist museums in preparing the inventories and collections summaries.
- g. Curation of Federally-Owned and Administered Archeological Collections, 1990 (36 CFR 79) governs the Federal Archeology Program that establishes definitions, standards, procedures and guidelines to be followed by Federal agencies to preserve collections of prehistoric and historic material remains, and associated records, recovered under the authority of the Antiquities Act (54 USC § 320301), the Reservoir Salvage Act (16 U.S.C. 469-469c), a section of the National Historic Preservation Act (54 USC § 300101) or the Archeological Resources Protection Act (16 U.S.C. 470aa-mm).

- h. Religious Freedom Restoration Act of 1993, approved 16 November 1993 (PL141 103rd Congress), 42 USC § 2000bb, guarantees application of the compelling interest test in all cases where free exercise of religion is substantially burdened provides a claim or defense to persons whose religious exercise is substantially burdened by government. The compelling interest test, as set forth in prior Federal court rulings is a workable test for striking sensible balances between religious liberty and competing prior governmental interests.
- i. Indian Sacred Sites, Executive Order 13007 of May 24, 1996 (61 FR 26771-26772) orders Executive branch agencies to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, to accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and avoid adversely affecting the physical integrity of such sacred sites. Where appropriate the agency shall maintain the confidentiality of sacred sites.
- j. The Water Resources Development Act of 2000, approved 11 December 2000 (PL 541 106th Congress) Section 208, authorizes the army to rebury Native American human remains that were discovered on Civil Works project lands and have been rightfully claimed by a tribe on those lands.
- k. Preserve America, Executive Order 13287, of 4 March 2003 states it is the policy of the Federal Government to provide leadership in preserving America's heritage by actively advancing the protection, enhancement, and contemporary use of historic properties owned by the Federal Government, and by promoting intergovernmental cooperation and partnerships for the preservation and use of historic properties.
- l. Public Law 78-534, Flood Control Act of 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.
- m. 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.
- n. Public Law 86-717, Forest Conservation - 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.

- o. Public Law 89-72, Federal Water Project Recreation Act of 1965 - This act requires that not less than one-half the separable costs of developing recreational facilities and all operation and maintenance costs at Federal reservoir projects shall be borne by a non-Federal public body. A HQUSACE/OMB implementation policy made these provisions applicable to projects completed prior to 1965.
- p. Public Law 91-190, National Environmental Policy Act of 1969 (NEPA) – 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. It is Section 102 that requires consideration of environmental impacts associated with Federal actions. Section 101 of NEPA requires the federal government to use all practicable means to create and maintain conditions under which man and nature can exist in productive harmony. Specifically, Section 101 of the National Environmental Policy Act declares:
- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
  - Assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
  - Attain the widest range of beneficial uses of the environment without degradation risk to health or safety or other undesirable and unintended consequences;
  - Preserve important historic, cultural, and natural aspects of our national heritage and maintain wherever possible an environment which supports diversity and variety of individual choice;
  - Achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and
  - Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

## **CHAPTER 3 - RESOURCE OBJECTIVES**

### **3.1 MASTER PLAN VISION**

The Corps' vision for the on-going management of the land, water, and recreational resources of Clarence J. Brown Dam and Reservoir is to protect and improve the assets that currently draw users to the lake, conserve the lake's natural and cultural resources and create more sustainable practices throughout the lake operations.

This chapter sets forth goals and objectives necessary to achieve the Corps vision for the future of Clarence J. Brown Dam and Reservoir. In the context of this master plan, "goals" express the overall desired end state of the Master Plan whereas resource "objectives" are specific task-oriented actions necessary to achieve the overall Master Plan goals. The Master Plan resource objectives will be used as the basis for a future update of the OMP, which is the strategic implementation plan for the Master Plan.

#### **3.1.1 Resource Goals**

The following statements, paraphrased from EP 1130-2-550, Chapter 3, express the goals for the Clarence J. Brown Dam and Reservoir Master Plan:

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

#### **3.1.2 USACE Environmental Operating Principles**

The Corps' Environmental Operating Principles (EOPs) were developed to ensure that Corps missions included totally integrated sustainable environmental practices. The EOPs provided corporate direction to ensure the workforce recognize the Corps' role in, and responsibility for, sustainable use, stewardship, and restoration of natural resources across the Nation and, through the international reach of its support missions.

Since the EOPs were introduced in 2002, they have instilled environmental stewardship across business practices from recycling and reduced energy use at Corps and customer facilities to a fuller consideration of the environmental impacts of Corps actions and meaningful collaboration within the larger environmental community.

The re-energized EOPs are:

- Foster sustainability as a way of life throughout the organization.
- Proactively consider environmental consequences of all Corps activities and act accordingly.
- Create mutually supporting economic and environmentally sustainable solutions.
- Continue to meet our corporate responsibility and accountability under the law for activities undertaken by the Corps, which may impact human and natural environments.
- Consider the environment and employing risk management and systems approach throughout the life cycles of projects and programs.
- Leverage scientific, economic, and social knowledge to understand the environmental context and effects of Corps actions in a collaborative manner.
- Employ an open, transparent process that respects views of individuals and groups interested in Corps activities.

### 3.1.3 Resource Objectives

Resource objectives are 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 the jurisdiction of the Louisville District, Clarence J. Brown Dam and Reservoir Project Office. The objectives stated in this Master Plan support the goals of the Master Plan, USACE EOPs, and applicable national performance measures. They are consistent with authorized Project purposes, Federal laws and directives, regional needs, resource capabilities, and they consider public input. Recreational and natural resource carrying capacities are also accounted for during development of the objectives found in this Master Plan. Regional and State planning documents including 2018 Indiana SCORP were also considered when developing objectives.

The objectives in this Master Plan provide Project benefits, meet public needs, and foster environmental sustainability for Clarence J. Brown Dam and Reservoir to the greatest extent possible. They include recreational objectives; natural resource management objectives; visitor information; education and outreach objectives; general management objectives; and cultural resource management objectives.

- Objective 1: Increase access to the existing recreational facilities that exist within the Clarence J. Brown Dam and Reservoir recreational area.
  - Action 1: Integrate USACE Visitor Center/Operations Area with the local community by continuing to participate in regional initiatives (e.g., bike path and low head dam conversion to "white water structure").
  - Action 2: Remove low head dams and replace with "white water" structure to integrate as part of regional initiative to allow people to kayak through Springfield.
- Objective 2: Improve the quality of the recreational experience for all users.
  - Action 1: Update the non-electric campground to electric.
  - Action 2: Continue to provide outdoor exercise equipment (fitness trail) to the regional bike path on USACE Operations Area.
  - Action 3: Redesign the trails at Buck Creek to provide a better experience.
  - Action 4: Add bike maintenance stations along regional bike path.

- Action 5: Add a mountain bike trail to facilities.
- Action 6: Improve trail access to upper-end of lake for bird watchers.
- Action 7: Add north end boat access.
- Action 8: Add interpretive signs throughout lake area that highlight the history and culture of the area
- Objective 3: Control invasive species and assist in the growth of native species.
  - Action 1: Engage volunteers to begin an invasive species removal program and native plantings.
  - Action 2: Survey and remove diseased Ash trees.
  - Action 3: Mitigate flooding impacts- Prairie Road Fen, shoreline erosion.
  - Action 4: Maintain existing woodlots and forest stands to minimize habitat fragmentation.
- Objective 4: Improve the experience of visitors to the visitor center and improve visibility of the amenities at the Clarence J. Brown Dam and Reservoir.
  - Action 1: Increase size and public offerings at the Class B USACE Visitor Center
  - Action 2: Provide educational opportunities that encourage the visitors to learn about the environment and the Corps of Engineers. Pursue continuous improvements in the public interpretive programs offered by USACE
  - Action 3: Add an arboretum at reservoir to attract more visitors.
  - Action 4: Integrate USACE Visitor Center with the local community by increasing offerings of public interpretive programs (ie., create an interpretive education experience at the Prairie plots).
  - Action 5: Establish a public/private partnership to increase the visibility and accessibility of the whitewater features at Clarence J. Brown Dam and Reservoir.
- Objective 5: Maintain the existing cultural resources and improve the visibility of the cultural assets at Clarence J. Brown Dam and Reservoir.
  - Action 1: Improve the facilities surrounding the Crabill house such as the fishing dock, bathroom facilities, pavilion and brick forge.
  - Action 2: Place a restricted development buffer around Prairie Fen Road and Crabill Fens.
  - Action 3: Straighten and widen road leading up to the Crabill house.
  - Action 4: Add interpretive signage and protection signs at cultural resource areas.
- Objective 6: Update existing facilities and amenities to increase the number of visitors and enhance the visitor experience.
  - Action 1: Employ a temporary employment program for seasonal, part time employment.
  - Action 2: Employ a capital improvement program to update facilities, particularly electric, throughout park.
  - Action 3: Add additional parking to the Visitor's Center.

## CHAPTER 4 - LAND ALLOCATION, LAND CLASSIFICATION, WATER SURFACE AND PROJECT EASEMENT LANDS

The purpose of this Master Plan is to guide the comprehensive management and development of recreation, natural, and cultural resources at the Project and define the Corps' responsibilities pursuant to Federal laws to preserve, conserve, restore, maintain, manage, and develop lands, waters, and resources. An important aspect in managing these goals is properly defining the appropriate use for lands and water surface consistent with their congressionally authorized purpose.

### 4.1 LAND ALLOCATION

All lands at 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. In accordance with Engineer Pamphlet (EP) 1130-2-550 land allocations identify the authorized purposes for which Corps lands were acquired. There are four possible categories of allocation identified in USACE regulations including Operations, Recreation, Fish and Wildlife, and Mitigation. Table 14 displays the original land allocation for Clarence J. Brown Dam and Reservoir.

*Table 14: 1971 Master Plan Land Allocation at Clarence J. Brown Dam and Reservoir.*

| Land Allocation           | Total (acres) |
|---------------------------|---------------|
| <b>Project Operations</b> | 317           |
| <b>Recreation</b>         | 1595          |
| <b>Fish and Wildlife*</b> | 95            |
| <b>Mitigation</b>         | 0             |

*NOTE 1 “\*” The original master plan identified “Natural Areas” Management.*

#### 4.1.1 Operations

These are the lands acquired for the congressionally authorized purpose of constructing and operating the project. Approximately 4090 acres of land were acquired for the construction of the Project, with approximately 2000 acres above the seasonal pool (described above). Of the 2000 acres, 317 acres were allocated as Project operations.

#### 4.1.2 Recreation

These lands were acquired specifically for the congressionally authorized purpose of recreation. These lands are referred to as separable recreation lands. Lands in this allocation can only be given a land classification of “Recreation.” At Clarence J. Brown Dam and Reservoir, approximately 1595 acres of land were originally allocated as Public Recreation. This included lands identified as Operation Lands managed for High and Low Density Recreation (947 acres) and specifically acquired recreation lands (648 acres).

#### 4.1.3 Fish and Wildlife

These lands were acquired specifically for the congressionally authorized purpose of fish and wildlife management. These lands are referred to as separable fish and wildlife lands. Lands in this allocation can only be given a land classification of “Wildlife Management.” At Clarence J. Brown Dam and Reservoir, approximately 95 acres of land were originally allocated as Operation Lands for Natural Areas.

#### 4.1.4 Mitigation

These lands were acquired specifically for the congressionally authorized purpose of offsetting losses associated with development of the project. These lands are referred to as separable mitigation lands. Lands in this allocation can only be given a land classification of “Mitigation.” Clarence J. Brown Dam and Reservoir did not originally allocate any lands with this classification.

### 4.2 LAND CLASSIFICATION

The guidance further defines land classifications to provide for development and resource management consistent with authorized purposes and other Federal laws. The previous Master Plan uses an obsolete classification scheme that has been revised in this document to meet current standards. Under the current guidance, there are six possible categories of land classification:

- Project Operations
- High Density Recreation
- Mitigation
- Environmentally Sensitive Areas
- Multiple Resource Managed Lands
  - Low Density Recreation
  - Wildlife Management
  - Vegetation Management
  - Future or Inactive Recreation Areas
- Water Surface
  - Restricted
  - Designated No-Wake
  - Fish and Wildlife Sanctuary
  - Open Recreation

The classification process refines the land allocations to fully utilize project lands and considers public desires, legislative authority, regional and project specific resource requirements, and suitability. Land classification indicates the primary use for which project lands are managed. USACE manages lands at the Project according to five of the above six classifications. There have been no changes to land management activities, however the system for classification has been realigned to meet current standards. See Table # 15 for land classification acreages and Figure 5 for the land classification maps for Clarence J. Brown Dam and Reservoir.

Table 15: Updated land classification for Clarence J. Brown Dam and Reservoir.

| <b>Classification</b>  | <b>Acres</b> |
|--|--------------|
| <b>LAND</b>  |              |
| Project Operations   | 286.69       |
| High Density Recreation  | 188.78       |
| Mitigation   | 0            |
| Environmentally Sensitive Areas                                | 148.75       |
| Multiple Resource Management Lands: Low Density Recreation     | 1507.87      |
| Multiple Resource Management Lands: Wildlife Management        | 14.19        |
| Multiple Resource Management Lands: Vegetative Management      | 0            |
| Multiple Resource Management Lands: Future/Inactive Recreation | 0            |
| <b>WATER</b>   |              |
| Water Surface: Restricted                                      | 5            |
| Water Surface: Designated No-Wake                              | 1080.72      |
| Water Surface: Fish and Wildlife Sanctuary                     | 0            |
| Water Surface: Open Recreation                                 | 848.56       |

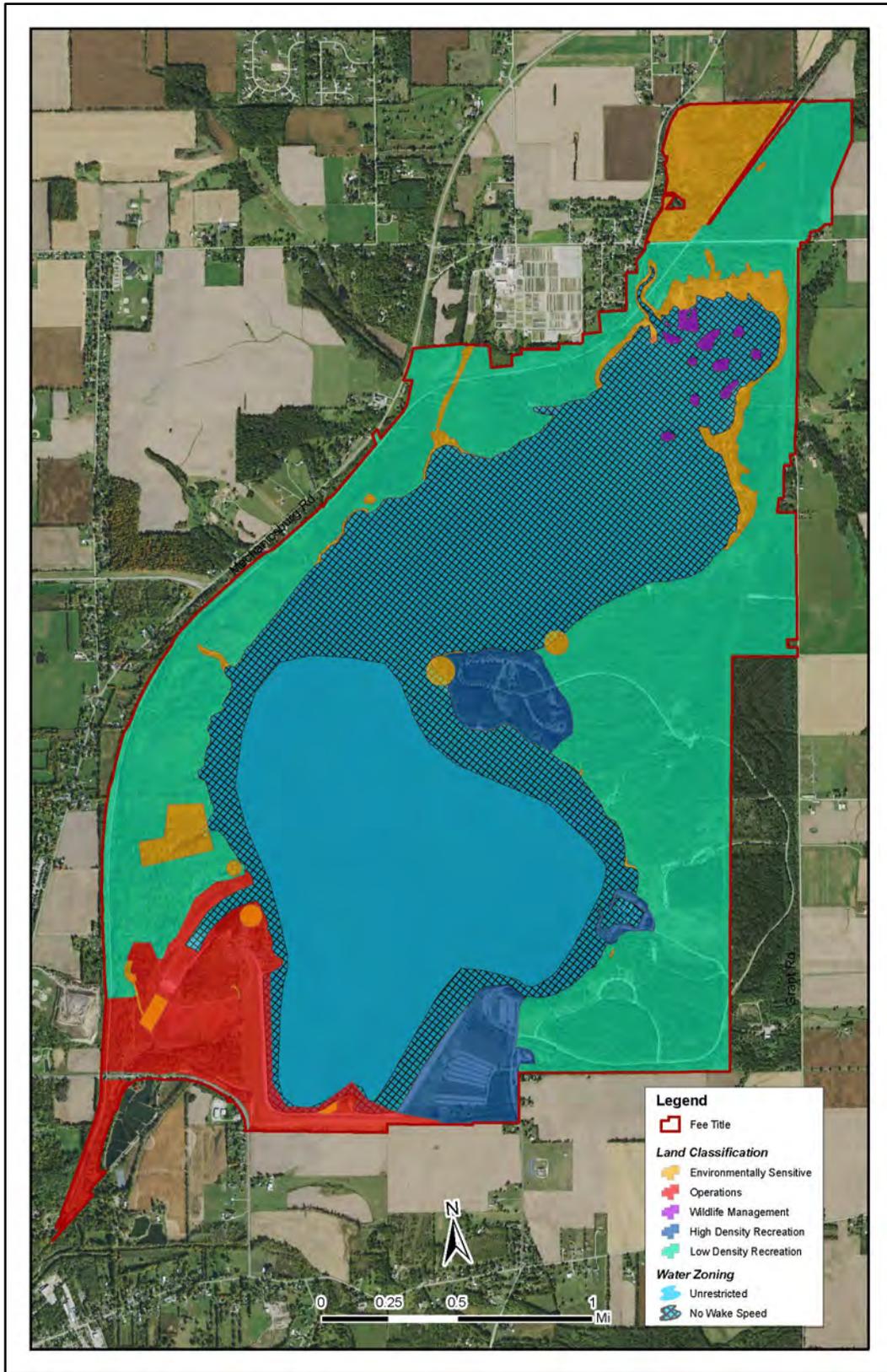


Figure 9: Updated land classifications for Clarence J. Brown Dam and Reservoir.

## 4.3 CURRENT LAND AND WATER CLASSIFICATIONS

### 4.3.1 Project Operations

This classification includes lands required for the dam and associated structures, operations center, administrative offices, maintenance compounds, and other areas that are used to operate and maintain Clarence J. Brown Dam and Reservoir. Where compatible with operational requirements, Project Operations lands may be used for wildlife habitat management and recreational use. Licenses, permits, easements, or other outgrants are issued only for uses that do not conflict with operational requirements. Regardless of any limited recreation use allowed on these lands, the primary classification of Project Operations will take precedence over these uses.

There are approximately 287 acres with this classification at Clarence J. Brown Dam and Reservoir.

### 4.3.2 High Density Recreation

These lands are designated for intensive levels of recreational use to accommodate and support the recreational needs and desires of visitors. They include lands on which existing or planned major recreational facilities are located and allow for developed public recreation facilities, concession development, and high-density or high-impact recreational use. In general, any uses of these lands that interfere with public enjoyment of recreation opportunities are prohibited. Low-density recreation and wildlife management activities compatible with intensive recreation use are acceptable, especially on an interim basis. No agricultural uses are permitted on those lands except on an interim basis for maintenance of scenic or open space values. Permits, licenses, and easements are not issued for non-compatible manmade intrusions such as pipelines; overhead transmission lines; and non-Project roads, except where warranted by the public interest and where no viable alternative area or route is available.

There are approximately 189 acres with this classification at Clarence J. Brown Dam and Reservoir.

### 4.3.3 Mitigation

This classification is used only for lands allocated for mitigation for the purpose of offsetting losses associated with the development of the project. There are no lands at Clarence J. Brown Dam and Reservoir with this classification.

### 4.3.4 Environmentally Sensitive Areas

Environmentally Sensitive Areas are areas where scientific, ecological, cultural, and aesthetic features have been identified. At Clarence J. Brown Dam and Reservoir, several distinct areas have been classified as Environmentally Sensitive Areas (ESA), primarily for the protection of sensitive habitats or cultural resources. Development of public use on lands within this classification is normally prohibited to ensure that these sensitive areas are not adversely impacted. Agricultural

uses are not permitted on lands with this classification. Each of these areas are discussed in Chapter 5 of this Master Plan and illustrated on the maps in Appendix C.

There are approximately 149 acres with this classification at Clarence J. Brown Dam and Reservoir.

#### 4.3.5 Multiple Resource Management Lands

This classification includes lands managed for one or more of the following activities:

- Low-Density Recreations;
- Wildlife Management;
- Vegetative Management; and
- Future or Inactive Recreation Areas.

##### 4.3.5.1 Low Density Recreation

These lands are designated for dispersed and/or low- impact recreation use. Development of facilities on these lands is limited. Emphasis is on providing opportunities for non-motorized activities such as walking, fishing, hunting, or nature study. Site-specific, low-impact activities such as primitive camping and picnicking are allowed. Facilities may include boat ramps, boat docks, trails, parking areas and vehicle controls, vault toilets, picnic tables, and fire rings. Manmade intrusions, including power lines, non-Project roads, and water and sewer pipelines, may be permitted under conditions that minimize adverse effects on the natural environment. Vegetation management, including agricultural activities that do not greatly alter the natural character of the environment, are permitted for a variety of purposes, including erosion control, retention and improvement of scenic qualities, and wildlife management. Hunting and fishing are allowed pursuant to tribal or state fish and wildlife management regulations where these activities are not in conflict with the safety of visitors and Project personnel.

There are approximately 1508 acres with this classification at Clarence J. Brown Dam and Reservoir.

##### 4.3.5.2 Wildlife Management

This land classification applies to those lands managed primarily for the conservation of fish and wildlife habitat. These lands generally include comparatively large contiguous parcels, most of which are located within the flood pool of the lake. Passive recreation uses such as natural surface trails, fishing, hunting, and wildlife observation are compatible with this classification unless restrictions are necessary to protect sensitive species or to promote public safety.

There are approximately 14 acres with this classification at Clarence J. Brown Dam and Reservoir.

##### 4.3.5.3 Vegetative Management

These are lands designated for stewardship of forest, prairie, and other native vegetative cover. Passive recreation activities previously described may be allowed in these areas.

There are no lands with this classification at Clarence J. Brown Dam and Reservoir.

#### 4.3.5.4 Future or Inactive Recreation Areas

These are lands with site characteristics compatible with High Density Recreation development. These are areas where High Density Recreation development was anticipated in prior land classifications, but the development either never took place or was minimal. These areas are typically closed to vehicular traffic and will be managed as multiple resource management lands until development takes place.

There are no lands with this classification at Clarence J. Brown Dam and Reservoir.

#### 4.3.6 Water Surface

USACE regulations specify four possible sub-categories of water surface classification. These classifications are intended to promote public safety, protect resources, or protect Project operational features such as the dam and spillway. These areas are typically marked by USACE or lessees with navigational or informational buoys or signs, or are denoted on public maps and brochures. The Water Surface Classification map can be found in Appendix C of this Plan. The four sub-categories of water surface classification are:

- Restricted;
- Designated No-Wake;
- Fish and Wildlife Sanctuary; and
- Open Recreation.

##### 4.3.6.1 Restricted

Restricted water surface includes those areas where recreational boating is prohibited or restricted for project operations, safety, and security purposes.

There are five (5) acres of restricted water surface at Clarence J. Brown Dam and Reservoir.

##### 4.3.6.2 Designated No-Wake

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.

There are 1081 acres of designated no-wake water surface at Clarence J. Brown Dam and Reservoir.

##### 4.3.6.3 Fish and Wildlife Sanctuary

This water surface classification applies to areas with annual or seasonal restrictions to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning.

There are no waters with this classification at Clarence J. Brown Dam and Reservoir.

#### 4.3.6.4 Open Recreation

Open Recreation includes all water surface areas available for year-round or seasonal water-based recreational use. This classification encompasses the majority of the lake water surface and is open to general recreational boating. Boaters are advised through maps and brochures, or signs at boat ramps and marinas, that navigational hazards may be present at any time and at any location in these areas. Operation of a boat in these areas is at the owner's risk. Specific navigational hazards may or may not be marked with a buoy.

There are 849 acres of open recreation water surface at Clarence J. Brown Dam and Reservoir.

## CHAPTER 5 - RESOURCE PLAN

The resource plan describes, in broad terms, how Project lands will be managed according to the established land classifications. Each classification is discussed in terms of anticipated public use and resource stewardship needs.

### 5.1 MANAGEMENT BY CLASSIFICATION

This chapter describes how Project lands will be managed using the Master Plan as guidance. The classifications that exist at Clarence J. Brown Dam and Reservoir are Project Operations, High Density Recreation, Environmentally Sensitive Areas, and Multiple Resource Management Lands, which consist of Low Density Recreation and Wildlife Management. The Water Surface is divided into two classifications: Designated No-Wake and Open Recreation. The Resource Plan describes how areas under these various classifications will be managed in broad terms. There are also nineteen distinct recreation areas identified at Clarence J. Brown Dam and Reservoir, which extend across multiple land classifications.

Further details for managing these lands will be included in the Operational Management Plan (OMP) for the Project, as revised. Management tasks described in the OMP will support the resource objectives, land classifications, and resource plan set forth in this Master Plan. While the following sections address broad plans for the land classifications listed above, at all Project lands the Corps will strive to meet universal Project goals which include taking proactive measures to enhance universal access to lands and facilities, improvement of safety for visitors, and identification and elimination of encroachments and trespassing. In addition, USACE will seek to identify important “unofficial” recreation activities and sites such as undeveloped shoreline fishing areas, swimming areas outside of developed beaches, or other preferred areas used by recreationists into the future. As development occurs in the future, USACE will seek to protect these areas and may require mitigation for development actions that would negatively impact these sites. As these sites are identified, they will be included in future updates to the Master Plan and may also be included in the OMP.

### 5.2 PROJECT OPERATIONS

This category includes those lands required for operation of the dam, spillway, and outlet works at the Project. There are 286.96 acres of land with this classification at Clarence J. Brown Dam and Reservoir. The management plan for these areas is to continue providing physical security necessary to insure continued operations of the dam and related facilities. Public access to these areas is often restricted. Mooring private vessels and / or modification of land and vegetation within this area is prohibited without explicit permission. These areas may at times be used for compatible recreation activities and wildlife management as long as the proposed activities do not negatively impact Project operations. Requests for a permit for a compatible use within an area designated for Project operations will be evaluated on a case-by-case basis and a decision will be made as to whether or not the proposed activity will be permitted based on the potential impacts to operations.

Sufficient facilities have been developed in the Operations area which includes the Dam, Spillway, Visitor Center, Tailwater, and the Overlook area to provide for public use.

### **Damsite**

The Damsite is operated by the Corps and is accessed by Overlook Drive off of Croft Road southwest of the Dam. Facilities at the Damsite include a Class B Visitor Center with information desk, interpretive display galleries and restrooms and water fountains. There are three reserveable picnic shelters with large group grills, electric service, and water fountains. All the shelters are ADA accessible. There is a total of four parking lots with 163 car spaces and 12 trailer spaces.

There are four individual ADA accessible picnic sites with concrete pads, table, and grill. In the surrounding picnic areas there are 46 other picnic tables, 14 small pedestal grills, 18 benches, and five water fountains. The Lake View and Prairie View Recreation areas have flush restroom buildings.

In the Lake View area, there is about .05 mile of shoreline fishing area, including a 180-foot long ADA accessible fishing platform. The Prairie View area provides access to the tailwater for fishing access, including a concrete platform at the outlet works. There is stream access at Prairie View also for launching canoes and kayaks into Buck Creek.

There is a Model Airplane field in the Prairie View area that is maintained by volunteers. There is a total of about three miles of hiking trails. This includes a 0.33 mile interpretive trail with trail guides. The 0.7 mile service road on the Dam is popular for walking and biking, and has five interpretive signs. A 0.75 mile section of paved bike trail connects the site to a system of bike trails throughout southwest Ohio. There are two trail bulletin boards and two interpretive signs along the bike trail. Along the Corps section of the bike trail between the Meadow View and Prairie View shelters; there are six fitness stations with eight different apparatus and instructional signage.

### **5.3 HIGH DENSITY RECREATION**

Lands developed for intensive recreational activities for the public are considered high density recreation lands. This includes areas for commercial concessions (i.e. marinas, campgrounds, resorts), and quasi-public development. Facilities in high density recreation lands should be able to accommodate the recreation needs of visitors in concentrated numbers, while also offering ample open space for other recreational areas.

There are several areas classified as high density recreation that are leased to the ODNR. The Corps does not provide any maintenance within any of these locations, but does provide support when requested. The Corps is also required to review any future project requests in order to ensure all applicable laws and regulations are adhered to. The general plan for the management of these lands (primarily by the Corps' partners) is to maintain existing facilities and otherwise manage these areas in accordance with the Resource Objectives identified in Chapter 3.

### **Stilling Basin Recreational Area**

The Stilling Basin PSA is leased to the Ohio Department of Natural Resources- Buck Creek State Park, and consists of two parking lots and a 1 1/2 mile long section of paved bike path. The larger parking lot at the intersection of Croft and Robert Eastman Roads has 40 parking spaces, and the lot along Croft road has 11 spaces. The paved bike path connects to the south with a city park and beyond, to Downtown Springfield, and a network of regional bike trails that total over 300 miles in a ten county area. To the north it connects to the Dam Site across a bridge on Buck Creek. To the east, it connects to the beach parking lots in Buck Creek State Park.

The Stilling Basin area is immediately adjacent to the Dam Site, and provides access to the service road on the Dam via a sidewalk and steps. The tailwater part of the Dam Site is also accessed primarily from these lots. The majority of visitors parking here are also using the Dam Site. Walking, biking, and fishing are the primary activities.

#### **Merritt Site (Buck Creek State Park)**

The entrance to this area is on Buck Creek Lane at the southeast end of the lake. The majority of the Ohio Department of Natural Resources - Buck Creek State Park recreational facilities are in this area.

Facilities in this area include:

- The ODNR office manages the park facilities, but also does Ohio watercraft registrations and inspections.
- A public swimming beach that is over 2,300 feet long.
- One public boat ramp with five launch lanes and courtesy docks.
- A marina facility with 188 seasonal slips that are managed by ODNR directly. There are 12 short-term slips, a bait store with gasoline and a sewage pump-out, and a restaurant that are typically operated by an ODNR concessionaire. There is a small one-lane boat ramp at the marina that is limited to marina slip-holders.
- Twenty-six cabins with a communal fire pit, swingset, and shuffleboard court. Three of the cabins are ADA accessible.
- A campground with 111 sites. There are 89 sites with electric service and 22 non-electric sites. There are two flush restrooms with showers, one of which also has a laundry. The camp office includes a small camp store. There are weekend naturalist programs and an amphitheater for movie nights. The campground also has a small beach that is reserved for campers, volleyball net, basketball court, and a playground. There are no water or sewer hookups, but water stations are located at several places around the sites, and a dump station. There is also shoreline fishing access for campers. There is a small group camp area for organized groups (e.g. scouts, 4H, etc.) with a flush restroom and approximately six sites.

- A 3-mile hiking trail that connects the marina, cabins, and campground. This trail also connects to a system of trails that can also be accessed from the Fishing Access PSA.
- An 18-hole disc golf course in one of the picnic areas near the marina.
- Two reserveable picnic shelters with 10-12 tables, and two non-reserveable shelters with 4-5 tables. There are six group picnic areas with 175 picnic sites.
- A total of 27 parking lots with 1,512 car spaces and 138 trailer spaces.
- Flush restroom facilities include 3 at the beach, 1 at the boat ramp, 2 at the marina, 1 at the ODNR office, 4 in picnic areas, and the 2 shower houses at the campground.

### **Fishing Access Site**

The Fishing Access Site encompasses four separate parking areas that are managed by Buck Creek State Park, and access the lake outside of the main recreation area (Merritt PSA). There are a total of 36 car spaces and 40 trailer spaces among these four lots.

The Bridle Trail lot is on Grant Road on the east side of the park. This is a gravel lot that provides access to an 11-mile system of trails that spans the east side of the park. This trail system allows horses, hikers, and snowmobiles (with adequate snow). All of the trailer spaces in the PSA are in this lot. There is a picnic shelter with 10 tables, hitching posts, a non-potable hand pump well for watering horses, and a porta-john during the warmer months.

This lot also provides access to public hunting areas, fishing and birdwatching from the north end of the lake. There is an old boat ramp that was built by the Corps with all of the original facilities in the 1970s, that was never developed by ODNR on the trail between this lot and the campground. ODNR is considering allowing canoe and kayak access to the north end of the lake at the old ramp.

The Grant access lot is near the north end of Grant Road and is an access to the north end of the lake, the trail system and hunting areas. The lot is small and there is a gate that can be opened onto a gravel lane that ends at the lake. ODNR holds a lottery for seasonal duck hunting blinds, and blind holders near this can get access to unload materials and launch small craft to get to the spots that are on islands.

The Temple lot is on Temple Street in New Moorefield. This is a gravel lot that provides access to the lake where Buck Creek flows into the north end. Besides fishing, visitors use this to launch canoes and kayaks to explore the upper part of the lake, and duck hunters with blinds on islands will also paddle from here. The north end of a hiking trail is accessed from this lot also. This trail is about 3.5 miles long and travels on the west side of the park to connect to the Dam Site.

The Route 4 lot is a small asphalt and gravel lot along State Route 4 (Mechanicsburg Road) on the west side of the park. There is a section of the old Buck Creek Lane that leads to the lake from the lot. This old roadbed is gated at the railroad track crossing and allows fishing access to the lake, as well as public hunting area access and access to the hiking trail on the west side.

## 5.4 MITIGATION

Mitigation lands are acquired or designed specifically to minimize adverse effects to Corps lakes. There are currently no lands with this classification at Clarence J. Brown Dam and Reservoir.

## 5.5 ENVIRONMENTALLY SENSITIVE AREAS

ESAs are areas where scientific, ecological, cultural, or aesthetic features have been identified. Designation of these lands is not limited to just lands that are otherwise protected by laws such as the Endangered Species Act, the National Historic Preservation Act, or application state statutes. These areas must be managed to ensure they are not adversely impacted. Typically, limited or no development or public use is allowed on these lands. No agricultural or grazing uses are permitted on these lands unless necessary for a specific resource management benefit, such as prairie restoration and management. These areas are typically distinct parcels located within another, and perhaps larger, land classification area.

ESAs at Clarence J. Brown Dam and Reservoir include wetland areas found throughout the lake area, cultural resources, and shoreline areas with significant erosion impacts. All of these areas should be protected from unnecessary development. Defining sensitive areas as part of the master plan process assists in the protection of valuable resources. Many factors contribute to identifying sensitive areas. These sites are mapped and managed by the Corps. Data includes locations of threatened and endangered species and cultural sites not available to the public. Many species of greatest conservation need are found on Corps lands and are identified in various conservation plans.

Degree of sensitivity varies by location and by contributing factors. An area may be available to construct a properly designed hiking trail, or may be actively managed by forest practices like timber stand improvement without negatively impacting the site's sensitivity. Other sites can be very sensitive to human disturbance and need adequate protection from development. Examples of this degree of sensitivity would involve eagle nests, osprey nests and heron rookeries. These animals are threatened by human activities especially during active breeding seasons. Buffering of sensitive locations is necessary for resource protection. Size of the buffer is tied to the ecology of the location. On occasion, multiple sensitive areas may exist within proximity to one another. These are often combined into one larger sensitive area. Fragmentation threatens sensitive species and large block habitats have been identified as sensitive. Many wildlife species that are identified as having significant conservation need are often associated with large habitats.

The wetlands found at Clarence J. Brown Dam and Reservoir are largely concentrated along the northern most shoreline in association with the waterfowl sanctuary area. The following occurrences on the landscape can contribute to areas being classified as sensitive. Oftentimes, multiple contributors to sensitivity exist on one area.

- Known cultural resources
- Remnant prairies
- Fens
- Wetlands identified in the National Wetlands Inventory
- Migratory Bird Nesting trees

Areas designated as sensitive can change over time and continued monitoring through programs like Multiple Species Inventory and Monitoring program (MSIM) provide valuable information to keep identified sensitive areas current. Through the use of Geographic Information System (GIS) databases maintained with separated layers, the dynamic nature of sensitivity can be managed in an up-to-date program. Some areas may be highly sensitive to change; other areas need prescribed management to remain viable. Management practices may include invasive species control, prescribed fire or plantings. The goal of sensitive area management is to protect and preserve known areas that contribute to the diversity and health of the Miami River Watershed. The program should be beneficial to plants, animals and the people that enjoy the resource.

There are approximately 148.75 acres as Clarence J. Brown Dam and Reservoir under this classification.

### **Crabill Homestead**

The Crabill Homestead is a 1820s era brick farmhouse that is listed on the National Register of Historic Places. The homestead is part of a 20-acre lease to the George Rogers Clark Heritage Association, a local historical organization. GRCHA holds open house tours of the Crabill Homestead one weekend a month from May through October and several other special events during the summer. This area is accessed from the Damsite, but has a gate that is only open when there are activities going on. Visitors also park in the Dam Site lots and walk the mile back to the house, up the access road through the woods. The house itself sits on a hill overlooking the lake, adjacent to the Spillway channel.

### **Prairie Road Fen and Crabill Fen**

There are two fen areas located at Clarence J. Brown: Prairie Road Fen and the Crabill Fen. A Fen is a low and marshy area of land with specialized plants and animals. The Prairie Road Fen includes rare species such as the insectivorous sundew, the rare spotted turtle, and the massasauga rattlesnake.

## **5.6 MULTIPLE RESOURCE MANAGEMENT LANDS**

These are areas where the predominant use is that of the sub-classification. However, there are other compatible uses which may occur on these lands without impacting the predominant use. These lands are divided into two sub-categories for the purposes of this Master Plan. These categories are Low Density Recreation and Wildlife Management. No licenses, permits, or easements will be issued for non-compatible manmade intrusion, such as underground or exposed pipelines, cables, overhead transmission lines, or non-Project roads. Management of these lands will focus on maintaining the existing facilities and resources in accordance with the resource objectives outlined in Chapter 3 above.

### **5.6.1 Low Density Recreation**

Low density refers to lands with minimal development or infrastructure that support passive public recreational use (e.g. primitive camping, fishing, hunting, trails, wildlife viewing, etc.). Although Clarence J. Brown Dam and Reservoir is a largely urban lake, there are areas that remain

undeveloped and are considered areas of low density recreation. Natural conditions preclude intensive public use development because extensive alteration of natural systems would be required. Difficult access also is a factor indicating low-density use as most appropriate for these lands. This classification may be appropriate when a conflict exists between public use and wildlife habitat. Private or long-term exclusive group use of these lands will not be permitted.

Management practices leading to habitat improvements for the benefit of wildlife are encouraged. No licenses, permits, or easements will be issued for such non-compatible manmade intrusion, such as underground or exposed pipelines, cables, overhead transmission lines, or non-Project roads. Exceptions to this restriction may be made where necessary to serve a demonstrated public need only in those instances where no reasonable alternative is available. Hunting and agricultural uses are permitted on this land.

Furthermore, Clarence J. Brown Dam and Reservoir was recognized by Audubon Ohio as an Ohio Important Bird Area in 2004. The lake and the surrounding habitats provide unique opportunities for birdwatching. The numbers and variety of birds, and the extensive records kept by birders back to the 1970s, led to this designation. In the last ten to fifteen years, the Cornell Laboratory of Ornithology's eBird website has become a place for the public to enter their current and historic bird sightings. In eBird there are "Hotspots", which are shared locations for birders to enter their sightings. The primary "Buck Creek SP" hotspot in eBird has 281 species recorded, more than any other Ohio hotspot.

#### 5.6.2 Wildlife Management

The broad objective of fish and wildlife management is to conserve, maintain and improve the fish and wildlife habitat to produce the greatest dividend for the benefit of the general public. Implementation of a fish and wildlife management plan is the first step toward achieving the goals of the Fish and Wildlife Coordination Act (Public Law 85-624). ODNR shares responsibility with USACE for managing fish and wildlife, primarily through enforcement of laws and regulations and establishing seasons and bag limits for game species. Future management plans for wildlife areas include continued cooperation with partners and managing and improving wildlife management areas under this land classification.

Priority in all lands under this classification will be provided to special status species including those federally and state listed, those identified as species of concern, and those afforded special protections in other federal regulations such as the Bald and Golden Eagle Act and the Migratory Bird Act.

Wildlife activities conducted by ODNR in these areas include maintenance and upgrading of existing facilities, improving wildlife habitat, and providing recreational opportunities. Approximately 10% of the crop is left un-harvested in the field for wildlife.

Techniques such as prescribed burning, planting native grasses and forbs beneficial to pollinators, and artificial nest boxes to encourage continued use by raptors, including osprey and bald eagles, will also be utilized. Such lands are available to the public for sightseeing, nature study, hiking,

hunting and other activities that enhance environmental awareness and promote environmental stewardship.

Clarence J. Brown Dam and Reservoir has approximately 14.19 acres of land with this classification. These lands are the small islands located in the northeastern part of the lake and managed for waterfowl habitat. These lands provide public hunting opportunities in addition to the low density recreation lands that are used for both big and small game hunting. The management plans for these areas would include common wildlife management practices, such as planting of food plots, maintaining public access, and implementing a nesting box program. Non-game species are also managed by the Corps.

### 5.6.3 Vegetative Management

These lands are designated for stewardship of forest, prairie, and other native vegetative cover. There are no lands with this classification at Clarence J. Brown Dam and Reservoir.

### 5.6.4 Future / Inactive Recreation Areas

These areas have site characteristics compatible either with future recreational development or recreation areas that are closed. Until there is an opportunity to develop or reopen these areas, they will be managed for multiple resources. There are no lands with this classification at Clarence J. Brown Dam and Reservoir.

## 5.7 WATER SURFACE

This section is in reference to water surface management needs, which Clarence J. Brown utilizes to ensure efficient operations as well ample space of public recreation. The shoreline and northern half of the lake are designated no wake zones. The main lake body is classified as unrestricted. Table 16 provides the area for each water surface classification.

*Table 16: Water Surface Classification at Clarence J. Brown Dam and Reservoir*

| Water Surface Classification | Acres   |
|------------------------------|---------|
| <b>Unrestricted</b>          | 848.64  |
| <b>Designated No-wake</b>    | 1095.35 |
| <b>Restricted</b>            | 5       |

## CHAPTER 6 - SPECIAL CONSIDERATIONS

There are several considerations that make Clarence J. Brown Dam and Reservoir a unique project. Land use and management decisions should consider these important items. One special consideration at Clarence J. Brown Dam and Reservoir is the presence two fen biomes with unique and rare plant and animal communities inhabiting these environments. Another special consideration is the presence of the Crabill House—the only NRHP-listed property on Corps-owned lands in the Louisville district.

In general, there are also special considerations regarding overall recreational needs and water quality. These are also important because recreation and water quality are authorized purposes of Clarence J. Brown Dam and Reservoir. Lastly, future development should be based upon foreseeable community growth. Understanding foreseeable growth will require a Carrying Capacity Study to help juxtapose community needs with recreational capacity of Clarence J. Brown Dam and Reservoir. Overuse of recreational and environmental resources has recently been observed at Clarence J. Brown Dam and Reservoir.

### 6.1 WILDLIFE AND VEGATATIVE MANAGEMENT

The presence of two fens (Prairie Road Fen and Crabill Fen) is one distinct characteristic of Clarence J. Brown Dam and Reservoir. These areas contribute to low-density recreation (sight-seeing) as well as wildlife and vegetation management. However, these fens are under threat by invasive species included, but not limited to, the Emerald Ash borer, bush honeysuckle, autumn olive, and Phragmites. In addition to these invasive species, other non-invasive species are contributing to general hygiene and environmental concerns for the Project. These species include beavers (specifically adversely affecting the Prairie Road Fen), Canada Geese, and black vultures. Other wildlife and vegetative management issues identified at the Project include fragmentation of landscapes.

The Corps, as well as all lease holders, should make all reasonable attempts to manage the wildlife and vegetative resources to promote native species. This should include management practices that attempt to remove or inhibit the spread of invasive species. Existing woodlots, wetlands, and other specific landscapes should be managed to promote healthy stands and to minimize fragmentation of forested parcels. The Corps could establish a protective buffer around the two fen sites to minimize development and help protect the native species inhabiting these biomes.

### 6.2 CRABILL HOUSE NRHP-LISTED SITE

Currently, the Crabill House has limited visibility and accessibility to the public. This resource would benefit from additional improvement or amenities to promote compatible public visitation. Improvements could potentially include restroom facilities, improvements to the access road, and the addition of a brick forge or small pavilion for historic demonstrations and reenactments. Other improvements could include a fishing dock for public access.

### 6.3 RECREATION IMPROVEMENTS

Modernization of existing recreational facilities could greatly improve current conditions at Clarence J. Brown Dam and Reservoir. Modernizations could include upgraded camping sites, additional public offerings at the Class B USACE Visitors center, bike maintenance stations along the regional bike path, additional outdoor exercise equipment, adding an archery range, and additional trails and the redesigning of existing trails to provide a better experience. There is a potential for white-water rafting opportunities at the existing rapids and if the low head dam is removed.

### 6.4 WATER QUALITY

There is a potential for harmful algal blooms due to warm temperatures. Water-based recreation is negatively impacted by water quality concerns. Blue green algal blooms and elevated levels of E. coli (from goose feces) levels can be serious water quality issues that hinder recreational use of the lake. Other water quality impacts stem from the occasional flooding and high water at Clarence J. Brown Dam and Reservoir. These events contribute to sedimentation through shoreline erosion. The Corps and all lease holders should monitor and manage water quality. Shoreline erosion should be monitored and managed through maintaining or improving signage for no-wake zones.

### 6.5 PUBLIC OUTREACH AND PARTNERSHIPS

A public outreach plan should be considered in order to improve public relations and consistency between the ODNR managed areas and the Corps operated areas. Public outreach could also promote additional partnerships and volunteer services. Partnerships and volunteer services could also help deter theft and vandalism, and identify potential lessees for certain areas ODNR could turnover management responsibility. Furthermore, providing educational opportunities at Clarence J. Brown Dam and Reservoir through interpretive programs and signage could promote local community engagement, partnerships, and overall community cohesion (e.g., regional bike trails and whitewater rafting).

## CHAPTER 7 - PUBLIC AND AGENCY COORDINATION

### 7.1 PUBLIC AND AGENCY COORDINATION OVERVIEW

Public involvement is important to the overall success of the master planning effort. Stakeholder and public meetings were held in the summer of 2019, providing the public, stakeholders and other public agencies opportunities to participate in defining the master plan (Appendix B).

### 7.2 INITIAL STAKEHOLDER AND PUBLIC MEETINGS

The Corps held an initial scoping meeting with state and local agencies directly involved in managing Corps lands at Clarence J. Brown Dam and Reservoir on June 11, 2019. This meeting focused on announcing the intent to revise the Master Plan, as well as the purpose and need for revision.

### 7.3 PUBLIC AND AGENCY REVIEW OF DRAFT MP, EA AND FONSI

On July 23, 2019, Corps employees hosted a public meeting for the public to review and comment on the Master Plan process. Notice was given via news release and social media. Participants were asked to sign in at a table where staff provided the participants with information on the structure of the public meeting and comment forms. Large scale maps were set up and the stakeholder presentation was displayed.

Corps employees were available to answer questions and receive comments. Interested persons had the opportunity to comment about the Project using a variety of methods:

- Filling out a survey at the open house;
- Giving verbal comment; and
- Submitting comment using electronic mail.

Only one member of the public attended the meeting and gave comment. The public comment period was open from July 25 - August 30. All comments received were considered, and some proposals were integrated into the Draft Master Plan, as appropriate.

The draft EA and MP is being made available for public review and comment. Responses to comments received during this review period will be attached in Appendix B upon finalizing the Master Plan.

## CHAPTER 8 - SUMMARY OF RECOMMENDATIONS

This Master Plan conceptually establishes and guides the orderly development, administration, maintenance, preservation, enhancement and management of all natural, cultural, and recreational resources at Clarence J. Brown Dam and Reservoir. The Master Plan is a land use management document and does not address water management operations, associated prime facilities (dam, spillway, etc.), or shoreline management as those operations are outlined in separate documents. This Master Plan is stewardship-driven and seeks to balance recreational development and use with protection and conservation of natural and cultural resources.

The following are focal points within this document that will assist Corps management in facing contemporary challenges well into the future.

### 8.1 LAND CLASSIFICATIONS

A key component in preparing this Master Plan was examining prior land classifications and addressing the needed transition to the new land classification standards. During the public involvement process USACE sought public input into whether, besides the simple change in nomenclature, a shift in land classification was desired (for example, should lands with a recreation classification be reclassified to a wildlife classification or vice versa.). Chapter 7 of the Plan describes the public input process.

The land classifications presented in the Plan were formulated based on these public comments and the USACE Clarence J. Brown Dam and Reservoir Project staff, Operations Division Staff and ODNR to the master plan PDT based on first-hand experience, professional training, and best management practices.

There were approximately 4,076 acres reclassified or updated to the new land classification name. All changes reflect historic and projected public use and new guidance from ER 1130-2-550 and EP 1130-2-550. A summary of acreage changes from prior land classifications to the current classifications is provided in Table 17.

### 8.2 IMPROVED RECREATION

While ODNR provides comprehensive recreation throughout the Project, there are still some areas for improvement that will increase the overall recreational experience for users. Improvements to existing camping facilities, as well as improved maintenance and upgrading for trails and the addition of recreational opportunities in the defined recreational areas, were all themes that were mentioned by stakeholders and/or the public.

Table 17: Updated land classifications for the Clarence J. Brown Dam and Reservoir.

| Classification   | 2020<br>Master<br>Plan | 1971<br>Master<br>Plan |
|--|------------------------|------------------------|
|  | Acres                  | Acres                  |
| <b>Project Operations</b>  | 286.69                 | 317                    |
| <b>Operations, High and Low Density Recreation*</b>  |                        | 947                    |
| <b>Operations, Natural Areas*</b>  |                        | 95                     |
| <b>Recreation*</b>   |                        | 648                    |
| <b>High Density Recreation</b>   | 188.78                 |                        |
| <b>Mitigation</b>  | 0                      |                        |
| <b>Environmentally Sensitive Areas</b>   | 148.75                 |                        |
| <b>Multiple Resource Management Lands</b>  |                        |                        |
| <b>Multiple Resource Management Lands: Low Density Recreation</b>  | 1507.87                |                        |
| <b>Multiple Resource Management Lands: Wildlife Management</b>   | 14.19                  |                        |
| <b>Multiple Resource Management Lands: Vegetative Management</b>   | 0                      |                        |
| <b>Multiple Resource Management Lands: Future/Inactive Recreation</b>  | 0                      |                        |
| <b>Water Surface: Restricted**</b>   | 5                      |                        |
| <b>Water Surface: Designated No-Wake**</b>   | 1080.72                |                        |
| <b>Water Surface: Fish and Wildlife Sanctuary**</b>  |                        |                        |
| <b>Water Surface: Open Recreation**</b>  | 848.56                 |                        |
| <b>*Classifications identified in 1971 Master Plan (now obsolete based ER 1130-2-550 and EP 1130-2 550).</b> |                        |                        |
| <b>**Water zoning was established in 1971 Master Plan, but acreages were not calculated.</b>                 |                        |                        |
| <b>***Fish and Wildlife Sanctuary is considered a no-wake zone for the open part of the year.</b>            |                        |                        |

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United States Army Corps of Engineers  
Louisville District

# **Clarence J. Brown Dam and Reservoir Master Plan**

2020

Appendix A:  
Finding of No Significant Impacts  
(FONSI)  
And  
Environmental Assessment (EA)

United States Army Corps of Engineers  
Louisville District

# **Clarence J. Brown Dam and Reservoir Master Plan**

2020

Appendix B:  
Public Comments

United States Army Corps of Engineers  
Louisville District

# **Clarence J. Brown Dam and Reservoir Master Plan**

**2020**

Appendix C:  
Project Maps



-  USACE Office
-  Fee Boundary
-  Summer Pool

**Dam Area**

-  Auxiliary Spillway
-  Channel
-  Dam
-  Tower

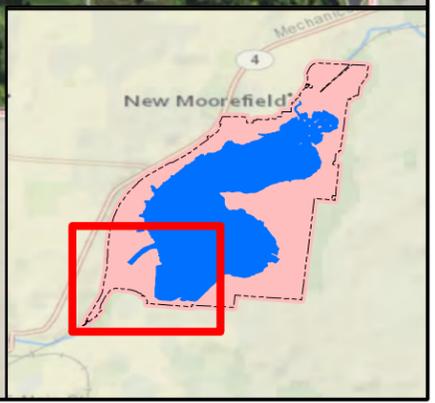
Spillway Channel

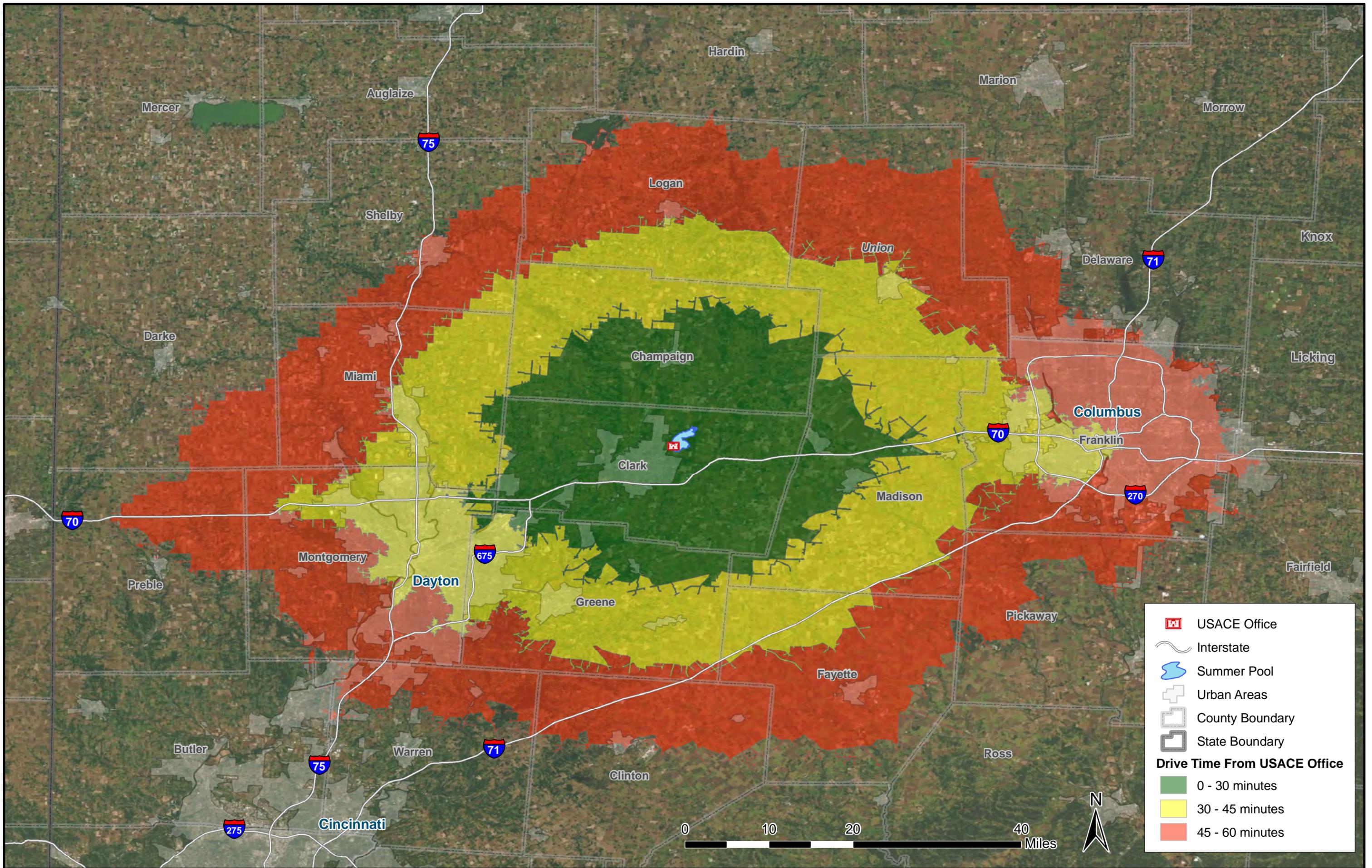
Auxiliary Spillway

Tower

Outlet Channel

Stilling Basin







# C. J. Brown Lake

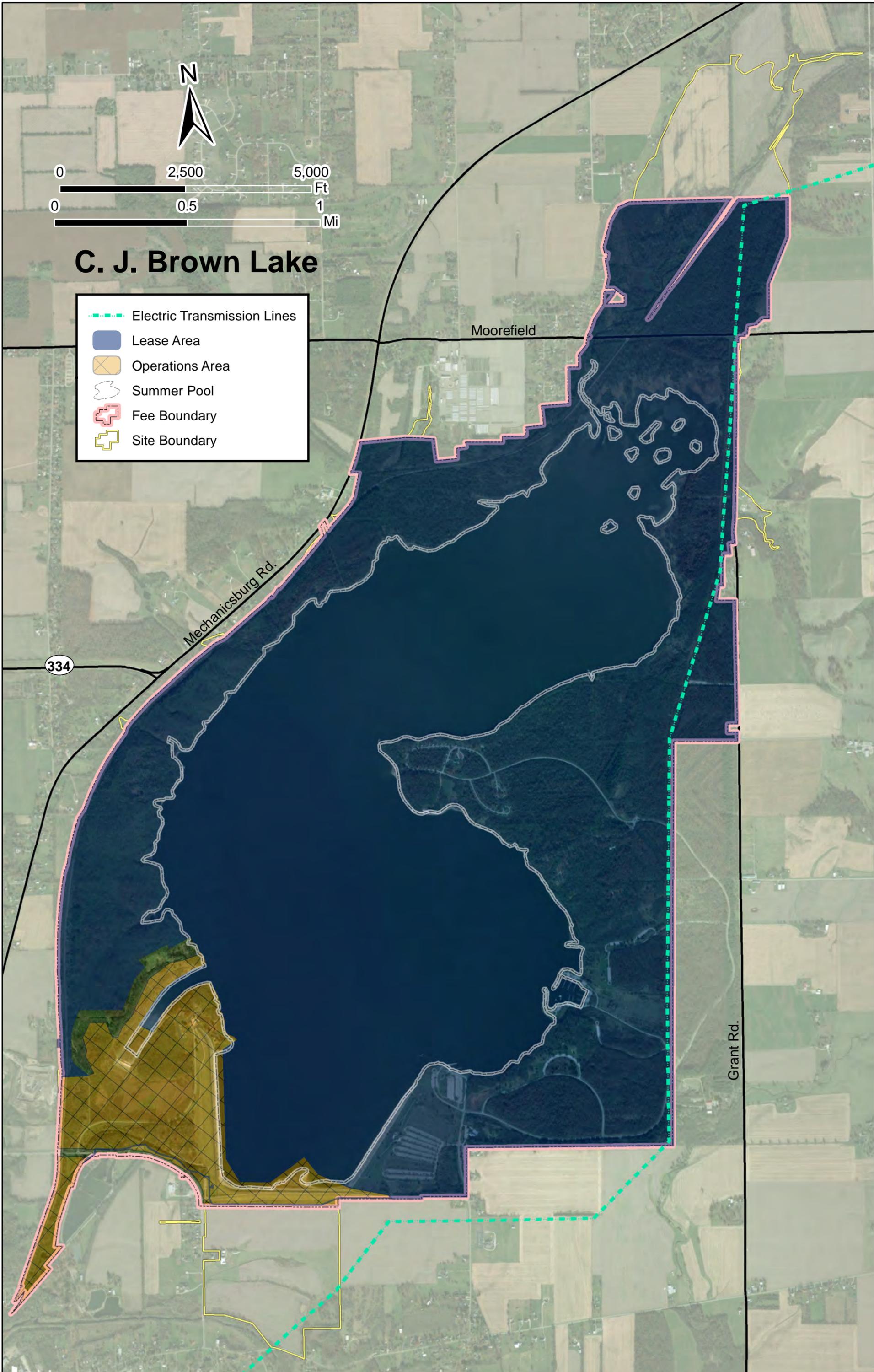
- Electric Transmission Lines
- Lease Area
- Operations Area
- Summer Pool
- Fee Boundary
- Site Boundary

Moorefield

Mechanicsburg Rd.

334

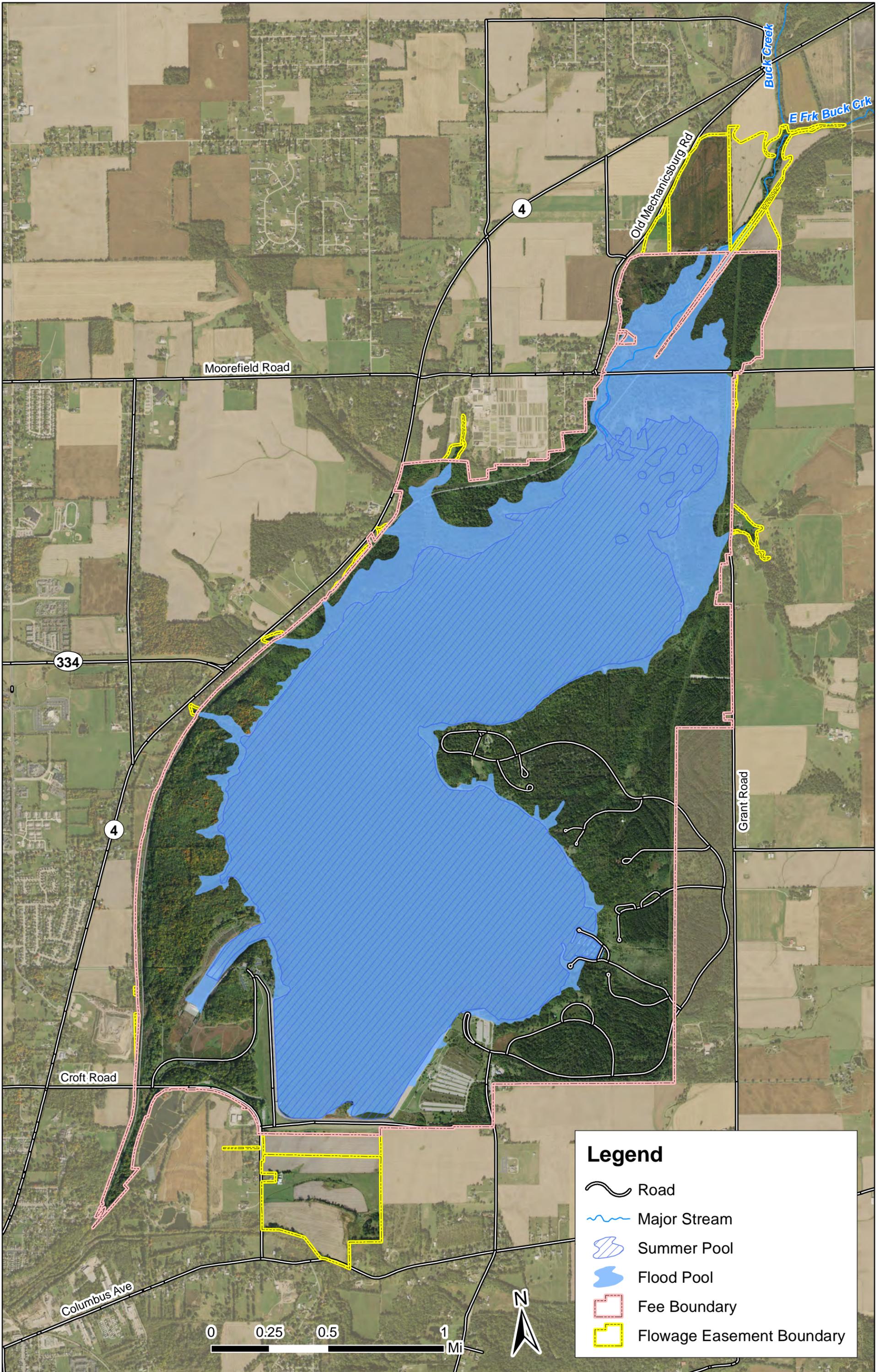
Grant Rd.

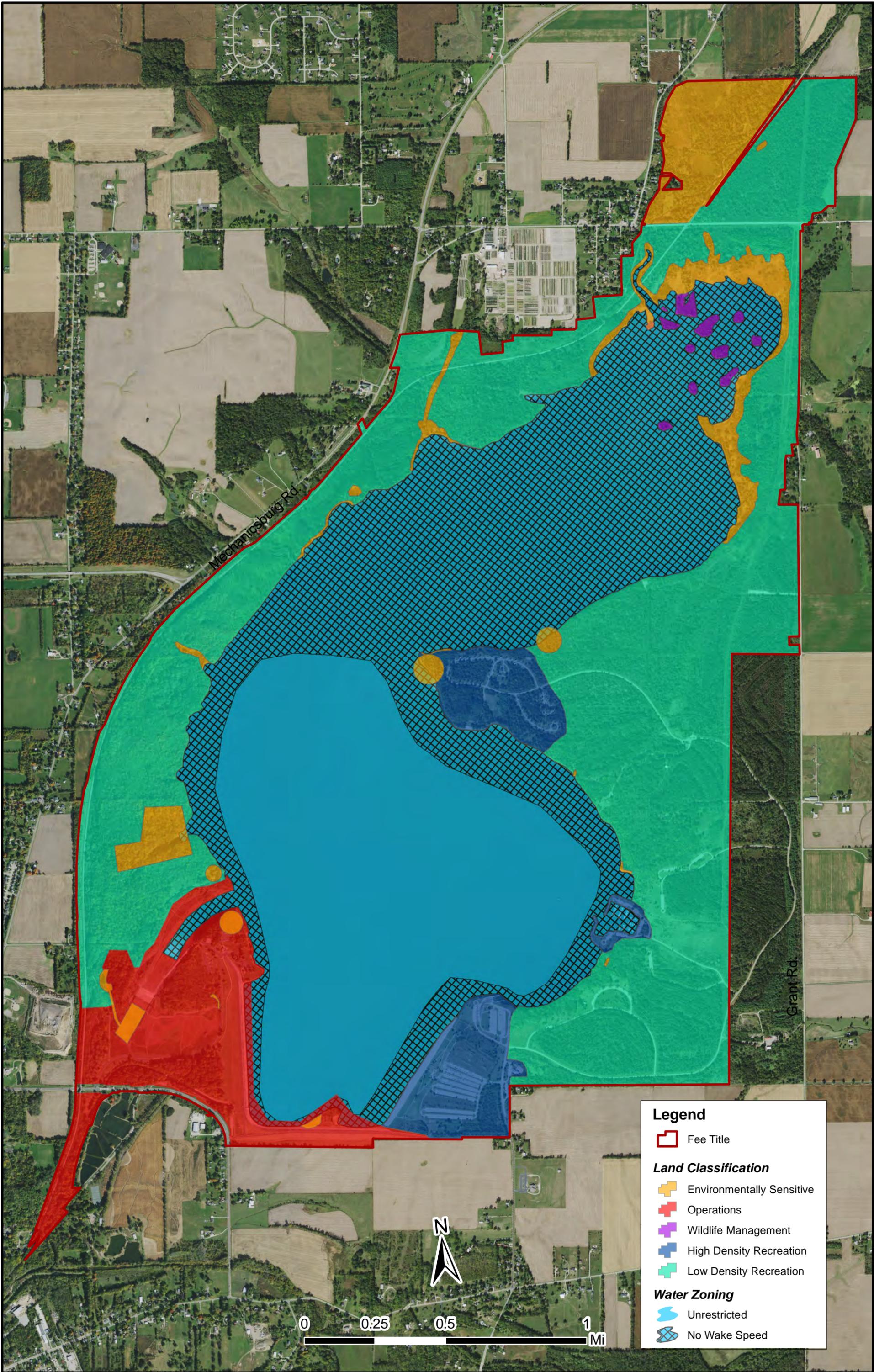


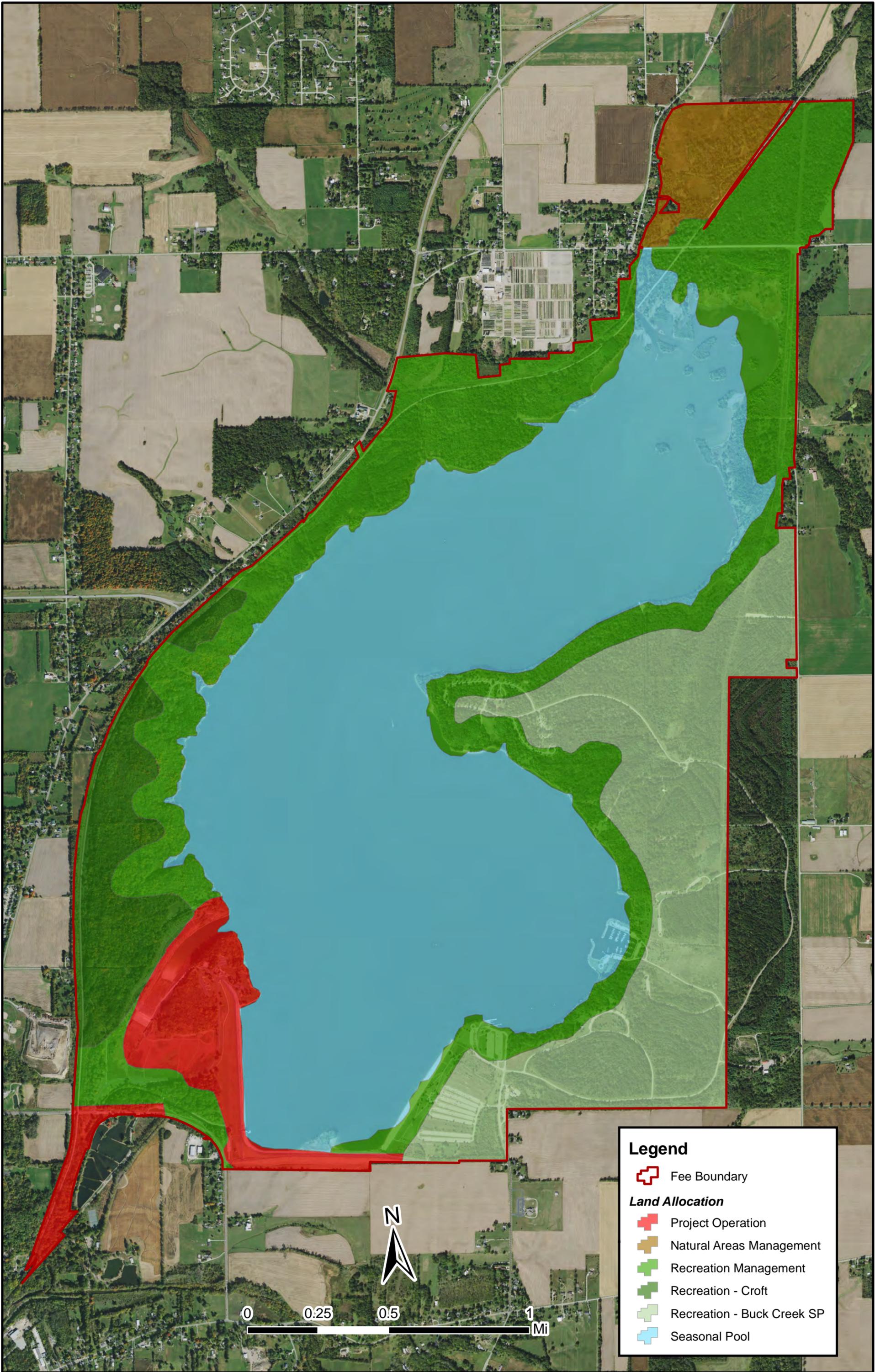


**Legend**

-  Fee Boundary
-  Summer Pool
-  Environmentally Sensitive

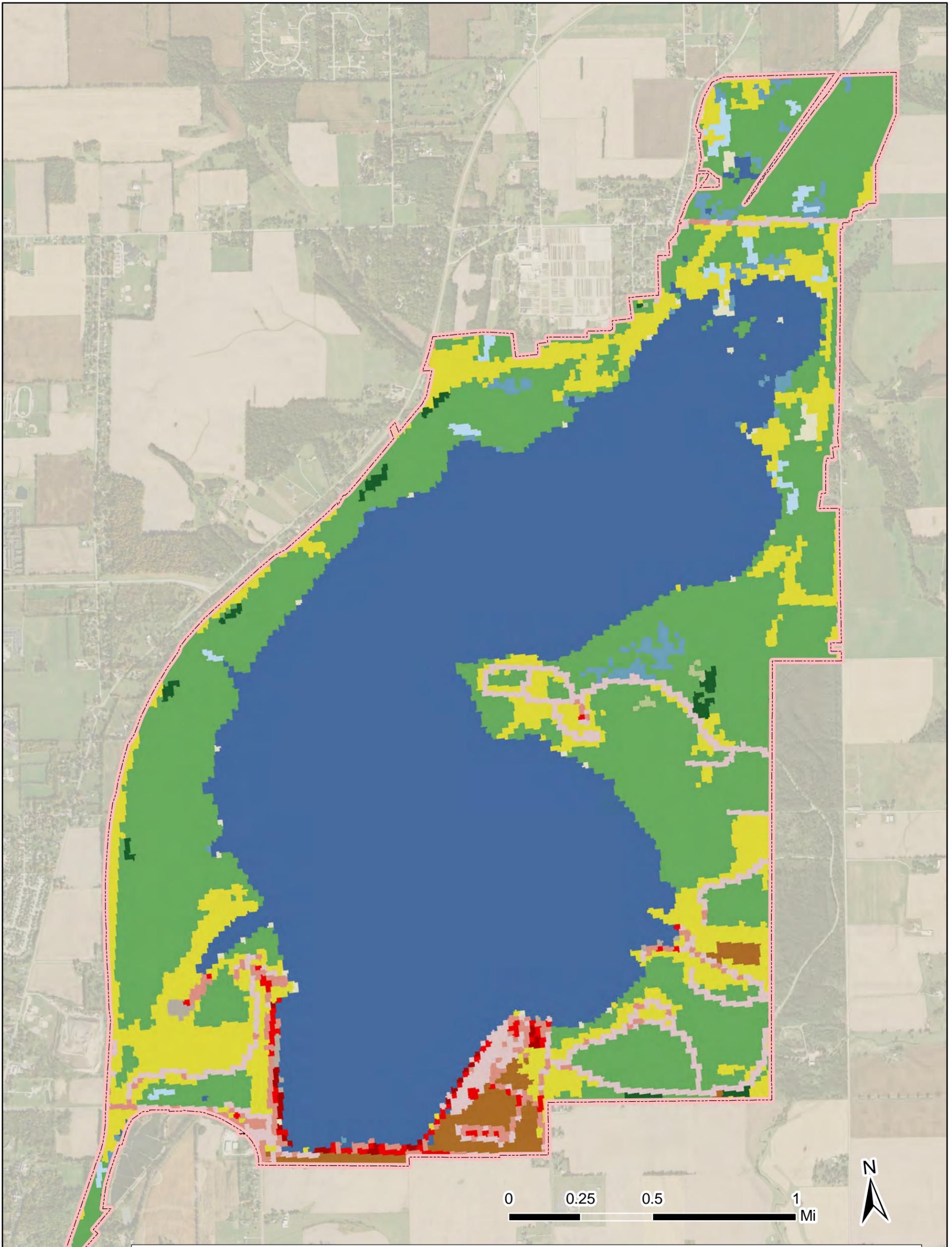






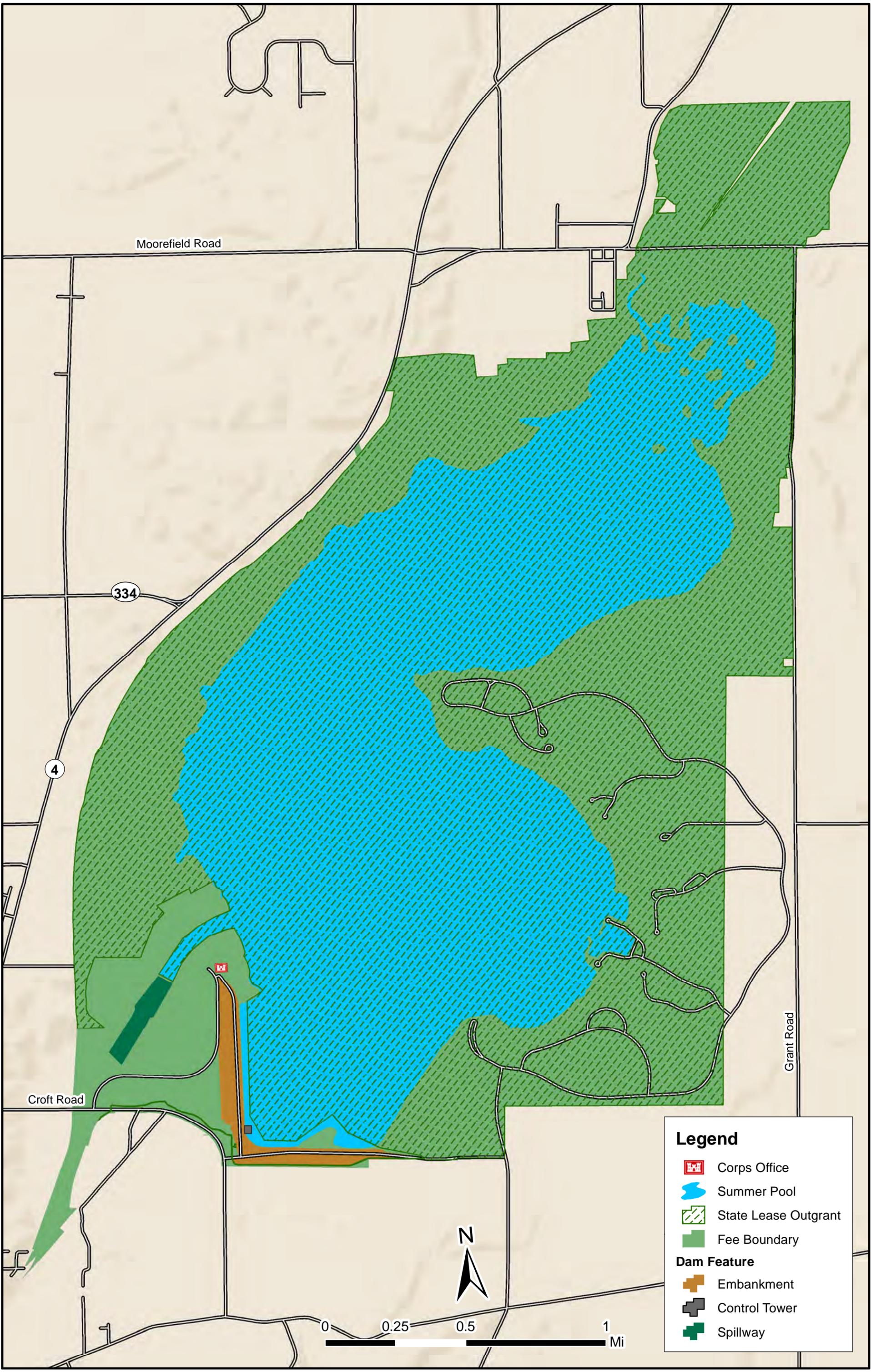
**Legend**

-  Fee Boundary
- Land Allocation**
-  Project Operation
-  Natural Areas Management
-  Recreation Management
-  Recreation - Croft
-  Recreation - Buck Creek SP
-  Seasonal Pool



**Legend**

|  |  |   |
|--|--|---|
|  Fee Boundary   |  Herbaceous                   |  Developed, Low Intensity  |
| <b>Landcover Classification</b>  |  Hay/Pasture                  |  Developed, High Intensity |
|  Woody Wetlands |  Evergreen Forest             |  Deciduous Forest          |
|  Shrub/Scrub    |  Emergent Herbaceous Wetlands |  Cultivated Crops          |
|  Open Water     |  Developed, Open Space        |  Barren Land               |
|  Mixed Forest   |  Developed, Medium Intensity  |   |



Moorefield Road

334

4

Croft Road

Grant Road

**Legend**

-  Corps Office
-  Summer Pool
-  State Lease Outgrant
-  Fee Boundary
- Dam Feature**
-  Embankment
-  Control Tower
-  Spillway

0 0.25 0.5 1 Mi





Moorefield Road

334

4

Clarence J. Brown  
Dam & Reservoir

Croft Road

Grant Road

**CJ BROWN RECREATION**

**TRAIL TYPE**

- TRAIL - HIKING
- TRAIL - BIKE
- TRAIL - HORSES

**FACILITY / AMENITY**

- BASKETBALL COURT
- VOLLEYBALL
- DISK GOLF

**MODEL AIRPLANE FIELD**

- GRILLS
- PLAYGROUND
- POLLINATOR GARDEN
- AMPHITHEATRE

- MARINA
- BOAT RAMP
- BEACH
- WATER ACCESS

**FISHING ACCESS**

- BOAT REFUELING
- HISTORIC LANDMARK
- OVERLOOK
- RESTROOM
- SHOWER HOUSE
- PARKING
- CAMPGROUND
- CABINS

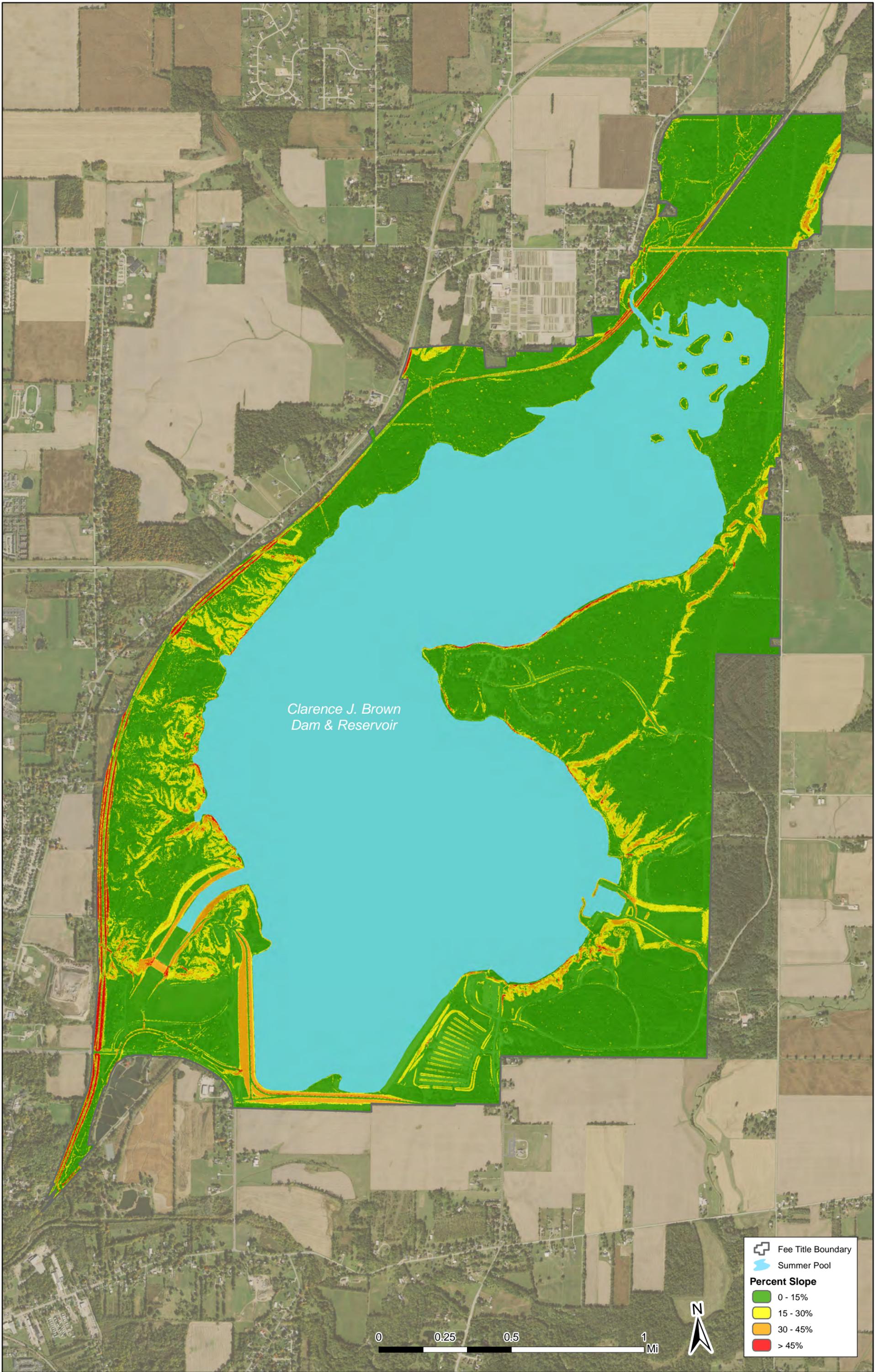
**WATER FILL STATION**

- SEWAGE DUMP STATION
- FIRE RINGS
- PICNIC AREA
- SHELTER
- STATE PARK OFFICE
- CAMPGROUND OFFICE
- CAMPGROUND STORE
- USACE OFFICE

**TRAILS**

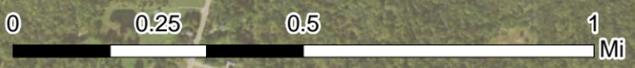
**DAM FEATURE**

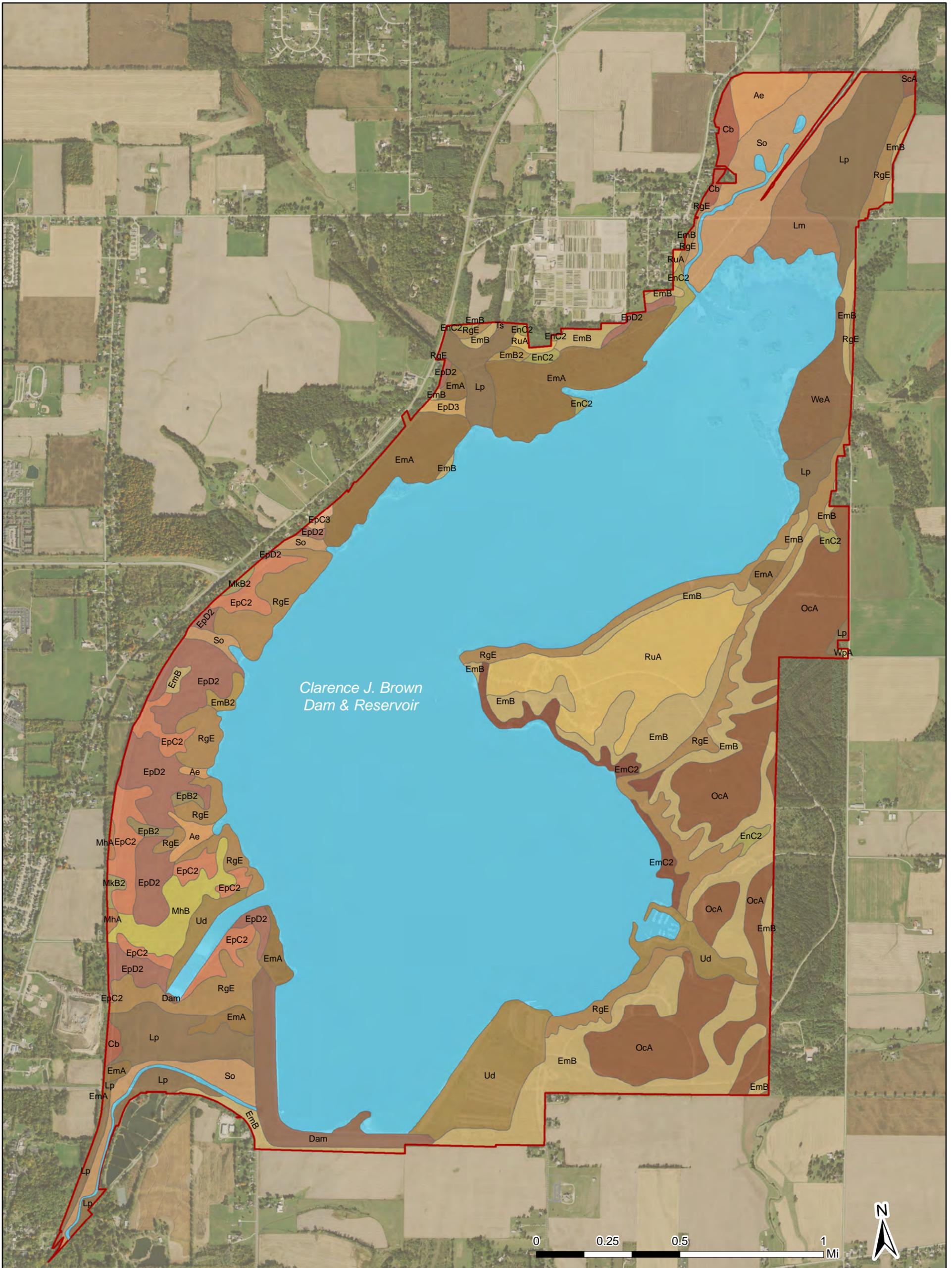
- DAM
- CONTROL TOWER
- AUXILIARY SPILLWAY
- WILDLIFE MANAGEMENT
- LAKE
- CORPS BOUNDARY



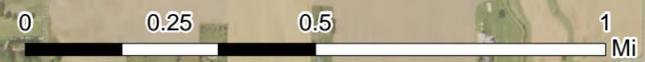
Clarence J. Brown  
Dam & Reservoir

|                      |                    |
|----------------------|--------------------|
|                      | Fee Title Boundary |
|                      | Summer Pool        |
| <b>Percent Slope</b> |                    |
|                      | 0 - 15%            |
|                      | 15 - 30%           |
|                      | 30 - 45%           |
|                      | > 45%              |





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Dam & Reservoir



|   |   |  |   |
|---|---|--|---|
| Reservoir   | Fee Title Boundary  | EmC2 - Eldean silt loam, 6 to 12 percent slopes, eroded        | MkB2 - Miamian silty clay loam, 2 to 6 percent slopes, eroded |
| <b>Soil Classification</b>                                  | Dam   | EnC2 - Eldean-Casco complex, 6 to 12 percent slopes, eroded    | OcA - Ockley silt loam, 0 to 2 percent slopes                 |
| Ad - Adrian muck, drained                                   | EpB2 - Eldean-Miamian complex, 2 to 6 percent slopes, eroded            | EpC2 - Eldean-Miamian complex, 6 to 12 percent slopes, eroded  | RgE - Rodman gravelly loam, 18 to 35 percent slopes           |
| Ae - Adrian muck, undrained                                 | EpC3 - Eldean-Miamian complex, 6 to 12 percent slopes, severely eroded  | EpD2 - Eldean-Miamian complex, 12 to 18 percent slopes, eroded | RuA - Rush silt loam, 0 to 2 percent slopes                   |
| Cb - Carlisle muck, undrained                               | EpD3 - Eldean-Miamian complex, 12 to 18 percent slopes, severely eroded | Lm - Lippincott mucky silt loam                                | ScA - Savona silt loam, 0 to 2 percent slopes                 |
| CcD2 - Casco gravelly loam, 12 to 20 percent slopes, eroded | Lp - Lippincott silty clay loam   | MhA - Miamian silt loam, 0 to 2 percent slopes                 | So - Sloan silt loam, sandy substratum, occasionally flooded  |
| EmA - Eldean silt loam, 0 to 2 percent slopes               | MhB - Miamian silt loam, 2 to 6 percent slopes                          | Ud - Udorthents, loamy   | Ts - Tremont silt loam, occasionally flooded                  |
| EmB - Eldean silt loam, 2 to 6 percent slopes               |   | WeA - Warsaw silt loam, 0 to 3 percent slopes                  | WpA - Waupecan silt loam, 0 to 2 percent slopes               |
| EmB2 - Eldean silt loam, 2 to 6 percent slopes, eroded      |   |  |   |



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- Major Road
- Stream
- Reservoir
- Urban Area
- County Boundary

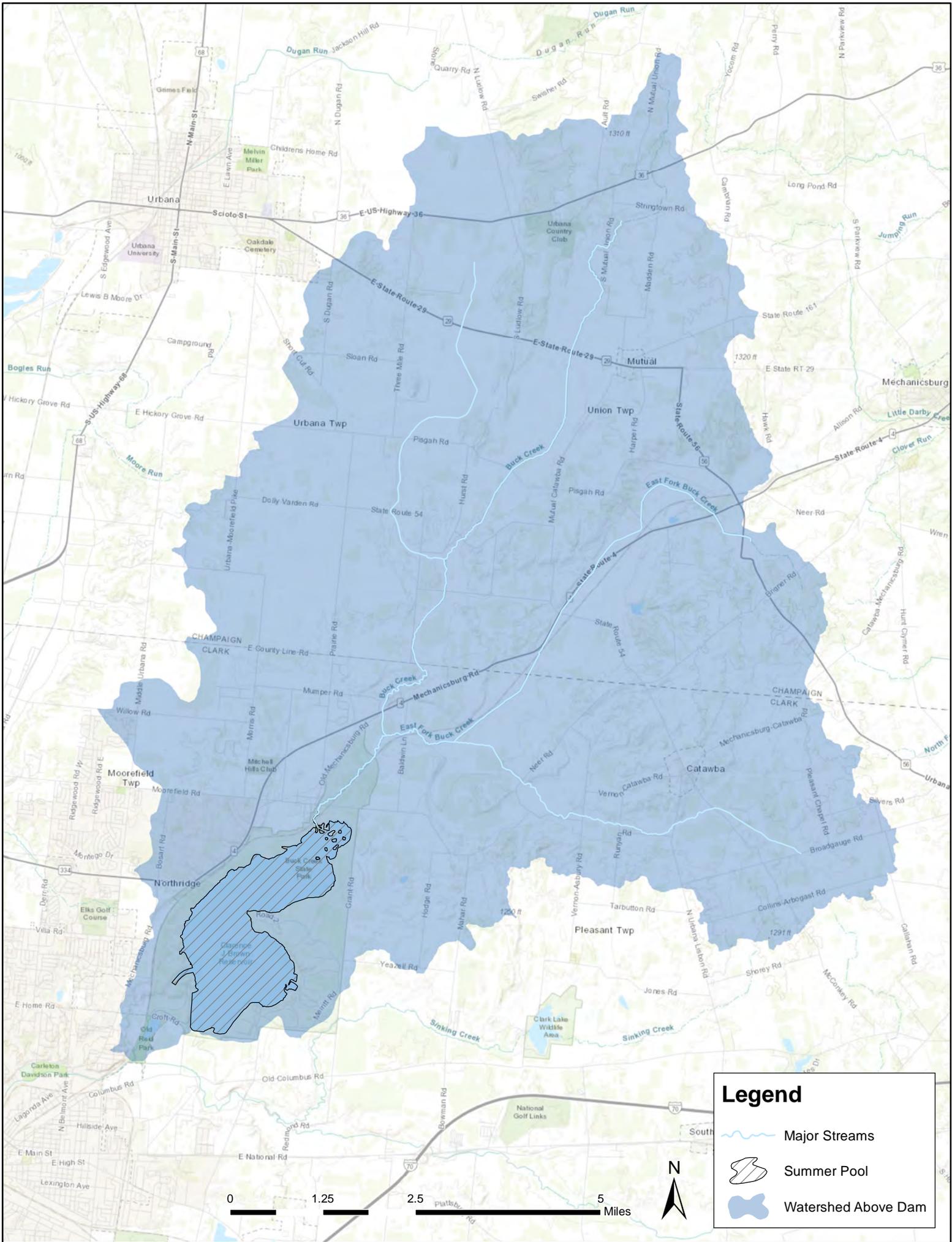
0 2.5 5 10 Miles





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Dam & Reservoir**





**Legend**

-  Major Streams
-  Summer Pool
-  Watershed Above Dam

