US Army Corps
of Engineers
Louisville District

Environmental Assessment

for the

West Fork of Mill Creek Lake

Master Plan

Cincinnati, Ohio

July 2020

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DRAFT
FINDING OF NO SIGNIFICANT IMPACT (FONSI)

West Fork of Mill Creek Lake Master Plan
Hamilton County, Ohio

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 June 2020, for the West Fork of Mill Creek Lake Master Plan Update, evaluated alternatives to update the Master Plan in compliance with guidance in Engineering Regulation (ER) 1130-2-550 and Engineering Pamphlet (EP) 1130-2-550, to include land classifications and updated resource goals and objectives.

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

- Implementation of the West Fork of Mill Creek Lake Master Plan Update

In addition to the recommended alternative, 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.

A summary assessment of the potential effects of the recommended alternative are listed in Table 1:

Table 1: Summary of Potential Effects of the Recommended Alternative

Resource / Area of Concern	Insignificant adverse effects	Insignificant effects as a result of mitigation	No or negligible adverse effects to resource / area of concern
Reservoir, pool, and lake operation	☐	☐	☒
Recreation and visitation	☐	☐	☒
Aesthetics	☐	☐	☒
Air quality	☐	☐	☒
Aquatic resources/wetlands	☐	☐	☒
Vegetative resources	☐	☐	☒
Fish and wildlife habitat	☐	☐	☒
Threatened/Endangered species/critical habitat	☐	☐	☒
Historic properties	☐	☐	☒

Resource / Area of Concern	Insignificant adverse effects	Insignificant effects as a result of mitigation	No or negligible adverse effects to resource / area of concern
Other cultural resources	☐	☐	☒
Hazardous, toxic & radioactive waste	☐	☐	☒
Surface Water Hydrology and Groundwater	☐	☐	☒
Land use	☒	☐	☐
Noise levels	☒	☐	☐
Demographics and Environmental justice	☐	☐	☒
Topography, geology, and soils	☐	☐	☒
Water quality	☐	☐	☒
Climate	☐	☐	☒

All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the recommended alternative.

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

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 Federal agency review of the Master Plan 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 USACE determined that the recommended alternative 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 USACE determined that the recommended alternative has no potential to cause adverse effects on historic properties.

No discharge of dredged or fill material associated with the recommended plan is anticipated and therefore, 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 alternative would not significantly affect the human environment; therefore, preparation of an Environmental Impact Statement is not required.

_____

Date

_____

Eric D. Crispino
Colonel, Corps of Engineers
Deputy Commander

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Executive Summary

The U.S. Army Corps of Engineers' (USACE) West Fork of Mill Creek Lake Project (Project) is located within the greater metropolitan area of Cincinnati, Ohio in the southwestern corner of the state. The Project is located approximately 13 miles north of downtown Cincinnati, and is located entirely within Hamilton County, Ohio.

USACE holds title to 1,323 acres of land and water that comprise West Fork of Mill Creek Dam and Reservoir. In addition, USACE has 41.15 acres of flowage easement lands. Of the fee land, USACE leases 1,283 acres to Great Parks of Hamilton County (GPHC) for public park facilities and recreation, natural area preservation, fish, wildlife, and forest management purposes. This leased area is managed by GPHC as part of the 2,555-acre Winton Woods Park.

Master Plans are required for civil works projects (such as the Project) for which USACE 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 Project Master Plan was completed in 1979, and there has been no comprehensive update to the Master Plan in 41 years. As such, USACE is updating the current Master Plan to provide an up-to-date basis upon which to evaluate contemporary proposals.

The proposed updated Master Plan includes updates to 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, West Fork of Mill Creek Lake Project Office. Neither USACE nor GPHC currently have plans for development of new major recreational amenities. The continued maintenance of existing facilities, improvement of some existing facilities, and protection of the Project's natural areas and natural resources would involve a number of small-scale actions that are recommended under the updated Master Plan. 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 adoption of the proposed updated Master Plan. An Environmental Impact Statement (EIS) is not required because the effects of adopting the proposed updated Master Plan are not expected to be significant.

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List of Acronyms

BMP – Best Management Practice

CEQ – Council on Environmental Quality

CFR – Code of Federal Regulations

DO – Dissolved Oxygen

EA – Environmental Assessment

EIS – Environmental Impact Statement

EM – Engineer Manual

EP – Engineer Pamphlets

ER – Engineering Regulation

ESA – Endangered Species Act of 1973

FONSI – Finding of No Significant Impact

GPHC – Great Parks of Hamilton County

HAB – Harmful Algal Bloom

MBTA – Migratory Bird Treaty Act

MSD – Metropolitan Sewer District of Greater Cincinnati

NAAQS – National Ambient Air Quality Standards

NEPA – National Environmental Policy Act of 1969

NHPA – National Historic Preservation Act of 1966

NRHP – National Register of Historic Places

ODNR – Ohio Department of Natural Resources

Project – West Fork of Mill Creek Lake Project

SHPO – Ohio State Historic Preservation Office

USACE – United States Army Corps of Engineers

USEPA – United States Environmental Protection Agency

USFWS – United States Fish and Wildlife Service

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.

USACE completed the existing Master Plan for the West Fork of Mill Creek Lake Project (the "Project") in 1979, and has not comprehensively updated it since then. USACE is proposing the adoption of an updated Master Plan at West Fork of Mill Creek 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. USACE has prepared the updated Master Plan 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 implementation of the 2020 West Fork of Mill Creek Lake 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

The Project is located in southwestern Ohio, approximately thirteen miles north of downtown Cincinnati, Ohio. The Project is located entirely within Hamilton County, Ohio.

The dam site is located on West Fork of Mill Creek, 6.5 miles upstream of its confluence with Mill Creek. Mill Creek continues southward to drain into the Ohio River.

Primary access to the Project is Winton Road, which runs northwest to southeast through the center of the Project and over the lake, and extends into suburban residential and commercial retail areas on either side of the park surrounding the lake. Commuters from Cincinnati would approach the Project by taking Interstate 75 north to Ohio State Route 126, from which they can exit onto Winton Road.

Figure 1. Project vicinity map. Hamilton County highlighted in red. The location of West Fork of Mill Creek Lake is designated by the black dot.

1.2 Authorization and Project Description

The Project is a unit of the general comprehensive flood control plan for the Ohio River Basin, adopted by the Flood Control Act of 28 June 1938 (Public Law 761, 75th Congress, 3rd session). Congress authorized the development of flood control projects for recreational purposes via Section 4 of the Flood Control Act of 22 December 1944 as amended by the Flood Control Act of 24 July 1946 (Public Law 526, 79th Congress, 2nd Session) (H.R. 6597). Lake construction began in March 1949, and was completed in December 1952.

The Project provides flood protection to the West Fork of Mill Creek Valley, and to the Mill Creek Valley. As a unit in the comprehensive plan for the Ohio River Basin, it also reduces flooding at all points downstream along Mill Creek and the Ohio River. Additionally, the lake provides opportunities for recreation and fish and wildlife management activities.

USACE holds title to 1,323 acres of land and water that comprise West Fork of Mill Creek Dam and Reservoir. In addition, USACE has 41.15 acres of flowage easement lands. Of the fee land, USACE leases 1,283 acres to Great Parks of Hamilton County (GPHC) for public park facilities and recreation, natural area preservation, fish, wildlife, and forest management purposes. This leased area is managed by GPHC as part of the 2,555-acre Winton Woods Park.

1.3 Project Overview

The dam at West Fork of Mill Creek Lake is comprised of a rolled earth fill with a mowed turf downstream face and a riprap upstream face. The maximum height of the dam is 100 feet and crest length is 1,100 feet. The top elevation of the dam is 733 feet above mean sea level (msl). The dam structures include a conduit-type outlet works and a spillway (with a control tower), a non-public road across the top of the dam, a USACE project manager office that also serves as a mechanic's building, and a parking area.

The outlet works consist of a control tower and a reinforced concrete conduit. Flow is controlled by three service gates – each with 4.25-foot horizontal by 8.5-foot vertical dimensions. Each one of these gates has one 16-inch low-flow bypass pipe.

The emergency spillway is a concrete lined exit cut through the right abutment. The crest elevation is 702 feet above msl. The width of the cut is 44 feet and the length of the cut is 900 feet. The spillway is designed to accommodate a maximum discharge of 17,500 cubic feet per second (cfs) of flow.

1.4 National Environmental Policy Act Overview

USACE has prepared this EA in accordance with the National Environmental Policy Act of 1969 (NEPA) and the Council on Environmental Quality's (CEQ) Regulations (40 Code of Federal Regulations (CFR) §§ 1500-1508), as reflected in the Corps of Engineers' Engineering Regulation, ER 200-2-2. ER 200-2-2 supplements, and applies 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 or not 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 alternatives in greater detail. If the 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).

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 includes 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, USACE has prepared this EA to fulfill its regulatory requirements under NEPA and to inform the public and to 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 updated West Fork of Mill Creek Lake Master Plan.

The intention of the proposed Master Plan update is to provide guidance for the preservation, conservation, restoration, maintenance, management and development of project lands, waters and associated resources. 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 the implementation of specific projects discussed within the updated Master Plan, or that could be recommended in the future consistent with the updated 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 updated Master Plan and EA 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 USACE ACTION

2.1 Master Plan Overview

Master plans are required for civil works projects and other fee-owned lands for which USACE has administrative responsibility for management of natural and manmade resources. The Master Plan is the basic document guiding USACE responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop the Project lands, waters, and associated resources. 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 in operational terms.

ER 1130-2-550 establishes the policy for the management of recreation programs and activities, and for the operation and maintenance of USACE recreation facilities and related structures, at civil works water resource projects. 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 suitability, 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 regionals goals and programs

2.2 Purpose and Need for the Updated Master Plan

It is USACE policy that each Master Plan shall be reviewed on a periodic basis and be updated as required (ER 1130-2-550). USACE approved the existing West Fork of Mill Creek Lake Master Plan in 1979, and has not updated the Master Plan in 41 years. There have been changes in demand for recreation, adjacent population growth, new concerns with threatened and endangered species and sensitive habitats, and updates to USACE master planning regulations and guidance, which dictate the need to update the Master Plan for the Project. Because the current Master Plan does not reflect these changes, USACE is updating it to provide an up-to-date basis upon which to evaluate contemporary proposals.

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 Proposed Action is to ensure that 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 15 to 25 years, which reflects

changes that have occurred since 1979 in outdoor recreation trends, regional land use, population, legislative requirements, USACE management policy, and wildlife habitat at West Fork of Mill Creek Lake.

Accordingly, the need for the Proposed Action is to update the West Fork of Mill Creek Lake Master Plan pursuant to the January 2013 updates to ER 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 of implementing and operating the Project consistent with the 2020 West Fork of Mill Creek Lake Master Plan that is proposed for adoption. 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, USACE and other management partners worked to develop options for classifying project lands and identifying Resource Objectives (Master Plan, Chapter 3) for these lands. The 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. As such, no other alternatives beyond the No Action and Proposed Action Alternative (the Preferred Alternative) are being carried forward for analysis in this EA.

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 updated Master Plan. The 1979 Mater Plan would remain in effect, and the No Action Alternative would result in "no change" from current management direction or level of management 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 Master Plan update 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 an updated overall plan or analysis in an EA.

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

Under this alternative, USACE would adopt and implement the updated West Fork of Mill Creek Lake Master Plan, which would replace the 1979 Master Plan. The updated Master Plan addresses 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 it would 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.

As discussed above, the scope of the Proposed Action Alternative does not encompass implementation of specific projects discussed within the 2020 Master Plan, or that could be recommended in the future consistent with the 2020 Master Plan, as those projects are conceptual in nature. Additional NEPA analysis will be conducted, as appropriate, for such future projects once funding is available and detailed project planning and design occur.

3.2.1 Scope and Objectives of the Updated Master Plan

The Master Plan provides guidance and direction for future project development and use and is based on authorized project purposes, USACE policies and regulations on the operation of USACE's projects (USACE, 1996), 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 regional goals and programs.

3.2.2 Land Allocation, Land Classifications, and Resource Objectives

Land allocations at all USACE Civil Works water resource projects are based on the Congressionally-authorized purpose for which the Project lands were acquired. Project lands are further categorized into classifications based on the primary use for which project lands are managed. Proposed land classification at West Fork of Mill Creek Lake can be seen in Figure 2. Land classification categories as defined by EP 1130-2-550 are as follows:

1. Project Operations
2. High Density Recreation
3. Mitigation
4. Environmentally Sensitive Areas
5. Multiple Resource Management
    a. Low Density Recreation
    b. Wildlife Management
    c. Vegetative Management
    d. Future High Density Recreation
    e. Future Low Density Recreation

The 1979 Master Plan does not determine or establish land classifications for the Project as described above. Implementation of the Proposed Action will be the first time USACE applies these land classifications to the Project's lands. The land classifications determined or established in the updated Master Plan are intended to define land use at the Project for the next 20-30 years. These classifications, which are based on existing land use and zoning, should be considered the future land use areas for the next 20-30 years. Thus, the lands were classified to retain current land use and to represent ideal future land uses throughout the project.

The updated Master Plan includes updates to resource objectives that would respond to identified issues and that specify measurable and attainable activities for resource development and/or management of the lands and water under the jurisdiction of the Louisville District, West Fork of Mill Creek Lake Project Office. Each resource objective of the updated Master Plan, and lists of recommended actions to achieve these objectives, are described below.

- Objective 1: Improve the quality of the recreational experience for all users.
    - Action 1: Increase access to boat ramps by improving trails and roadways.
    - Action 2: Maintain a strong relationship with local schools to provide quality educational programs by establishing a point of contact and holding regular meetings.
    - Action 3: Schedule annual events such as bird counts, trash clean ups and citizen surveys.
    - Action 4: Add additional recreational opportunities such as zip lines and an adventure outpost.
    - Action 5: Repair and update trails within the lake area including relocating the Kingfisher Trail away from the creek in order to keep the trail from flooding regularly.
    - Action 6: Connect existing trails to allow better access to the lake by biking/walking.

- Objective 2: Improve the water quality and other natural resources within the lake area.
    - Action 1: Regularly monitor lake water quality for particulates and other pollution from point and non-point sources.
    - Action 2: Coordinate with the local Metropolitan Sewer District to resolve the leaking sewer pipes that cross the lake in two major areas.
    - Action 3: Remove invasives and plant native species in Harpers Meadow and the meadow at Paul's tract.
    - Action 4: Plant native shade trees near the fishing area.

- Objective 3: Improve communications and advertising for the lake.
    - Action 1: Create a new branding campaign to adopt the name Winton Woods Lake to include new signage and branding, while working and coordinating with Great Parks.
    - Action 2: Develop a communication plan between the USACE and Great Parks and include important entities such as Ohio Department of Natural Resources (ODNR) that involve frequent and consistent information on maintenance issues.
    - Action 3: Create a Memorandum of Understanding to provide clarity on who has enforcement authority on USACE land.

- Objective 4: Identify and protect the cultural resources within the Project area.
    - Action 1: Provide better protection for the covered bridge and raptor house against vandalism.
    - Action 2: Form a cultural resources task force to clean up and maintain natural resources in the lake area.
    - Action3: Create and maintain a communication plan with interested tribal nations.

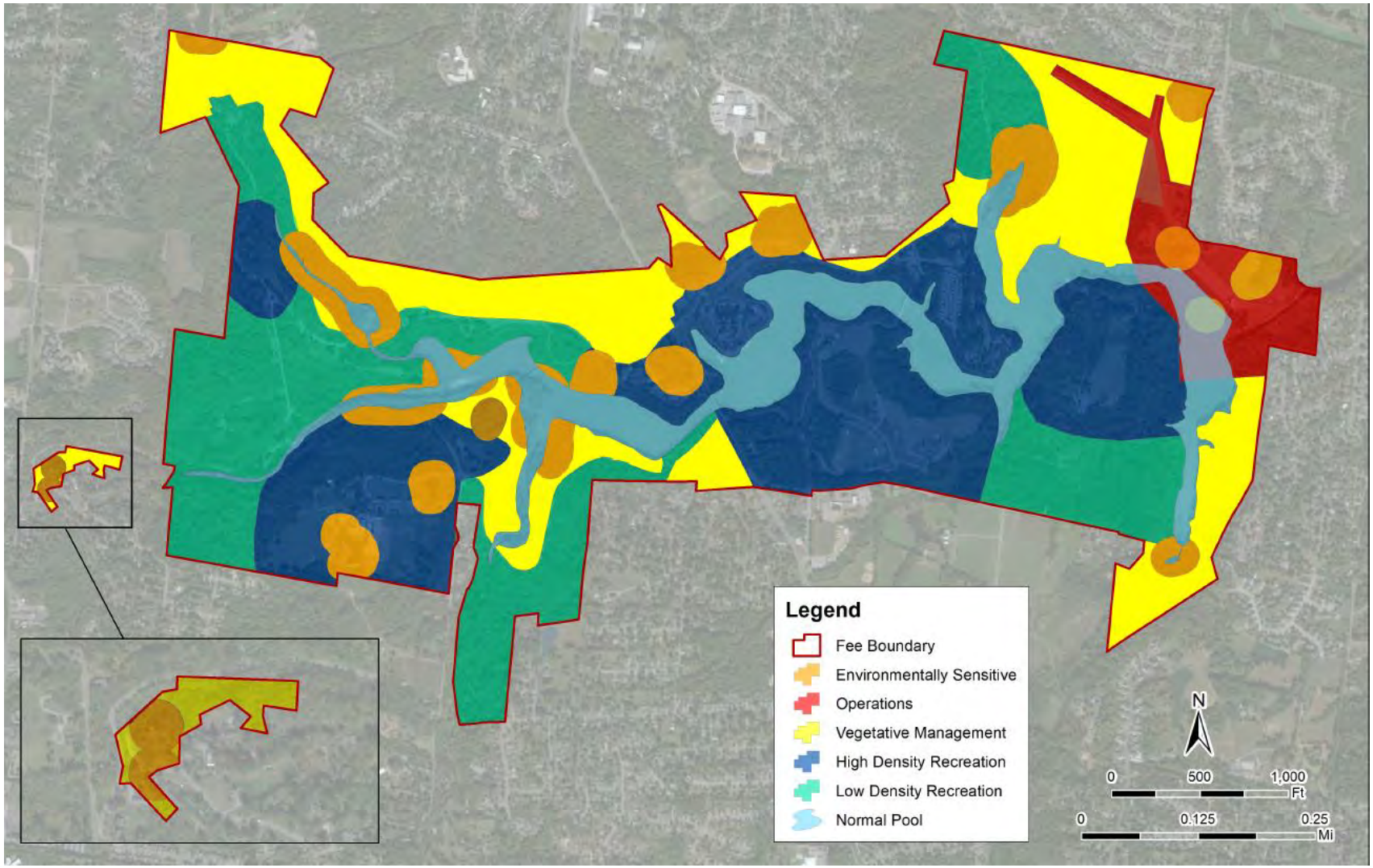

Figure 2. Proposed Land Classification at West Fork of Mill Creek Lake

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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 than 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 reasonable 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 the entire affected region, the affected interests, and the locality. The term 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 intensive 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 Master Plan update.

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 measure, 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.

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.

4.1 Reservoir, Pool, and Lake Operation

4.1.1 Existing Conditions

The primary purposes of the Project are flood control and recreation. The reservoir was designed to store floodwaters and slow the release downstream, reducing flood risk in the lower Mill Creek Valley and ultimately along the Ohio River. Figure 3 shows inundation areas between the permanent pool (West Fork of Mill Creek Lake does not seasonally adjust pool levels) of 675 feet above msl and the flood control level and spillway of 702 feet above msl. This top of the dam and dike is 733.5 feet above msl. The lake's record pool is 699.7 feet above msl on March 20th, 2008.

The West Fork of Mill Creek Lake does not have an established minimum release rate. Releases are dependent upon reservoir inflows. However, the rate of release generally does not go below 2 cfs.

4.1.2 Environmental Consequences

4.1.2.1 No Action

Under the No Action Alternative, the updated 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 reservoir, pool, or lake operations are anticipated.

4.1.2.2 Proposed Action

Implementation of the ongoing project management under the updated Master Plan would result in no changes to the West Fork of Mill Creek Reservoir or lake operations. Operations are controlled by the Project's Operational Management Plan; the updated Master Plan would not change lake operations.

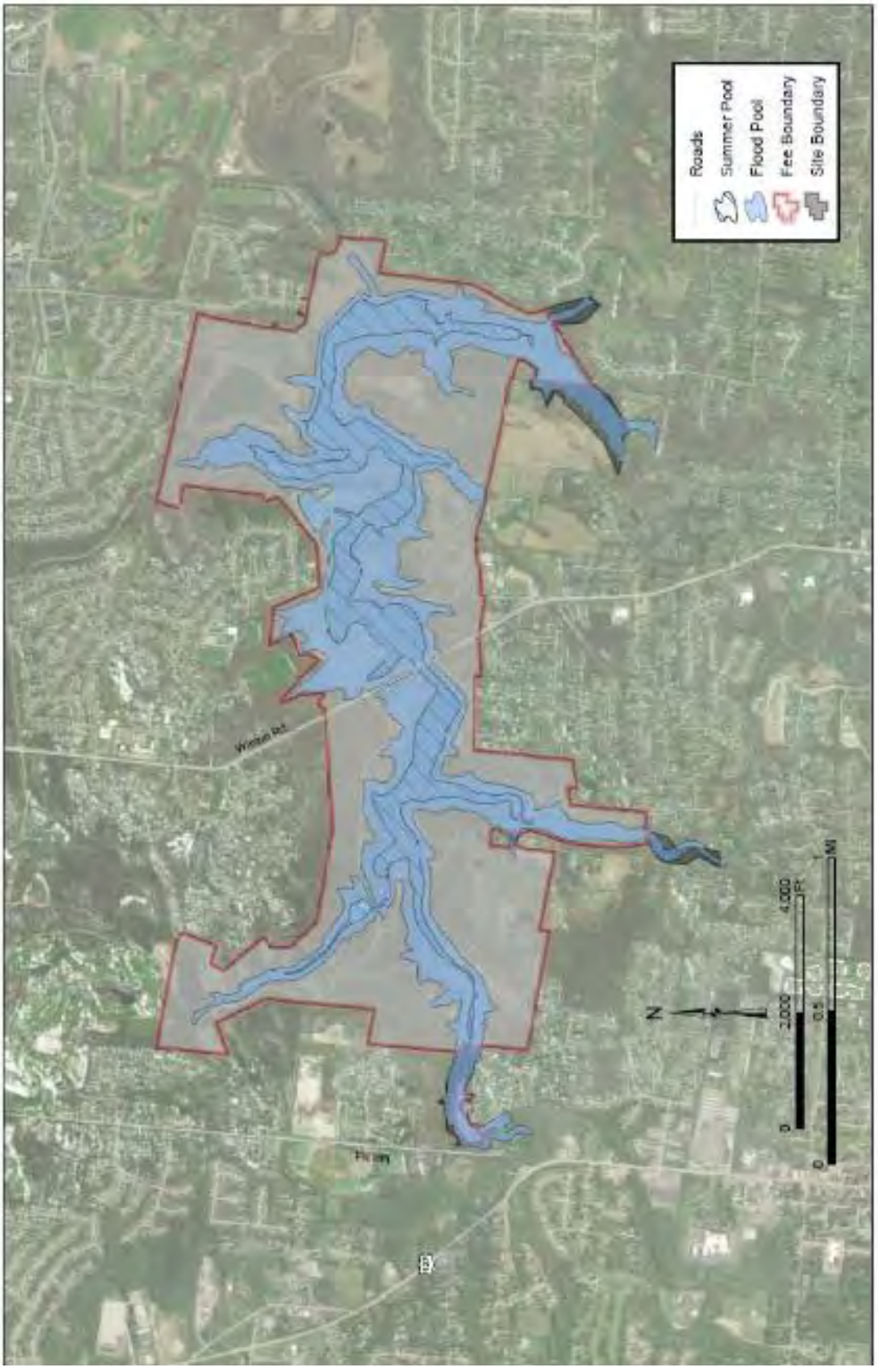

Figure 3. Inundation Areas at Summer and Flood Control Pools

4.2 Climate

4.2.1 Existing Condition

Historically, southwestern Ohio has had a humid continental climate characterized by high humidity, considerable short-term fluctuations in temperature and a relatively uniform moisture regime. Summers are moderately warm and humid; winters are reasonably cold. The region is influenced by the presence of cold polar air from the north and warm Gulf air from the south. Moderate cloudiness and windiness result from the frequent passage of cyclonic storms. The occurrence of tornados is possible several times a year, usually in the spring.

Climate change is expected to have considerable impacts on southwestern Ohio (University of Michigan, 2013). Temperatures are expected to rise, and Cincinnati is projected to experience more than 85 days of temperatures over 90°F by the end of the century. The incidence of heat waves is also expected to increase. Precipitation in southwestern Ohio is projected to increase during the winter, spring, and fall months, and summer months should become drier. When rain does fall, it will be more likely to do so during heavy rain events. This will exacerbate flooding and water quality concerns, and may also contribute to more frequent sewage overflows.

4.2.2 Environmental Consequences

4.2.2.1 No Action

Under the No Action Alternative, the updated 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 West Fork of Mill Creek Lake continuing as outlined in the 1979 Master Plan, no effects to climate are anticipated.

4.2.2.2 Proposed Action

The implementation of the Proposed Action would have a negligible effect on greenhouse gas emissions and climate. Potential implementation of future projects in accordance with the updated Master Plan could generate short-term emissions from construction activities, including emissions of greenhouse gases. Future development and increased recreational opportunities could also generate increased visitation and corresponding greenhouse gas emissions from vehicles. These increases, however, would be insignificant 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. However, these potential future actions (including those discussed in the updated Master Plan) are at this time conceptual, and their implementation would require separate NEPA analysis, as appropriate.

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 are 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 parameter not directly emitted into the air but that forms in the atmosphere when three atoms of oxygen (O_3) are combined by 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.

Hamilton County is not in attainment for 8-hour ozone standards near Cincinnati, and the EPA has classified this non-attainment as "marginal" (US EPA, 2020). West Fork of Mill Creek Lake, which is located in Hamilton County and is approximately thirteen miles north of downtown Cincinnati, is within the area of marginal ozone non-attainment.

4.3.2 Environmental Consequences

4.3.2.1 No Action

Under the No Action Alternative, the updated 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 air quality are anticipated.

4.3.2.2 Proposed Action

Air quality would not be predicted to change from existing conditions as the effects of implementing the updated Master Plan on air quality would be negligible. Because the action of implementing the updated Master Plan would not result in any emissions increase, the action is exempt from conformity determination under the General Conformity Rule. Potential implementation of future projects in accordance with the updated Master Plan would be expected to result in localized and short term emissions associated with construction of new or improved amenities (e.g. utility trenching, road paving, supplying asphalt/concrete, excavation, etc.). Emissions from 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 and short term, and would not be expected to significantly affect air quality in the vicinity of the Project. However, these potential future actions (including those discussed in the updated Master Plan) are at this time conceptual, and their implementation would require separate NEPA analysis, as appropriate.

4.4 Topography, Geology, and Soils

4.4.1 Existing Conditions

West Fork of Mill Creek Lake is split between the Southern Ohio Loamy Till Plain and Illinoian Till Plain physiographic regions. The Wisconsin glacial boundary is located near the vicinity of the Project. This area is characterized by gently rolling hills. Elevations at the Project site range from 640 to 790 feet above msl.

Locations throughout the Project area have limited potential for development due to slopes greater than 15 percent. USACE Engineering Manual (EM)-1110-1-400, under Chapter 2, recommends avoiding development on slopes greater than 15 percent unless there is no other acceptable alternative. Approximately 44 percent of the Project area consists of slopes greater than 15 percent.

West Fork of Mill Creek Lake is underlain with bedrock dating to the Ordovician period – approximately 485 to 444 million years ago. This bedrock is mostly shale and limestone and is part of the Grant Lake and Fairview formations.

According to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), four broad soil associations are predominant at the Project site. These soil associations are listed in Table 1 and have been divided into two development suitability categories:

1) Suitable for development or 2) Unsuitable for development

Table 1. Soil Associations in Order of Predominance

Soil Series	Typical Slope	Suitability Based on Slope and Soil Type
Eden	Moderate – Very Steep	*Suitable.* Moderately deep and well drained soils. Formed in residuum from interbedded calcareous shale, siltstone and limestone.
Markland	Gentle – Steep	*Suitable.* Very deep and well drained soils on lake plains. Formed in this loess and underlying calcareous, fine-textured lacustrine sediments.
Switzerland	Gentle – Steep	*Suitable.* Deep and moderately well drained soils. Formed in loess and residuum weathered from interbedded soft calcareous shale and limestone.
Jonesboro-Rossmoyne	Flat – Gentle	*Suitable.* Very deep and moderately well drained soils. Formed in loess and the underlying till.

Based on the information presented in Table 1, all of the predominant soil associations at West Fork of Mill Creek Lake provide suitable areas for development. However, areas with the Eden or Markland soil series are perhaps best suited for development, as these soils are well drained. Areas with the Switzerland or Jonesboro-Rossmoyne soil series are moderately well drained, making them more somewhat more prone to inundation than Eden or Markland soils, though not to such an extent that they would be unsuitable for development. Development may be limited in some areas due to steep slopes.

4.4.2 Environmental Consequence

4.4.2.1 No Action

Under the No Action Alternative, the updated 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 West Fork of Mill Creek Lake continuing as outlined in the 1979 Master Plan, no effects to topography, geology, or soils are anticipated.

4.4.2.2 Proposed Action

The topography, geology, and soils of the Project would not be predicted to change from existing conditions as the effects of implementing the updated Master Plan on these features would be negligible. Potential implementation of future projects in accordance with the updated Master Plan would use best management practices (e.g. use of silt fences) to minimize erosion and soil loss,

when appropriate. As a result, the effects to topography, geology, and soils from potential future projects would not be expected to be significant. However, these potential future actions (including those discussed in the updated Master Plan) are at this time conceptual, and their implementation would require separate NEPA analysis, as appropriate.

4.5 Surface Water Hydrology and Groundwater

4.5.1 Existing Conditions

West Fork of Mill Creek Lake is a 1,323-acre project fed primarily by West Fork of Mill Creek. The tailwater drains in to West Fork of Mill Creek, which flows eastward and southward 6.5 miles until it merges with Mill Creek. Mill Creek continues southward to drain into the Ohio River. The dam functions to control flooding in West Fork of Mill Creek, while simultaneously providing recreational opportunities via the reservoir.

West Fork of Mill Creek Lake gathers stormwater runoff from a 29.5 square mile watershed which is contained entirely within Hamilton County. The major tributary of the drainage area is West Fork of Mill Creek, though a number of small intermittent streams also feed into West Fork of Mill Creek Lake. The Mill Creek watershed, of which West Fork of Mill Creek Lake's watershed is a portion of, covers 166.2 square miles. Land use within the watershed is largely suburban residential and typical commercial retail.

West Fork of Mill Creek Lake was formed on West Fork of Mill Creek in 1952 following the construction of the dam. The dam is located on West Fork of Mill Creek, 6.5 miles upstream from its confluence with Mill Creek. West Fork of Mill Creek Lake maintains a consistent pool of 188 acres of water and a shoreline length of 10.4 miles year round.

Boats on West Fork of Mill Creek Lake, both rented and privately owned, are limited to motors of six horsepower or less. Public launch ramps for trailered boats and trailer parking are not available or provided at West Fork of Mill Creek Lake, limiting private watercraft to those light enough to be carried from a parking area to a designated launch area.

Sedimentation has been a long standing issue at West Fork of Mill Creek Lake, and one that has been exacerbated by developments in the lands adjacent to the Project area that are beyond USACE's control. When West Fork of Mill Creek Lake was dredged in 1995 and 1996, 930,000 cubic yards of silt were removed (GPHC, 2019). Erosion concerns at West Fork of Mill Creek Lake are somewhat alleviated by the practices of maintaining a single permanent lake pool level and limiting the horsepower of motorboats allowed on the lake, though these practices do not entirely prevent erosion at the Project. Should sedimentation and erosion concerns persist, West Fork of Mill Creek Lake may require additional dredging in the future.

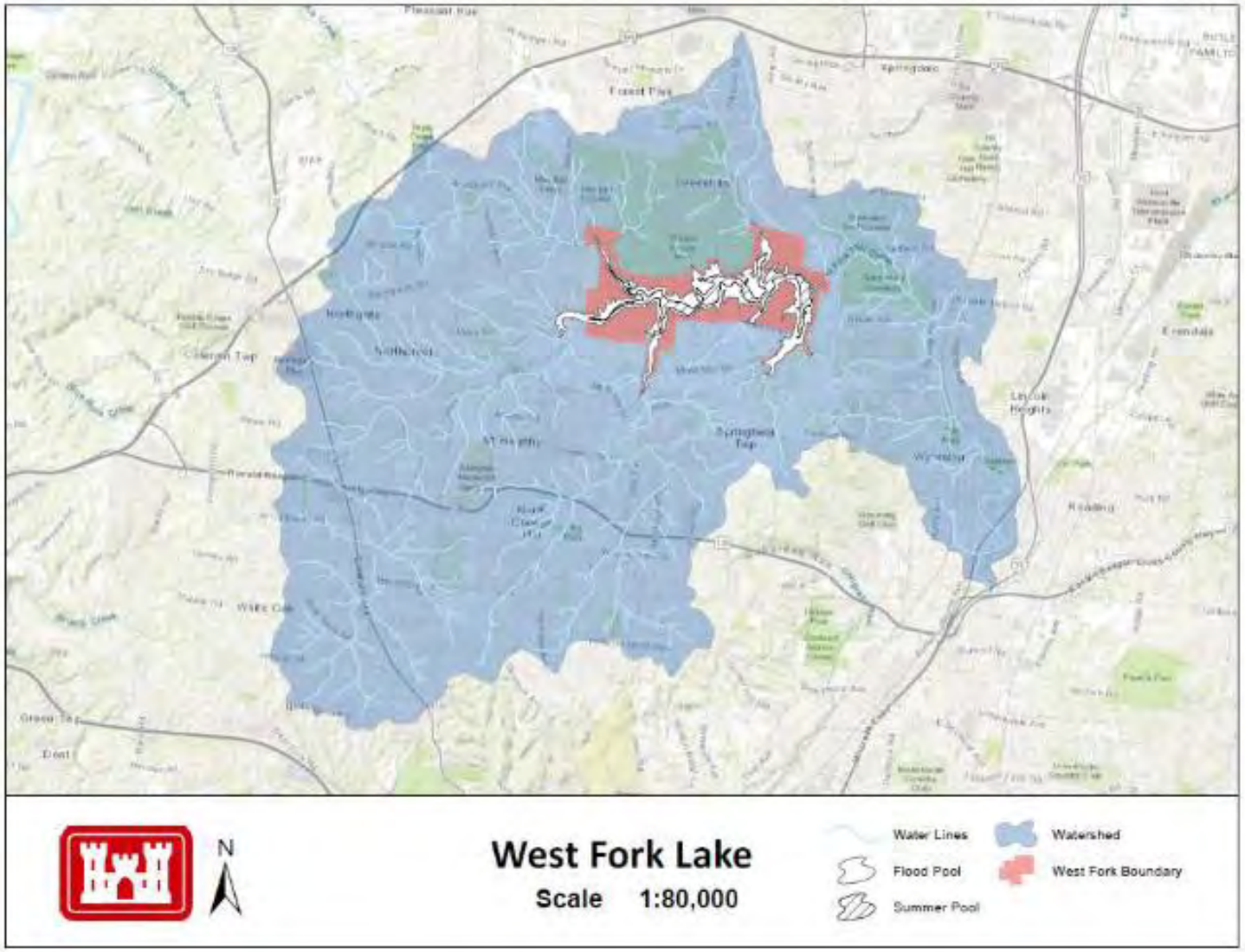

Figure 4. West Fork of Mill Creek Lake Watershed

Tailwater Area

The tailwater area is located downstream of the dam. The tailwater area is fed by water release from the dam, which is variable depending on the West Fork of Mill Creek Lake's water inputs. While West Fork of Mill Creek Lake has no established minimum release rate, this flow generally does not fall below 2 cfs.

Groundwater

West Fork of Mill Creek Lake lies near the Wisconsin glacial margin, and is thus nearby to glacial till from both the Wisconsinan age and the Illinoian age. ODNR has two classifications for groundwater within the Project area. The first classification, which covers most of the Project area, corresponds with areas that would not expect any wells to yield more than three gallons per minute of water. This makes the area quite poor for groundwater collection. A portion of the northeastern project area has a different classification, with ODNR expecting any wells here to produce no more than ten gallons per minute of water. ODNR also states that, depending on local geologic conditions, this area may also be limited to less than three gallons per minute of water. The only water well near the Project is located in this northeastern area, and is privately owned (ODNR, 2020).

4.5.2 Environmental Consequences

4.5.2.1 No Action

Under the No Action Alternative, the updated 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 West Fork of Mill Creek Lake continuing as outlined in the 1979 Master Plan, no short-term effects to surface water hydrology or groundwater are anticipated. Long-term adverse effects to the Project's water resources are possible due to the absence of land classification and resource objectives that would contribute to effective stewardship of the Project's resources.

4.5.5.2 Proposed Action

There would be no environmental consequences of implementing the Master Plan update expected to the surface water hydrology or groundwater of the Project. The land classification and resource objectives in the updated 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 EPA's NEPAssist tool identifies both West Fork of Mill Creek Lake and the streams feeding into it as impaired. The degree of this impairment appears to vary throughout the year. For instance, dissolved oxygen (DO) readings of West Fork of Mill Creek Lake have been low enough for the lake to be impaired for proposed lake habitat use designation, though seasonal changes in West Fork of Mill Creek Lake's DO levels allow for the stocking of rainbow trout in March and October (Ohio EPA, 2016). Bacterial samples taken in May and July of 2013 and 2014 exceeded recreation use criteria for Primary Contact Recreation, though the two-year geometric mean of all results met the lake habitat criteria (Ohio EPA, 2016). Water quality measurements taken in 2017 and 2018 have found

that West Fork of Mill Creek Lake meets state criteria for temperature and DO, though the lake exceeded state criteria for total phosphorus and turbidity. While the NEPAssist tool also identifies the tailwater area as being impaired for water quality, USACE reports from 2017 and 2018 have found that the tailwater area, unlike West Fork of Mill Creek Lake, did not exceed any water quality criteria set by the Ohio EPA.

West Fork of Mill Creek Lake exists within the Cincinnati metropolitan area, and wastewater treatment is primarily handled by the Metropolitan Sewer District of Greater Cincinnati (MSD). There are two aerial sewer lines that run over the lake. One of these sewer lines has experienced failure at several times in the Winton Woods area adjacent to the lake. In 2019, West Fork of Mill Creek Lake was briefly closed due to a sewer obstruction that had caused sewage to leak near the lake (WVXU, 2019b). The lake's exposure to untreated or partially treated sewage may contribute to harmful algal blooms (HABs). The lake's close proximity to suburban residential areas may also contribute to HABs, as fertilizers used on lawns may result in nutrient runoff into the lake.

HABs in Ohio are addressed by ODNR as they are the lead agency for HAB response in the state. The ODNR works with the Ohio EPA and Ohio Department of Health to sample for cyanobacteria and cyanotoxins at designated swimming beaches and to post any required recreational advisories. USACE Louisville District supports the state agencies by reporting any visual HAB indicators and by participating in a Sign Posting and Communication Plan to communicate HAB potential for the visiting public.

West Fork of Mill Creek Lake is currently at risk of experiencing HABs. The lake has been found to have high phosphorus levels, and Trophic State Index values calculated from lake measurements have West Fork of Mill Creek Lake categorized as eutrophic, or even hypereutrophic in certain locations. Sewage leaks from the surrounding areas may be contributing to this nutrient overabundance. Chlorophyll-a can be used as an index to approximate phytoplankton biomass, which rises to high levels during a HAB. In 2013 and 2014, chlorophyll-a levels were taken from West Fork of Mill Creek Lake and were high enough for the lake to be considered impaired, though HABs were not observed during either of those years. USACE reports from 2017 and 2018 found that the phytoplankton community was dominated by the presence of cyanobacteria, further indicating West Fork of Mill Creek Lake's potential to experience HABs.

4.6.2 Environmental Consequences

4.6.2.1 No Action

Under the No Action Alternative, the updated 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 West Fork of Mill Creek Lake continuing as outlined in the 1979 Master Plan, no short-term effects to water quality are anticipated. However, the updated Master Plan recommends actions that could benefit water quality over the long-term, and the failure to implement the Master Plan update may result in these actions not being taken. Thus, the No Action Alternative carries a risk for long-term adverse effects to the water quality of the Project.

4.6.2.2 Proposed Action

Implementation of the updated Master Plan would be expected to result in long-term beneficial effects to water quality in the reservoir and tailwater. Recommended actions in the updated Master Plan to improve water quality include monitoring the lake for particulates and other pollution and coordinating with MSD to resolve leaking sewer pipes that cross the water and that may be partially responsible for the lake's nutrient overabundance. Although the construction of any new amenities or recreational features in accordance with the updated Master Plan could result in ground-surface disturbances that could increase runoff and diminish water quality, best management practices during construction (e.g. use of silt fences) 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 soils. However, these potential future actions (including those discussed in the updated Master Plan) are at this time conceptual, and their implementation would require separate NEPA analysis, as appropriate.

4.7 Habitats

4.7.1 Existing Condition

There are eight habitats contained at West Fork of Mill Creek Lake. Three of these consist of regularly disturbed areas: developed lands, managed tree areas and agricultural 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. The remaining five habitats are described below.

Open Water

A large portion of the Project consists of open water. West Fork of Mill Creek Lake is classified as warmwater habitat. Fish living in the open water environment at West Fork of Mill Creek Lake include blue, shovelhead and bullhead catfish, yellow perch, and largemouth bass. Some species are stocked seasonally, such as channel catfish during the summer months. GPHC annually restocks West Fork of Mill Creek Lake's fish population, and is responsible for the maintenance and improvement of fishing at the lake.

Wetlands

West Fork of Mill Creek Lake wetlands are located in floodplains surrounding the lake. Wetlands are frequently classified by their predominant vegetation class, and the Project contains emergent, scrub-shrub, and forested wetlands. Flora typical to wetlands 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 tend to dominate in forested wetlands. Wetlands can function as habitat for many animals, including red-winged blackbird, muskrats, mink, beaver, reptiles and amphibians, as well as a wide range of waterfowl.

South-Central Interior Mesophytic Forest

This habitat is characterized by a mixed-mesophytic community, typically found south of the glacial boundary. The South-Central Interior Mesophytic Forest is predominantly found on lower slopes, in

coves and in other protected landscape areas. Small streams are common in this community. This habitat contains a rich herb layer often comprised of abundant spring ephemerals such as spring beauty and Dutchman's breeches. Other herbs common to this forest-type include white trillium, black baneberry and great Indian plantain. Dominant canopy species are sugar maple and American beech with maples, black walnut and sassafras (NatureServe Explorer, 2017).

Southern Interior Low Plateau Dry-Mesic Oak Forest

This habitat is characterized by upland hardwood-dominated forests located along ridge tops and slopes of various aspects on unglaciated terrain. Southern Interior Low Plateau Dry-Mesic Oak Forest can encompass a range of moisture gradients from submesic to drier associations. In general, the canopy of this forest type is dominated by oak and hickory, though maple, beech, ash and walnut can also be present. The understory of this forest type is typically dominated by shrubs and small trees, though the typical species here will vary with local aspect, soil and moisture conditions. Among forbs, representatives of the Fabaceae (comprising legumes, peas, and beans) and Asteraceae (comprising asters and daisies) are prominent, though again this varies with local conditions. (NatureServe Explorer, 2008).

Common animals to both forest types include white-tailed deer, gray squirrels, fox squirrels, raccoons, songbirds, woodpeckers, owls and foxes.

Old Fields

Old fields are successional habitats characterized by grasses, shrubs and trees. These habitats are typically transitioning from grasslands to young forests. In the Midwest, early successional habitats are characterized by the following plant species: blackberry, raspberry, switchgrass, big bluestem and little bluestem among other grasses, fobs and shrubs. Wildlife species may include cottontail rabbit, white-tailed deer, turkey, wrens, sparrows, grouse, coyotes, foxes and other various songbirds and furbearers.

4.7.2 Environmental Consequences

4.7.2.1 No Action

Under the No Action Alternative, the updated 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 West Fork of Mill Creek Lake continuing as outlined in the 1979 Master Plan, the Project's wetlands would not be classified as environmentally sensitive areas. However, neither USACE nor GPHC have any plans to develop these areas of the Project that would be prevented or altered by this land use classification, and thus no degradation to these wetland areas would be expected under the No Action Alternative over the short-term. However, such developments could be planned for in the future, and the absence of land classifications could put the Project's wetlands at risk over the long-term. No effects to the other habitats present at the Project are anticipated.

4.7.2.2 Proposed Action

There would be no adverse environmental consequences of implementing the Master Plan update expected to the habitats of the Project. Because there are no current plans to develop the areas that

are being classified as environmentally sensitive (i.e. wetlands), the implementation of the Proposed Action Alternative would not have any short term effect on these areas. However, the Proposed Action Alternative may have long term beneficial effects by protecting environmentally sensitive areas from degradation by future developments. Potential implementation of future projects in accordance with the updated Master Plan for the Project are required to comply with 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 USACE. As such, future development would be expected to occur with minimal effects to the habitats of the Project.

In addition, under the proposed action, GPHC would continue to work to improve the fishery at the Project by stocking fish and maintaining and creating fish habitat. Likewise, wildlife and forest management would also still be the responsibility of GPHC.

4.8 Listed Species

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

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 Ohio maintains a separate inventory of state-ranked endangered and threatened species and species of special concern. This list can be obtained through the ODNR website, either as a complete account for all such species throughout the state or by specific county.

An official list from the USFWS, dated April 16, 2020, for the Project included seven endangered species: the Indiana bat (*Myotis sodalis*), fanshell (*Cyprogenia stegaria*), pink mucket (*Lampsilis abrupta*), rayed bean (*Villosa fabalis*), sheepnose mussel (*Plethobasus cyphyus*), snuffbox mussel (*Epioblasma triquetra*) and running buffalo clover (*Trifolium stoloniferum*). In addition to these species, the northern long-eared bat (*Myotis septentrionalis*) is listed as a threatened species under the ESA and also has potential to occur throughout Ohio, including West Fork of Mill Creek Lake (USFWS, 2020). While these species may not necessarily be present within project boundaries, activities within those boundaries are considered to have the potential to impact these species.

West Fork of Mill Creek Lake is within the range of the Indiana bat. In the spring, bats emerge from hibernation and migrate to summer roost sites. During the summer months, female Indiana bats establish maternity colonies of up to 100 bats under the loose bark of trees and in tree cavities. Loss and fragmentation of forest habitat are among the major threats to Indiana bat populations. Other

threats include white-nose syndrome, winter disturbance, and environmental contaminants (USFWS, 2019b).

Fanshell, pink mucket, rayed bean, sheepnose mussel, and snuffbox mussel are all endangered freshwater mussels that have ranges that encompass the Project area. North America has the highest diversity of freshwater mussels in the world and, within North America, the Midwest region has historically had some of the largest numbers of these species (USFWS, 2019a). These organisms are found on lakebeds and streambeds, and filter the water for food particles. Freshwater mussels are imperiled by dams and the lowering of water quality by sedimentation and erosion.

West Fork of Mill Creek Lake is within the potential range of running buffalo clover. Running buffalo clover is a perennial plant species that, in Ohio, typically flowers in May. Running buffalo clover requires periodic disturbance, and it is believed that this species historically grew in landscapes disturbed by bison herds (USFWS, 2019c). The absence of bison and their ecosystem effects is likely one of the reasons why this species is imperiled, along with habitat loss and competition with invasive plants.

The northern long-eared bat was listed as a threatened species in 2015 due to declines mostly associated with white-nose syndrome. The bats spend winter hibernating in caves and mines. During the summer, the bats roost singly or in colonies underneath bark, 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.

Bald eagles have recently been observed near the Project, though they are not known to nest there (WVXU, 2019a). These birds are protected under the MBTA and the Bald and Golden Eagle Protection Act.

In addition to the potential effects to endangered or threatened species, potential effects to critical habitats must also be considered. No critical habitats are located at the Project.

4.8.2 Environmental Consequences

4.8.2.1 No Action

USACE anticipates that no effect to listed species resources would be incurred as a result of implementing the No Action Alternative.

4.8.2.2 Proposed Action

Listed Species Effects Determination

Implementation of the Master Plan update would not result in any changes to the operations of the Project and would have no effect to the Indiana bat (*Myotis sodalis*), fanshell (*Cyprogenia stegaria*), pink mucket (*Lampsilis abrupta*), rayed bean (*Villosa fabalis*), sheepnose mussel (*Plethobasus cyphyus*), snuffbox mussel (*Epioblasma triquetra*), running buffalo clover (*Trifolium stoloniferum*) or northern long-eared bat (*Myotis septentrionalis*). Consultation pursuant to Section 7 of the Endangered Species Act (ESA) is not required for a “no effect” determination.

Future development projects that may be proposed under the updated Master Plan 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 within five miles of known Indiana bat locations from April 1 through September 30. Around known hibernacula, restrictions may be more extensive. Future development actions on the Project will also be assessed to determine potential impacts to the fanshell, pink mucket, rayed bean, sheepnose mussel, snuffbox mussel and running buffalo clover, in compliance with the ESA.

4.9 Demographics and Environmental Justice

4.9.1 Existing Condition

4.9.1.1 Demographics

The proposed Master Plan update identified the area of influence of the Project (Figure 5). The simple definition of the area of influence is the area in which the majority of project visitors live.

The Project's area of influence is comprised of nine counties across Ohio, Indiana, and Kentucky. These counties include Hamilton, Butler, Clermont, and Warren Counties in Ohio; Dearborn and Franklin Counties in Indiana; and Boone, Campbell, and Kenton Counties in Kentucky. Table 2 shows historic populations as well as population projections for each area of influence and displays the overall projected growth rate from 2010 to 2030.

Table 2. Population in Area of Influence

County	2000 Population	2010 Population	2020 Population	2030 Population	Projected Growth 2010-2030
Hamilton, OH	845,303	802,374	790,600	785,900	-2.1%
Butler, OH	332,807	368,130	390,110	410,960	11.6%
Clermont, OH	177,977	197,363	208,330	214,090	8.5%
Warren, OH	158,383	212,693	225,770	235,640	10.8%
Dearborn, IN	46,109	50,047	49,589	51,753	3.4%
Franklin, IN	22,151	23,087	22,863	23,722	2.8%
Boone, KY	85,991	118,811	139,018	163,722	37.8%
Campbell, KY	88,616	90,336	92,898	93,473	3.5%
Kenton, KY	151,464	159,720	169,386	176,039	10.2%
Total	1,908,801	2,022,561	2,088,564	2,155,299	6.6%

Source: US Census Bureau, ACS, STATS Indiana, State of Ohio – Office of Research, University of Kentucky

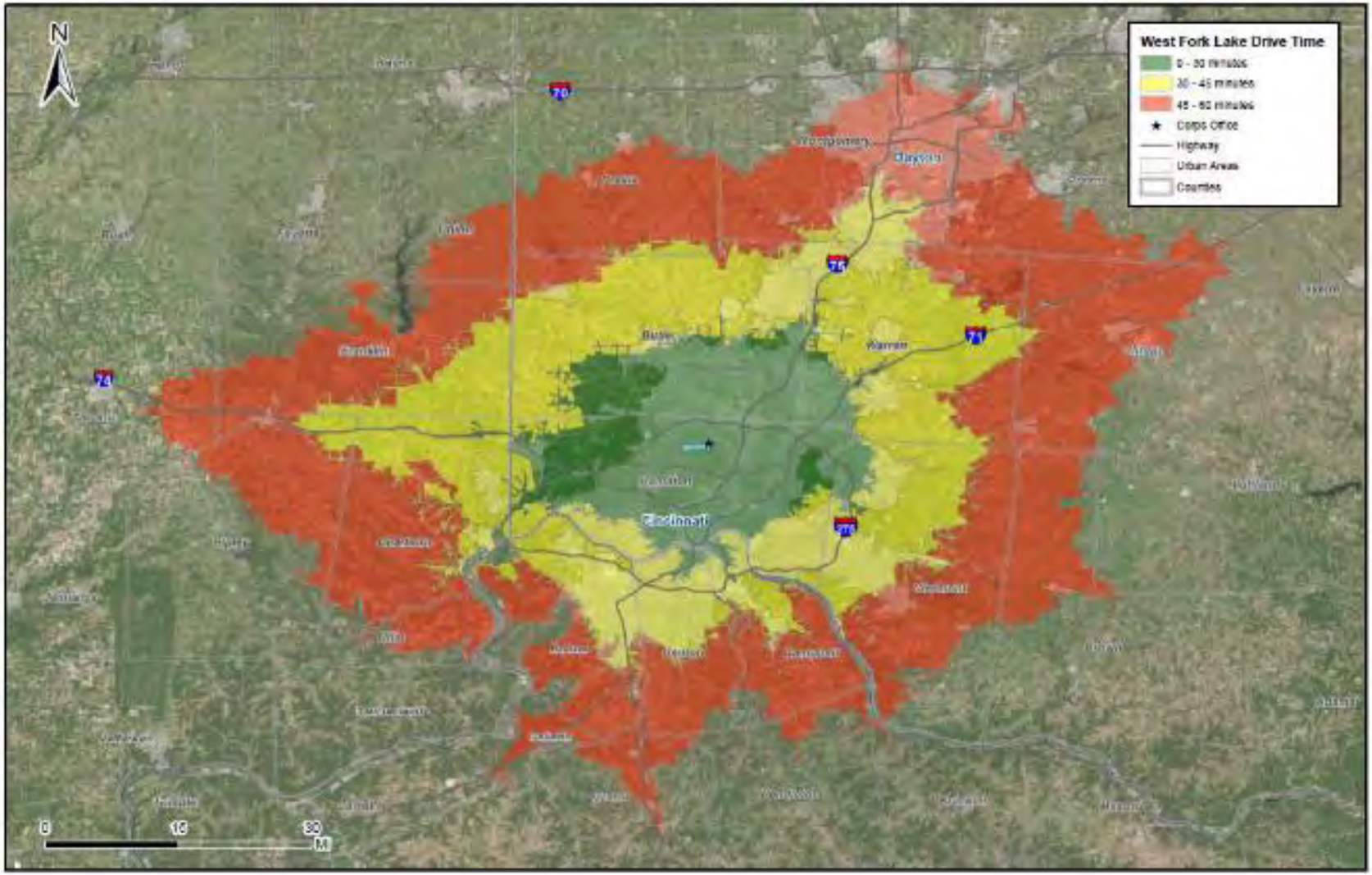

Figure 5. West Fork of Mill Creek Lake Drive Time

Table 3 shows the age distribution within the area of influence in 2010, as well as the projected change in age distribution between 2010 and 2030. These data indicate that the populations of southwest Ohio, eastern Indiana, and northern Kentucky are projected to age over the next 10 years. Historical data provides further evidence of this trend, which is consistent with national trends that have persisted for some time.

Table 3. Age Distribution, 2010-2030			
Age Group	2010	2030	Change in Share 2010-2030
Younger than 5	136,197	140,791	-0.2%
5 to 19	424,228	424,286	-1.3%
20 to 24	135,465	139,476	-0.2%
25 to 44	529,011	543,252	-1.0%
45 to 64	546,017	493,763	-4.1%
65 and up	250,488	413,013	6.8%

Source: US Census Bureau, ACS, STATS Indiana, Mehri et al 2019, University of Louisville

4.9.1.2 Environmental Justice

Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations 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, USACE 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, 1997).

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.

Low-income populations are identified using statistical poverty thresholds from the Bureau of the Census Current Population Reports, Series P-60 on Income and Poverty (USCB, 2010). In identifying low-income populations, a community may be considered either as a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect. The threshold for the 2010 census was an income of $10,956 for an individual and $21,954 for a family of four (USCB, 2010). This threshold is a weighted average based on family size and ages of the family members.

Table 4. Median Household Income	
Location	Income in 2018 Dollars
Area of Influence	$61,606
State of Ohio	$54,533
State of Indiana	$54,325
State of Kentucky	$48,392
United States	$60,293

Source: US Census Bureau, ACS

Table 4 shows the median household incomes in each area of influence, the states of Ohio, Indiana, and Kentucky, and the U.S. in 2018 dollars. All three considered states have lower median household incomes than the national average. The area of influence, however, has a higher median household income than the national median household income. Hamilton County, which has a large population and the lowest median household income of any county within the area of influence ($57,189), has a strong effect on the area of influence's median household income. The area of influence is in the 47th percentile nationally for low income populations.

The minority population of the area of influence averaged approximately 18.6% of the total population according to 2010 U.S. Census data. The same data indicated minorities made up 30.9% of the total population in Hamilton County, and approximately 28% of the total population of the United States.

4.9.2 Environmental Consequences

4.9.2.1 No Action

Under the No Action Alternative, the updated Master Plan would not be approved for the Project in the foreseeable future and there would be no comprehensive planning for the Project. 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

Implementing the updated Master Plan would be expected to have no effect on the demographic trends of the surrounding communities. Construction of future projects consistent with the updated Master Plan would be expected to have minor beneficial effects associated with short-term employment of construction personnel and transportation of goods and materials to the construction sites. However, these potential future actions (including those discussed in the updated Master Plan) are at this time conceptual, and their implementation would require separate NEPA analysis, as appropriate. There would be no disproportionate adverse effects to minority or low-income communities since the Proposed Action would be located within federal lands and projects would benefit local residents by enhancing recreational opportunities.

4.10 Recreation and Visitation

4.10.1 Existing Condition

The Project affords its visitors many choices for outdoor recreation. Table 5 lists all activities available to visitors, the locations where the activities are available and a short description of the recreational capacity at each location.

Table 5. Recreational Activities at West Fork of Mill Creek Lake

Activity	Location	Description
Boating	Winton Lake Boathouse	Rowboat, motorboat, mini-pontoon boat, pedal boat, kayak, canoe, and paddleboard rentals
	Winton Woods Harbor Launch Ramp	Ramp for licensed private kayaks, canoes, and paddleboards
Camping	Winton Woods Campground	37 RV sites, 68 electric tent sites, 18 cabins, camp store, playground, two dumping stations
	Adventure Outpost	4 cabins
Disc Golf	Off McKelvey Road	18-hole disc golf course
Educational Farm	Parky's Farm	Educational interaction with farm animals
Fishing	Winton Woods Harbor – West of Boathouse	Bank Fishing
	Winton Woods Harbor – North of Boathouse	Bank Fishing
Hiking	Fitness Trail	1.10 miles, moderate difficulty
	Great Oaks Trail	0.7 miles, moderate difficulty
	Harbor Loop Trail	1.70 miles, easy difficulty
	Kingfisher Trail	1.10 miles, moderate difficulty
	West Branch Trail	0.90 miles, easy difficulty
	Woodlot Trail	0.15 miles, easy difficulty
Horseback Riding	Winton Woods Riding Center	2.6 miles of one way trail
Outdoor Archery	Adventure Outpost	Outdoor archery classes offered in the spring and fall
Picnicking	Throughout Winton Woods	20 picnic shelters and one picnic area available for reservation
Wet Playground	Winton Woods Harbor	Parky's Ark Wet Playground

National and regional variables affect the way people decide to spend their leisure time. For that reason, visitation to the Project can experience some fluctuation year to year. However, the recent general trend is that visitor hours are increasing at the Project. Table 6 presents historic visitation data dating back to Fiscal Year (FY) 2013-14.

Table 6. Visitation Data 2013-2019		
Government Fiscal Year	Combined Day and Overnight Visitor Hours – West Fork of Mill Lake	Combined Day and Overnight Visitor Hours – Winton Woods
FY 2013-2014	15,236	8,541,616
FY 2014-2015	15,290	8,869,672
FY 2015-2016	14,393	9,973,632
FY 2016-2017	23,726	12,157,608
FY2017-2018	24,403	11,056,226
FY2018-2019	25,304	14,456,412

Source: USACE VERS Online Tool

The vast majority of the Project's visitation occurs at the Winton Woods area, which is managed by GPHC. The West Fork of Mill Creek Lake area managed directly by USACE receives comparatively little visitation. In FY 2018-2019, visitors to West Fork of Mill Creek Lake spent a combined total of 14,481,716 hours in both the USACE-managed and GPHC-managed parts of the Project. This is a noticeable increase from previous years.

4.10.2 Environmental Consequences

4.10.2.1 No Action

Under the No Action Alternative, the updated 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 West Fork of Mill Creek Lake continuing as outlined in the 1979 Master Plan, no short-term effects to recreation or visitation are anticipated. However, if none of the potential recreational activities and opportunities that have been identified in the updated Master Plan are implemented, a reduction in park visitation over the long-term is possible.

4.10.2.2 Proposed Action

Recreational use and visitor experience would be expected to benefit from implementation of the Proposed Action. No major new recreational amenities are currently planned for the future and visitation would not be expected to substantially increase, but minor improvements, replacements-in-kind, and facility improvements would be expected to improve the quality of the recreational experience for all users. Several potential recreational activities and opportunities have been identified in the updated Master Plan for the Project, and would be considered for implementation in the future. There would be some localized and short-term 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 a significant adverse impact to recreation at the Project. However, these potential future actions (including those discussed in the updated Master Plan) are at this time conceptual, and their implementation would require separate NEPA analysis, as appropriate.

4.11 Cultural Resources

4.11.1 Existing Condition

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

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

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

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

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

The earliest settlers in the Mill Creek valley area arrived in 1789. Soon after, Hamilton County was organized in 1790. The area of Hamilton County continued to grow into the early 1800s, with the State of Ohio established in 1803. During the first half of the 19th Century, population grew, and the number of settlements increased along the entire length of the Little Miami River, including the Mill Creek valley area. The river and other streams provided water power for many mills needed by the

early settlers for grinding their grain. Settlers to the area also began to clear the surrounding and forests for farms.

Updates to transportation played a major role in the development of the Hamilton County and Mill Creek valley area. During the 1820s to the 1840s, the development and completion of the Miami Canal (later renamed the Miami & Erie Canal) provided direct access for farmers in the area to commercial interests both along the Ohio River and the Great Lakes. By the 1840s, the railroad began to replace canals as a preferred means to transport good to market. The first railroad to reach the Mill Creek valley was the Cincinnati & Hamilton Railroad in 1847. A second railroad entered the Mill Creek valley area in 1860 with the completion of the Marietta & Cincinnati Railroad. Railroads continued to be a driving force for economic development throughout the 19th century and into the first decades of the 20th century.

The Mill Creek valley area continued to grow into the 20th century, which shadowed the economic success of the city of Cincinnati. This included suburban neighborhoods in the area of northern Hamilton County. In 1946, the Corps received authorization to construct the West Fork of Mill Creek Reservoir. Completed in 1952, the earthen dam eliminated flooding along Mill Creek that originated on the West Fork.

Prior to the creation of West Fork of Mill Creek Reservoir, the creation of Winton Woods Park (previously named West Fork Lake) began with the purchase of land in 1936. In 1939, Winton Woods Park was created from 905 acres that were leased from the federal government. The Corps received authorization to construct the West Fork of Mill Creek Reservoir in 1938. Completed in 1952, this earthen dam effectively eliminated Mill Creek floods originating on the West Fork. With the creation of the park, suburban neighborhoods began to be developed in the area in the 1950s and 1960s. Today the area around the park is a heavily used urban park.

All of the previous investigations at West Fork of Mill Creek Lake were carried out as part of compliance with Section 106 under the NHPA. The earliest archeological investigations in the West Fork of Mill Creek Lake area was for the survey of the West Branch Mill Creek sanitary interceptor sewer in 1977 by Robert Genheimer and Elizabeth Scheurer. Their survey did not identify any archaeological sites within the sewer route located within the West Fork of Mill Creek Lake boundary.

In 2002, the Corps carried out a cultural resources survey in preparation of the construction of a log cabin and sidewalk at West Fork of Mill Creek Lake. The survey did not identify any historic properties within the footprint of the log cabin and the sidewalk.

In 2007, Gray and Pape, Inc. carried out a Phase I cultural resources survey of the proposed West Fork of Mill Creek Lake Campground and Cabin development project. The survey did not find any cultural resources within the area of the proposed campground cabin development project.

In 2007, Environment and Archaeology, LLC carried out a Phase I cultural resources survey of the Parky's Farm improvements. These improvements consisted of a new outdoor playground, a reconfigured animal pen area, two small shelters and a box stall barn. Their survey did not identify any cultural resources within the area of the proposed improvements.

In 2009, Environment and Archaeology, LLC carried out a Phase I cultural resources survey of a proposed pole barn at Parky's Farm at West Fork of Mill Creek Lake. Their survey did not identify any cultural resources within the area of the proposed improvements.

In 2010, the U.S. Army Corps of Engineers, Seattle District Center of Expertise for the Preservation of Historic Buildings & Structures, conducted an identification and evaluation of the National Register eligibility of the Dam Tender's House at West Fork of Mill Creek Lake. The identification effort revealed the house represents several phases of construction and alterations between 1890 up until the date of federal acquisition in 1949. However, though lacking architectural merit as a vernacular or period building type, the Dam Tender's House is a significant example of the Corps' policy of housing dam tending personnel and their families during the period. The property is therefore eligible for listing in the National Register of Historic Places (NRHP) under Criterion A as a remnant of a nationwide federal agency policy for around-the-clock, on-site administration and management of flood control projects.

Currently, there is one NRHP listed historic property located at West Fork of Mill Creek Lake, the Jediah Hill Covered Bridge. The bridge was listed in the National Register of Historic Places (NRHP) on 1973. The Dam Tender's House has been previously recommended as eligible for listing to the NRHP under Criterion A. The nomination for this listing to the NRHP has not been coordinated with the National Park Service. The house is located near the West Fork of Mill Creek Dam. Two potential archeological sites have been recorded at West Fork of Mill Creek Lake (33HA184 and 33HA185). Both of these sites are listed in the Ohio History Connection GIS database as natural features and not mounds, and have not been formally evaluated to determine their eligibility for the NRHP. In addition, two above ground structures, the Groff Flour Mill (HAM0134749) and the house located at 1586 Covered Bridge Road, are also located at West Fork of Mill Creek Lake but have not been formally evaluated to determine their eligibility for the NRHP.

4.11.2 Environmental Consequences

4.11.2.1 No Action

Under the No Action Alternative, the updated 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 West Fork of Mill Creek Lake continuing as outlined in the 1979 Master Plan, no effects to cultural resources are anticipated.

4.11.2.2 Proposed Action

Implementing the updated Master Plan would result in beneficial effects on the cultural resources of the Project. Resource Objective 4 in the updated Master Plan outlines specific actions to be taken to identify and protect cultural resources at the Project. All proposed development actions that would be undertaken consistent with the updated Master Plan would still be required to comply with the NHPA, as they are currently. Prior to implementation of any ground disturbing activity, field surveys and Section 106 NHPA coordination with the Ohio State Historic Preservation Office (SHPO) will be conducted by USACE, as required. Federal and state laws require federal agencies to minimize or mitigate adverse impacts to historic properties (36 CFR Part 800.13). Should unanticipated historic or prehistoric resources be discovered during ground disturbing activities, work must cease immediately and USACE will contact the Ohio SHPO.

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

4.12.1 Existing Condition

The USEPA Envirofacts database was queried to identify HTRW sources within a two-mile radius of the Project boundaries. There are 99 facilities within two miles of the Project that are registered with the EPA as generators, transporters, treaters, storers, or disposers of hazardous waste. 67 of these facilities are currently active. None of these facilities were identified within project boundaries (NEPAssist). All but one of these facilities have been found to be in compliance, and have no violations within the past three years. The remaining facility has two quarters of non-compliance within the past three years, though this violation resulted from a failure to meet recordkeeping and reporting requirements. Thus, this violation would not result in environmental degradation resulting from HTRW materials.

4.12.2 Environmental Consequences

4.12.2.1 No Action

Under the No Action Alternative, the updated Master Plan would not be approved for the Project in the foreseeable future and there would be no comprehensive planning for the Project. The implementation of the No Action Alternative, which would result in the operation and management of the Project continuing as outlined in the 1979 Master Plan, would be expected to have no effect on or from HTRW materials as there are no known pre-existing sources at the Project and no HTRW is generated at the Project.

4.12.2.2 Proposed Action

Implementing the updated 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) for future projects that may be proposed in accordance with the updated Master Plan, best management practices and regular equipment maintenance would 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 accident and spills. Construction-related debris from future projects consistent with the updated 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. These potential future actions (including those discussed in the updated Master Plan) are at this time conceptual, and their implementation would require separate NEPA analysis, as appropriate.

4.13 Aesthetics/Visual Qualities

4.13.1 Existing Condition

The Project's chief aesthetic asset is its location within the greater Cincinnati metropolitan area: the Project offers a substantial wooded "green space" within an otherwise well-developed landscape. This allows the residents of Cincinnati and its surrounding communities an opportunity to enjoy

nature that might otherwise only be available with longer distance travel. The wetlands within the Project, especially those near the western end of the lake, may further enhance the aesthetic qualities of the Project by promoting the presence of nearby wildlife.

4.13.2 Environmental Consequences

4.13.2.1 No Action

Under the No Action Alternative, the updated 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 West Fork of Mill Creek Lake continuing as outlined in the 1979 Master Plan, no short-term effects to the Project's aesthetics or visual qualities are anticipated. However, because the No Action Alternative would not result in land classifications being applied to the Project, certain areas that confer aesthetic qualities (i.e. wetlands) would not be protected as environmentally sensitive areas. Thus, there is a long-term risk of developments adversely affecting the Project's aesthetic qualities under the No Action Alternative.

4.13.2.2 Proposed Action

Implementing the updated Master Plan would be expected to have no short term effect on the aesthetic character of the Project. There is a potential long term benefit by protecting areas that confer aesthetic qualities (i.e. wetlands) by classifying them as environmentally sensitive, which would help to safeguard these areas from deleterious developments. Comprehensive planning under the updated Master Plan could potentially facilitate improved construction planning, minimizing the short-term aesthetic effects during construction of any future projects to be proposed under the updated Master Plan. However, these potential future actions (including those discussed in the updated Master Plan) are at this time conceptual, and their implementation would require separate NEPA analysis, as appropriate. Thus, no adverse effects to aesthetics or visual resources are anticipated from the Proposed Action.

4.14 Noise

4.14.1 Existing Condition

Changes in noise are typically measured and reported in units of dBA, a weighted measure of sound level. The primary sources of noise within the Project area include everyday vehicular traffic (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.

4.14.2 Environmental Consequences

4.14.2.1 No Action

Under the No Action Alternative, the updated 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 noise levels at the Project are anticipated.

4.14.2.2 Proposed Action

While recreation-intensive areas can be expected to produce more noise than areas designated for other uses such as wildlife or vegetation management, the Project lands classified for recreational use by the updated Master Plan are already developed and in use for this purpose. Thus, there is no anticipated effect to Project noise levels as a result of implementing the Proposed Action Alternative. Potential implementation of future projects in accordance with the updated Master Plan would be expected to result in short term increases in noise associated with construction of new or improved amenities, though best management practices would be employed to minimize these effects. However, these potential future actions (including those discussed in the updated Master Plan) are at this time conceptual, and their implementation would require separate NEPA analysis, as appropriate.

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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 (40 CFR§1508.7)."* Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time. These actions include on- or off-site projects or activities conducted by government agencies, businesses, or individuals that are within the spatial and temporal boundaries of the proposed actions being considered.

The 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 resource types or areas of concern (reservoir operation, air quality, topography, geology, soils, surface water hydrology, groundwater, water quality, habitats, listed species, demographics and environmental justice, recreation and visitation, cultural resources, HTRW materials, aesthetics and visual resources, and noise). Thus, there would be no 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.

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6. Summary of Environmental Effects

The updated 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, 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.

The implementation of the updated Master Plan is not expected to adversely affect the environment. Table 7 provides a summary of anticipated effects from implementation of the updated Master Plan to the resources evaluated in this EA.

Table 7. Summary of environmental effects from the Proposed Action.

Resource Evaluated	**Effect**
Reservoir, Pool, and Lake Operation	No effect
Climate	No effect
Air Quality	No effect
Topography, Geology, and Soils	No effect
Surface Water Hydrology and Groundwater	No effect
Water Quality	Beneficial effect
Habitats	Beneficial effect
Listed Species	No effect
Demographics and Environmental Justice	No effect
Recreation and Visitation	Beneficial effect
Cultural Resources	Beneficial effect
HTRW Materials	No effect
Aesthetics and Visual Qualities	No effect
Noise	No effect

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7. Compliance with Environmental Laws

The update of the West Fork of Mill Creek Lake Master Plan will achieve compliance with all applicable environmental laws and regulations, described below, upon coordination of this EA with appropriate agencies, organizations, and individuals for their review and comments. Implementation of any potential future projects in accordance with the updated Master Plan (including future modifications to existing infrastructure or new features) will undergo separate environmental review and would not commence until the proposed actions achieve compliance with the applicable environmental laws and regulations.

Bald and Golden Eagle Protection Act, 16 U.S.C. Sec. 668, 668 note, 668a-668d.

In compliance.

The Bald and Golden Eagle Protection Act imposes requirements on USACE projects concerning bald eagles. Approval and implementation of the updated 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. The implementation of the updated Master Plan is in compliance with the Clean Air Act.

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

In 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). USACE regulates discharges of dredged 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. 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 implementation of the updated Master Plan is in compliance with the Clean Water Act.

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

Not applicable.

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 updated Master Plan would not involve

real estate transactions, and no 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 modifications of habitat of such species which is determined by the Secretary to be critical.

This EA represents the assessment and findings regarding the proposed Master Plan update and serves as the Biological Assessment with a determination of no effect to the Indiana bat (*Myotis sodalis*), fanshell (*Cyprogenia stegaria*), pink mucket (*Lampsilis abrupta*), rayed bean (*Villosa fabalis*), sheepnose mussel (*Plethobasus cyphyus*), snuffbox mussel (*Epioblasma triquetra*), running buffalo clover (*Trifolium stoloniferum*) or 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 implementation of the updated Master Plan for 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 (FWCA).

In compliance.

The FWCA requires governmental agencies, including USACE, 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 associate with the proposed update to the Master Plan.

Irretrievable and Irreversible Commitment of Resources (42 U.S.C. § 4332).

In Compliance.

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.C. § 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.

Migratory Bird Treaty Act of 1918 (MBTA)

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 shard 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. USACE 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 update for potential effects on migratory birds. No effects are anticipated.

National Historic Preservation Act, as amended, 16 U.S.C. 470a, et seq (NHPA).

In progress.

The NHPA requires that federal agencies having direct or indirect jurisdiction over a proposed federal or federally assisted undertaking take into account the effect of the undertaking on any district, site, building, structure, or object that is included in, or eligible for inclusion in, the National Register of Historic Places. The Louisville District has made the determination in accordance with 36CFR Part 800.3 (a)(1) of the NHPA that the actions identified in the proposed Master Plan update do not have the potential to adversely impact cultural resources or historic properties. The District coordinated the proposed action with the Ohio State Historic Preservation Office (SHPO) on May 21, 2020. The District received an email response on June 15, 2020 stating the SHPO would like to offer input and suggestions on significant archaeological sites at West Fork of Mill Creek Lake on how they can be preserved/protected, provide educational opportunities, etc. The District also coordinated with Tribal Nations on March 17, 2020. The Miami Tribe of Oklahoma responded in a letter dated April 14, 2020 that the proposed action will not adversely affect any sacred properties and/or properties of cultural significance to the Miami Tribe of Oklahoma. All correspondence will be included in the Appendix of the Master Plan.

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

In progress.

This EA and FONSI has been prepared in accordance with the Council on Environmental Quality's NEPA Implementing Regulations (40 CFR §§ 1500-1508). An Environmental Impact Statement (EIS) is not required. Signing of the FONSI will conclude compliance with NEPA.

Noise Control Act of 1972, 42 U.S.C. Sec. 4901 to 4918

In compliance.

The Noise Control 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. No increase to noise levels at the Project are anticipated from implementation of the updated Master Plan. Noise emission levels at the Project site may increase above current levels over the short-term if construction of improvements or features identified in the proposed Master Plan update is undertaken, but those potential future actions would undergo separate review for compliance with the Noise Control Act and other applicable environmental laws. Appropriate measures would be taken during those activities 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

Section 10 of the Rivers and Harbors Act 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. Implementation of the proposed Master Plan update would not involve the construction of structures within West Fork of Mill Creek Lake. Any potential future actions would require independent analysis for compliance with this law, as appropriate.

Floodplain Management (E.O. 11988).

In compliance.

Section 1 of the Executive Order on floodplain management 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. Implementation of the proposed Master Plan update would not affect the flood holding capacity or flood surface profiles of West Fork of Mill Creek Lake.

Protection of Wetlands (E.O. 11990).

In compliance.

The Executive Order on protection of wetlands directs that 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. Implementation of the proposed Master Plan update would protect the Project's wetlands from destruction, loss, and degradation by designating these wetlands as environmentally sensitive areas.

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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, along with a copy of the Draft Master Plan Update. All comments received during this review period will be evaluated and appropriate changes to the EA will be implemented and addressed in the FONSI. The EA and FONSI will be retained in the Louisville District's administrative files for future reference and as a record of NEPA compliance.

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