



**US Army Corps
of Engineers**
Louisville District

Environmental Assessment
for the
Brookville Lake Master Plan,
Franklin and Union Counties, Indiana



July 2020



**US Army Corps
of Engineers**
Louisville District

Finding of No Significant Impact for the **Master Plan Update for Brookville Lake**

Franklin and Union counties, Indiana

The U.S. Army Corps of Engineers, Louisville District (Corps) has conducted an Environmental Assessment (EA) in accordance with the National Environmental Policy Act of 1969, as amended (NEPA), and Engineering Regulation (ER) 200-2-2, *Policy and Procedures for Implementing the NEPA*. The EA dated July 2020, for the Brookville Lake Master Plan evaluated alternatives to update the Master Plan in compliance with guidance in Engineering Regulation 1130-2-550 and Engineering Pamphlet 1130-2-550, to include revised land classifications and updated resource objectives.

The EA evaluated potential impacts to natural, cultural, and socioeconomic resources from the proposed alternative. The recommended plan is:

- Implementation of the Updated Brookville Lake Master Plan

In addition to the recommended plan, a “no action” plan was evaluated. The no action plan would entail the continued use of the 1979 Master Plan and would result in no change from current management direction or level of management intensity.

For both alternatives, the potential effects were evaluated, as appropriate. A summary assessment of the potential effects of the recommended plan are listed in Table 1:

Table 1: Summary of Potential Effects of the Recommended Plan

Resource/Area of Concern	Insignificant Adverse Effects	Insignificant Effects as a Result of Mitigation	No or Negligible Effects	Beneficial Effect
Aesthetics and Visual Qualities	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Air Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Climate	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Cultural Resources	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Demographics and Environmental Justice	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Habitats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HTRW Materials	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Listed Species	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Noise	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Recreation and Visitation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Reservoir, Pool, and Lake Operation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Surface Water Hydrology and Groundwater	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Topography, Geology, and Soils	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Water Quality	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

All practical means to avoid or minimize adverse environmental effects were analyzed and incorporated into the recommended plan. The recommended plan does not include major development of new facilities or other construction activities that could negatively impact the environment. Best management practices (BMPs) as detailed in the EA will be implemented during continued maintenance activities to minimize impacts.

No compensatory mitigation is required as part of the recommended plan.

Public review of the EA was completed on [PENDING]. All comments submitted during the public comment period were responded to in the Final EA. A 30-day state and agency review of the Report and EA was also completed on [PENDING]. Comments from state and Federal agency review did not result in significant changes to the EA. [PENDING].

Pursuant to Section 7 of the Endangered Species Act of 1973, as amended, the U.S. Army Corps of Engineers determined that the recommended plan will have no effect on federally listed species or their designated critical habitat.

Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, the U.S. Army Corps of Engineers determined that the recommended plan has no potential to cause adverse effects on historic properties.

There is no discharge of dredged or fill material or any other discharge into waters of the U.S. associated with the recommended plan. Therefore, a Section 404(B)(1) evaluation, pursuant to the Clean Water Act of 1972, as amended, was not conducted and a water quality certification pursuant to Section 401 of the Clean Water Act is not required.

All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives. Based on this report, the reviews by other Federal, State and local agencies, Tribes, input of the public, and the review by my staff, it is my determination that the recommended plan would not significantly affect the human environment; therefore, preparation of an Environmental Impact Statement is not required.

Date

Eric D. Crispino
Colonel, U.S. Army
District Commander

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Executive Summary

The U.S. Army Corps of Engineers' (USACE) Brookville Lake Project (Project) is located in the southeastern portion of Indiana, approximately 35 miles northwest of the city of Cincinnati, Ohio. The project is within Franklin and Union counties, Indiana on what was part of the East Fork of the Whitewater River.

The Brookville Reservoir is a USACE flood control project; USACE retains title to all lands and facilities specifically acquired for project purposes or constructed with government assistance for flood control, water supply, recreation, and wildlife enhancement. The property consists of approximately 16,445 acres including a 5,260-acre impoundment of water at summer pool. USACE maintains the dam and controls the water level of the lake. The USACE leases 16,445 fee acres at Brookville Lake to the State of Indiana under Lease No. DACW27-1-74-077 for public parks and recreational purposes and fish and wildlife management purposes. The USACE also leases 19.08 fee acres to the Treaty Pioneer Village, Inc. for overflow parking purposes on Tracts 2109, 2209, and 2210.

Master Plans are required for civil works projects (such as the Brookville Lake Project) for which the Corps of Engineers has administrative responsibility for management of natural and manmade resources. Master Plans provide guidelines and direction for future project development and provide a District-level policy consistent with national objectives and other state and regional goals and programs. The existing Brookville Master Plan was completed in 1979, and there has been no comprehensive revision to the Master Plan in more than 30 years. As such, the current Master Plan provides an inadequate basis on which to evaluate contemporary proposals.

Neither the USACE nor the IDNR currently have plans for development of new major recreational amenities. However, maintaining existing facilities, improving some existing facilities, and protecting the project's natural areas and natural resources may involve number of small-scale actions that are recommended under the revised Master Plan. The proposed revised Master Plan also includes changes in land classifications and several resource objectives 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, Caesar Creek Lake Project Office. These changes are based both on the need created by updates made to governing policy as well as to changes of classification conducted to match current and future anticipated use of project land areas. This Environmental Assessment (EA) describes the existing environmental conditions at the Project (affected environment) providing a baseline for measuring expected changes that could result from the adoption and implementation of the proposed revised Master Plan.

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1 INTRODUCTION

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.

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.

The existing Master Plan for the Brookville Lake Project (the “Project”) was completed in 1979, and has not been comprehensively revised since then. The USACE is proposing adoption of a new Master Plan at Brookville Lake to reflect changes that have occurred to the Project, the region, overall recreation trends, and USACE policy directives since the adoption of the 1979 Master Plan. The Revised Master Plan has been prepared pursuant to Engineer Regulation (ER) 1130-2-550 and Engineering Pamphlet (EP) 1130-2-550.

The purpose of this Environmental Assessment (EA) is to identify the potential impacts to the natural and human environment from adoption and implementation of the revised Project Master Plan and to determine whether the environmental effects of the action have the potential to be significant. The EA will also provide an enhanced opportunity for public involvement in the decision-making process. It also has allowed USACE to address compliance with other environmental laws as part of a single review process rather than through separate reviews thereby reducing paperwork and ensuring comprehensive compliance.

1.1 Project Location

Brookville Lake is located in the southeastern portion of Indiana. The project is located one mile north of the town of Brookville, Indiana and approximately 35 miles north of Cincinnati, Ohio. The project is within Franklin and Union counties, Indiana.

Primary access to the site is State Route 101 which parallels the east side of the project and S.R. 44 which crosses the upper reaches of the lake. Regional access is provided by Interstate 74 to the south and Interstate 70 to the north. Figure 1 displays Brookville Lake’s location within the Ohio River Basin area.

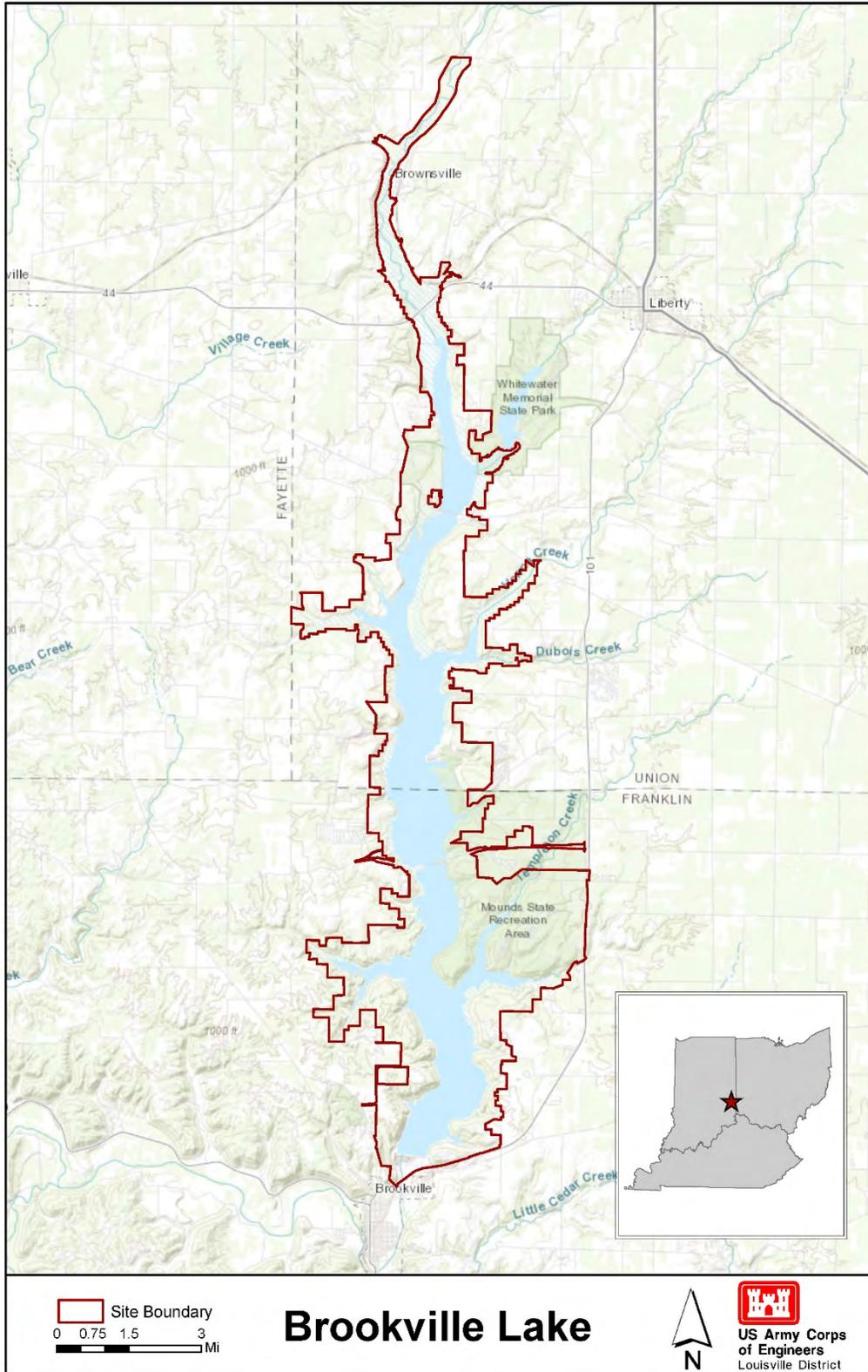


Figure 1. Brookville Lake Project Area.

1.2 Project Overview

The Brookville Lake Dam is a 3,004-foot long earth fill dam with a maximum height of 181 feet. The spillway is an uncontrolled open cut around the right abutment with crest elevation at 775 feet. The outlet works consist of an operating tower with two (2) 5.25 x 12 feet vertical control gates discharging through a 12-foot diameter circular conduit leading to the stilling basin.

In the interest of fish and wildlife conservation and water quality, two (2) 30-inch low-flow bypass pipes have multiple-level inlets to allow regulation of downstream water temperatures. A series of relief wells installed along the front of the dam catches groundwater seeping beneath the dam from the reservoir.

Brookville Lake lies in a generally north-south direction and extends upstream from the dam approximately 16.4 miles at seasonal pool and a maximum of 20.7 miles at flood pool. The uplands around the lake drop sharply to the deeply entrenched flood plain. The tributaries that enter the lake from the west are relatively small, short streams due to the close proximity of the West Fork Whitewater River. The largest of these is Wolf Creek. Those tributaries entering from the east are somewhat larger. Progressing upstream the principal tributaries are: Templeton, Spring, Hanna, Silver, and Richland Creeks. These streams drop rapidly to the wide flood plain and there flatten out to small embayments.

1.3 Authorization and Project Description

Brookville Lake was authorized by the United States Congress as part of the Flood Control Act, approved 28 June 1938 (Public Law 761, 75th Congress, 3rd session). Post-authorization changes consist of including recreation as a project purpose made in connection with the advanced engineering and design planning efforts in accordance with the provisions of Section 4 of the Flood Control Act approved 24 December 1946, as amended by the Flood Control Act approved 24 December 1946 (Public Law 526, 79th Congress, 2nd Session; H.R. 6597) and Senate Document No. 47. Water storage was added as a project purpose at the request of the State of Indiana under the Water Supply Act of 1958.

Discharges from Brookville Lake are controlled to meet flood control, low flow augmentation, water supply, fish and wildlife management, and recreation requirements. The project is designed to reduce flooding on the Whitewater River below the dam, the Miami River, and to a lesser extent, the Ohio and Mississippi Rivers. Seasonal pool is maintained from early May until mid-September.

The Corps' water quality management authority is founded on the Federal Water Pollution Control Act (FWPCA) of 1948 and its amendments including the Clean Water Act of 1977 and the Water Quality Act of 1987. Executive Order 12088, Federal Compliance with Pollution Control Standards (1978), requires Federal facilities to comply with applicable pollution control standards in the same manner as any non-Federal entity. ER 1110-2-8154 stipulates that it is Corps policy to develop and implement a holistic, environmentally sound water quality management strategy for all projects. Furthermore, it is a Corps goal to responsibly manage our projects to maximize environmental compliance. The Corps is also mandated to comply with native State regulations and standards including the Indiana Administrative Code Title 327, Article 2 – Water Quality Standards.

Brookville Lake is a USACE flood control project; it retains title to all lands and facilities specifically acquired for project purposes or constructed with government assistance for recreation and wildlife enhancement. The property consists of approximately 16,445 acres including a 5,260-acre impoundment of water at summer pool. USACE maintains the dam and controls the water level of the lake. The USACE leases 16,445 fee acres at Brookville Lake to the State of Indiana under Lease No. DACW27-1-74-077 for public parks and recreational purposes and fish and wildlife management purposes. The USACE also leases 19.08 fee acres to the Treaty Pioneer Village, Inc. for overflow parking purposes on Tracts 2109, 2209, and 2210.

1.4 National Environmental Policy Act Overview

The following Environmental Assessment has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality's (CEQ) Regulations (40 CFR Parts 1500-1508), as reflected in the Corps of Engineers' Engineering Regulation, ER 200-2-2. The Corps of Engineers' ER 200-2-2 supplements, and is used in conjunction with, the CEQ regulations.

The regulations set forth a process whereby USACE assesses the environmental effects of proposed major federal actions and considers reasonable alternatives to these proposed actions. In general, federal agencies prepare an EA to evaluate whether a federal action has the potential to cause significant environmental effects. If the agency determines that the action would significantly affect the quality of the human environment, the agency prepares an Environmental Impact Statement (EIS) to evaluate the proposed action and the alternatives in greater detail. If an EA concludes that the action will not have significant environmental impacts, the agency will issue a Finding of No Significant Impact (FONSI) to document the basis for that conclusion. Certain federal actions are "categorically excluded" from NEPA documentation requirements because the action does not "individually or cumulatively have a significant effect on the human environment." The Categorical Exclusions applicable to USACE actions include routine operations and maintenance (O&M) activities at completed USACE projects (ER 200-2-2; 33 CFR § 230.9). NEPA Categorical Exclusions do not apply when a complete revision of a master plan is required.

The CEQ's NEPA Regulations do not contain a detailed discussion regarding the format and content of an EA, but an EA must briefly discuss the:

- Need for the proposed action;
- Proposed action and alternatives (when there is an unresolved conflict concerning alternative uses of available resources);
- Environmental effects of the proposed action and alternatives; and
- Agencies and persons consulted in the preparation of the EA.

1.5 Scope of the EA

NEPA requires federal agencies to review potential environmental effects of federal actions which include the adoption of formal plans, such as master plans, approved by federal agencies upon which future agency actions will be based. Pursuant to ER 1130-2-550, this EA has been prepared to fulfill USACE's regulatory requirements under NEPA and provide USACE with the information needed to make an informed decision about the potential effects to the natural and human environment from the proposed adoption of the 2020 Brookville Lake Master Plan.

The intent of the proposed Master Plan update is to develop land classifications that will guide the sustainable development of resources within the Brookville Lake Project in the future. It is not feasible to define the exact nature of potential impacts for all potential future actions prior to the development of specific project proposals. Accordingly, this EA does not consider implementation of specific projects recommended within the 2020 Master Plan, as those projects are conceptual in nature. To ensure future environmental consequences are identified and documented as accurately as possible, additional NEPA analysis will be conducted, as appropriate, for future projects that are proposed to be carried out in accordance with this Master Plan update (including those identified within the Master Plan update), once funding is available and detailed project planning and design occur.

The scope of the revised Master Plan and Environmental Assessment are limited to actions on USACE property, with the exception of the consideration of potential cumulative effects associated with actions that have taken place or are proposed to take place in the surrounding area.

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2 PURPOSE AND NEED FOR CORPS OF ENGINEERS ACTION

2.1 Master Plan Overview

A master plan was developed and approved for the Brookville Lake Project in 1979. It is USACE policy that each master plan shall be reviewed on a periodic basis and be revised as required. Engineer Regulation (ER) 1130-2-550 establishes the policy for the management of recreation programs and activities, and for the operation and maintenance of Corps of Engineers recreation facilities and related structures, at civil works water resource projects.

Master plans are required for civil works projects operated and maintained by USACE and must include all land (i.e., fee, easements, or other interests) originally acquired for the project and any subsequent land acquired to support operations and authorized missions of the project. The master plan is the basic document guiding Corps of Engineers responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands, waters, and associated resources. The master plan is a dynamic planning document that deals in concepts, not in details of design or administration. Detailed management and administration functions are handled in a separate Operational Management Plan (OMP), which translates the concepts of the master plan into operational terms.

Engineer Pamphlet (EP) 1130-2-550 establishes guidance for the preparation of master plans. As stated therein, the primary goals of the master plans are to prescribe an overall land and water management plan, resource objectives, and associated design and management concepts, which:

- 1) Provide the best possible combination of responses to regional needs, resource capabilities and suitabilities, and expressed public interests and desires consistent with authorized project purposes;
- 2) Contribute towards providing a high degree of recreation diversity within the region;
- 3) Emphasize the particular qualities, characteristics, and potentials of the project; and
- 4) Exhibit consistency and compatibility with national objectives and other state and regional goals and programs.
- 5) To protect and manage project natural and cultural resources through sustainable environmental stewardship programs.

2.2 Purpose and Need for the Revised 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 civil works projects operated and maintained by USACE and must include all land (i.e., fee, easements, or other interests) originally acquired for the project and any subsequent land (fee, easements or other interests) acquired to support operations and authorized missions of the project. This revision of the Brookville Lake 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 Project, as well as those anticipated to occur within the planning period of 2020 to 2045. This revision of the Brookville Lake Master Plan is intending to bring the Master Plan up-to-date so that it is useful for the next 25 years.

Because the existing Brookville Lake Master Plan was first approved in 1979, it provides an inadequate basis with which to evaluate contemporary proposals. There have been changes in demand for recreation, regional population growth, changes in governing policies, i.e., land classifications changes, and the construction of recreational amenities adjacent to USACE property, which dictate the need to revise the Master Plan for the Brookville Lake Project.

The Master Plan update would provide a comprehensive description of the project, a discussion of factors influencing resource management and development, an identification and discussion of special problems, a synopsis of public involvement and input to the planning process, and descriptions of past, present, and proposed development.

The purpose of the revised Master Plan is to ensure that actions taken to promote the conservation and sustainability of the land, water, and recreational resources at the Project comply with applicable environmental laws and regulations and to maintain quality land for future use. The Master Plan is intended to serve as a comprehensive land and recreation management plan for the next 25 years, and will reflect changes that have occurred since 1979 in outdoor recreation trends, regional land use, population, legislative requirements, USACE management policy, and wildlife habitat at Brookville Lake.

Accordingly, the need for the revised Master Plan is to ensure compliance with the January 2013 updates to ER 1130-2-550 and EP 1130-2-550.

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3 ALTERNATIVES

When preparing an EA, federal agencies must consider a range of alternatives that could reasonably achieve the purpose and need that the proposed action is intended to address. The alternatives to be evaluated in this EA are a No Action Alternative of continuing to operate the Project under the 1979 Master Plan, and the Proposed Action Alternative adopting and implementing the proposed 2020 Brookville Lake Master Plan. USACE initially considered other alternatives to the Proposed Action as part of the scoping process for the master plan and this EA. During this process, the District and other management partners have worked to develop options for classifying project lands and identifying Resource Objectives (Master Plan, Chapter 3) for these lands. The data collection, public comments, and findings of the planning team revealed that there was only one action alternative that would meet the purpose, need, and objectives of the master planning process.

In developing and addressing these alternatives, it is important to note that the “action” this EA seeks to evaluate is the adoption and implementation of the specific master plan revision itself and not the potential future operation activities of the project under the revised plan, if adopted. Future operation activities under the adopted plan will either fall within one of the NEPA Categorical Exclusions or will have to be subject to a future, independent NEPA analysis, to be determined on a case-by-case basis.

3.1 No Action

Inclusion of the No Action Alternative is required by CEQ regulations and serves as a basis for comparison against which the effects of the Proposed Action can be evaluated. Under the No Action Alternative, USACE would take no action and would not adopt the 2020 Master Plan. In this scenario, the 1979 Master Plan would remain in effect and the No Action Alternative would result in “no change” from current management direction or level of intensity. Master plans provide the basis for evaluating contemporary proposals, and the 1979 document does not account for the many substantial changes that have occurred since then. The existing master plan is capable of providing only minimal support to development and management of the project. Future development decisions would therefore be assessed on an *ad hoc* basis without the benefit of a comprehensive assessment of recreation and natural resource conditions and opportunities at the project.

Under the No Action Alternative, development and management of the project area would likely take the same general direction outlined in the proposed revised master plan and therefore, would generally share the same environmental consequences. However, future developments or resource management policies would require approval on a case-by-case basis without the benefit of evaluation in the context of a revised overall plan or analysis in an Environmental Assessment.

3.2 Proposed Action Alternative (Preferred Alternative) – Approval and Use of the Revised Master Plan

Under this alternative, USACE would adopt and implement the revised 2020 Brookville Lake Master Plan for the Project, which would replace the 1979 Master Plan. The revised master plan addresses important updates due to the considerable changes in the demographics, recreation demand, amenities within the project, amenities on adjacent properties, current environmental

conditions, and pertinent laws and policies. This alternative is the Agency Preferred Alternative because of its ability to aid and support the development and management of the project over the term of the revised Master Plan. This alternative would also meet the need for sustainable management and conservation of natural resources within the Project while also providing for current and future quality outdoor recreational needs of the public, and would satisfy USACE regulations governing master planning for civil works projects.

3.2.1 Scope and Objectives of the Revised Master Plan

The 2020 Brookville Lake Master Plan provides guidelines and direction for future project development and use and is based on authorized project purposes, USACE policies and regulations on the operation of USACE projects (USACE, 1996; USACE, 1996a; USACE, 1999), responses to regional and local needs, resource capabilities and suitable uses, and expressed public interests consistent with authorized project purposes and pertinent legislation. The master plan provides a District-level policy consistent with national objectives and other state and regional goals and programs.

3.2.2 Land Allocation, Land Classifications, and Resource Objectives

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 categories of allocation: Operations, Recreation, Fish and Wildlife, Mitigation.

Land allocation is defined as the congressionally authorized purpose for which the lands were acquired (EP 1130-2-550). 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. There are four land allocation categories applicable to USACE projects:

1. Operations
2. Recreation
3. Fish and wildlife
4. Mitigation

The guidance further defines land classifications to provide for development and resource management consistent with authorized purposes and other Federal laws. Since adoption of the 1979 Brookville Lake Master Plan, USACE has revised governing policy in a way that changed the land classification schemes to be utilized in master plans. Land classification indicates the primary use for which project lands are managed and are based on demand projections, trends, and capacity needs. While there have been no categorical changes to land usage or management activities in general, the system for classification has been realigned to meet current policy standards. Land classification categories (Figure 2) are formally defined by EP 1130-2-550 and include the following:

1. Project operations
2. High density recreation
3. Multiple resource management
 - a. Recreation–low-density
 - b. Wildlife management
 - c. Vegetative management
 - d. Future high density recreation areas
 - e. Future low density recreation areas
4. Environmental sensitive areas

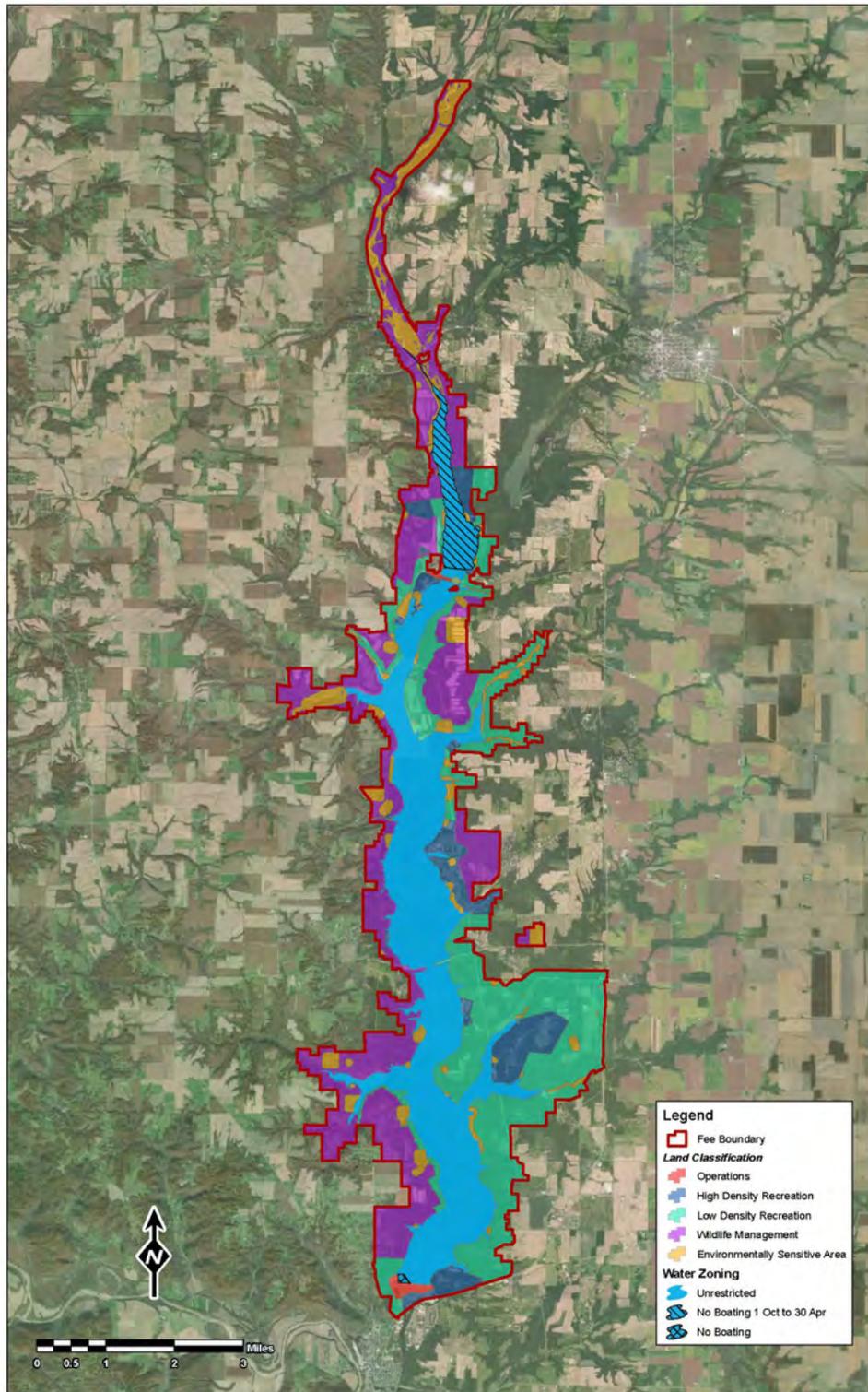


Figure 2. Proposed revised land classifications on Brookville Lake.

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4 AFFECTED ENVIRONMENT/ENVIRONMENTAL CONSEQUENCES

The National Environmental Policy Act and the Council on Environmental Quality's NEPA Implementing Regulations require that an EA identify the likely environmental effects of a proposed project and that the agency determine whether those impacts may be significant. Impacts can be either beneficial or adverse and can be either directly related to the action or indirectly caused by the action. Direct effects are caused by the action and occur at the same time and place (40 CFR § 1508.8[a]). Indirect effects are caused by the action and are later in time or further removed in distance, but are still reasonably foreseeable (40 CFR § 1508.8[b]).

The determination of whether an impact significantly affects the quality of the human environment must consider the context of an action and the intensity of the impacts (40 CFR § 1508.27).

The term "context" refers to the affected environment in which the proposed action would take place and is based on the specific location of the proposed action, taking into account society as a whole, the affected region, the affected interests, and the locality. In this case, intensity refers to the magnitude of change that would result if the proposed action were implemented.

Determining whether an effect significantly affects the quality of the human environment also requires an examination of the relationship between context and intensity. In general, the more sensitive the context (i.e., the specific resource in the proposed action's affected area), the less intense an impact needs to be in order for the action to be considered significant. Conversely, the less intense of an impact, the less scrutiny even sensitive resources need because of the overt inability of an action to effect change to the physical environment. The consideration of context and intensity also must account for the indirect and cumulative effects from a proposed action. This section describes the existing environmental conditions in the project area (affected environment) providing a baseline for measuring expected changes that would result from implementation of the proposed revised Master Plan.

All potentially relevant resource areas were initially considered for analysis in this EA. Consistent with NEPA implementing regulations and guidance (40 CFR § 1502.2[b]), some resource topics are not discussed, or the discussion is limited in scope, due to the lack of direct effect from the Proposed Action on the resource or because that resource is not located within the Project.

This Section presents the adverse and beneficial environmental effects (direct and indirect) of the proposed action and the No Action Alternative. The section is organized by resource topic, with the effects of alternatives discussed under each resource topic. Impacts are quantified whenever possible. Qualitative descriptions of impacts are explained by accompanying text where used.

Qualitative definitions/descriptions of impacts as used in this section of the EA include:

Intensity:

- No Effect, or Negligible – a resource would not be affected, or the effects would be at or below the level of detection, and changes would not be of any measurable or perceptible consequence.
- Minor – effects on a resource would be detectable, although the effects would be localized, small, and of little consequence to the sustainability of the resource. Mitigation measures, if needed to offset adverse effects, would be simple and achievable,
- Moderate – effects on a resource would be readily detectable, localized, and measurable. Mitigation measures, if needed to offset adverse effects, would be extensive and likely achievable,
- Significant – effects on a resource would be obvious and would have substantial consequences. The resource would be severely impaired so that it is no longer functional in the project area. Mitigation measures to offset the adverse effects would be extensive and success of the mitigation measures would not be guaranteed.

Duration:

- Short term – temporary effects caused by the construction and/or implementation of a selected alternative, and
- Long term – caused by an alternative and remain after the action has been completed and/or after it is in full and complete operation.

4.1 Reservoir, Pool, and Lake Operation

4.1.1 Existing Condition

Brookville Lake is a single unit in the general comprehensive plan for flood control in the Ohio River Basin. Authorization is contained in the Flood Control Act approved on June 28, 1938 (Public Law No. 761, 75th Congress, 3rd Session). The major objective of this multipurpose project is to reduce flooding on the Whitewater River below the dam, the Miami River, and to a lesser extent, the Ohio and Mississippi Rivers. Secondary objectives include the promotion of fish and wildlife management, to be a source of water supply, and to create recreational opportunities for the general public.

Brookville Lake drains an area of 379 square miles. It has a seasonal (recreational) pool of 5,260 acres at elevation 748-feet mean sea level (msl) and a winter (conservation) pool of 4,510 acres at elevation 740-feet msl. Water fluctuation for the execution of project flood control purposes has a detrimental effect upon the recreation potential of Brookville Lake. For instance, there is a minimum controlled release of 50 cubic-feet-per-second (cfs) when pool elevations exceed 748-feet msl. Based on the inundation areas displayed in Figure 3, the most significant flooding will occur along Troutman Branch and upstream of the main basin. When the lake is at the permanent pool level, large tracts of land are exposed and many publicly operated ramps and privately owned docks are rendered unusable. Fluctuations between the pool levels contribute to the shoreline erosion visible throughout the project.

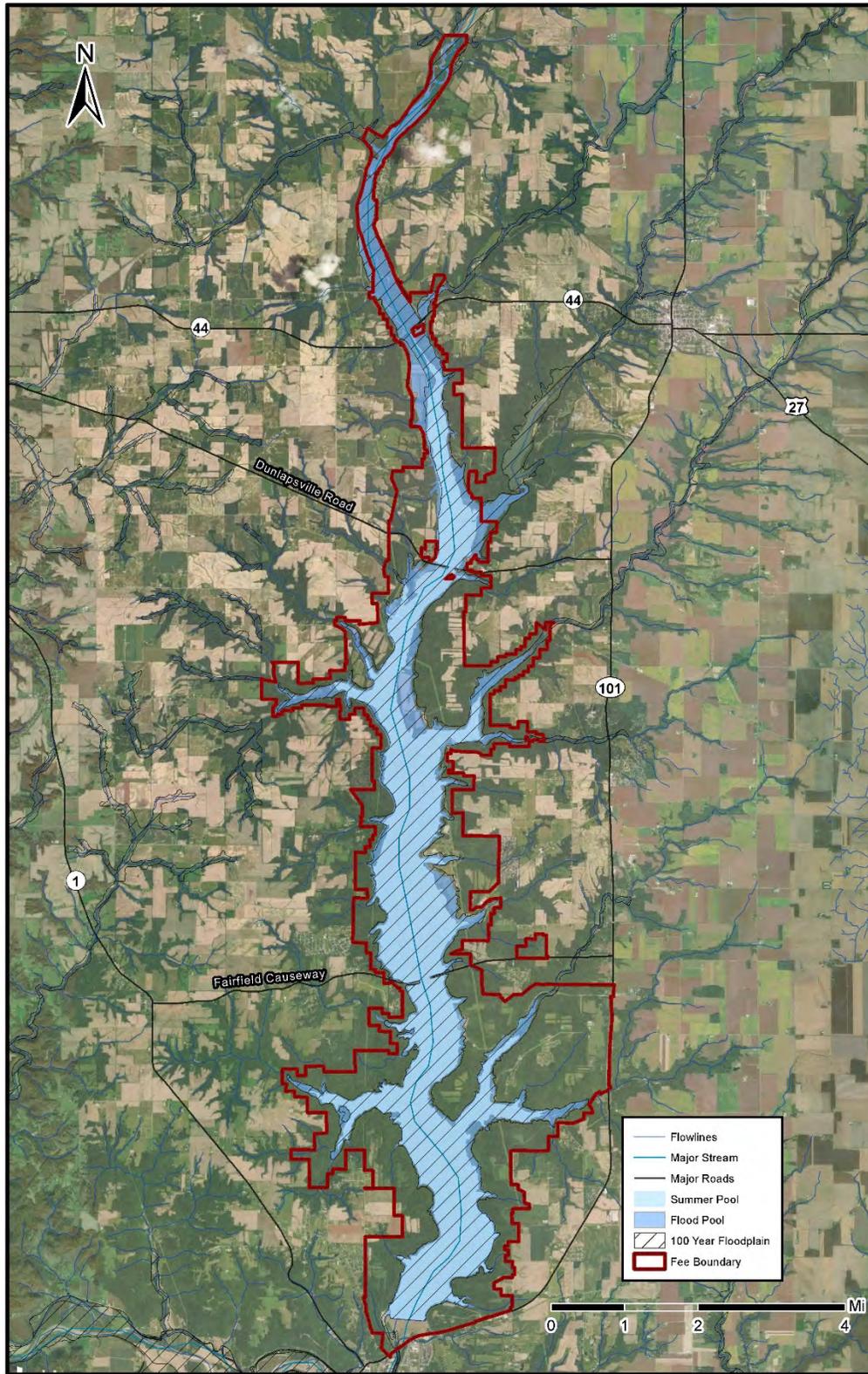


Figure 3. Brookville Lake Inundation Zones.

4.1.2 Environmental Consequences

4.1.2.1 No Action

Under the No Action Alternative, a revised Master Plan would not be approved for the Project in the foreseeable future and there would be no comprehensive planning for the project. As this alternative would result in the operation and management of Brookville Lake continuing as outlined in the 1979 Master Plan, no effects to the reservoir, pool, and lake operations are anticipated. While future unplanned operations would likely still occur, they would be done without the benefit of a comprehensive planning document that reflects current and future policy standards and environmental conditions.

4.1.2.2 Proposed Action

Implementation of the ongoing project management under the revised Master Plan would result in no changes to the Brookville Reservoir or lake operations. Because operations are controlled by the project's Operational Management Plan, the revision of the master plan will not change lake operations; future operation activities that may occur after adoption of the revised plan will be subject to independent NEPA analysis on a case-by-case basis. As such, adoption of the revised Master Plan will have no effect on the reservoir, pool, and lake operations.

4.2 Climate

4.2.1 Existing Condition

Central Indiana's climate exhibits strongly marked seasons. Winters are often cold, and summers are often hot. The transition from cold to hot weather can produce an active spring with thunderstorms and tornadoes. High humidity and temperatures arrive in summer and autumn is generally marked by lower humidity and mostly sunny skies.

Indiana's location within the continent has a strong influence on its cycle of climate. The Gulf of Mexico is a major player in Indiana's climate. Winds from the Gulf region can transport warm, moisture laden air into the state. The warm moist air collides with continental polar air brought southward by the jet stream from central and western Canada. A third air mass source found in Indiana originates from the Pacific Ocean. Due to the obstructions posed by the Rocky Mountains, however, this third source arrives less frequently in the state.

Winters may be unusually cold or a summer cool if the influence of polar air is persistent. Similarly, summers may be unusually warm or a winter mild if air of tropical origin predominates. The interaction between these two air masses of contrasting temperature, humidity, and density favors the development of low pressure centers that move generally eastward and frequently pass over or close to the state, resulting in abundant rainfall. These systems are least active in midsummer and during the summer months frequently pass north of Indiana (NCEI 2020).

The climate of the Brookville Lake area often exhibits erratic changes of temperature within and between seasons. The winters are moderately cold and the summers are fairly warm and humid with an average temperature of 20.4F in January to 75.3F in July. There is an average frost-free period of 155 days from 3 May to 5 October. On the uplands, the frost-free period generally begins about a week earlier than on the lowlands and ends a week or more later. The mean annual precipitation is 39.5 inches including an average of 13.8 inches of snowfall occurring mostly from December through March (USACE 2016).

4.2.1 Environmental Consequences

4.2.1.1 No Action

Under the No Action Alternative, a revised master plan would not be approved for the Brookville Lake Project in the foreseeable future and there would be no comprehensive planning for the project. As this alternative would result in the operation and management of Brookville Lake continuing as outlined in the 1979 Master Plan, no effects to the climate are anticipated. While future unplanned operations would likely still occur, they would be done without the benefit of a comprehensive planning document that reflects current and future policy standards and environmental conditions.

4.2.1.2 Proposed Action

Changes to land use classifications and updated resource objectives under the Proposed Action may have a negligible effect on local climate. Implementation of future projects in accordance with the Master Plan could generate temporary emissions from construction activities, including emissions of greenhouse gases. However, future operations are beyond the scope of this EA and any future activities that may occur after the adoption of the revised plan will be subject to independent NEPA analysis on a case-by-case basis. Future development and increased recreational opportunities could also generate increased visitation and corresponding greenhouse gas emissions from vehicles. These increases, however, would be negligible to local, regional, and global greenhouse gas levels and to corresponding changes to climate conditions. Increases in greenhouse gas emissions could also be offset by people traveling a shorter distance to access recreational facilities not previously offered at the Project.

4.3 Air Quality

4.3.1 Existing Condition

The U.S. Environmental Protection Agency (USEPA) Office of Air Quality Planning and Standards has set National Ambient Air Quality Standards (NAAQS) for six principal pollutants, called “criteria” pollutants. They include carbon monoxide, nitrogen dioxide, ozone, lead, particulates of 10 microns or less in size (PM-10 and PM-2.5), and sulfur dioxide. Ozone is the only pollutant in this list not directly emitted into the air as it forms in the atmosphere when three atoms of oxygen (O₃) are combined via a chemical reaction between oxides of nitrogen (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. Motor vehicle exhaust and industrial emissions, gasoline vapors, and chemical solvents are some of the major sources of NO_x and VOC, also known as ozone precursors. Strong sunlight and hot weather can cause ground-level ozone to form in harmful concentrations in the air (USEPA 2020).

As of August 2019, Franklin and Union counties were in attainment for all criteria pollutants (USEPA 2020).

4.3.2 Environmental Consequences

4.3.2.1 No Action

Under the No Action Alternative, a revised master plan would not be approved for the Brookville Lake Project in the foreseeable future and there would be no comprehensive planning for the project. As this alternative would result in the operation and management of Brookville Lake continuing as outlined in the 1979 Master Plan, no effects to Air Quality are anticipated. While future development would likely still occur, they would be done without the benefit of a comprehensive planning document that reflects current and future policy standards and environmental conditions.

4.3.2.2 Proposed Action

Air quality is not predicted to change from existing conditions as a result of implementing the revised Master Plan. Some localized and temporary emissions associated with construction of new or improved amenities (e.g., utility trenching, road paving, supplying asphalt/concrete, excavation, timber management activities) may be expected. Emissions from increased vehicular traffic and construction actions would typically include byproducts of diesel and gasoline combustion, fugitive dust, and vapors from asphalt paving. The emissions associated with equipment operation and construction would be localized, of relatively short duration, and would be expected to result in negligible effects to air quality in the vicinity of the Project.

4.4 Topography, Geology, and Soils

4.4.1 Existing Condition

The project area is located in the Dearborn Upland Section of Indiana within the Till Plains section of the Central Lowland Physiographic Province. The land surface is that of a glaciated plain broken by entrenched river valleys. Upland elevations exceed 1,000 feet while the valley bottom slopes from about 900 feet elevation near Richmond to less than 650 feet near the dam site. Local relief within the uplands or the valley is generally slight (less than 50 feet), but along valley sides, the relief ranges from 100 feet or so in the northern part of the project area to more than 350 feet near the south end of the basin. Tributary streams on the upland are relatively smooth and gentle in their head areas, but increasingly dissect the glacial surface as they near the main stream. Along the valley sides, the streams are steep and irregular and generally flow on bedrock. Over in the valley bottoms, the tributaries flatten out again as they flow upon terrace and floodplain materials (USACE 2011).

The geology of the area includes material of different types. Surface sediments have been deposited during recent ice age periods. Bedrock is exposed along steep slopes and some stream beds. Brookville Lake is near the crest of the Cincinnati Arch, a major geological structure in the central United States. The Arch is responsible for bringing relatively old rocks to the surface, and causes all bedrock formations to gradually dip westward. Bedrock in the area is almost all Ordovician in age and consists of fossiliferous shale with numerous thin limestone layers. The dominant rocks are the Dillsboro and Kope formations of the Manquoketa Group. Silurian bedrock occurs in small areas in the Whitewater River Basin, but windblown silt, courtesy of the Wisconsin Glacial Period, is also present. Valley areas consist of alternating till and outwash deposits over a series of terraces which descent to the present stream level. Post-glacial stream development has cut into old deposits and developed an alluvial floodplain (USACE 2011).

Soils in the vicinity of the Brookville Lake project are closely related to geologic parent material and topographic characteristics. Active floodplains are characterized by loamy soils of the Benessee-Shoals-Eel catena. Soil properties vary considerably over a short distance with Genessee soils occurring on the most level, best drained sites. Terrace areas are characterized by loamy soils of the Fox-Ninevah-Ockley catena with Fox soils dominant on low terraces (5-15' above the floodplain) where sand and gravel is at the surface, and Ockley soils dominant on the silt covered high terraces (20-35' above floodplain). Soils on the higher terraces tend to be much siltier and thicker than those on the low terraces. Rodman soils are commonly found on terrace scarps (USACE 2011).

Valley side slopes are characterized by shallow, clayey Fairmont and Switzerland soils with some areas of talus (sloping rock debris) or exposed bedrock. Similar shallow soils occur on some of the valley terraces where in fact the terrace is a rock bench with a thin veneer of sand and gravel (USACE 2011).

Upland soils are mostly in the Fincastle-Ragsdale-Brookston, or Miami-Russell-Fincastle catenas. The silty Fincastle soil occurs on the level and poorly drained wind-blown silt and glacial tills (ground moraine), while loamy Miami is typical of sloping well drained tills (especially end moraine). Russell soils occur most often in wind-blown silts on ground moraine. In the upland areas of the basin, the wind-blown silt cover is thick and continuous so that soils are very silty with clay rich lower horizons. Nearer the Whitewater in the sloping uplands, erosion has removed most or all of the silt and the soils are developed in till or even on bedrock with some profiles being less than a foot thick (USACE 2011).

Most soils in the area are moderately acidic. Upland soils tend to be limited in natural fertility due to lack of plant nutrients or in some locations to poor drainage and soil wetness. Alluvial soils, where well drained, are quite fertile. (USACE 2011)

Locations along ravines and the shoreline have limited potential for development due to slopes greater than 15 percent. USACE EM-1110-1-400, under Chapter 2, recommends avoiding development on slopes greater than 15 percent unless there is no other acceptable alternative. Approximately 18 percent of the lands immediately surrounding Brookville Lake consists of slopes greater than 15 percent.

4.4.2 Environmental Consequences

4.4.2.1 No Action

Under the No Action Alternative, a revised master plan would not be approved for the Brookville Lake Project in the foreseeable future and there would be no comprehensive planning for the project. As this alternative would result in the operation and management of Brookville Lake continuing as outlined in the 1979 Master Plan, no significant effects to topography, geology, and soils are anticipated. While future unplanned operations are still likely to occur, they would be done without the benefit of a comprehensive planning document that reflects current and future policy standards and environmental conditions. Because the continued use of 1979 Master Plan will not benefit from the updated land classifications, decisions made in the context of land management may be less refined and could result in poor stewardship of project resources.

4.4.2.2 Proposed Action

This Proposed Action Alternative would result in the adoption of the revised Master Plans with updated land use classifications and management guidelines for the project. Updated land classification and management guidelines have the potential to better identify areas of erosion and environmentally sensitive areas which can provide a positive effect on the management and stewardship of project resources.

Within the revised Master Plan there are future actions that are recommended to meet goals outlined for the Project. Future actions could possibly generate temporary negative effects to topography, geology, and soil through construction activities. Prior to construction of any of the new or improved future development features, best management practices (e.g., use of silt fences) would be deployed to minimize erosion and soil loss, when appropriate. Further analysis of future actions on topography, geology, and soils is beyond the scope of this EA. Any future actions that may occur after adoption of the revised plan that may affect these resources will be subject to independent NEPA analysis on a case-by-case basis. As such, the effects caused by the adoption of the revised Master Plan to topography, geology, and soils from implementing the revised Master Plan would be negligible.

4.5 Surface Water Hydrology and Groundwater

4.5.1 Existing Condition

Brookville Lake has a seasonal pool of 5,260 acres at elevation 748.0 feet m.s.l. until mid-September, and a winter pool of 4,510 acres at 740.0 feet m.s.l. the remainder of the year. At various times of the year, water fluctuation of two feet for the execution of project flood control purposes has a detrimental effect upon recreational uses of the project. Fluctuation of water levels has the potential to cause erosion, affect the opening or closing of beach facilities, create safety problems, and have the potential to kill trees if high water is allowed to stand for a prolonged period of time.

Water quality management objectives will consist of frequent monitoring of the project’s waters to provide a safe habitat for fishes, a safe water supply for humans and wildlife, plus provide a safe recreational facility for the visiting public. Table 1 summarizes the pool capacities of Brookville Lake.

Table 1. Pool capacities of the Brookville Lake.

Pool	Pool Elevation	Pool Capacity (Acre-feet)	Area (Acres)
Minimum	713	55,600	2,250
Water Supply	719-740	89,300	4,510
Seasonal	740-748	39,100	5260
Flood Control	740-775	214,700	7,790
Total Storage	775	359,600	7,790

The tributaries that enter the lake from the west are relatively small, short streams due to the close proximity of the West Fork Whitewater River. The largest of these is Wolf Creek. Those

principal tributaries entering from the east are somewhat larger. Progressing upstream they include Templeton, Spring, Hanna, Silver, and Richland creeks.

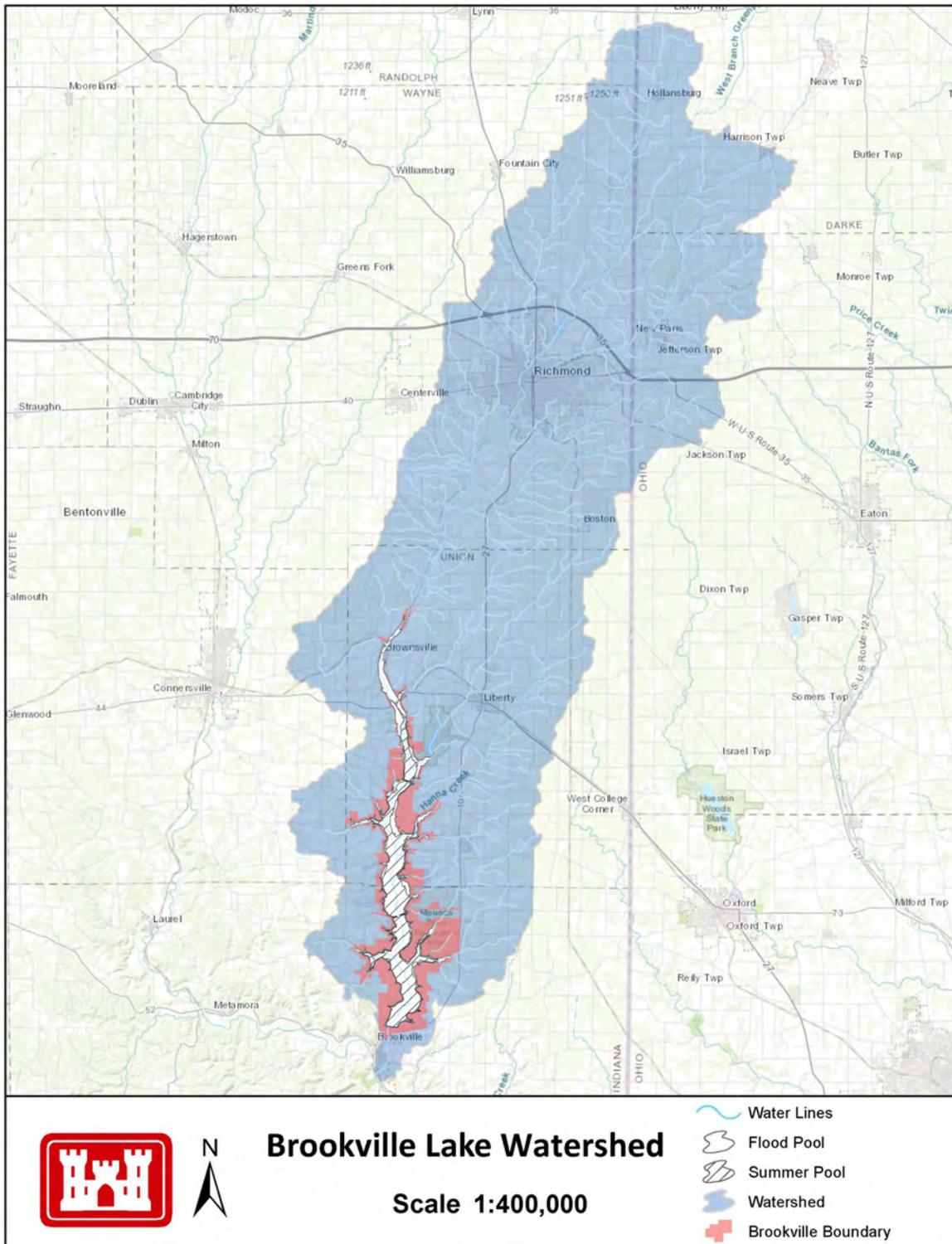


Figure 4. Brookville Lake Watershed.

Three zones control boating at Brookville Lake. Zone 1 covers the majority of Brookville Lake and has no boating restrictions. Zone 2 covers approximately 520 acres on the northernmost section of the lake near Quakertown SRA and is closed to boating 1 October to 30 April. Zone 3 covers approximately 53 acres just north of Brookville Dam and is closed to boating year round. Figure 5 shows boating use zones on Brookville Lake.

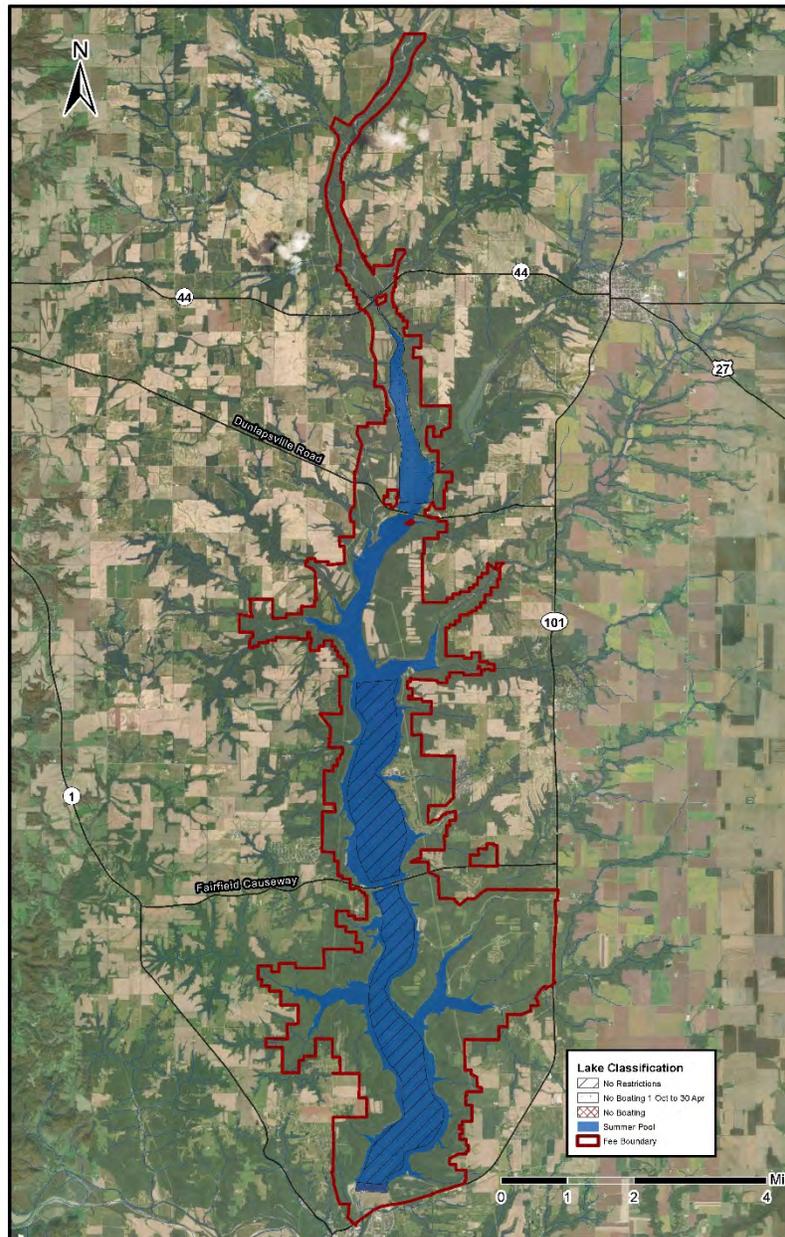


Figure 5. Boating use zones on Brookville Lake.

Sedimentation and erosion has occurred around sections of the lake due to fluctuating water levels, soil types (See Section 4.4.1 Topography, Geology, and Soils), and lack of vegetation along sections of the shoreline of private property owners.

Groundwater

One bedrock and one unconsolidated aquifer system is found within the Brookville Lake project boundary. The Maquoketa Group Aquifer System in Franklin and Union counties. This bedrock aquifer includes mostly shale with some limestone with bedrock surface ranges of 3 to 117 feet (IDNR 2009). This aquifer is overlain by thick clay deposits which are, in general, considered low risk for contamination. The Maquoketa Group is considered a limited groundwater resource with total well depths ranging from 2 – 100 feet (typically 35 – 90 ft). Well yields vary widely from 1 to 60 gallons per minute (gpm).

The Dissected Till and Residuum/Till Veneer Aquifer system is an unconsolidated aquifer which is found throughout much of Franklin and Union counties including the entire Brookville Lake project boundary. Wells constructed in this aquifer are typically dug to depths of 30 to 45 feet with capacities of 5 gpm or less (IDNR 2009).

Water wells are in use at Hanna Creek boat ramp, Quakertown Beach, and Dunlapsville boat ramp.

4.5.2 Environmental Consequences

4.5.2.1 No Action

Under the No Action Alternative, a revised master plan would not be approved for the Brookville Lake Project in the foreseeable future and there would be no comprehensive planning for the project. As this alternative would result in the operation and management of Brookville Lake continuing as outlined in the 1979 Master Plan, no effects to surface water hydrology or groundwater are anticipated. While future unplanned operations would likely still occur, they would be done without the benefit of a comprehensive planning document that reflects current and future policy standards and environmental conditions.

4.5.2.2 Proposed Action

There would be no effect of implementing the revised master plan expected on the surface water hydrology or groundwater of the Project. This alternative would result in an updated land use classification for the project and management of the project under the revised Project Master Plan would better align land use objectives with USACE policies and current environmental conditions. The land reclassification and updated resource objectives in the revised Master Plan would allow land management and land uses to be compatible with the goals of good stewardship of water resources.

4.6 Water Quality

4.6.1 Existing Condition

The water quality management authority of USACE is founded on the Federal Water Pollution Control Act (FWPCA) of 1948 and its amendments including the Clean Water Act of 1977 and the Water Quality Act of 1987. Executive Order 12088, Federal Compliance with Pollution Control Standards (1978), requires Federal facilities to comply with applicable pollution control standards in the same manner as any non-Federal entity. ER 1110-2-8154 stipulates that it is USACE policy to develop and implement a holistic, environmentally sound water quality management strategy for all projects. Furthermore, it is a goal of USACE to responsibly manage our projects to maximize environmental compliance. USACE is also mandated to comply with native State regulations and

standards including the Indiana Administrative Code Title 327, Article 2 – Water Quality Standards.

Water quality at Brookville Lake varies greatly depending on seasons, runoff volume, pollution sources and lake capacity. Approximately half of all Indiana residents live in homes that utilize septic systems (Septic systems are used almost exclusively in the areas surrounding the lake to handle wastewater treatment, which has been known to affect lake water quality due to failure). Among the common causes of failure are undersized systems due to house expansions without septic system expansion. Sewage from failing septic systems can cause nutrient loading of nitrogen and phosphorus in surface waters, which results in increased microbial populations. High microbial populations in surface waters 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*). In Indiana, an estimated 15.3 billion gallons of untreated sewage enter the environment each year (Purdue University 2018).

Water quality in the tailwater of Brookville Lake is assessed by analyzing exceedances of water quality (WQ) criteria established by the Indiana Department of Environmental Management (IDEM). In 2017, Brookville Lake exceeded the USEPA's recommended criteria for total phosphorus (Criteria: 76.25 ug/L; Measurement: 209.0 ug/L), total nitrogen (Criteria: 2.18 mg/L; Measurements: 2.34, 2.48, and 3.26 mg/L), and turbidity (Criteria: 6.36 FTU; Measurement: 853 NTU).

Brookville Lake was also identified as impaired under the Clean Water Act, Section 303(d), in 2012 as a result of mercury and polychlorinated biphenyl (PCB) accumulation in fish tissue samples and again in 2014 and 2018 due to exceeded PCB limits.

Sources of impairment at Brookville Lake includes possible point and nonpoint pollution sources, Point sources are discernible, confined and discrete conveyances such as pipes, ditches, channels, tunnels or conduits by which pollution is transported to a water body. Potential point sources contributing to Brookville Lake water quality include illicitly connected straight pipe systems; cropland and livestock runoff, sanitary sewer overflows (which may contain sediments, *E. coli* and nutrients), and regulated stormwater sources. Nonpoint source pollution is generally from land or stormwater runoff, drainage, seepage or hydrologic modification. Potential nonpoint pollution sources which effect overall project water quality include stream bank erosion; onsite wastewater treatment systems (septic systems); and urban stormwater runoff. Recommended BMPs are listed below:

- Inspection and maintenance of wastewater treatment plants, industrial facilities, and onsite wastewater treatment systems
- Replacement of illicitly connected straight pipe and onsite wastewater treatment systems
- Creation of riparian forested or herbaceous buffers to protect against agricultural and urban runoff as well as stream bank erosion
- Regional implementation of stormwater management and planning
- Implementation of stream bank and shoreline protection practices

Additional water quality monitoring at the lake is performed by the USACE which is done in coordination with the state of Indiana. USACE Project personnel also conduct water quality monitoring in coordination with IDEM in which biweekly measurements are collected from spring to fall during lake stratification to monitor temperature and dissolved oxygen levels. Data collected via the Louisville District Water Quality Program is assessed annually. Water quality in the tailwater is also assessed by analyzing data for exceedances of WQ standards and criteria established by the IDEM. Data is compared and if any exceedances of established water quality criteria occur, the Louisville District Water Quality Team reports this to IDEM.

Benthic macroinvertebrates and fish surveys are often used as water quality indicators to assess short- and long-term trends (USACE 2020b). In 2017, biological samples were collected by IDEM personnel at 10 of the primary inflows and the tailwater of Brookville Lake. Macroinvertebrates were collected using IDEM's multi-habitat collection method and fish were collected using IDEM's backpack electrofishing method. Habitat was assessed using IDEM's Qualitative Habitat Evaluation Index (QHEI) and measured separately for macroinvertebrate and fish reaches. The IDEM uses this data to calculate the Macroinvertebrate Index of Biotic Integrity (mIBI) and fish community data to calculate the Index of Biotic Integrity (IBI), which are developed specifically for IN streams. Some of the metrics used in calculating mIBI and/or IBI include: taxa richness; EPT richness –number of pollution intolerant taxa from the orders Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies); sensitive species richness –number of species that are sensitive to poor water quality; and % tolerant –percentage of the total number of fish species tolerant of poor water quality. In general, good water quality is associated with higher values in mIBI, IBI, taxa richness, EPT richness, sensitive species richness, and QHEI, and lower values of % tolerant taxa (IDEM 2017).

The high proportion of mIBI and IBI ratings designated as *Fair* suggest the watershed has some level of impact from human disturbance but still has fair stream health (Table 2). The Brookville Lake tailwater received the lowest mIBI and IBI scores and was the only location with two Poor ratings. However, it is possible that discharge events occurring current to sampling may have impacted the macroinvertebrate and fish communities there.

Table 2. Summary results 2017 Brookville Lake Watershed bioassessment (IDEM 2017).

Site	Stream	Macroinvertebrate					Fish					
		mIBI	Rating	Taxa Richness	EPT Richness	QHEI	IBI	Rating	Taxa Richness	Sensitive Species Richness	% Tolerant	QHEI
2BVR10005	East Fork Whitewater River	36	Fair	27	7	68.5	42	Fair	17	8	33.33	69
2BVR13001	Silver Creek	30	Poor	11	0	56.5	44	Fair	10	4	5.4	59
2BVRDUBO2	Dubois Creek	40	Fair	21	12	77.5	48	Good	22	10	21.58	65
2BVRELLY1	Ellys Creek	38	Fair	30	9	57.5	40	Fair	4	0	99	53
2BVRFRNK2	Franklin Creek	36	Fair	22	8	70.5	42	Fair	13	7	12.09	60
2BVRHANN2	Hanna Creek	38	Fair	24	8	73.5	52	Good	17	9	1.28	70.5
2BVRSAIT1	Salt Well Creek	40	Fair	20	8	55.5	44	Fair	14	3	65.51	49
2BVRSPRN1	Spring Creek	40	Fair	21	12	58	42	Fair	13	4	69.23	57
2BVRTAIL1	East Fork Whitewater River (tailwater)	24	Poor	18	0	67	34	Poor	15	4	6.25	54
2BVRTMPL1	Templeton Creek	38	Fair	22	9	65	42	Fair	14	6	46.61	71.5
2BVRUTRB1	Unknown tributary	38	Fair	17	6	54.5	44	Fair	12	2	46.02	57.5
Average	--	36.2	--	21.2	7.2	64.0	43.1	--	13.7	5.2	36.9	60.5
Min	--	24	--	11	0	54.5	34	--	4	0	1.3	49.0
Max	--	40	--	30	12	77.5	52	--	22	10	99.0	71.5

Annual water quality monitoring suggests that Brookville Lake is eutrophic in nature and is susceptible to periodic algal blooms due to high nutrient load. Freshwater harmful algal blooms (HABs) are significant and excessive growths of blue-green algae, also known as cyanobacteria. All freshwater lakes are inhabited by native cyanobacteria species that are capable of producing HABs. Several of these species have the capability to produce toxins (called cyanotoxins) that are harmful to the nervous system (neurotoxins), liver (hepatotoxins), and skin (dermatotoxins) of humans and other animals (USACE 2020b). In addition to cyanotoxins, HABs can be harmful to lake ecosystems via the depletion of oxygen levels which can result in large fish kills. One of the most influential factors of HAB growth is the concentration of nutrients such as nitrogen and phosphorus. Most nitrogen and phosphorus pollution (i.e., eutrophication) comes from the runoff of agricultural fertilizer, lawn fertilizer, untreated human sewage (storm overflows), and animal sewage from concentrated animal feeding operations (USACE 2020b).

The USACE began monitoring Brookville Lake for HABs in 2012. Since this time, the USACE's Louisville District (LRL) Water Quality Program has coordinated with Indiana state agencies to develop a HAB Response Sampling Plan that protects the public while recognizing the state agencies as the water quality authority per the authority designated to them by the EPA via the Clean Water Act. USACE's primary function in the Indiana HAB Response Sampling Plan is to provide support for Indiana state agencies through data collection at the lakes managed by USACE. The District WQT has also created HAB Response Manuals for each reservoir to serve as reference information on HAB response.

In Indiana, HABs are addressed by the Indiana Department of Natural Resources (IDNR) and the IDEM in the IDNR HAB Response Standard Operating Procedure. The LRL WQ Program supports the state agencies efforts by reporting visual HAB indicators via the Indiana State Department of Health Algal Bloom Notification Form.

IDEM samples for blue-green algae and analyzes those samples for the type and quantity of blue-green algae present and for the following toxins which may be produced by certain types of blue-green algae: microcystin, cylindrospermopsin (only done if species that produce it are present), anatoxin-a, and saxitoxin. For protection of human health from exposure to the algae and any of

the toxins, cyanobacteria will be compared to the World Health Organization (WHO), United States Environmental Protection Agency (EPA) guidelines. WHO guidelines recommend using an action level of 100,000 cells/ml of cyanobacteria to post recreational advisory signs. Table 3 summarizes Indiana’s advisory and caution levels for cyanobacteria.

Table 3. Indiana Cyanobacteria Caution and Advisory Levels.

Alert Level	Cell Count/mL	Toxin Level in Parts per Billion (ppb)	Color	Precautions
Low Risk	< 100,000	< 6	Blue	Don't drink the water. Shower after you swim.
Advisory	> 100,000	< 6	Yellow	Swimming and boating permitted. Avoid contact with algae. Don't drink the water. Shower after you swim. Keep pets out of the water or, at minimum, bathe them after swimming and prevent them from licking algae/water from fur.
Caution	> 100,000	> 6 but < 20	Orange	All ADVISORY precautions plus children and immune-compromised individuals should avoid the water.
Closed	> 100,000	> 20	Red	Unsafe to swim for humans or pets.

There are six established HAB sampling sites at Brookville Lake. Samples at each site are collected by the IDEM staff and shipped overnight to an analytical laboratory that has been secured by the LRL Water Quality Program. Based on the sampling results, the IDEM issues cautions or advisories. In August 2019, a High Cell Count Recreation Advisory was given for Brookville Lake due to high HAB cell counts in samples collected at Quakertown SRA and Mounds SRA.

4.6.2 Environmental Consequences

4.6.2.1 No Action

Under the No Action Alternative, a revised master plan would not be approved for the Brookville Lake Project in the foreseeable future and there would be no comprehensive planning for the project. As this alternative would result in the operation and management of Brookville Lake continuing as outlined in the 1979 Master Plan, no effects to water quality are anticipated. While future development would likely still occur, they would be conducted without the benefit of a comprehensive planning document that reflects current and future policy standards and environment conditions.

4.6.2.2 Proposed Action

Under the proposed action, there would be no effect to the water quality of Brookville Lake or its tributaries as the result of adopting and implementing the proposed master plan. Although construction activities may result in ground-surface disturbances that could increase runoff and diminish water quality, best management practices during construction would be expected to

minimize the potential for deleterious effects. After construction was completed, re-seeding and re-vegetation would be performed to minimize erosion losses and protect surface soils. The existing water quality in Brookville Lake is a result of factors substantially unrelated to the management actions on Project lands and results from land use and discharges to the watershed upstream from the Project. In addition, changes in land use classification and management has the potential to benefit water quality by identifying and protecting environmentally sensitive areas like wetlands that contribute to healthy aquatic ecosystems.

4.7 Habitats

4.7.1 Existing Condition

Habitats of the Brookville Lake project area are delineated and categorized using the National Land Cover Database (NLCD). The NLCD provides nationwide data on land cover and land cover change at a 30m resolution with a 16-class legend based on a modified Anderson Level II classification system. Of the fifteen habitats contained at Brookville Lake, nine consist of regularly disturbed areas, including developed lands, shrub/scrub, cultivated crops, and barren areas. These regularly disturbed areas are home to edge and urban adaptive species. Typical animal species found in these habitats include songbirds, coyotes, foxes, deer, raptors, mice, squirrels, raccoons and rabbits.

Open Water

The majority of the project consists of open water. The IDNR Division of Fish and Wildlife stocks fish annually according to the needs of the IDNR fisheries program. Fish habitat and cover is also actively maintained and created by the IDNR. Fish species stocked include channel catfish, striped bass, muskellunge, walleye, largemouth bass, white bass, black crappie, bluegill, redear, rock bass, smallmouth bass and rainbow and brown trout in the tailwater. Other species found in the lake and headwaters that were present prior to stocking include carp, gizzard shad, white sucker, and various species of minnows and darters.

Wetlands

Wetlands are located in floodplains surrounding the Brookville 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 found in Brookville Lake wetlands. Wetlands provide habitat for many animals, including red-winged blackbird, muskrats, mink, beaver, reptiles and amphibians, as well as a wide range of waterfowl.

Forested Habitats

Forested habitats are classified using the NLCD system and include mixed, evergreen, and deciduous forest habitat types. These habitat classification categories are broad categories that can be further refined into known forest community associations that result from local geological and climate character. In general, the larger tracts of the forest habitat are located on steeper slopes that are often associated with water courses and are found in areas managed for wildlife. Forested habitats are a mosaic of mixed community types occurring at different successional stages. Ongoing silvicultural practices employed by land managers include group selection, selective timber harvesting, and clear cutting methodologies that are conducted to improve

forest health, achieve a desired forest composition or age structure (e.g., early successional stages), and to create or maintain wildlife habitat.

Generally found on flat or rolling uplands to steep slopes, the beech-maple forest is a dominant forest community found at Brookville Lake. The forest thrives in loam soils over glacial till. Sugar maple and American beech dominate the canopy with other members of the forest canopy including white ash, blue ash, sugar maple, white oak, chinquapin oak, red oak, shagbark hickory, tulip tree, Ohio buckeye, and black walnut. Common subcanopy and understory species include red oak, basswood, and tulip tree. The herbaceous layer is diverse and includes spring ephemerals, such as white trillium, Jack-in-the-Pulpit, spring beauty and Solomon's seal (Homoya et al. 1985, NatureServe 2020).

A typical mixed-mesophytic community predominately found on lower slopes, in coves, and in other protected landscape areas south of the glacial boundary is the south-central Interior Mesophytic Forest type. This habitat contains a rich herb layer often comprised of abundant spring ephemerals such as spring beauty and Dutchman's breeches and often has small streams bisecting this community. Other herbs include white trillium, black baneberry and great Indian plantain. Dominant canopy species are sugar maple and American beech with maples, black walnut and sassafras (Homoya et al. 1985, NatureServe 2020b).

Many of the early successional habitats found on lands designated as wildlife management areas are fields in various stages of succession with many sections being colonized by trees and shrubs of various species. Pioneer tree species encroaching on open fields include honey and black locust, black cherry, red or sugar maple, white ash, sumac, dogwood, hackberry, elm, box elder, sassafras, and hawthorn. Some walnut, shagbark, bitternut and pignut hickories, white, red, and black oak, red bud, flowering dogwood, and beech exist in more advanced sere stages. In some of the open sloping areas with thin soils and limestone outcroppings, red cedar may be present as codominants (USACE 2016).

Approximately 10,000 seedlings per year are planted at Brookville Lake in an effort to limit erosion and improve wildlife habitat. Planted species include white Pine, dogwood, red pine, and lespedeza.

Mammals and birds common to forest habitats at Brookville Lake include white-tailed deer, gray squirrels, fox squirrels, raccoons, foxes, many passerine songbirds, woodpeckers, and owls.

Hay Fields/Pasture/Food Plots

Old fields are successional habitats characterized by grasses, shrubs, and trees. These habitats are typically maintained for hay productions, left as fallow fields, or transitioning from grasslands to early successional scrub/shrub/forest communities. In general, early successional habitats of the project area are characterized by the following plant species: blackberry, raspberry, switchgrass, big bluestem, and little bluestem among other grasses, forbs and shrubs. Food plots are created and maintained at Brookville Lake that range in size from 1 acre to 20 acres. The plots are corn, sunflowers or millet and are placed in areas where it is not feasible to have a crop lease field. Food plots might be created for a special project such as dove or waterfowl management.

Wildlife species may include cottontail rabbit, white-tailed deer, turkey, wrens, sparrows, grouse, coyotes, foxes and other various songbirds and furbearers.

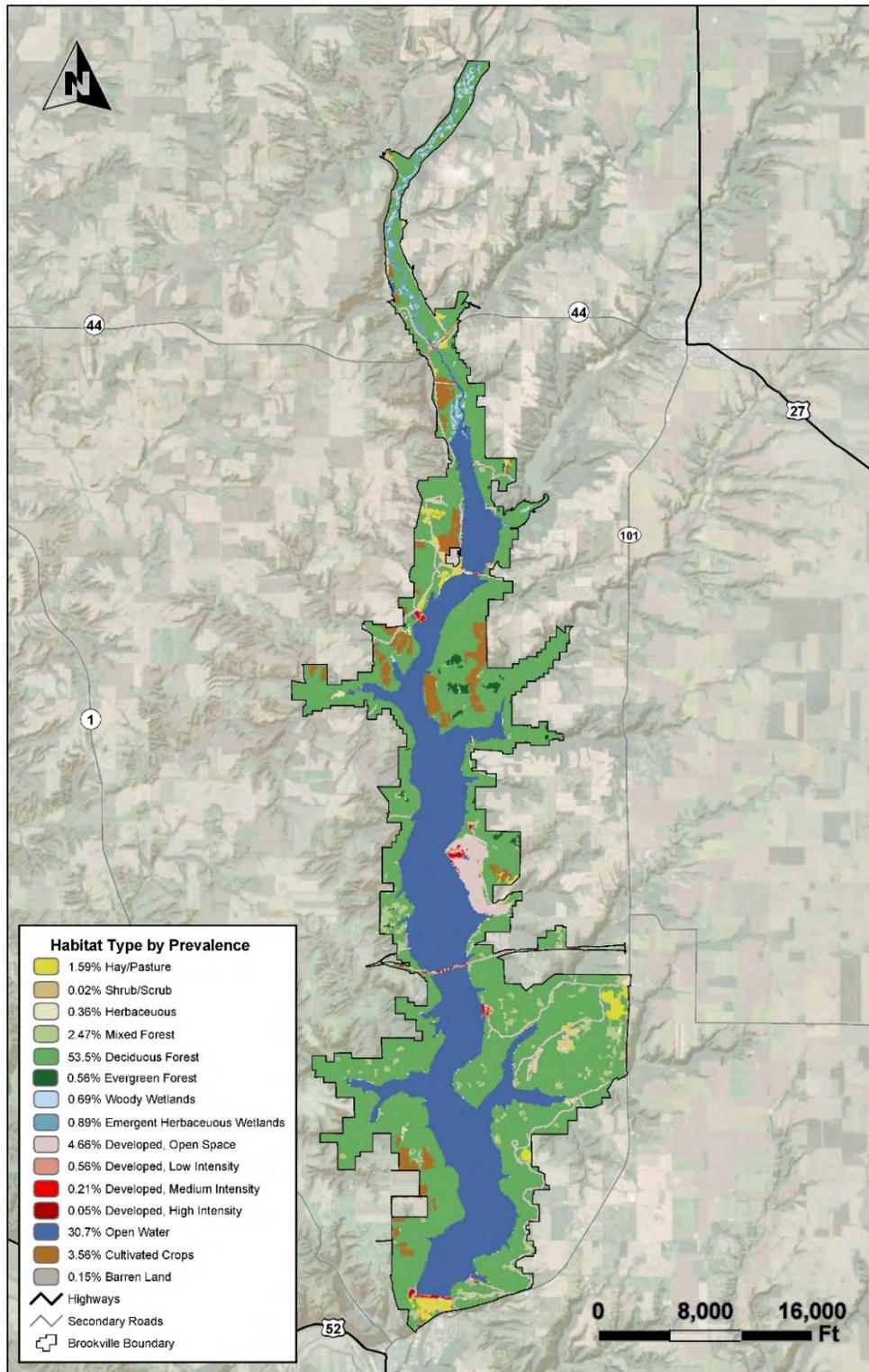


Figure 6. Relative Proportion of Habitat Types at Brookville Lake.

4.7.2 Environmental Consequences

4.7.2.1 No Action

Under the No Action Alternative, a revised master plan would not be approved for the Project in the foreseeable future and there would be no comprehensive planning for the project. As this alternative would result in the operation and management of Brookville Lake continuing as outlined in the 1979 Master Plan, no effects to habitats are anticipated. While future development would likely still occur, it would be done without the benefit of a comprehensive planning document that reflects current and future policy standards and environmental conditions.

4.7.2.2 Proposed Action

Under the proposed action, future development under the proposed master plan would occur with no effect to the habitat quality or quantity of Brookville Lake or the surrounding land owned by the USACE.

Proposed development actions on the Project are required to comply with the NEPA and many other laws pertaining to the conservation of natural and cultural resources. Prior to implementation of any development activity that could adversely impact terrestrial or aquatic habitats, field surveys and all appropriate coordination with state and/or federal agencies will be conducted by the USACE. All forest management activities will be coordinated through the Indiana Division of Forestry for compliance with Indiana's Bat Management Practices. As such, future development would occur with minimal effects to the habitats of the Project.

The Proposed Action Alternative would result in an updated land use classification for the project and management of the project under the revised Project Master Plan, which would result in beneficial effects on habitats within the Project. For example, changes in land use classification and management has the potential to recalibrate and refine the identification and protection of environmentally sensitive areas like wetlands that contribute to the overall health of the lake ecosystem.

In addition, under the proposed action, the IDNR would continue to work to improve the fishery at the Project by stocking fish and maintaining and creating fish habitat in accordance to the IDNR fisheries program. Likewise, forest management would still be accomplished through agreements with the USACE and INDR.

4.8 Listed Species

Lists of threatened, endangered and species of special concern are maintained by the United States Fish and Wildlife Service (USFWS). Under the Endangered Species Act (ESA) of 1973 (16 U.S.C. §§ 1531-1544), endangered species are generally defined as any species in danger of extinction throughout all or a significant portion 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.

4.8.1 Existing Condition

The USFWS maintains lists of rare plants and wildlife that occur in each county of the US. The state of Indiana maintains a separate inventory of state-ranked endangered and threatened species and species of special concern. This list can be obtained through the Indiana Natural Heritage Data Center by county or by vicinity to the project.

An official species list from the USFWS, dated 5 March 2020 for the Project includes the Federally endangered Indiana bat (*Myotis sodalis*) and the Federally threatened northern long-eared bat (*M. septentrionalis*). Presence is assumed in the Brookville Lake Project area by USFWS as both species occur over a large geographical area, including the entire state of Indiana (USFWS 2020).

In the spring, Indiana bats emerge from hibernation and migrate to summer roost sites, often over long distances. During the summer months, female Indiana bats establish maternity colonies of up to 100+ individuals under the loose bark of trees and in tree cavities. Habitat loss and fragmentation of forest habitat are among the major threats to Indiana bat populations. Additional threats include white-nose syndrome, disturbance (of hibernating bats) at hibernacula, and environmental contaminants (USFWS 2006).

The northern long-eared bat was listed as a threatened species in 2015 due to declines mostly associated with white-nose syndrome (USFWS 2015). The bats spend winter hibernating in caves and mines. During the summer, the bats roost singly or in colonies underneath bark and in cavities or in crevices of both live trees and snags. Males and non-reproductive females may also roost in cooler places like caves and mines. Threats to the species include habitat loss and fragmentation of forest habitat, environmental contaminants and pesticides, and disturbance of hibernating bats a hibernacula (USFWS 2015).

Bald eagles (*Haliaeetus leucocephalus*) are known to nest within the project and are regularly sighted in the vicinity of the lake. While this species was formally removed from the Federal list of endangered and threatened species in 2007, these birds are protected under the MBTA and the Bald and Golden Eagle Protection Act (16 U.S.C §§ 668-668c). Osprey (*Pandion haliaetus*) are also known to nest on Brookville Lake and are protected by the MBTA.

There are no critical habitats of listed species known in the Project area (USFWS 2020).

4.8.2 Environmental Consequences

4.8.2.1 No Action

No changes to the listed species resources of the Project would be predicted as a result of implementing the No Action Alternative and no effects to listed species or critical habitat are anticipated. Under the No Action Alternative, a revised Master Plan would not be approved for the Project in the foreseeable future and there will be no update in land classification and management which have the potential to more accurately identify and protect areas identified as environmentally sensitive. While USACE would continue to perform future actions with the goal of maintaining and improving environmental and recreational resources at the Project, it would be done without the aid of a comprehensive planning document.

4.8.2.2 Proposed Action

Listed Species Effects Determination

There are no changes to the operations of the Project as part of the proposed master plan. As such, there would be no effects to the Indiana bat or northern long-eared bat and no consultation with the USFWS would be required regarding the target species.

Under the proposed action, future development action will still be subject to the required seasonal restrictions on timber clearing to protect roosting bats. Tree harvests over three inches in diameter at breast height are restricted from April 1 through September 30. Winter hibernacula are not known to be located in the Project area. Future developmental actions on the Brookville Lake Project will be also be assessed individually to determine potential impacts to listed species, in compliance with the ESA and NEPA.

Development near active and inactive bald eagle nests is limited by the Bald and Golden Eagle Act. Under the act, steps must be followed to prevent the “take” of an eagle. Take, as defined by the Act, includes those activities that pursue, shoot, shoot at, poison, wound, kill capture, trap, collect, molest or disturb ([50 CFR § 22.3](#)) and includes their parts, nests, or eggs, and the molesting or disturbing the birds. In an effort to limit potential disturbance to nesting Bald Eagles, under the proposed revised Master Plan no trees will be cleared within 200 feet of active or inactive nests, and that work within line of sight of the nests will be restricted during the egg-laying period (January 15 through July 31). In addition, the USFWS should be consulted for guidance on impacts to threatened and/or endangered species, migratory birds and high-quality habitats if any new development is planned.

4.9 Demographics and Environmental Justice

4.9.1 Existing Condition

The proposed Master Plan identified the area of influence of Brookville Lake Project (Figure 7). The simple definition of the area of influence is the area in which the majority of project visitors live. USACE defines the primary AOI as counties within 30 minutes of travel from the project and the secondary AOI as counties within 60 minutes of travel (based on normal traffic conditions) from the project. The Brookville Lake area of influence is comprised of 17 counties in western central Indiana, eight in the Primary Area of Influence and nine in the Secondary Area of Influence. Table 4 shows estimated current and future populations within the area of influence from 2010 to 2030.

Table 4. Estimated Current and Future Population within Area of Influence of Brookville Lake Project.

County	Distance from Project (mi)	Estimated Population		
		2020	2030	2040
<u>Indiana</u>				
Franklin	5	22,863	23,722	23,540
Union	5	6,974	6,896	6,573
Fayette	14	22,570	21,192	19,532
Wayne	20	65,349	63,583	61,494
Dearborn	28	49,589	51,753	51,989
Rush	28	16,252	15,548	14,293
Ohio	37	5,905	5,985	5,792
Decatur	42	27,006	27,785	27,766
Henry	43	48,041	45,591	42,614
Randolph	43	24,249	22,885	21,295
Ripley	44	28,904	30,412	30,921
Shelby	47	44,600	45,039	44,244
Hancock	53	76,353	85,043	91,845
Switzerland	57	10,703	11,458	12,056
Delaware	60	114,142	111,634	109,620
Jay	60	21,149	20,975	20,512
<u>Ohio</u>				
Preble	23	40,420	37,540	34,140
Butler	26	390,110	410,960	430,360
Hamilton	32	790,600	785,900	786,090
Clermont	37	208,330	214,090	216,190
Montgomery	45	513,830	496,650	489,390
Warren	47	225,770	235,640	239,060
Darke	49	51,270	48,280	46,280
Greene	60	164,940	165,780	163,300
Total		2,753,709	2,770,281	2,779,316

Indiana Population data taken from: http://www.stats.indiana.edu/pop_proj/

Ohio Population data taken from: https://development.ohio.gov/reports/reports_pop_proj_map.htm

Table 5 shows the projected change in age distribution of residents of Franklin and Union counties between 2010 and 2030. These data indicate that the population of Franklin and Union counties are projected to age over the next 14 years. Historical data provides further evidence of this trend, which is also consistent with national trends that have persisted for some time.

Table 5. Projected change in age distribution for Franklin and Union counties, Indiana. 2010 – 2030.

Age Cohort	2010	2030	Change in Share 2010-2030
< 5	6.7%	6.5%	-0.2%
5 – 19	21.2%	19.5%	-1.7%
20 – 24	7.0%	6.5%	-0.5%
25 – 44	25.7%	24.9%	-0.8%
45 – 64	26.5%	22.7%	-3.8%
> 65	13.0%	20.1%	7.2%

Source: STATSIndiana, 2020

4.9.2 Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Population and Low-Income Populations (Executive Order, 1994), directs federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority population and low-income populations. When conducting NEPA evaluations, the Corps of Engineers incorporates Environmental Justice (EJ) considerations into both the technical analyses and the public involvement in accordance with the USEPA and the Council on Environmental Quality guidance (CEQ, 1996).

The CEQ guidance defines “minority” as individual(s) who are members of the following population groups: American Indian or Alaskan native, Asian or Pacific Islander, Black, not of Hispanic origin, and Hispanic. The Council defines these groups as minority populations when either the minority population of the affected area exceeds 50-percent of the total population, or the percentage of minority population in the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographical analysis.

Table 6 shows the relative proportion of county, state, and national population living under the poverty level and the median household incomes in Franklin and Union counties, the state, and the U.S. Both counties, as well as the state of Indiana, have lower median incomes than the national average. The relative proportion of minority populations of Franklin and Union counties and the state are lower than the national average.

Table 6. Race and Income Demographics of the Brookville Lake Project Area and US.

Area of Influence	Proportion of Population in Poverty (2020)	Income (2018)	Proportion of Pop. as a Minority (2018)
Franklin County	8.6	\$46,629	3.8
Union County	10.7	\$38,998	5.2
Indiana	13.0	\$47,124	22.0
United States	13.1	\$54,526	39.1

Source: STATSIIndiana and US Census Bureau, 2020.

4.9.2.1 No Action

Under the No Action Alternative, a revised master plan would not be approved for the Project in the foreseeable future and there would be no comprehensive planning for the project. As this alternative would result in the operation and management of Brookville Lake continuing as outlined in the 1979 Master Plan, no effects to local or regional socioeconomics or environmental justice are anticipated. Under the No Action Alternative, the trends of growth of population observed in the recent years surrounding the Project would be expected to continue. There would also be no disproportionate adverse effects to minority or low-income communities as a result of implementing the No Action Alternative.

4.9.2.2 Proposed Action

The changes in population and associated stresses on the municipal resources and services over the past 40 years have occurred while USACE has managed the Project. Implementing the revised master plan would be expected to have no effect on the demographic trends of the surrounding communities. The Proposed Action would not result in any appreciable effects to the local or regional socioeconomic environment. Changes to land use classification would have no impact on socioeconomics or environmental justice. Construction of future projects consistent with the Revised Master Plan would be expected to have minor beneficial effects associated with temporary employment of construction personnel and transportation of goods and materials to the construction sites. There would be no adverse effects on environmental justice since the Proposed Action would be located within federal lands and projects would benefit local residents by enhancing recreational opportunities. Thus, there would be no adverse effects to any minority or low-income communities as a result of implementing the No Action Alternative.

4.10 Recreation and Visitation

4.10.1 Existing Condition

Brookville Lake offers its visitors many choices for outdoor recreation. The project is home to two State Recreation Areas: Mounds SRA and Quakertown SRA. The lake property has more than 25 miles of hiking trails, boating opportunities, nationally known recreational and sport fishing, two beaches, and more than 400 campsites.

Table 7 lists the major activities available to Brookville Lake visitors, the location where the activities are available, and site details or a short description of the recreational capacity at each location.

Table 7. Recreational Activities on Brookville Lake

Activity	Location	Description
Boating	Treaty Line Ramp	IDNR; restroom, parking, boat dock
	Silver Creek Ramp	IDNR; restroom, parking, picnic shelter, boat dock, playground
	Dunlapsville Ramp	IDNR; two lane ramp, restroom, parking lot, loading dock
	Quakertown Ramp	IDNR; seven boat ramp, restroom, parking, picnic shelter, boat slips, loading dock
	Hanna Creek Ramp	IDNR; sailboat launch, slips and hoist; two restrooms; parking; two boat ramps; loading docks
	Egypt Hollow Ramp	IDNR; two-lane ramp, restroom, loading dock
	Fairfield Ramp	IDNR; seven lane ramp, restroom, parking, loading docks
	Fairfield Marina	IDNR; restrooms, parking, boat slips and buoys, shuttle, concessions
	Sagamore Ramp	IDNR; restroom, parking, picnic shelter, boat docks
	Templeton Creek Ramp	Campers only May 1 - October 31
	Garr Hill Ramp	IDNR; two restrooms, parking, boat ramp, loading dock
Overlook Ramp	USACE;	
Camping	Quakertown SRA	IDNR; restrooms, shower house, parking, modern sites with potable water and dump stations
	Mounds SRA	IDNR; nine restrooms; shower houses; parking; concessions; modern campgrounds with electric, sewage, potable water, and dump stations; boat pump stations, picnic areas
Fishing	Brookville Lake	Walleye, muskellunge, striped bass, smallmouth bass, largemouth bass, bluegill, crappie, and catfish
Picnic Areas	Mounds SRA	Two shelter houses available
	Quakertown SRA	One shelter house available
Hunting and Trapping	9,000 acres in designated hunting areas	Upland game and waterfowl available during open seasons. Indiana hunting license required.
Hiking	Fairfield	1.5 miles, moderate difficulty
	Glidewell	6.5 miles, moderate difficulty
	Templeton Creek	2 miles, moderate difficulty
	Wildlife Wander	7 miles, easy difficulty

Activity	Location	Description
	Garr Hill	1.8 miles, moderate difficulty
	Woodland	5 miles, moderate difficulty
	Eagle	2 miles, moderate difficulty
Hiking (cont'd)	Bonwell	1.5 miles, moderate difficulty
	Midway	2.2 miles, moderate difficulty
	Wolf Creek	16.5 miles, rugged
	Memorial	2.5 miles, moderate
	Cattail Alley	1 miles, moderate
	Red Springs Loop	12 miles, rugged
	Lakeshore	2.7 miles, moderate
Horseback Riding	Bridle Trails	9 miles
Swimming	Fairfield Beach (Mounds) SRA	IDNR; entrance fee, five restrooms, parking, accessible fishing pier, playground, volleyball, concessions, beach.
	Quakertown SRA	IDNR; entrance fee, shower/change house, restroom, parking, fishing pier, beach, playground.
Shooting	Quakertown SRA	Open April 1 - December 1. Call Brookville office to make appointment.

National and regional variables affect the way people decide to spend their leisure time. For that reason, visitation at Brookville Lake often fluctuates from year to year. Table 7 presents visitation data for Fiscal Years (FY) 2007-18.

Table 8. Brookville Lake Project Visitation Data 2007 - 2018.

Fiscal Year	IDNR Project Visitation	USACE Project Visitation
FY 2007-2008	-	615,471
FY 2008-2009	1,109,396	592,722
FY 2009-2010	1,295,123	643,465
FY 2010-2011	1,092,332	640,737
FY 2011-2012	1,212,050	601,395
FY 2012-2013	1,374,881	689,287
FY 2013-2014	1,296,125	-
FY 2014-2015	1,363,528	-
FY 2015-2016	1,303,180	
FY 2016-2017	1,373,591	
FY 2017-2018	1,436,418	-

Sources: USACE data from *The Operations and Maintenance Business Information Link (OMBIL 2020)* and IDNR *State Parks and Reservoirs Visitation, 2008-2015*.

A large proportion (32.8%) of the project's visitation occurs at the Fairfield Beach, Marina, and Ramp area. During FY 2017-18, these facilities received a total of 416,004 visitors, which was a slight decrease from the previous year.

4.10.2.1 No Action

Under the No Action Alternative, a revised master plan would not be approved for the Project in the foreseeable future and there would be no comprehensive planning for the Project. As this alternative would result in the operation and management of Brookville Lake continuing as outlined in the 1979 Master Plan, no effects to recreation are anticipated. However, while future development would likely still occur, it would be done without the benefit of a comprehensive planning document that reflects current and future policy standards and environmental conditions.

4.10.2.2 Proposed Action

Recreational use and visitation trends of the Project would not be predicted to change appreciably from existing use patterns as a result of implementing the proposed action and no effect is anticipated. Because there are no major new recreational amenities currently planned in the future, and most of the development at the Project involves minor improvements, replacements-in-kind, and facility improvements; none of these would be expected to substantially increase visitation. However, several potential recreational activities and opportunities have been identified in the revised Master Plan for the Project, and may be considered for implementation in the future. There would be some localized and temporary adverse effects to recreational users (e.g., noise, fugitive dust, trails closed) during construction

of new or improved amenities, but these would be relatively short-term and would not represent an adverse impact to recreation at the project. Further analysis of future actions that may affect recreation and visitation of the project is beyond the scope of this EA. Future operation activities that may occur after adoption of the revised plan will be subject to independent NEPA analysis on a case-by-case basis. As such, the effects caused by the adoption of the revised Master Plan to recreation and visitation of the project will be negligible.

4.11 Cultural Resources

4.11.1 Existing Condition

A review of existing literature, records, and reports was conducted for this assessment to identify known cultural resources and historic properties within the APE and to summarize previous investigations. This review included technical reports, site forms, books, articles, historical references, and online resources available through the National Park Service and the Indiana Department of Natural Resources' Division of Historic Preservation and Archaeology (DHPA). Additional documents were examined at the USACE offices in Louisville, Kentucky.

Results of this review identified no historic properties listed on the National Register of Historic Places (NRHP) at Brookville Lake. Two historic bridges were delisted from the NRHP in 1974 - the Brownsville and Dunlapville Covered Bridges - due to their removal for the lake's impoundment in 1970. The Dunlapville Covered Bridge was subsequently destroyed through arson in 1971. The Brownsville Covered Bridge was relocated to Eagle Creek Park in Indianapolis, Indiana in 1974, and then moved to the Mill Race Park in Columbus, Indiana in 1994 (Indiana Historic Site and Structure Inventory Forms taken from SHAARD database dated April 21, 2020).

A majority of the cultural resources inventoried at Brookville Lake are archaeological sites (n=246). These sites were identified by amateur and professional investigators both before and after the creation of the lake (see Squier and Davis 1848; Haymond 1869; Quick 1880, 1885; Setzler 1930, Kellar 1967; Koleszar 1972; Kolbe 1992a, 1992b; McCord and Cochran 1996, 2000).

Franklin County, which has the highest recorded number of mounds and earthworks of the Indiana counties along the Whitewater River Valley, are of particular interest to investigators and are still present at the lake. Other site types represented in this inventory include prehistoric burials, villages, field camps, resource extraction location and limited activity sites dating from early Archaic period (10,000-8,000 B.C) to the Late Prehistoric period (roughly A.D. 900-1600), and historic cemeteries, farmsteads/homesteads, refuse heaps and/or dumps dating from the mid 1800's to the present.

A majority of these archaeological sites have not been evaluated for their eligibility to the NRHP, but some have been determined eligible through consensus and/or evaluation under Section 106 of the NRHP. Table 9 lists these NRHP eligible archaeological sites.

Table 9. Archaeological Sites at Brookville Lake determined eligible for listing the NRHP.

<u>County:</u>	<u>Resource Name:</u>	<u>Indiana State Site No.:</u>	<u>Site Type:</u>
Franklin	Unnamed	12FR1 (also listed as 12FR65)	Prehistoric Mound
Franklin	Unnamed	12FR4	Prehistoric Mound
Franklin	Unnamed	12FR11	Prehistoric Mound
Franklin	Unnamed	12FR20	Prehistoric Mound
Franklin	The Klipple Mound	12FR21 (also listed as 12FR97)	Prehistoric Mound
Franklin	The Glidewell Mound	12FR22	Prehistoric Mound
Franklin	The Johnston Mound	12FR23	Prehistoric Mound
Franklin	Village West Site #1	12FR24	Prehistoric Mound
Franklin	Unnamed	12FR55	Prehistoric Burial/Earthwork
Franklin	Templeton's Fortified Mound	12FR63	Prehistoric Mound/Enclosure
Franklin	Unnamed	12FR69	Prehistoric Mound
Franklin	Unnamed	12FR72	Prehistoric Mound
Franklin	Unnamed	12FR76	Prehistoric Mound
Franklin	Unnamed	12FR86	Prehistoric Mound
Franklin	Unnamed	12FR87	Prehistoric Mound
Franklin	Unnamed	12FR89	Prehistoric Burial
Franklin	Unnamed	12FR99	Prehistoric Mound
Franklin	Unnamed	12FR100	Prehistoric Mound
Franklin	Battle Point Mound	12FR102	Prehistoric Mound/Enclosure
Franklin	Unnamed	12FR164	Prehistoric Field Camp
Franklin	Unnamed	12FR191	Prehistoric Field Camp
Franklin	Unnamed	12FR201	Prehistoric Field Camp
Franklin	Unnamed	12FR218	Prehistoric Field Camp/ Historic Homestead
Franklin	Unnamed	12FR231	Prehistoric Field Camp
Franklin	Unnamed	12FR232	Prehistoric Mound

<u>County:</u>	<u>Resource Name:</u>	<u>Indiana State Site No.:</u>	<u>Site Type:</u>
Franklin	Unnamed	12FR270	Prehistoric Field Camp
Union	The Bond Site	12UN2	Prehistoric Field Camp
Union	The Taylor Mound	12UN3	Prehistoric Mound
Union	The Brookbank Mound	12UN4	Prehistoric Mound
Union	The Jenkins Mound	12UN5	Prehistoric Mound
Union	Unnamed	12UN9	Prehistoric Field Camp
Union	Unnamed	12UN23	Prehistoric Field Camp
Union	The Candal Mound	12UN34	Prehistoric Mound
Union	The Connell Mound	12UN35	Prehistoric Mound
Union	The Edie Mound	12UN36	Prehistoric Mound
Union	The Corry Mound	12UN37	Prehistoric Mound
Union	Unnamed	12UN112	Prehistoric Mound
Union	Unnamed	12UN158	Prehistoric Burial
Union	Unnamed	12UN159	Prehistoric Burial/Mound
Union	Unnamed	12UN160	Prehistoric Mound
Union	Unnamed	12UN161	Prehistoric Mound
Union	Unnamed	12UN162	Prehistoric Mound
Union	Unnamed	12UN164	Prehistoric Mound
Union	Unnamed	12UN165	Prehistoric Burial/Mound
Union	Unnamed	12UN167	Prehistoric Mound
Union	Unnamed	12UN172	Prehistoric Lithic Workshop
Union	Unnamed	12UN191	Prehistoric Field Camp
Union	Unnamed	12UN230	Prehistoric Field Camp
Union	Unnamed	12UN252	Prehistoric Field Camp
Union	Unnamed	12UN254	Prehistoric Field Camp
Union	Unnamed	12UN270	Prehistoric Field Camp
Union	Unnamed	12UN291	Prehistoric Field Camp
Union	Not applicable	12UN293	Prehistoric Field Camp
Union	The Quakertown Site	12UN328	Prehistoric Burial

Two individual historic structures at Brookville Lake were identified and assessed for listing to the NRHP by the Historic Landmarks Foundation of Indiana as part of comprehensive survey of standing historic structures in Franklin and Union counties (Historic Landmarks Foundation of Indiana 1978). The first is an unnamed house located at 2295 S. Hubble Road. It is evaluated by the Historic Landmarks Foundation of Indiana as a “Contributing” structure that is ineligible for listing to the NRHP but may contribute as part of a historic district. The second is the Joseph Coffman House at 383 S. Treaty Line Road (IHSSI Survey Number 161-357-10038) and is evaluated by the Historic Landmarks Foundation of Indiana as a “Notable” structure requiring additional research to determine their eligibility to the NRHP.

A historic family plot cemetery, known as the Hughes Cemetery (CR-24-152), is located at Brookville Lake in Franklin County, Indiana. The cemetery possesses approximately 12 burial locations with unmarked grave stones on a narrow upland ridge overlooking Wolf Creek. The cemetery has not been evaluated for its eligibility for listing the NRHP.

4.11.2 Environmental Consequences

4.11.2.1 No Action

Under the No Action Alternative, a revised master plan would not be approved for the Project and there would be no comprehensive plan for the future development and management of resources. The operation of Brookville Lake would continue, as outlined in the 1979 Master Plan, is not anticipated to effect known or unknown cultural resources eligible for listing to the NRHP. However, future development would still occur at the Project and would require consultation under Section 106 of the National Historic Preservation Act (NHPA).

4.11.2.2 Proposed Action

Implementing the revised Master Plan would be expected to have no effect on the cultural resources of the Project, as all proposed development actions that would be undertaken consistent with the revised Master Plan and be required to comply with Section 106 of the NHPA. Prior to implementation of any construction or development project, an assessment and analysis would be conducted by the USACE, coordination with the Indiana State Historic Preservation Office (SHPO), federally recognized Native American tribes and the public and a formal determination of effect would be provided. Should unanticipated cultural resources be discovered during ground disturbing activities, work will cease immediately and follow the regulatory guidance set forth by 36 CFR part 800.

4.12 Hazardous, Toxic, and Radioactive Waste Materials (HTRW)

4.12.1 Existing Condition

The USEPA Envirofacts database was queried to identify HTRW sources within a five-mile radius of the Project. No permitted hazardous waste disposal facilities were identified and there are no known sites of hazardous, toxic, or radioactive materials on Project lands.

4.12.2 Environmental Consequences

4.12.2.1 No Action

Under the No Action Alternative, a revised master plan would not be approved for the Project in the foreseeable future and there would be no comprehensive planning for the Project. As this alternative would result in the operation and management of Brookville Lake continuing as

outlined in the 1979 Master Plan, no significant increase of hazardous, toxic, and radioactive waste is anticipated. However, future development would likely still occur without the benefit of a comprehensive planning document that reflects current and future policy standards. Regardless, there would be no effect related to HTRW, because these substances are not found on Project lands.

4.12.2.2 Proposed Action

Implementing the revised Master Plan would be expected to have no effect on HTRW materials as there are no known pre-existing sources at the Project. While the potential to generate HTRW materials as a result of equipment malfunction or failure during the construction process exists (e.g., fluid leaks from heavy equipment), best management practices and regular equipment maintenance reduce these risks. Storage, fueling, and lubrication of equipment and motor vehicles associated with the construction process (e.g., pavers, trenchers, cement trucks) would be conducted in a manner that affords the maximum protection against accidents and spills. Construction-related debris from future projects consistent with the Revised Master Plan would be managed, disposed, and recycled in accordance with state and federal requirements. Future development and related increased visitation could result in corresponding minor increases of waste generation; however, any waste generated during operations would be comparable to existing types generated and would be properly managed in accordance with applicable state and federal requirements.

4.13 Aesthetics/Visual Qualities

4.13.1 Existing Condition

The Project includes diverse scenic and natural resources. Existing habitat within the Project such as wetland areas and woodland hiking trails can offer unique opportunities to view wildlife within natural conditions. Wetlands can be found at the north end of Troutman's Branch, south of the Highway 36 Crossing, southwest of the tailwater area, and at various other sensitive shoreline areas throughout the project.

4.13.2 Environmental Consequences

4.13.2.1 No Action

Under the No Action Alternative, a revised master plan would not be approved for the Project in the foreseeable future and there would be no comprehensive planning for the Project. As this alternative would result in the operation and management of the Project continuing as outlined in the 1979 Master Plan, no effects to the aesthetics/visual qualities of the Project are anticipated. However, future development would likely still occur without the benefit of a comprehensive planning document. As such, the construction-related effects to the aesthetic character and visual quality of the Project would occur under no action as they would under the proposed action.

4.13.2.2 Proposed Action

Implementing the revised master plan would be expected to have no long-term effect on the aesthetic character of the Project. Comprehensive planning under the new master plan could potentially facilitate improved construction planning minimizing the temporary aesthetic effects during construction. Revised land use classifications and resource management has the potential

to improve the aesthetic experience of project visitors by increasing or improving the natural resources present there.

4.17 Noise

4.17.1 Existing Condition

Changes in noise are typically measured and reported in units of A-weighted Decibels (dBA), a weighted measure of sound level as perceived by the human ear. The primary sources of noise within the Project area would include everyday vehicular traffic along the adjacent highways (typically between 50 and 60 dBA at 100 feet) and human-generated recreational activities at the Project. Noise ranging from about 10 dBA for the rustling of leaves to as much as 115 dBA (the upper limit for unprotected hearing exposure established by the Occupational Safety and Health Administration) is common in areas where there are sources of recreational activities, construction activities, and vehicular traffic.

4.17.2 Environmental Consequences

4.17.2.1 No Action

Under the No Action Alternative, a revised master plan would not be approved for the Project in the foreseeable future and there would be no comprehensive planning for the Project. As this alternative would result in the operation and management of Brookville Lake continuing as outlined in the 1979 Master Plan, no effects to noise are anticipated. However, future development would likely still occur without the benefit of a comprehensive planning document that reflects current and future policy standards and environmental conditions.

4.17.2.2 Proposed Action

Implementing the revised master plan would be expected to have no long-term effect on the level of background or ambient noise character of the Project. Temporary increases in noise would be expected during future construction, maintenance, or operation of the Project, but comprehensive planning under the new master plan could potentially facilitate implementing best management practices to minimize the temporary noise effects during construction. Increased visitation has the potential to effect the competition for project resources including amenities such as campsites.

5 CUMULATIVE EFFECTS

NEPA requires a Federal agency to consider not only the direct and indirect impacts of a proposed action, but also the cumulative impact of the action. A cumulative impact is defined as *“the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time.”* (40 C.F.R. § 1508.7). These actions include on- or off-site projects conducted by government agencies, businesses, or individuals that are within the spatial and temporal boundaries of the actions considered.

The revised Brookville Lake Master Plan is intended to guide the USACE toward achieving its goal of managing, conserving and enhancing natural resources, while providing quality opportunities for outdoor recreation to the public. The plan is consistent with authorized project purposes and relevant legislation and regulations, and was developed in response to regional and local needs, resource capabilities and suitability, and expressed public interests. As previously discussed, it is anticipated that the Proposed Action will have no effect or negligible effects on the following resource types: reservoir operation, air quality, topography, geology, soils, surface water hydrology, groundwater, listed species, demographics and environmental justice, recreation and visitation, cultural resources, HTRW materials, aesthetics and visual resources, and noise. The Proposed Action is expected to have beneficial effects on water quality and habitat resources.

There is the potential for cumulative effects of the Proposed Action on these resources when added to the impacts of other past, present, and reasonably foreseeable future actions in the region. Any future development by USACE on Project resources has the potential to produce some temporary and minor construction-related effects (e.g., noise, fugitive dust, vehicle emissions, etc.). However, there would also be cumulative beneficial effects from implementing actions that align with the resource objectives identified in the revised Master Plan including the identification and protection of sensitive areas.

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6 SUMMARY OF ENVIRONMENTAL EFFECTS

The updated Master plan provides guidelines and direction for future Project development and use. These guidelines are based on authorized Project purposes, USACE policies and regulations on the operation of USACE projects, responses to regional and local needs, resource capabilities and suitable uses, and expressed public interests consistent with authorized Project purposes and pertinent legislation.

Careful planning, sound engineering, appropriate coordination with resource agencies and effective execution have developed the recreational resources at the Project while protecting and enhancing the important environmental resources; these practices would be expected to continue.

Implementation of the revised Master Plan, which includes revised land use classifications, is expected to have no effect on all environmental resources analyzed (Table 9). As there is no effect expected for any environmental resource, there is no adverse cumulative effect expected by the implementation of the Proposed Action.

Within the revised Master Plan there are future actions that are recommended to meet goals outlined for the Project. Future actions have the potential to cause adverse effects to one or more of the analyzed environmental resources. However, analysis of future unplanned actions is not feasible and is outside of the scope of this EA. All future actions taken by USACE, recommended in the revised Master Plan or otherwise, would require appropriate environmental review and NEPA compliance. As such, the effects, caused by future actions, would not be expected to be significant.

Table 10. Summary of Environmental Effects Caused by the Proposed Action Alternatives (PAA).

Environmental Resource	Intensity of Effect caused by PAA
Reservoir, Pool, and Lake Operation	No Effect
Climate	Negligible
Air Quality	Negligible
Topography, Geology, and Soils	Negligible
Surface Water Hydrology and Groundwater	No Effect
Water Quality	Beneficial
Habitats	Beneficial
Listed Species	No Effect
Demographics and Environmental Justice	No Effect
Recreation and Visitation	Negligible
Cultural Resources	No Effect
Hazardous, Toxic and Radioactive Waste Materials	No Effect
Aesthetic/Visual Qualities	No Effect
Noise	No Effect

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7 COMPLIANCE WITH ENVIRONMENTAL LAWS

The revised Brookville Lake Master Plan and the subsequent adoption of revised land classifications and resource objectives would not commence until the proposed actions achieve environmental compliance with the applicable laws and regulations, as described below.

NEPA requires that federal agencies identify “any irreversible and irretrievable commitments of resources which would be involved in the Proposed Action should it be implemented” (42 U.S. Code § 4332). An irreversible commitment of resources occurs when the primary or secondary impacts of an action result in the loss of future options for a resource. The impacts for this project from the reclassification of land would not be considered an irreversible commitment because much of the land could be converted back to prior use at a future date. Any future development or construction projects to be undertaken consistent with the Updated Master Plan would undergo separate NEPA analysis, as appropriate, before any irretrievable and irreversible commitment of resources (financial or otherwise) would occur to implement those projects.

Bald Eagle Protection Act, 16 U.S.C. §§ 668, 668 note, 668a-668d.

In compliance.

The Bald Eagle Protection Act imposes requirements on Corps of Engineers projects concerning bald eagles. Approval and implementation of the revised master plan would not adversely affect bald eagles or their habitat.

Clean Air Act, as amended, 42 U.S.C. § 1857h-7, et seq.

In compliance.

The purpose of the Clean Air Act is to protect public health and welfare by the control of air pollution at its source, and to set forth primary and secondary National Ambient Air Quality Standards to establish criteria for States to attain, or maintain. Minor and temporary emissions would be expected to occur during construction activities for actions to maintain or improve facilities at the Brookville Lake Project (e.g., fugitive dust, internal combustion engine emissions). However, these emissions would be short term, small-scale, and air quality would not be affected to any measurable degree. Because Franklin and Union counties are both currently designated as being in attainment for all criteria pollutants, no General Conformity Rule determination is required.

Clean Water Act, as amended, (Federal Water Pollution Control Act) 33 U.S.C. § 1251, et seq.

Full compliance.

The objective of the Clean Water Act is to restore and maintain the chemical, physical and biological integrity of the Nation’s waters (33 U.S.C. § 1251). The Corps of Engineers regulates discharges of dredge or fill material into waters of the United States pursuant to Section 404 of the Clean Water Act. This permitting authority applies to all waters of the United States including navigable waters and wetlands. The Section 404 requires authorization to place dredged or fill material into waters of the United States. If a Section 404 authorization is required, a Section 401 water quality certification from the state in which the discharge originates is also needed. The proposed projects recommended in the master plan would not be expected to result in the

placement of dredged or fill material into water bodies or wetlands. Any future actions at the Project which would result in the placement of dredged or fill material into waters of the United States would be undertaken in compliance with Section 404 and Section 401 of the Clean Water Act.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA).

Not applicable.

Typically CERCLA governs (1) the release or substantial threat of a release of a hazardous substance into the environment; or (2) the release or substantial threat of a release of any pollutant or contaminant into the environment that presents an imminent threat to the public health and welfare. To the extent such knowledge is available, 40 CFR Part 373 requires notification of CERCLA hazardous substances in a land transfer. The implementation of the revised master plan would not involve real estate transactions, and not release or threatened release of hazardous substances into the environment at the Project is known.

Endangered Species Act, as amended. 16 U.S.C. § 1531, et seq.

In compliance.

Section 7 of the Endangered Species Act (16 U.S.C. § 1536) states that all Federal departments and agencies shall, in consultation with and with the assistance of the Secretary of the Interior (Secretary), insure that any actions authorized, funded, or carried out by them do not jeopardize the continued existence of any threatened or endangered (T&E) species, or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary to be critical.

This Environmental Assessment represents the assessment and findings regarding the proposed revised master plan and serves as the Biological Assessment with a determination of no effect to the Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*).

Environmental Justice (E.O. 12898).

In compliance.

The Executive Order governing environmental justice directs that every federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States. The Project does not disproportionately affect minority or low-income populations.

Fish and Wildlife Coordination Act, as amended, 16 U.S.C. § 661, et seq.

In compliance.

The FWCA requires governmental agencies, including the Corps of Engineers, to coordinate activities so that adverse effects on fish and wildlife would be minimized when water bodies are proposed for modification. No modifications to water bodies are proposed in association with the proposed update to the Master Plan. Any comments received from resource agencies are located in Appendix A of this EA.

Migratory Bird Treaty Act of 1918 (MBTA), 16 U.S.C. §§ 703-712*In compliance.*

The MBTA is the domestic law that affirms, or implements, the United States' commitment to four international conventions with Canada, Japan, Mexico, and Russia for the protection of shared migratory bird resources. The MBTA governs the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts and nests. The take of all migratory birds is governed by the MBTA's regulation of taking migratory birds for educational, scientific, and recreational purposes and requiring harvest to be limited to levels that prevent over utilization. Executive Order 13186 (2001) directs agencies to take certain actions to implement the act. The Corps of Engineers will consult with the USFWS (through their review of the draft EA) with regard to their consideration of the effects of the actions identified in the master plan revision for potential effects on migratory birds. No effects are anticipated.

National Historic Preservation Act, as amended, 54 U.S.C. § 300101, et seq (NHPA).*In compliance.*

The NHPA requires that federal agencies having jurisdiction over a federal or federally assisted undertaking will consider their effects to historic districts, sites, buildings, structures, or objects that are listed on, or determined eligible for inclusion to, the National Register of Historic Places. The Louisville District has made the determination that the proposed action alternative will have no adverse effect to cultural resources.

National Environmental Policy Act (NEPA), as amended, 42 U.S.C. § 4321, et seq.*In Progress.*

This Environmental Assessment and Finding of No Significant Impact (FONSI) has been prepared in accordance with the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR Parts 1500-1508). An Environmental Impact Statement (EIS) is not required because no significant effects are anticipated. Signing of the FONSI will conclude compliance with the NEPA.

Noise Control Act of 1972, 42 U.S.C. §§ 4901-4918.*In compliance.*

This Act establishes a national policy to promote an environment for all Americans free from noise that jeopardizes their health and welfare. Federal agencies are required to limit noise emissions to within compliance levels. Noise emission levels at the Project site would increase above current levels temporarily due to construction of improvements or features identified in the proposed master plan revision. Appropriate measures would be taken to keep the noise level within the compliance levels.

Section 10 of the Rivers and Harbors Act of 1899, 33 U.S.C. § 403.*In compliance.*

This law prohibits the unauthorized obstruction or alteration of any navigable water of the United States. This section provides that the construction of any structure in or over any navigable water of the United States, or the accomplishment of any other work affecting the course, location, condition, or physical capacity of such waters is unlawful unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army. The actions identified in the proposed Master Plan revision would not involve the construction of structures within Brookville Lake.

Floodplain Management (E.O. 11988).*In compliance.*

Section 1 requires each agency to provide leadership and take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health and welfare, and to restore and preserve the natural and beneficial values served by flood plains in carrying out its responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; (2) providing Federally undertaken, financed, or assisted construction and improvements; and (3) conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities. The actions identified in the proposed master plan revision would not affect the flood holding capacity or flood surface profiles of Brookville Lake.

Protection of Wetlands (E.O. 11990).*In compliance.*

Federal agencies shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agencies responsibilities. Each agency, to the extent permitted by law, shall avoid undertaking or providing assistance for new construction located in wetlands unless the head of the agency finds (1) that there is no practicable alternative to such construction, and (2) that the proposed action includes all practicable measures to minimize harm to wetlands, which may result from such use. The actions identified in the proposed master plan revision would not involve construction in, or affects to, wetlands.

8 Public Involvement

In compliance with 40 CFR § 1501.4(e)(2), this EA is being circulated for a 30-day review to concerned agencies, organizations, and the interested public. All comments received during this review period will be evaluated and appropriate changes to the EA will be implemented. All comments received will be placed in the Agency and Public Comments Appendix of the final EA.

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Appendix

Supplementary Materials

NEPAssist Report

Input Coordinates: 39.627424,-84.995114,39.615577,-84.985776,39.604574,-84.981930,39.593145,-84.976987,39.581716,-84.986325,39.568166,-84.997861,39.560544,-84.995663,39.560120,-84.986874,39.559697,-84.976987,39.553344,-84.975339,39.549109,-84.986325,39.535977,-84.985776,39.524961,-84.984128,39.524114,-84.947323,39.480457,-84.948971,39.473673,-84.979733,39.466040,-84.976987,39.455861,-84.973141,39.441864,-84.980282,39.437621,-84.990719,39.435500,-85.002804,39.443560,-85.007199,39.453741,-85.003903,39.459679,-84.997861,39.475369,-85.007748,39.468160,-85.016537,39.478761,-85.022030,39.487664,-85.028622,39.485968,-85.017636,39.488512,-85.005551,39.497414,-85.002804,39.505468,-85.006100,39.515215,-85.009396,39.521148,-85.013241,39.536824,-85.008298,39.548261,-85.008847,39.556732,-85.009396,39.557579,-85.018735,39.566896,-85.021481,39.570284,-85.008847,39.575365,-85.008298,39.584256,-85.004452,39.591029,-85.000058,39.597802,-84.993466,39.611768,-84.995663,39.627424,-84.995114

Project Area	22.28 sq mi
Within an Ozone 8-hr (1997 standard) Non-Attainment/Maintenance Area?	no
Within an Ozone 8-hr (2008 standard) Non-Attainment/Maintenance Area?	no
Within a Lead (2008 standard) Non-Attainment/Maintenance Area?	no
Within a SO2 1-hr (2010 standard) Non-Attainment/Maintenance Area?	no
Within a PM2.5 24hr (2006 standard) Non-Attainment/Maintenance Area?	no
Within a PM2.5 Annual (1997 standard) Non-Attainment/Maintenance Area?	no
Within a PM2.5 Annual (2012 standard) Non-Attainment/Maintenance Area?	no
Within a PM10 (1987 standard) Non-Attainment/Maintenance Area?	no
Within a Federal Land?	yes
Within an impaired stream?	no
Within an impaired waterbody?	yes
Within a waterbody?	yes
Within a stream?	yes
Within an NWI wetland?	Available Online
Within a Brownfields site?	no
Within a Superfund site?	no
Within a Toxic Release Inventory (TRI) site?	no
Within a water discharger (NPDES)?	yes
Within a hazardous waste (RCRA) facility?	no
Within an air emission facility?	no
Within a school?	no
Within an airport?	no
Within a hospital?	no
Within a designated sole source aquifer?	no
Within a historic property on the National Register of Historic Places?	yes
Within a Toxic Substances Control Act (TSCA) site?	no
Within a Land Cession Boundary?	yes
Within a tribal area (lower 48 states)?	no

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Event Code: 03E12000-2020-E-04500

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Project Summary

Consultation Code: 03E12000-2020-SLI-0999

Event Code: 03E12000-2020-E-04500

Project Name: Brookville Lake Master Plan Update

Project Type: ** OTHER **

Project Description: This revision of the Brookville Lake 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, as well as those anticipated to occur within the planning period of 2020 to 2043.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/39.55725719658601N84.99382757839273W>



Counties: Franklin, IN | Union, IN

03/05/2020

Event Code: 03E12000-2020-E-04500

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Endangered Species Act Species

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
<p>Indiana Bat <i>Myotis sodalis</i></p> <p>There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/1/office/31440.pdf</p>	Endangered
<p>Northern Long-eared Bat <i>Myotis septentrionalis</i></p> <p>No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> Incidental take of the NLEB is not prohibited here. Federal agencies may consult using the 4(d) rule streamlined process. Transportation projects may consult using the programmatic process. See www.fws.gov/midwest/endangered/mammals/nleb/index.html <p>Species profile: https://ecos.fws.gov/ecp/species/9045</p>	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.