Mahoning Creek Lake
2018 Master Plan
Mahoning Creek Watershed

Mahoning Creek Lake
Master Plan

The attached Master Plan for Mahoning Creek Lake is in compliance with ER/EP 1130-2-550, Project Operations, Recreation Operations and Maintenance Policies. No further action is required.

Master Plan is approved.

Andrew J. Short
Colonel, Corps of Engineers
Commanding

Executive Summary

A Master Plan is required for each Civil Works project and all fee-owned lands for which the U.S. Army Corps of Engineers (Corps) has administrative responsibility. It serves as a strategic land-use management document that guides the comprehensive management and development of all recreational, natural, and cultural resources throughout the life of the water resource project, anticipating what could and should happen at the Corps project, while remaining flexible enough to address changing conditions.

The primary goals of this Mahoning Creek Lake Project (Project) Master Plan, revised in 2018, are to prescribe an overall land and water management plan, resource objectives, and associated design and management concepts, which: 1) use sound environmental principles to protect and enhance public lands; 2) cultivate volunteers, public-private partnerships, and apply for grants; 3) provide safe and memorable connections as part of multiple destination points; and 4) leverage emerging technology to tell the Corps' story and enhance visitor experiences.

Upon completion of this Master Plan, Operational Management Plans (OMPs) will be executed yearly, reflecting the resource objectives outlined in this Plan. The below table reflects the years in which key resource objectives should be implemented.

Five Year	Ten Year	Conditions Based Actions**
"Friends of Mahoning Creek Lake" group established	Communication infrastructure updates*	Oil and Gas leveraging and mitigation
Boundary updates	Installation of Corps boat launch	Endangered species conservation methods
Site access improvements via roadways*	Signature event developed	Invasive species control methods
Mitigation Plan has been established	Visitor Information Center updated to Type B, Project Visitor Center*	Real Estate actions
Initial description of biological and cultural resources are documented	Degraded facilities have been identified and divestment options have been considered*	Climate change impacts

***Items that require external support (i.e. budgeting decisions through executive assistance).**
****Condition Based Actions will be evaluated as new requests or information become available.**

Based on public input, it was concluded that Mahoning Creek Lake provides a valuable natural and unspoiled outdoor experience. Users encouraged continued use of the Project as it exists currently. At Mahoning Creek Lake, we employ a Conservation Weighted Development Concept, which means that 60-90 percent of the land at the Project is used for conservation purposes. In order to implement Mahoning Creek Lake's resource objectives and to maintain this preferred current use, future regulation and legal changes should consider allowing funds that are generated at the Project to stay at the Project.

Contents

1. Project Authorization

The construction of Mahoning Creek Lake was authorized by the Flood Control Act of 1936, as amended by the Flood Control Act of 1938. Authorizations subsequent to construction (Table 1-1; full list in Appendix B) provided for incidental benefits including water quality improvement, fish and wildlife management, and recreational uses of the impoundments and Project lands.

Table 1-1. Project Purposes and Authorities for Mahoning Creek Lake

Operating Purpose	Authority	Citation
Flood Control	Flood Control Acts of 1936 and 1938	PL 74-738, PL 75-761
Fish and Wildlife	Fish and Wildlife Coordination Act of 1934 (as amended)	16 USC 661-664 PL 85-624
Recreation	Flood Control Act of 1944	PL 78-534

1.1 Project Purpose

The purpose of the Project is to balance the releases between flooding of the 340-mile storage area above the dam and downstream based on inflows to Mahoning Creek Lake and regional precipitation forecast. This retained water is then released without creating or contributing to flood conditions further downstream. Additional uses of the reservoir area include recreation and conservation of fish and wildlife resources. The impoundment is managed for flood control, downstream low-flow augmentation, downstream water quality, and recreation. Flood control is the primary authority at Mahoning Creek Lake; all other actions may not conflict with this purpose.

1.2 Watershed and Project Description

Mahoning Creek Lake serves as a multi-purpose project which provides a storage system for flood risk reduction on Mahoning Creek and the Allegheny River, and a source of regional hydropower (see Appendix D, Hydropower). A privately owned company utilizes the Mahoning Creek Lake dam to produce hydropower. This action is covered by a Memorandum of Agreement (MOA) signed by both the Corps and the operator. Plate 1 in Appendix A depicts the Project Area.

Mahoning Creek Lake is situated in Western Pennsylvania approximately 70-miles northeast of Pittsburgh (see Appendix A, Plate 11 for a Transportation map). The Project's land and waters extend over portions of Armstrong, Indiana, and Jefferson counties. The market area, consisting of approximately 4,200-square-miles, is located primarily in the Allegheny River Basin and includes approximately 36 percent of the total watershed. The Allegheny River generally divides the area from the north to the south with the main tributaries located on the eastern side of the watershed. Appendix A, Plate 2 shows the Watershed Boundary. They include the Clarion

River, Redbank Creek, Mahoning Creek, Crooked Creek, Blacklick Creek, Conemaugh River, and the Kiskiminetas River.

The taking line for Mahoning Creek Lake was established at an elevation of 1,161-feet (Table 1-2). Approximately 569-acres of fee land presently held are above elevation of 1,161-feet. Of that land, 131-acres are located at the dam site and 438-acres are located at widespread sites throughout the Project. The minimum pool is at elevation 1,075-feet which covers an area of 170-acres with a storage capacity of 4,625-acre-feet and pool length of 4-miles. On 01 May 1982, the summer recreation pool was raised to an elevation of 1,098-feet. At this level, the total surface area is 280-acres and is approximately 5.5-miles in length. The full-pool elevation is 1,161-feet, covers 2,370-acres, and has a storage capacity of 72,296-acre-feet. At the minimum pool, the total land area within the U.S. Government boundary that is administered by the Corps is 2,350-acres. An area of 2,200-acres between the minimum pool and maximum pool is subject to intermittent flooding. The reservoir area contains 2,519.36-acres owned in fee and 92.46-acres in flowage easement (350-acres in the river bed), a total of 2,961.82-acres for the entire Project (US Army Corps of Engineers, 1994).

Table 1-2. Mahoning Creek Lake Reservoir Information

Pool	Elevation (feet)	Storage (ac/ft.)	Surface Area (acres)	Backwater (main stream miles)	Outflow (c.f.s.)
Minimum	1,075 – 1,098	4,625 – 9,770	170 - 280	4.0 – 6.8	40
Flood Control		62,526 – 67,671			750
Full	1,161	72,296	2,370	19.5	6,000

The Project consists of 2,961.82-acres. Near the dam, the Corps maintains 839.65-acres of public recreational facilities, including picnic areas, a fishing pier, restrooms, and access to Project trails and overlook areas. Out of the total number of acres, approximately 2,122.17-acres is outgranted to the following entities (Table 1-3, below).

The Corps leases 475.30-acres of Project lands and waters to the Pennsylvania Fish and Boat Commission. The lease encompasses the main body of the lake and its adjoining lands including the Milton Loop Boat Launch and Sportsman's Boat Launch.

Armstrong County leases 39.32-acres from the Corps to operate the Milton Loop Campground. Fifty-two sites suitable for all types of camping are available. The campground has modern restrooms with showers and a sanitary disposal station.

The Borough of Smicksburg leases 37.40-acres from the Corps to operate Old Smicksburg Park. It offers picnic tables, hiking trails, viewing areas, a dirk kayak/canoe launch, and other amenities.

The Pennsylvania Game Commission (PAGC) additionally leases 1,570.15-acres of Project lands for wildlife management and public hunting. Hunting and trapping are permitted in all areas of the Project except developed recreation areas and posted areas. Appendix A, Plate 8 shows the Outgrants around Mahoning Creek Lake.

Table 1-3. Outgrant Areas

Grantee	Type	Acres	Expiration Date
PA Fish and Boat Commission	Wildlife, Recreation	475.30	December 31, 2029
Armstrong County Board of Commissioners	Recreation	39.32	June 30, 2031
Borough of Smicksburg	Recreation	37.40	May 19, 2025
PA Game Commission	Wildlife	1,570.15	November 3, 2027

1.3 Listing of Prior Design Memorandums

See Appendix D.

1.4 Listing of Pertinent Project Information

While the Master Plan is focused on management of land and water surface area related to Project purposes, the following tables are provided to aid in understanding Project information regarding water storage levels and Project construction (Table 1-4, below). Further details are available in the Mahoning Creek Lake Water Control Manual.

Table 1-4. Mahoning Creek Lake Dam Information

Avg. Ann. Rainfall	45.6 in. (2017)
Drainage Area above Dam	340 sq. miles
Construction Completed	1941
Operation Start	1941
Dam Type	Concrete Gravity
Dam Length	926 ft.
Dam Height	166.5 ft. above stream bed el. 1008
Base Width	154 ft. (spillway section)
Outlet Works	3 slide gates (5.7'x 10'), 36" ball valve (ring jet), and a 24" ball valve
Spillway	(5) 30' x 29' gates
Highest Inflows Recorded	24,370 c.f.s. (20 July 1996)
Highest Outflows Recorded	9,218 c.f.s. (6 May 1945)
Highest Elevation (NAVD 88)	1,159.74' (11 March 1964)

1.5 Purpose & Scope of the Master Plan

This Master Plan presents updated land use categories, management objectives, resource plans, and recommendations for the management of Project lands and waters to meet current and future needs. It is a vital tool for the responsible stewardship of Project resources for the benefit of present and future generations, guiding the comprehensive management and development of the natural, cultural, and man-made resources at the Mahoning Creek Lake Project.

This Master Plan responds to regional and local needs, resource capabilities, suitability, and expressed public interests consistent with authorized Project purposes, pertinent legislation, applicable regulations, national objectives, and other state and regional goals and programs. Distinct from the Project-level implementation emphasis of the Operational Management Plan (OMP), policies in the Master Plan are guidelines implemented through provisions of the OMP, specific Design Memorandums (Appendix D), and the Annual Work Plan.

In this Master Plan, we employ a Conservation Weighted Development Concept (Table 1-5, below). This means that conservation becomes the primary theme using 60 to 90 percent of the of Project lands, with ten to 40 percent of the land devoted to active developed recreational use. This development concept meets the need for sustainable management and conservation of natural resources within the Project, while providing for current and future quality outdoor recreational needs of the public, and consistency with periodically updated Corps regulations. The amount of recreation at Mahoning Creek Lake is approximately 11 percent of the total land classification. This Master Plan lays out future recommendations for management of both recreation and natural resources with emphasis on conservation and low-impact development.

As part of multiple destination points, Mahoning Creek Lake is the only project in the Pittsburgh District that falls under a Conservation Weighted Development Scenario. Three projects fall under Recreation Intensive, five projects fall under Recreation Weighted, and five projects fall under Recreation/Conservation Mix. We recommend keeping Mahoning Creek Lake at a Conservation Weighted Development Concept. During our scoping process, members of the public, stakeholders, and partners encouraged the continued use of Mahoning Creek Lake for the remote and rustic experience it provides. The primary user groups are fishermen and hunters which further promotes the need for Mahoning Creek Lake to maintain its conservation efforts. All data presented in the subsequent section justify this development scenario.

Table 1-5. Development Concepts

Development Concept	Conservation Percentage	Recreation Percentage
Recreation Intensive	0-10	90-100
Recreation Weighted	10-40	60-90
Conservation/Recreation Mix	40-60	40-60
Conservation Weighted	**60-90**	**10-40**
Conservation Intensive	90-100	0-10

1.6 Management Goals

This section and the following section set forth goals and objectives necessary to achieve the vision for the future of Mahoning Creek Lake. The terms "goals" and "objectives" are often considered synonymous, but in the context of this Master Plan, goals express the overall desired end state of the cumulative land and recreation management programs, whereas resource objectives specify task-oriented actions necessary to achieve the Master Plan goals. The following goals are the priorities for consideration when determining resource objectives and development activities.

1. Use sound environmental principles to protect and enhance public lands.
2. Cultivate volunteers, public-private partnerships, and apply for grants.
3. Provide safe and memorable connections, as part of multiple destination points.
4. Leverage emerging technology to tell the Corps' story and enhance visitor experiences.

Implementation of these goals is based upon time, manpower, and budget. These goals will be pursued through the use of a variety of mechanisms such as: volunteer efforts, hired labor, contract labor, permit conditions, remediation, and special lease conditions. It is the intention of Mahoning Creek Lake staff to provide a realistic approach to the management of all resources.

In addition to the above goals, the Corps management activities are guided by Corps-wide Environmental Operating Principles (EOPs) in accordance with ER 200-1-5. The EOPs are as follows:

1. Strive to achieve environmental sustainability. An environment maintained in a healthy, diverse, and sustainable condition is necessary to support life.
2. Recognize the interdependence of life and the physical environment.
3. Proactively consider environmental consequences of Corps programs and act accordingly in all appropriate circumstances.
4. Seek balance and synergy among human development activities and natural systems by designing economic and environmental solutions that support and reinforce one another.
5. Continue to accept corporate responsibility and accountability under the law for activities and decisions under our control that impact human health and welfare and the continued viability of natural systems.
6. Seek ways and means to assess and mitigate cumulative impacts to the environment; bring system approaches to the full life cycle of our processes and work.
7. Build and share an integrated scientific, economic and social knowledge base that supports a greater understanding of the environment and impacts of our work.
8. Respect the views of individuals and groups interested in Corps activities; listen to them actively, and learn from their perspective in the search to find innovative win-win solutions to the nation's problems that also protect and enhance the environment.

1.7 Resource Objectives

Resource objectives are defined as clearly written statements that both respond to identified issues, and specify measurable and attainable activities for resource development and/or management of the lands and waters under Corps jurisdiction. The objectives provided in this section are established to provide high levels of stewardship to managed lands and resources, while simultaneously providing a high level of public service.

The objectives stated in this Master Plan support the Plan's goals, Corps EOPs, and applicable national performance measures. They are consistent with authorized Project purposes, federal laws and directives, regional needs, resource capabilities, and they take public input into consideration. Regional and state planning documents, including Indiana County's and Armstrong County's Comprehensive Plans, Natural Heritage Inventories, and the Armstrong County Tourism Bureau Water Trail Plan, were considered in developing these objectives. Planning documents from adjacent municipalities were also reviewed.

Each of the following task-oriented actions, referred to as Management and Development Activities (MDAs) has a current and future component (see below). The current component is the near-term focus of the current Master Plan and should be the impetus of efforts of this review cycle (i.e. five years). The future component is the long-term focus to be addressed in subsequent reviews (i.e. ten years).

Goal 1: Use sound environmental principles to protect and enhance public lands[1]

Management and Development Activity	Five-year	Ten-year	Resource Objective
Inventory natural and cultural resources	Initial description of biological and cultural resources are documented (E)	Operational Geospatial Data Base for Natural and Cultural Resources are developed (E)	Completed Biological/Cultural Resource Inventory
	OMP is updated (S&E)		
Identify and address threats to the Project	Internal or external subject matter experts are being engaged to resolve identified issues (S&E)	Reclamation Plan for impacted resources is written (E)	Conservation and enhancement of Project land
	A Mitigation Plan is established in order to avoid, minimize, and mitigate impacts to natural and cultural resources (E)		
	Best Management Practices have been researched (S&E)		
Achieve and maintain desired natural and cultural resource conditions	Specific conservation organizations (federal and state agencies, Academia, Non-profits) have been asked to engage (S&E)	Working relationships with federal, state, academia, and NGOs are being utilized to achieve these conditions (S&E)	Increased stakeholder buy-in and protection of the resources in and surrounding the Project

[1] S – Sustain
E – Establish

Goal 2: Cultivate volunteers, public-private partnerships, and grants[1]

Management and Development Activity	Five-year	Ten-year	Resource Objective
Partnering for a shared public land management ethic	Opportunities with action groups and local organizations, such as local sportsmen clubs and Trout Unlimited have been initiated (S&E)	Appropriate MOU/MOA(s) with land management partners are established (E)	Partners are helping to share the Corps vision for Mahoning Creek Lake
Establishing the right partnership, at the right place, at the right time	Educational programs (green-collar development) are developed and supported (S&E)	Seasonal natural resources survey crews are coming to the Project (E)	Partners, volunteers, and interns are amplifying Project staff responsibilities to further protect and enhance natural and cultural resources
	Opportunities for incentivizing volunteer groups have been explored (e.g. camp sites, office space, sheds, recognition signs, etc.) (E)		
	An organization which supplies assistance to the Project, such as Student Conservation Association (SCA), AmeriCorps, "Friends of Mahoning", American Conservation Experience (ACE), has established a relationship with the Project (E)		
Coordinating Mahoning Creek Lake Master Plan and OMP with other plans' for Armstrong, Jefferson, and Indiana Counties	Plans for the region are being reviewed while updating the Mahoning Creek Lake OMP (E)	Annual meetings with partners are being held to ensure lease updates as well as future plans for the region surrounding Mahoning Creek Lake are coordinated (S&E)	All relevant plans and leases are being coordinated and updated regularly and in accordance with mutual partner goals

Goal 3: Provide safe, memorable connections as part of multiple destination points[1]

Management and Development Activity	Five-year	Ten-year	Resource Objective
Ranger safety	Operational personal hand held communications and monitoring devices are on the same frequency as county EMS (E)	Enhanced securities, such as video surveillance systems or safe rooms, are installed throughout the Project (E)	Project staff is working in a safe working environment
		In accordance with Corps standards and guidance manuals, communication and security features have been met. Necessary upgrades have been made accordingly (S&E)	
Visitor safety	Consistent visitor assistance experience through playground inspections, boat patrol manual etc. is being ensured (S&E)	Regular maintenance program is established (E)	Low chances of incidents and quick response times for emergency personnel; routine maintenance has diminished likelihood of incident
	Emergency management partners (e.g. Water Safety Council) are actively engaged (S)	Public emergency call out systems stations, dry hydrants, and weather alert sirens are installed around the Project (essential and remote recreational areas) (E)	
		Establish mile makers on trails and water-ways to expedite emergency response time (E)	
		Grid maps are created for search and rescue purposes (E)	
	Emergency responders practice emergency safety at the Project on a regular basis (S&E)	Project Site Areas (PSAs) with low use and degraded facilities have been identified and divestment options have been considered if appropriate (S&E)	
	Lake staff will provide Project tours to familiarize emergency responders with ingress/egress access points are the lake (E)	Boat launch has been constructed near the Project operations site to allow quicker access to the water in case of emergency (E)	

Connect with other District lakes and locks	Joint ventures with other locks and lakes have been explored (E)	Armstrong Water Trail is being utilized as a feature to draw visitors to the Mahoning Creek Lake from other locations (S&E)	Public is aware of the Corps recreational facilities at multiple projects
	Connectivity between Mahoning Creek Lake and Crooked Creek via Baker Trail is being promoted (E)		
Serve as part of multiple destination points	Project staff are engaged with local Tourist Promotion Bureaus, Chambers of Commerce, and Regional Planning Commissions (E)	Access points to regional trails have been provided and promoted (S&E)	Diverse user groups from regional area are coming to the Project and visitation has increased
	Local and regional outdoor recreation organizations have been engaged (S&E)	Mahoning Creek Lake sites are integrated into the Heritage Tourism Program (E)	
Increasing off-season, non-peak visitation to the Project	Partners have been consulted on promoting new types of opportunities, prior to implementation (S)	Year-round recreational opportunities have been explored and established (E)	Visitors are utilizing lesser developed areas of the Project and are coming for year-round recreation opportunities as well as seasonal
Promoting all that Mahoning has to offer; bringing in visitors with varying interests and of varying ages	Programming focused on activities other than fishing is being offered (E)	A signature event is being hosted - bringing visitors to the Project (e.g. Wounded Warrior, Muskie Fishing Competition, Mahoning Creek Lake Clean-up Day, Kayak Race, and Kids Fishing Tournament). Events are being advertised through Chamber of Commerce and Tourist Bureau (E)	Visitors are aware and utilizing all of the available resources at the Project
	School groups, clubs, etc. have been reached out to and invited to the Project (E)		
	Signage regarding different activity areas are displayed around the Project (e.g. Baker Trail; the water trail) (S&E)		
	Project staff are participating in multiple outreach events with the surrounding communities (e.g. public library, Dayton Fair, etc.) (S&E)		

Goal 4: Leverage emerging technology to tell the Corps stories and enhance visitor experiences[1]

Management and Development Activity	Five-year	Ten-year	Resource Objective
Public interaction with the Project is occurring through technology	Interpretive programming and updated engaging educational signage is being included in every OMP Annual Update (E)	Visitors are able to contribute to data collection through their cells phones (E)	Technology is used in interpretive services, citizen science, and showcasing Project opportunities
	Web cams have been installed to show activities at the Project (e.g. eagles' nests) (E)		
	Visitors are being encouraged to submit photos and post about the Project on social media (e.g. hashtag established) (E)		
Embrace emerging technology to improve information collection	Wireless devices at the Project are being utilized (E)	Project boundary inventory and monitoring are being conducted wirelessly (E)	Project staff are utilizing technology to better monitor and communicate about the Project
	Boundaries and inventory data are updated and available in digital format (E)		
Enhance public outreach	Regional outdoor recreation activities are promoted on social media (e.g. Instagram, Facebook) (S&E)	Signage leading to the Project and within Project boundaries has been increased, indicating the presence and boundary of Mahoning Creek Lake (S&E)	Visitation is increasing due to greater public awareness of events and opportunities at the Project
	Success stories are being shared on local news outlets coordinated with PAO (S&E)	The Visitor Information Center is updated to a Type B, Project Visitor Center (E)	
Modernizing facilities to meet safety and visitor experience goals	Plans have been made with county partners to improve the quality of the roads leading to and surrounding Mahoning Creek Lake (E)	The Baker Trail has been extended to remove the trail from the roads in the area and has connected the dam site to the Milton Loop with accompanying day-use sites. The Baker	Facilities are updated in accordance with maintenance and community needs

		Trail is moved off of Route 839 and onto Project property near Milton Church (E)	
	American's with Disabilities Act (ADA) compliant facilities, such as a floating dock at Milton Loop, have been explored (S&E)	A pavilion or other improvements have been made to the Mahoning Creek Lake Visitor Information Center in order to increase functionality of the space as a 'hub' for visitors (E)	

2. Project Setting and Factors Influencing Management and Development

2.1 Hydrology

Mahoning Creek Lake Project is part of a comprehensive system of storage reservoirs for flood control for the Allegheny and Ohio River basins. The region is characterized with a dendritic (branching) drainage pattern and a diversity of streams with gradients ranging from high, steep, and headwater streams to low gradient rivers flowing into the Ohio River. The drainage area for Mahoning Creek Lake is 340-square-miles and covers parts of Armstrong, Clearfield, Indiana, and Jefferson counties. The dam is located on Mahoning Creek in Armstrong County and is 23-miles upstream from the creek's junction with the Allegheny River. Mahoning Creek flows from the confluence of Stump Creek and East Branch Mahoning Creek in Jefferson County, west for 61-miles to its confluence with the Allegheny River. Little Mahoning Creek is a major tributary to Mahoning Creek and joins it approximately seven miles upstream from the dam. Mahoning Creek has a total drainage area of 424-square-miles and joins the Allegheny River near river mile (RM) 55.5, approximately three river miles upstream of Allegheny Lock and Dam 8. Water Management funds the U.S. Geological Survey (USGS) to operate inflow and outflow gages within the Mahoning Creek Lake Project.

2.2 Topography, Geology, and Soils

Situated among steep-sided valleys and forested hillsides, Mahoning Creek Lake is surrounded by the rugged and striking terrain of western Pennsylvania. Mahoning Creek Lake is in the Pittsburgh Low Plateau section in the Appalachian Plateaus Province. The Appalachian Plateau is an eroded plain of sedimentary rock that slopes gently towards the northwest. Elevation varies throughout the region with a moderate to very high relief. The Pittsburgh Low Plateau Section consists of a smooth undulating upland surface cut by multiple, narrow, relatively shallow valleys. The uplands are developed on rocks containing the bulk of the bituminous coal in Pennsylvania. The landscape reflects this by the presence of some operating surface mines, many old strip mined areas, and many reclaimed strip mine lands. Upper portions of the watershed are relatively flat lying with a gentle slope toward the lake. In contrast, portions of land near the dam have steeper slopes. The local relief of the uplands is less than 200-feet, on average. Local relief between valley bottoms and higher upland surfaces may be as much as 600-feet. Valley sides are usually fairly steep, except in the upper reaches of streams, where the side slopes are fairly gentle. Elevations range from 660 to 1,700-feet. The geological formations that exist in this section include Pottsville, Allegheny, Glenshaw, and Casselman formations. These formations include limestone, slate, shale, sandstone, and other coal-containing bedrock formations.

Soils around Mahoning Creek Lake have developed under a humid climate (See Appendix A, Plate 3 for Soils map). The soils have developed under debris left by two distinctive glacial periods – the Wisconsin, which was more recent, and the Illinoian, which is much older. Most of the till is gritty, gravelly, and slightly compact. Drainage is one of the outstanding factors that influences and limits the development of the soil profile and land utilization. Some materials are saturated or waterlogged for a considerable period each year, during which time the movement of water from the ground is retarded.

Approximately one-third of the soils can be considered as poorly drained or very poorly drained owing to the slow permeability of the subsoil, lack of adequate relief, or a combination of these two factors. The two most common soil types are Frenchtown silt loam and Cambridge silt loam (United States Department of Agriculture, 1954).

Mineral extraction activities within the watershed include industrial mining, coal mining, oil and gas well drilling, including Marcellus shale gas and coalbed methane. In 2008, the Department of Environmental Protection (DEP) issued 406 permits within the municipalities that comprise the lower Mahoning Creek regional watershed, three of which were Marcellus shale wells. As of 2009, there were 15 active coal mining permits and seven active industrial mining permits within the watershed.

2.3 Resource Analysis

2.3.1 Fish and Wildlife Resources

Mahoning Creek Lake's forested habitat, scrub-shrub uplands, wetlands, streams, and river/lakes support a variety of wildlife species common to the Commonwealth of Pennsylvania. A few of the more common species likely to be observed in the Project area, include: osprey *(Pandion haliaetus)*, bald eagle (*Haliaeetus leucocephalus*), turkey (*Meleagris gallopavo*), red-winged blackbirds (*Agelaius phoeniceus*), robins (*Turdus sp.*), song sparrows (*Melospiza melodia*), common mergansers (*Mergus merganser*), mallards (*Anas platyrhynchos*), red fox (*Vulpes fulvus*), white-tailed deer (*Odocoileus virginianus*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), and the occasional black bear (*Ursus americanus*). In addition, Mahoning Creek Lake supports a variety of amphibians and reptiles, including multiple frog, turtle, salamander, and snake species.

Mahoning Creek Lake also provides habitat for a diverse array of fish species including smallmouth/largemouth bass (*Micropterus sp.*); brown, rainbow, and brook trout (*Salmo, Oncorhynchus, and Salvelinus sp.*, respectively); northern pike (*Esox lucius*); muskellunge (*Esox masquinongy*); walleye (*Sander vitreus*); various catfish (*Ictalurus punctatus, Ameiurus catus,* etc.); carp (*Cyprinus* sp.); and many other fishes.

Mammal diversity is typically associated with large, intact tracts of forest. Forest mammal species of the region commonly include white-tailed deer, gray fox (*Urocyon cinereoargenteus*), opossum, gray squirrel (*Sciurus carolinensis*), white-footed mouse (*Peromyscus leucopus*), short-tailed shrew (*Blarina brevicauda*), and increasingly, feral swine (*Sus scrofa*). The hairy-tailed mole (*Parascalops breweri*), smoky shrew (*Sorex fumeus*), and eastern woodrat (*Neotoma floridana*) are rare species that may exist. Historically common, but now extirpated species include, bison (*B. bison*), elk (*Cervus canadensis*), mountain lion (*Puma concolor*), and timber wolf (*Canis lupus*). Once more common to the area, smaller populations of black bear and bobcat (*Lynx rufus*) remain; although both are increasing in number. Both white-tailed deer and beaver (*Castor canadensis*) were once nearly extirpated, but have made remarkable recoveries.

2.3.2 Vegetative and Timber Resources

Mature, deciduous forest dominates Project land cover. The remaining land is a combination of field/pasture, shrubland, wetlands/riparian, with minor areas of maintained lawn. The Project supports the overarching goal of forest sustainability detailed in the Pennsylvania Department of Conservation and Natural Resources (DCNR) Forest Resource Management Plan. Forest sustainability requires the continued existence and use of forests to meet human physical, economic, and social needs; the desire to preserve the health of forest ecosystems in perpetuity; and the preservation of options for future generations, while meeting the needs of the present. The forest management plan for the Project contains further details, including resource inventories and harvesting procedures. Appendix A, Plate 4 shows Vegetative Resources.

2.3.3 Threatened and Endangered Species

While there have been no confirmed sightings on Mahoning Creek Lake property, the habitat type exists for the below species (Table 2-1), meaning that they could be found within the area or occur as transient species:

Table 2-1. Threatened and Endangered (ESA) Species (USFWS IPaC, 19 Mar 2018)

Species	Scientific Name	Class	Federal Status	Habitat
Northern Long Eared Bat	*Myotis septentrionalis*	Mammal	Threatened	Spend winter hibernating in caves and mines. During the summer, roost singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags.
Indiana Bat	*Myotis sodalis*	Mammal	Endangered	Hibernation sites have stringent requirements, including noticeable airflow and low non-freezing temperatures possible. Primary maternity roosts are trees (often large, dead ones) with ex-foliating bark and sun exposure that results in high temperatures, while males seek cooler roosts. Most roosts are within ¾ mile of water.

2.3.4 Invasive Species

In accordance with Executive Order (EO) 13751 (FR: 08 Dec 2016; amending EO 13112), an invasive species means an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health. Invasive species can be microbes, plants, or animals that are non-native to an ecosystem. In contrast, exotic species, as defined by EO 11987 (FR: 24 May 1977), include all plants and animals not naturally occurring, either presently or historically, in any ecosystem of the United States. Invasive species can take over and out compete native species by consuming their food, occupying their territory, and altering the ecosystem in ways that harm native species. Invasive species can be accidentally transported or they can be deliberately introduced because they are thought to be helpful in some way. Invasive species cost local, state, and federal agencies billions of dollars every year. Currently, there are over 285 invasive plant species impacting Pennsylvania (LandScope, 2018),

some of the more problematic known to inhabit the region, include 40 herbs & forbs, 23 shrubs, 11 aquatic plants, nine trees, and seven grasses (PADCNR, 2018), 11 invasive animal species, and two fungi (LandScope, 2018). The most common plant invasive species around Mahoning Creek Lake are Autumn Olive (*Elaeagnus umbellate*), Japanese Knotweed (*Fallopia japonica*), Morrow Honeysuckle (*Lonicera morrowii*), Tatarian Honeysuckle (*Lonicera morrowii*), Multiflora Rose (*Rosa multiflora*), and Crown Vetch (*Securigera varia*). The most common invasive animal around Mahoning Creek Lake is the Asian Clam (*Corbicula fluminea*).

2.3.5 Ecological Setting

The purpose of ecological land classification is to provide information for research, assessment, monitoring, and management of ecosystem components. The Natural Resource Management mission statement (ER 1130-2-550; Change 5, 30 Jan 2013) directly supports this paradigm. The lower Mahoning Creek Lake region, according to the U.S. Environmental Protection Agency's designation of ecoregions, is located within the Pittsburgh Low Plateau section of the Western Allegheny Plateau Ecoregion. According to U.S. Forest Service's designation, the lower Mahoning Creek region is located within the Unglaciated Allegheny Plateau section of the Eastern Broadleaf Ecoregion.

2.3.6 Wetlands

According to the National Wetland Inventory (NWI), Mahoning Creek Lake delineates approximately two-acres of freshwater emergent wetlands and 237-acres of freshwater forested/shrub wetlands. Appendix A, Plate 5 shows the Project Wetlands.

2.3.7 Water Quality & Sedimentation

Water Quality

Water quality within the Mahoning Creek Lake basin is currently within a state of transition. Prior to 1976 the primary stressor within the basin was Acid Mine Drainage (AMD). AMD impacts in the basin arouse for the mining of bituminous coal which was the primary industry within the region. Waters prior to 1980 were characterized by low pH, high acidity, low alkalinity, and increased sulfate and heavy metal concentrations within Mahoning Creek Lake. With the demise of the mining industry within the basin, water quality has rebounded from the effects of AMD. This is evidenced by post 1990 increasing trends for pH, alkalinity, and sulfate. While acidity trends have decreased; however, the enormity of past AMD issues within the basin has overshadowed or masked other stressors, which is no longer the case.

Currently, there are multiple water quality stressors within the basin. They include: excessive amounts of fine sediment in stream and lake bed material, hydropower operations, waste water point sources, agricultural run-off, and climate. There are slight increasing trends in nutrients (nitrogen and phosphorus), overall increases in water temperature through time, and slight increasing trends for Total Dissolved Solids (TDS), as well as turbidity. In order to document and manage these new stressors, the Water Quality Unit (WQU) currently manages a monthly water quality project staff collector program and conducts intensive summer water quality surveys within the lake, outflow, and tributaries. A water

temperature buoy, which records water temperature at three foot increments within the lake, is also deployed at Mahoning Creek Lake by the WQU. This allows for the adjustment of dam discharges during lake thermal stratification.

While water quality has gotten better through time at the Mahoning Creek Lake it is important to continually monitor this resource in order to manage the possible effects of the above stressors on Mahoning Creek Lake's overall health and recreational viability. Future concerns include nutrient loading leading to harmful algae blooms, continued sediment loading, and the effects of precipitation patterns on dam operations from climate forcing.

Sedimentation

Sedimentation within Mahoning Creek Lake is dependent upon the velocity of the inflows to the lake as well as the grain size of particles being transported. In general, high flow velocities will initiate basin wide erosion. Due to land use patterns, primary sources of erosion in the basin consist of distal run-off/sheet erosion from agricultural fields, adjacent rill erosion from numerous incised tributary channels, as well as, shoreline erosion during times of low pool elevation and precipitation events.

The majority of sediment being transported to the Project during high velocity events are clay to coarse sand size particles. During the transition from inflows to reservoir, the heavier sediment load (silt to sand range) settles to the bottom soon after entering the reservoir due to decreasing velocity caused by entering the deeper impounded water. However, in the portions of the reservoir closer to the dam, sediment deposition is minimal. This is due to flood flows being released shortly after impoundment, from gates at the bottom of the reservoir, sufficient time is not available for prolonged settling, and the lighter suspended sediment is carried through the reservoir and dam (US Army Corps of Engineers, 1979).

Rates of sedimentation were measured in both June 1948 and June 1965 within the reservoir. Sedimentation rates were determined to be 0.161 acre-foot per square mile per year and 0.174 acre-foot per square mile per year, respectively (US Army Corps of Engineers, 1979). Upscaling the above rates from construction to present day, conservatively there has been 12.397 to 13.398 acre-foot per square mile of sedimentation within the reservoir.

The majority of sediment being transported to the Project originates outside of the Project boundary. Changing land use patterns within the basin could exacerbate both sheet and rill erosion, which will affect sediment transport to the reservoir. While changing land use patterns may be out of our control, shoreline erosion control is not. Protection, maintenance, and restoration of riparian buffers around the reservoir and associated tributaries will become increasingly important to combat shoreline erosion. Enhanced riparian buffer protections not only will affect Project sedimentation but will also influence other natural resource objectives such as fish and wildlife, habitat, biological diversity, and to some extent water quality.

2.4 Cultural Resources

The Corps commissioned a Phase I archaeological survey in 1980 which identified lithics associated with the Paleo-Indian and Archaic eras, and ceramics and other artifacts affiliated with the historic period. Based on findings, there is a very high potential for the presence of additional artifacts in the vicinity of terrace landforms overlooking major waterways. Steep slopes, wetlands, and disturbed or eroded areas typically exhibit very low potential. Currently, there is no Cultural Resources Management Plan at Mahoning Creek Lake.

Historically, Mahoning Creek Lake is located along the Great Shamokin Path, which linked settlements along the Susquehanna to those on the Allegheny and Ohio. Permanent settlement in the Mahoning Creek Lake region dates to 1822 with the arrival of the first residents. In 1855, the hamlet of Independence was founded at the point of Milton Loop, a community of four dwellings, a foundry, a blacksmith shop, and a sawmill. For approximately a century, the local economy was based on agriculture and light industry. The foundry was active until circa 1925 and the residences were abandoned during the 1940s due to rising waters behind Mahoning Dam. An archaeological survey identified a cellar and well associated with one of the six to ten non-extant structures, in addition, production wastes dating primarily to the 19th century that are associated with the blacksmith shop or foundry and a bridge abutment.

2.5 Demographics

2.5.1 Market Area

The Project receives visitors primarily from neighboring counties, partially due to a lack of overnight accommodations available in the immediate vicinity of the Project. Westmoreland County and Allegheny County have higher income and education levels than other adjacent counties, resulting in higher recreational demand from those populations. As such, the market area for this analysis is focused on those two counties.

2.5.2 Population

Armstrong County, Indiana County, and Jefferson County were identified for demographic analysis due to the size of the Project, its geographic setting, and data collected about the surrounding counties. All data comes from the United States Census website and the Pennsylvania Department of Labor and Industry website. Armstrong County has an area of 653.20-square-miles with a population density of 105.5 persons per square mile. Indiana County has an area of 827.03-square-miles with a population density of 107.5 people per square mile. Jefferson County has an area of 652.43-square-miles with a population density of 69.3 people per square mile.

While the total population of Pennsylvania has grown by approximately 3.4 percent since 2000, the populations in Armstrong County, Indiana County, and Jefferson County have shrunk slightly (Table 2-2, below). Population growth within the state over the past decade has primarily occurred in the eastern and southern counties. The slight shrink in population for Armstrong County, Indiana County, and Jefferson County is characteristic of the region. Of the 25 westernmost counties in Pennsylvania, only

Forest County has experienced growth in the time period from 2000 to 2010. Despite this regional population decline, outdoor recreation continues to be in high demand for the region as a whole. Mahoning Creek Lake is one of many outdoor recreation locations available to the residents from this region and the role of the Project in meeting regional recreational demand is discussed in more detail, below in Section 2.8.3.

Table 2-2. Current Population and Growth Since 1990

State/County	1990	2000	2010	Population Growth 1990-2000 (%)	Population Growth 2000-2010 (%)
Pennsylvania	11,881,643	12,281,054	12,702,379	3.36%	3.43%
Armstrong County	73,478	72,392	68,941	-1.48%	-4.77%
Indiana County	89,994	89,605	88,880	-0.43%	-0.81%
Jefferson County	46,083	45,932	45,200	-0.33%	-1.59%
Source: Census 2010					

The population of Armstrong County is projected to continue shrinking by approximately 12 percent by the year 2030. The population of Indiana County is projected to continue shrinking by a total of 26.2 percent by the year 2030. The population of Jefferson County is projected to continue shrinking by a total of 7.4 percent by the year 2030 (Table 2-5). All three counties saw drops in population from 2000 to 2010 by 3 to 10 percent, making continued drops in population over the next 20 years a reasonable projection. For Indiana County, this is a rather accelerated decline in population from the 9.6 percent drop from 2000 to 2010. This is consistent, however, with the changes in populations for Armstrong County and Jefferson County, which dropped by approximately 3 percent and 5.5 percent, respectively, from 2000 to 2010.

Table 2-3. Annual Population Growth Projections through 2030 for Pennsylvania, Armstrong County, Indiana County, and Jefferson County

County	April 1, 2000 Census	July 1, 2010 Projection	July 1, 2020 Projection	July 1, 2030 Projection	% Change 2000-2010	% Change 2000-2020	% Change 2000-2030
Pennsylvania	12,281,054	12,540,718	12,871,823	13,190,400	2.1	4.8	7.4
Armstrong County	72,392	68,439	66,054	63,736	-5.5	-8.8	-12.0
Indiana County	89,605	81,006	72,876	66,095	-9.6	-18.7	-26.2
Jefferson County	45,932	44,577	43,775	42,529	-3.0	-4.7	-7.4
Source: Pennsylvania State Data Center							

The racial and ethnic makeup of Armstrong, Indiana, and Jefferson counties is primarily white at 97.7 percent, 95 percent, and 98 percent, respectively, with black representing the largest minority group, at 0.9 percent, 2.6 percent, 0.5 percent, respectively. Reflecting national trends, the Hispanic population is growing faster than other racial and ethnic populations. The Asian population is also growing at a fast rate, albeit not as fast as the Hispanic population.

The median age is 46 years old in Armstrong County, 39 in Indiana County, and 44 in Jefferson County. The proportions of males to females in Armstrong County, Indiana County, and Jefferson County are nearly the same as Pennsylvania, with 50.3 percent female population in Armstrong County, 49.9 percent female population in Indiana County, 50.3 percent female population in Jefferson County, and 51.0 percent female population in Pennsylvania.

2.6 Economics

2.6.1 Income and Poverty Status

For the period of 2011 - 2015 the median household income in Armstrong County was $44,942, with 12.6 percent of the population recorded below the poverty line. The median household income in Indiana County was $45,195, with 18.2 percent of the population recorded below the poverty line. The median household income in Jefferson County was $42,903, with 14.6 percent of the population recorded below the poverty line. Armstrong County, Indiana County, and Jefferson County have very similar average median household incomes and all three fall below the state of Pennsylvania's average of $53,599; however, Armstrong County has lower than the state's 13.2 percent of the population recorded below the poverty line. Indiana County and Jefferson County both have a higher percentage of its population recorded below the poverty line than the state average.

2.6.2 Area Industries

Armstrong County, Indiana County, and Jefferson County are all fairly similar with regards to primary industries of employment. The "health care and social assistance" industry is the largest employer in both Armstrong County and Indiana County, followed by the "retail trade" industry (Tables 2-4, 2-5, and 2-6, below). This is partially true of Jefferson County as well, which shows higher Employer Units for these two industries than any other, although the "Manufacturing" industry has a greater actual employment number (Table 2-6, below). The following tables list the major industries and employment numbers for Armstrong County, Indiana County, and Jefferson County.

Table 2-4. Employment and Wages by Industry in Armstrong County (for Persons Over the Age of 16)

(2016 Average Annual Values)				
NAICS Industry Sector	**Employer Units**	**Employment**	**County Wage**	**PA Wage**
Total , All Industries	1,529	16,384	$38,464	$52,458
Agriculture, Forestry, Fishing and Hunting	18	105	$30,756	$34,030
Mining, Quarrying, and Oil & Gas	45	643	$67,109	$80,461
Utilities	26	188	$65,145	$93,694
Construction	124	803	$41,645	$61,124
Manufacturing	80	1,919	$49,921	$59,804
Wholesale Trade	38	370	$47,718	$77,591
Retail Trade	179	2,033	$25,701	$27,811
Transportation and Warehousing	94	1,141	$33,533	$46,757
Information	18	223	$64,323	$74,010
Finance and Insurance	70	424	$44,736	$87,951
Real Estate and Rental and Leasing	30	151	$31,616	$57,690
Professional and Technical Services	77	377	$45,076	$88,691
Management of Companies and Enterprises	5	67	$168,867	$123,003
Administrative and Waste Services	49	265	$29,827	$34,311
Educational Services	43	1,328	$53,492	$54,471
Health Care and Social Assistance	303	3,425	$37,320	$48,384
Arts, Entertainment, and Recreation	22	206	$15,135	$32,258
Accommodation and Food Services	115	1,197	$11,222	$17,661
Other Services (Except Public Administration)	121	774	$24,485	$31,932
Public Administration	75	744	$34,279	$57,996

Table 2-5. Employment and Wages by Industry in Indiana County (for Persons Over the Age of 16)

(2016 Average Annual Values)				
NAICS Industry Sector	**Employer Units**	**Employment**	**County Wage**	**PA Wage**
Total , All Industries	2,014	29,869	$42,849	$52,458
Agriculture, Forestry, Fishing and Hunting	32	264	$29,365	$34,030
Mining, Quarrying, and Oil & Gas	91	1,398	$65,448	$80,461
Utilities	22	892	$105,128	$93,694
Construction	177	1,380	$56,637	$61,124
Manufacturing	84	2,063	$43,145	$59,804
Wholesale Trade	81	1,625	$44,784	$77,591
Retail Trade	266	3,993	$24,401	$27,811
Transportation and Warehousing	90	918	$32,162	$46,757
Information	17	315	$45,344	$74,010
Finance and Insurance	100	1,190	$57,574	$87,951
Real Estate and Rental and Leasing	45	182	$30,723	$57,690
Professional and Technical Services	124	1,077	$46,902	$88,691
Management of Companies and Enterprises	20	459	$74,911	$123,003
Administrative and Waste Services	71	798	$29,584	$34,311
Educational Services	55	3,261	$60,042	$54,471
Health Care and Social Assistance	327	4,685	$39,329	$48,384
Arts, Entertainment, and Recreation	23	256	$14,580	$32,258
Accommodation and Food Services	151	2,586	$13,664	$17,661
Other Services (Except Public Administration)	181	1,211	$32,423	$31,932
Public Administration	61	1,316	$49,122	$57,996

Table 2-6. Employment and Wages by Industry in Jefferson County (for Persons Over the Age of 16)

(2016 Average Annual Values)				
NAICS Industry Sector	**Employer Units**	**Employment**	**County Wage**	**PA Wage**
Total , All Industries	1,231	15,245	$37,204	$52,458
Agriculture, Forestry, Fishing and Hunting	17	93	$37,759	$34,030
Mining, Quarrying, and Oil & Gas	27	515	$87,696	$80,461
Utilities	13	ND	ND	$93,694
Construction	100	646	$38,025	$61,124
Manufacturing	111	3,603	$47,454	$59,804
Wholesale Trade	39	265	$48,615	$77,591
Retail Trade	159	1,706	$23,512	$27,811
Transportation and Warehousing	92	607	$37,610	$46,757
Information	18	128	$43,724	$74,010
Finance and Insurance	44	247	$38,858	$87,951
Real Estate and Rental and Leasing	24	84	$33,196	$57,690
Professional and Technical Services	61	413	$47,934	$88,691
Management of Companies and Enterprises	6	64	$50,850	$123,003
Administrative and Waste Services	42	319	$43,031	$34,311
Educational Services	26	ND	ND	$54,471
Health Care and Social Assistance	198	3,327	$29,608	$48,384
Arts, Entertainment, and Recreation	11	76	$16,327	$32,258
Accommodation and Food Services	95	1,039	$12,365	$17,661
Other Services (Except Public Administration)	102	460	$26,582	$31,932
Public Administration	51	591	$39,311	$57,996
*ND = No Data				

2.6.3 Economic Impact of Recreation Related Spending

The Corps provides water-based recreation opportunities throughout the country, which provides economic benefits to the local and regional communities in which Corps projects exist. To estimate the economic impact from the recreation-related spending at the Project, the Corps' Institute for Water Resources, in collaboration with the Louis Berger Group and Michigan State University, have developed a regional economic impact modeling tool called Regional ECONomic System (RECONS). This modeling tool automates calculations and generates estimates of jobs and other economic measures, such as income and sales associated with the Corps' American Recovery and Reinvestment Act (ARRA) and Civil Works program spending and secondary affects for Ports, Inland Water Way, Formerly Utilized Sites Remedial Action Program (FUSRAP), and Recreation. This is done by extracting multipliers and other economic measures from more than 1,500 regional economic models that were built specifically for Corps project locations. For 2012, RECONS shows an estimated 97,970 visits (person-trips) at Mahoning Creek Lake, predicted to result in direct benefits to the region of $1.49M in sales, $538,000 in labor income, $897,000 in economic value added, and 27 jobs supported in the region.

2.7 Recreation Facilities, Activities and Needs

Mahoning Creek Lake offers a wide variety of facilities, including a pavilion, day-use and picnic areas, boat launch areas, campground, and multi-use trails provided by the Corps and partners. In addition, the Project provides opportunities for water-based recreation, such as fishing, boating, and kayaking.

2.7.1 Zones of Influence

The primary zone of influence encompasses the Greater Pittsburgh Metropolitan, along with the Armstrong and Indiana Counties Micropolitan areas, as the basis in summarizing the population associated with Mahoning Creek Lake. The Greater Pittsburgh Metropolitan Area had a total population of 2,356,285 in the 2010 census and accounted for 18.5% of Pennsylvania's total population. This area saw a -3.1% decline in population since the 2000 census, continuing the regional decline that has been ongoing since the 1940s. The Armstrong Micropolitan Area has had a steady of 5.5% since 2000. The Indiana Micropolitan Area experienced approximately 11% in growth since the 1940s, but has experienced a minor decline of -0.8 percent in population from 2000 (89,605) to 2010 (88,880), accounting for 0.7% of the total state population.

2.7.2 Visitation Profile

The Project is a recreational destination for visitors in Armstrong, Indiana, and Jefferson counties, with the majority coming from within a 25-mile radius, particularly members of the local Amish community. Milton Loop Campground had a wider drawing area and brings in a few users from out-of-state. Popular recreational activities at Mahoning Creek Lake include angling, paddle craft (e.g. canoes, kayaks), and boating. There are additional facilities including environmental education, picnicking, and hiking.

2.7.3 Recreation Analysis

Mahoning Creek Lake had a visitation of approximately 55,000 between the years of 2014 to 2016. There have been user demands for infrastructure improvements, including electrical power connections to the pavilion located near the outflow, kayak launches added to the two public boat launches located at Milton Loop Campground, Sportsman's Boat Launch and Old Smicksburg Park, cell phone service to reduce safety hazards, and restroom facility upgrades at Milton Loop. Milton Loop Campground includes 38 electric sites, 13 primitive sites, and four solar-powered cabins. Other recreational facilities include various picnic sites, two playgrounds, one hiking trail, and an overlook/viewing pavilion. Based on the mean average, visitation has been stable throughout the last three years. The common infrastructure supports the current amount of recreational use at Mahoning Creek Lake.

2.7.4 Recreational Carrying Capacity

Carrying capacity, which includes both an environmental dimension (how much use can the resource support without being compromised) and a social dimension (how much use can occur before the quality of visitor experience is diminished), is currently balanced at Mahoning Creek Lake. This area has had few documented fatalities and boating accidents, and the Milton Loop Campground is booked year round. Future recreational developments will require plans and studies to account for water quality and

sedimentation changes, balancing recreational diversity, and accommodating new demands within a developed footprint, in a manner that is environmentally and economically sustainable.

2.8 Related Recreational, Historical and Cultural Areas

Mahoning Creek Lake is located within the "Pittsburgh & Its Countryside" tourism region by the Pennsylvania Department of Community and Economic Development. The Project also lies with Indiana County's parks and trails system that includes more than 64-miles of Rails-to-Trails, 792-acres of lake, 5,452-acres of parks, and 12-miles of single-track mountain bike trails. The Ghost Town Trail is a biking/hiking trail that passes by deserted 19th century mining towns and abandoned furnaces. Another regional attraction is the county's covered bridges, three of which are listed as National Historic Landmarks.

The municipalities of Dayton and Smicksburg, Pennsylvania, adjacent to Mahoning Creek Lake, are home to more than 325 Old Order Amish families that farm or operate small businesses. Smicksburg Borough is a popular tourist destination for its Amish shops and agricultural or artisan festivals throughout the year.

2.9 Real Estate and Acquisition Policy

The total real estate at the Project encompass 2,961.82-acres of which 2,519.36-acres are fee land title, 92.46 easement acres and 350-acres in the riverbed. There are 222 total outgrants of which 77 are easements for pipelines. There are no known mineral tracts at Mahoning Creek Lake.

3. Land Allocation, Land Classification, Water Surface and Project Easement Lands

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

3.1 Land Allocation

In accordance with EP 1130-2-550 (Change 5, 30 Jan 13) land allocations identify the authorized purposes for which Corps lands were acquired. There are four categories of allocation:

- Operations: These are the lands acquired for the congressionally authorized purpose of constructing and operating the Project. The entire Mahoning Creek Lake Project has a land allocation of Operations, which means that all project lands were originally acquired to provide safe, efficient operation of the Project and its authorized purposes – flood control, conservation and enhancement of fish and wildlife, and recreation. No specific parcels were acquired for or assigned to individual purposes of recreation, fish and wildlife conservation and enhancement, or mitigation.

- Recreation: These lands were acquired specifically for the congressionally authorized purpose of recreation. These lands are referred to as separable recreation lands. Lands in this allocation can only be given a land classification of "Recreation".

- Fish and Wildlife: These lands were acquired specifically for the congressionally authorized purpose of fish and wildlife management. These lands are referred to as separable fish and wildlife lands. Lands in this allocation can only be given a land classification of "Wildlife Management".

- Mitigation: These lands were acquired specifically for the congressionally authorized purpose of offsetting losses associated with development of the Project. These lands are referred to as separable mitigation lands. Lands in this allocation can only be given a land classification of "Mitigation".

3.2 Land Classification

The guidance further defines land classifications to provide for development and resource management consistent with authorized purposes and other federal laws. The previous Master Plan dated October 1976 used an obsolete classification scheme that has been rectified in this document to meet current standards. Currently, there are six categories of classification, identified as:

- Project Operations
- High Density Recreation
- Mitigation
- Environmentally Sensitive Areas
- Multiple Resource Managed Lands
- Water Surface

The classification process refines the land allocations to fully utilize Project lands and considers public desires, legislative authority, regional and project-specific resource requirements, and suitability. Land classification indicates the primary use for which Project lands are managed. The Project manages lands according to five of the above six classifications (sans Mitigation). The system for classification has been realigned to meet current standards. Appendix A, Plate 6 illustrates the Land Classifications for the Project.

3.2.1 Project Operations

This classification includes lands required for the dam and associated structures, powerhouse, visitor information center, administrative offices, maintenance compounds, and other areas that are used to operate and maintain the Project (with public access to some of these areas often restricted). Where compatible with operational requirements, Project Operations lands may be used for wildlife habitat management and recreational use, as long as the proposed activities do not negatively impact project operations. Likewise, licenses, permits, easements, or other outgrants are issued only for uses that do not conflict with operational requirements. For example, mooring private vessels or modification of land and vegetation are prohibited without explicit permission. Requests for a permit for a compatible

use within an area designated for project operations will be evaluated on a case-by-case basis and a decision will be made as to whether or not the proposed activity will be permitted, based on the potential impact to operations.

3.2.2 High Density Recreation

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

The facilities in these areas will accommodate the recreation needs of visitors in concentrated numbers, while also offering open space lands for the purpose of providing more complete and attractive recreation areas. The modernization of campsites and recreation facilities is anticipated to occur on a funds-available basis. Modernization may include hardening, leveling, and paving of campsites, upgrading electrical and plumbing infrastructure, adding or upgrading restroom and shower facilities, and adding or expanding roads and parking lots to provide better access and accommodate additional visitors.

Requests for permits to conduct concessions, rentals, or conducting any other business in these areas will be reviewed on a case-by-case basis and will involve real estate agreements and fee payment to the Corps.

Given the difficulty of maintaining current facilities, the development of more modern facilities demanded by recreational visitors will likely include partnering with stakeholders to share in the cost, operation, and maintenance of any such asset.

3.2.3 Environmentally Sensitive Areas

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

Defining sensitive areas as part of the Master Plan process assists in the protection of valuable resources. These sites are mapped and managed by the Corps. Environmentally Sensitive Areas include locations of threatened and endangered species and cultural sites. Many factors contribute in identifying sensitive areas. The degree of sensitivity varies by location and other contributing factors. An area may be available to construct a properly-designed hiking trail, or may be actively managed by forest practices such as timber stand improvement that does not negatively impact the site's sensitivity. Other sites can be very sensitive to human disturbance and need adequate protection from development. Examples of this degree of sensitivity would involve eagle nests, osprey nests, and heron rookeries. These animals are threatened by human activities, especially during active breeding seasons.

Areas designated as sensitive can change over time and continuous monitoring through programs like Multiple Species Inventory and Monitoring (MSIM) provide valuable information to keep identified sensitive areas current. Through the use of Geographic Information System (GIS) databases maintained with separated layers, the dynamic nature of sensitivity can be managed in an up-to-date program. Some areas may be highly sensitive to change; other areas need prescribed management to remain viable. The goal of sensitive area management is to protect and preserve known areas that contribute to the diversity and health of the Project area. Appendix A, Plate 9 and 10 show the different Land Covers found throughout Mahoning Creek Lake.

The following occurrences on the landscape can contribute to areas being classified as sensitive. Oftentimes, multiple contributors to sensitivity exist on one area.

- Known or discovered cultural sites
- Large tract woodlands
- Mature woodlands
- Reforestations
- Wetlands identified in the National Wetlands Inventory
- Lands possessing unique wildlife value by diversity or conservative species
- Steep slopes, often with outcrops or talus slopes
- Areas of aesthetic quality or having aesthetic ("scenic") views
- Corridors between habitats that protect connectivity (e.g. riverine woodlands)

3.2.4 Multiple Resource Management Lands

These lands can be divided into four sub-categories for the purposes of this Master Plan. These categories are; Low Density Recreation, Wildlife Management, Vegetative Management, and Future/Inactive Recreation Areas. In the future, some of these areas may be converted to Wildlife Management, Vegetation Management, or High Density Recreation. Conversion to High Density Recreation may occur based on future recreation needs within the Project area. The Corps must continue to carefully evaluate land use requests in these areas to include road and utility easements, rights of way for pipelines, resource mining activities, and other potential ground and resource

disturbing activities and to ensure that these actions do not negatively impact the environment in a significant manner.

- **Low Density Recreation.** These lands are designated for dispersed and/or low impact recreation use. Development of facilities on these lands is limited. Emphasis is on providing opportunities for non-motorized activities such as walking, fishing, hunting, or nature study. Site-specific, low-impact activities such as primitive camping and picnicking are allowed. Facilities may include boat ramps, boat docks, trails, parking areas and vehicle controls, vault toilets, picnic tables, and fire rings. Manmade intrusions, including power lines, non-Project roads, and water and sewer pipelines, may be permitted under conditions that minimize adverse effects on the natural environment.

  In these areas, natural conditions preclude intensive public use development because extensive alteration of natural systems would be required. Difficult access is also a factor indicating low-density use as most appropriate for these lands.

  Private or long-term exclusive group use of these lands will not be permitted. Management practices leading to habitat improvements for the benefit of wildlife are encouraged. No licenses, permits, or easements will be issued for non-compatible manmade intrusions, such as underground or exposed pipelines, cables, overhead transmission lines, or non-Project roads. Exceptions to this restriction may be made where necessary to serve a demonstrated public need only in those instances where no reasonable alternative is available. Agricultural uses are permitted on this land. The focus for areas under the Low Density Recreation classification is on a balance of low-impact recreational activities along with conservation of natural areas and native species. Management of invasive species is also a priority for these areas to prevent their spread throughout the Project area. Hunting is permitted in most areas under this classification and is managed by the PAGC to promote healthy populations of game species. This includes multiple Game Management areas.

  Low density recreation areas have the potential to be converted to high density recreation through the development of new trail systems, campgrounds, boat launches, or other recreational features. These areas also have the potential to be used for utility lines, timber sales, or mining activities if a third-party makes a request for such an activity. However, these actions would require additional study and would be approved on a case-by-case basis based on the anticipated impacts associated.

- **Wildlife Management.** Proper management techniques will be applied wherever the opportunity exists to improve conditions for wildlife, recreation, scenic value, timber, wildfire prevention, pest control, watershed protection or for use on the Project. While all Project lands are managed for fish and wildlife habitat in conjunction with other land uses, Wildlife

Management Area lands are designated specifically for wildlife management. They contain valuable wildlife habitat components that are managed, using guidance that includes the State Wildlife Action Plan (SWAP) provided by the PAGC, to yield habitat suitable for designated game and non-game species. Licenses, permits, and easements for such man-made intrusions such as pumping plants, pipelines, cables, transmission lines, and non-Project roads are usually not allowed on these lands, although exceptions to this policy are allowable, if properly mitigated.

- **Vegetation Management:** Vegetation management, including agricultural activities that do not greatly alter the natural character of the environment, are permitted for a variety of purposes, including erosion control, retention and improvement of scenic qualities, and wildlife management. Management activities focus on the protection and enhancement of forest resources and vegetative cover. The lack of fire, a natural and historic disturbance occurrence is a factor responsible for lack of forest regeneration, changes in forest species composition, and changing forest structure and forest health. In turn, the use of prescribed fire for a natural disturbance factor and ecological driver to reclaim, improve, maintain, and enhance habitats will be analyzed for use.

  Forests are managed as a multipurpose resource for sustained yield when consistent with recreation and wildlife management objectives and approved land uses. Hunting and fishing are allowed pursuant to tribal or state fish and wildlife management regulations where these activities are not in conflict with the safety of visitors and Project personnel. Other activities are conducted under the guidance of the Project's forest management and wildlife management plans.

- **Future or Inactive Recreation Areas.** These areas have site characteristics compatible either with future recreational development or recreation areas that are closed. Until there is an opportunity to develop or reopen these areas, they will be managed for multiple resources.

3.2.5 Water Surface

There are four possible sub-classifications. See Appendix A, Plate 12, which displays Water Zoning.

- **Restricted.** Water areas restricted for Project operations, safety, and security purposes.

- **Designated No-Wake.** To protect environmentally sensitive shoreline areas, recreational water access areas from disturbance, and/or public safety.

- **Fish and Wildlife Sanctuary.** Annual or seasonal restrictions on areas to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning.

- **Open Recreation.** Those waters available for year-round or seasonal water-based recreational use.

3.3 Easement Lands

Project Easement lands are lands on which easement interests are held but no fee title ownership exists. They typically include three different types of easements – operations, flowage, and conservation.

3.3.1 Operations Easement

Operations easements are easements purchased for the purpose of Project operations.

3.3.2 Flowage Easement

Flowage easements are easements purchased for the right to temporarily overflow, flood, and submerge private land during flood risk management operations. The purpose of these easements is to provide adequate storage for flood waters.

3.3.3 Conservation Easement

Conservation easements are easements purchased for the purpose of protecting wildlife, fisheries, recreation, cultural resources, environmental resources, or endangered species.

4. Resource Plan

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

4.1 Classification and Justification

The land classifications are:

- **Project Operations.** Lands required for the dam, spillway and other areas that are used solely for operation of the Project (more fully described in Sec. 3.2.1, above).
- **High Density Recreation.** Lands developed for intensive recreational activities (more fully described in Sec. 3.2.2).
- **Environmentally Sensitive Areas.** Areas including scientific, ecological or cultural features such as those protected under the Endangered Species Act, National Historic Preservation Act or other laws (more fully described in Sec. 3.2.3).
- **Multiple Resource Managed Lands.** Includes areas of low density recreation, wildlife management, vegetative management, and future/inactive recreation areas (more fully described in Sec. 3.2.4).
- **Water Surface.** Water surface areas restricted for Project operations, no-wake zones, used for open recreation, or restricted for fish and wildlife sanctuary (more fully described in Sec. 3.2.5).

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

4.1.1 Project Operations

This category includes lands required for the powerhouse, sub-impounding dam and associated structures, operations center, visitor information center, administrative offices, maintenance compounds, and other areas used to operate and maintain Mahoning Creek Lake Project. There are 6.91 acres of land that are classified as Project Operations. The management plan (stated as "resource objectives") for these areas is to continue providing physical security necessary to ensure continued operations of the dam and related facilities.

4.1.2 High Density Recreation

Lands developed for intensive recreational activities for the public are considered as high density recreation including day use areas, campgrounds, commercial concessions (marinas, restaurants, resorts, etc.), and quasi-public development. Future possibilities for development of these areas include expansion of trail systems utilizing emerging technologies such as Quick Reference (QR) codes and other electronic media outreach, upgrades to designated watercraft (boats, kayaks, canoes, paddle boards, etc.), launching areas, conversion of low density campsites to sites with electric and water hook-ups for RVs, and expansion of additional park recreation features. There is a total of 89.93-acres that fall under High Density Recreation. Appendix A, Plate 7 shows the Recreation map.

Resource Objectives for High-Density Recreation Lands:

- Provide access for and use by the elderly and people with disabilities
- No ground disturbing activities in high density recreation areas, unless authorized by the Corps
- Interpret cultural resources to benefit visitors
- Protect the viewshed in order to maintain current aesthetic values
- Installation of a parking lot and drop in zone for kayaking at either the outflow or at existing boat launches
- Any additional campsites would only be constructed in existing campground
- Prescribed fire should be considered as a management method for this land classification

Milton Loop Campground

This is a 39.32-acre recreational camping area. This area is currently under lease to Armstrong County. This area features 52 sites suitable for a multitude of camping units. The campground has modern restrooms and a sanitary disposal station. There are some sites available for long-term camping. Any additional improvements made to the campground such as inclusion of technology or other recreational activities will be included in the annual development plan provided by the lease that is reviewed by Corps' Real Estate Branch and Operations Section.

Old Smicksburg Park

This is a 37.40-acre park leased out to the Borough of Smicksburg. It offers trails that are suited for hiking, birding, and wildflower study. A restroom, picnic tables, and gazebo are also available for visitor's use. There is a non-paved canoe and kayak ramp area to access Little Mahoning Creek along the Old Smicksburg Park boundary and State Route 954 Bridge. Any additional improvements made to the campground such as pollinator plots or other recreational activities will be included in the annual development plan provided by the lease that is reviewed by Corps' Real Estate Branch and Operations Section.

Other

This is a 13.21-acre area owned and operated by the Corps and consists of playgrounds, a basketball hoop, fishing pier, parking lot, and restroom area.

4.1.3 Mitigation

No land falls under this category at Mahoning Creek Lake.

4.1.4 Environmentally Sensitive Areas

West Mahoning Archaeological Site

Approximately 10-acres are classified as lands containing archaeological resources. This site has been found to contain traces of pre-historic people of different archaeological periods, indicating repeated usage of this area as a campsite over an extended period of time. The site has been disturbed by cultivation, but information still may be contained within deeper soil layers. This site will be managed to protect these resources in accordance with the provisions of applicable laws, including the Archaeological Resources Protection Act, National Historic Preservation Act, and Native American Graves Protection and Repatriation Act. Areas will continue to be surveyed for the presence of archeological resources when development activities are proposed to ensure that utilities placement, mining, installation of recreation features, and other actions do not impact unknown resources. If additional cultural resources are discovered on the Project, these parcels would be converted to this management category and additional protections would be afforded to ensure compliance with applicable laws.

Fresh Water Wetlands

The National Wetlands Inventory delineates approximately two-acres of freshwater emergent wetlands and 237-acres of freshwater forested/shrub wetlands were retained as Environmentally Sensitive Areas.

Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is covered by shallow water. For the purposes of this classification, wetlands must have one or more of the following three attributes: 1) at least periodically, the land supports predominantly hydrophytes; 2) the substrate is predominantly undrained hydric soil; and 3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year (Cowardin et al. 1979).

Wetland areas are functioning properly when adequate vegetation and landforms are present to: 1) dissipate stream energy associated with high waterflows, thereby reducing erosion and improving water quality; 2) filter sediment, capture bedload, and aid floodplain development; 3) improve flood-water retention and ground-water recharge; 4) develop root masses that stabilize streambanks against cutting action; 5) develop diverse ponding and channel characteristics to provide the habitat and the water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and 6) support greater biodiversity. Based on above information, the wetlands at Mahoning Creek Lake are functioning property.

Best management practices for Environmentally Sensitive Areas are listed below. These practices are needed to protect and prevent irreparable damage.

- Control noxious weeds and other pests in a manner that avoids damage to existing desirable vegetation and sensitive areas (wetlands and streams)
- Preserve and protect existing wetland and other sensitive or unique habitats that support threatened and endangered species along with other wildlife
- Proponents of surface disturbing activities shall identify important, sensitive, or unique habitats in the vicinity of the Project and design the proposed project to avoid, minimize, or mitigate impacts to these resources
- Riparian areas are maintained and enhanced for the protection and enhancement of fisheries
- As a standard practice, ephemeral and perennial drainages and wetland/riparian areas will be avoided as locations for oil and gas related facilities, including drilling locations, production facilities, roads, and pipelines. Whenever possible, facilities will be confined to existing alignments or locations, minimizing width requirements and maximizing multiple occupancy
- Surface disturbance will not be allowed within 200-meters of the source of a spring or seep, or within downstream riparian areas created by flows from the source or resulting from riparian area management
- Proponents of surface disturbing actives shall conduct surveys for federal and state-protected species and other species of concern within action area and design the Project to avoid, minimize, or mitigate impacts to these resources

- The Corps will prohibit the disturbance of any population of federally listed plant species
- Prescribed fire should be considered as a management method for this land classification
- Special management attention may be needed to protect important and relevant values of ESAs which may include historical, cultural, and scenic values, or fish and wildlife and their natural resources

4.1.5 Multiple Resource Managed Lands

This category includes 2,173.52-acres of land where the predominant use is for wildlife management or dispersed recreation. However, there are other compatible uses which may occur on these lands without impacting the predominant use.

4.1.5.1 Low Density Recreation

Low density refers to lands with minimal development or infrastructure that support passive public recreational use (e.g. primitive camping, fishing, hunting, trails, wildlife viewing). There are 174.63-acres at Mahoning Creek Lake that fall under this category.

Sportsman's Boat Launch

One low density site at Mahoning Creek is Sportsman's Boat Launch. This 3.54-acre area has a 16-foot-wide concrete boat ramp and an 18-car and trailer parking lot (Mahoning Creek Lake, 2008-2013). This area is also accessible for shore fishing and canoe launching and provides carry-in access for canoes and kayaks. The Sportsman's Boat Launch is leased to the Pennsylvania Fish and Boat Commission and was completed in 1987. Distance from Sportsman's Ramp to Mahoning Dam is approximately one mile downstream. Sportsman's Ramp is closed from December 15 to March 15 (Mitchell, 2010).

Other

Mahoning Creek Lake also has a low density area on the southern and northern side of the lake that extends to the wildlife management area. This 171.09-acre area is managed for wildlife viewing, aesthetic value, bank fishing, and nature trails.

Resource Objectives for Low-Density Recreation Lands:

• Provide access for and use by the elderly and people with disabilities
• No ground disturbing activities in low density recreation areas unless authorized by the Corps
• Interpret cultural resources to benefit visitors
• Protect the viewshed in order to maintain current aesthetic values
• Prescribed fire should be considered as a management method for this land classification.

The Non-Recreational Outgrant Policy, which reflects nationwide guidance developed in 2009, will be used to evaluate requests for use of Corps lands and waters. Future non-recreational outgrant requests may be granted if one of the following two conditions are met:

- There is no viable alternative to the activity or structure being placed on Corps lands
- There is a direct benefit to Mahoning Creek Lake and their respective authorized mission

4.1.5.2 Wildlife Management Areas

Wildlife lands are available for sightseeing, wildlife viewing, nature study, and hiking. There are 1,570.15-acres leased to the PAGC for wildlife management and a total of 1,993.98-acres including those on Corps property. Consumptive uses of wildlife, including hunting, fishing, and trapping, may be allowed when compatible with the wildlife objectives for a given area and within federal and state fish and wildlife management regulations as established with ER 1130-2-540, Environmental Stewardship Operations and Maintenance Policies, 4 Nov 2002.

Proper management of white-tailed deer populations may help keep their negative impacts to a minimum. In areas that are overpopulated with deer, forest regeneration is often hindered, crops and horticultural plantings damaged, reducing many resources necessary to other wildlife. Habitat destruction by overabundant deer populations has had a serious impact on songbird populations, especially woodland warblers, which require forest undergrowth layers to feed, nest, and take cover. Many of the bird species so affected are in decline. In addition, over-abundant deer populations pose a significant risk to the safety of motorists and damage to vehicles when roadway collisions occur. White-tailed deer management is regulated in Pennsylvania through hunting permits allocated by the PAGC.

Public land managers experiencing high density deer populations should incorporate considerations into land and habitat management techniques. Habitat plots may be established to improve herd health and decrease the animals' dependency on natural areas. Public and private landowners may enroll in a program through PAGC called the Deer Management Assistance Program (DMAP), which provides additional permits to hunt antlerless deer on registered properties to help reduce deer populations (PA DCNR, 2017). Best management practices, listed below, are needed to protect and prevent irreparable damage.

- Surface disturbance will not be allowed within 200-meters of active raptor nests on natural habitat features, such as trees, large brush, and cliff faces
- The Master Memorandum of Understanding between the Corps and the Animal and Plant Health Inspection Service, Wildlife Services (WS), will guide nuisance species damage control
- Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 45 db measured at 30-feet from the source of the noise
- Manage forest resources and other vegetation for balanced uses of recreation, wildlife, and fisheries
- Monitor forest conditions to document health and to identify pests
- A habitat restoration plan shall be developed to avoid, minimize, or mitigate negative impacts on vulnerable wildlife while maintaining or enhancing habitat values for other species. The plan shall identify revelation, soil stabilization, and erosion reduction measures that shall be implemented to ensure that all temporary-use areas are restored. The plan shall require that restoration occur, as soon as possible, after completion of activities to reduce the amount of habitat converted at any one time and to shorten the length of recovery time to natural habitats

- Recovery plans for species federally-listed as threatened or endangered will be implemented under the authority of the Endangered Species Act, including the reintroduction or relocation of native special status species in areas on public land in coordination and cooperation with local governments
- Increased intensity in research and monitoring will be needed to evaluate changes in habitat condition, land use threats to the species, species use and distribution, reclamation efforts, propagation, and other projects that may help in enlarging the knowledge base of these species
- Prescribed fire should be considered as a management method for this land classification

4.1.5.3 Future Recreation Areas

For Mahoning Creek Lake, 4.91-acres of land near the Project Operations site in the Dam Outflow Area has been designated for future recreation. Potentially, this area may support either low or high density recreation and become an access road near the trash boom in order to allow for a Project staff boat dock to be built.

4.1.6 Water Surface

There are four Water Surface categories within the boundaries of Mahoning Creek Lake: Restricted, Open Recreation, Fish and Wildlife Sanctuary, and Designated No-Wake. These areas make up 556.19-acres that are within the reservoir's conservation pool. As part of managing the water surface areas at the Project, the Corps will seek to maintain, and if possible improve water quality and fisheries habitat structure to support a productive sport fishery and maintain healthy populations of native fish species. Water quality monitoring at established stations should continue throughout the Project property and watershed, as the data gathered aids in conservation of the Projects aquatic resources.

4.1.6.1 Restricted

Restricted areas include those portions of the reservoir pool where public access is prohibited due to Project operations, security concerns, or to promote public safety. This includes the areas between trash booms and the upstream portion of the dam and the area immediately downstream of the dam. There are 14.6-acres at Mahoning Creek Lake that fall under this category.

4.1.6.2 Designated No-Wake

Designated no-wake zones are marked with buoys to protect environmentally sensitive shoreline areas, recreational areas (such as boat ramps and docks), and for public safety. Boats are required to slow down in these areas to prevent waves from impacting these areas. There are no acres at Mahoning Creek Lake that fall under this category.

4.1.6.3 Open Recreation

Open recreation areas are waters that are available year-round or seasonally for water-based recreational use. There are 541.59-acres at Mahoning Creek Lake that fall under this category. At Mahoning Creek Lake there is a 10-horsepower restriction on vessels, there has been public interest in increasing the horsepower limit; however, an action like this would require an evaluation outside the scope of this document. Further analysis would be in accordance with ER 200-2-2, Environmental Quality – Procedures for Implementing the National Environmental Policy Act, 4 Mar 1988.

4.1.6.4 Fish and Habitat Management

Fish and wildlife sanctuary zones have annual or seasonal restrictions on areas to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning. There are no acres at Mahoning Creek that fall under this category.

4.2 Easement Lands

There are 92.46 total acres of easement lands at Mahoning Creek Lake.

Resource Objectives for Easement Lands:

- Monitor any activities occurring on easement lands to ensure that Corps rights, according to terms and conditions of the legal easement, remain unimpeded.
- Promote an understanding of Corps boundary and mission by both the public and the owners of underlying private property.

4.2.1 Operations Easement

The Corps has no acres of operations easement lands at Mahoning Creek Lake.

4.2.2 Flowage Easement

The Corps has 92.46 acres of flowage easement lands at Mahoning Creek Lake.

4.2.3 Conservation Easement

The Corps has no acres of conservation easement lands at Mahoning Creek Lake.

5. Special Considerations Affecting Natural Resources

During the development of this Master Plan, several issues were identified that could affect or are affecting the stewardship and management potential of the lands and waters at the Project.

1. Sharecropping

Sharecropping, a practice of agriculture in which the PAGC would authorize a local farmer to raise crops on lease lands for wildlife or habitat improvements (i.e. leaving a pre-determined portion of the crops "standing" for wildlife or habitat) and in return for the services rendered, a portion of the crops would be retained by the farmer as reimbursement. This has previously been authorized in the Mahoning Creek Lake Master Plan dates October 1976. Although authorized, no active sharecropping leases by PAGC at Mahoning Creek Lake currently exist. Analysis of adjacent areas also show that this land cover and habitat is common within the region; however, successional habitat is not as abundant. It should be noted that in order to support the conversion of lands to successional habitat and to pursue the conservation focus of the Master Plan, sharecropping leases shall not be issued in the future.

2. Oil and Gas Development

Since the construction of the Project, and particularly in recent years, there has been a regional increase in the amount of oil and gas related activities being proposed and requested on Corps land. These activities consist mostly of sections of gas-gathering pipelines and waterline right-of-way easement requests, at times culminating in a non-recreational outgrant, utility line rights-of-way, or general site access easements/requests. These proposals are most often for the connection of more extensive, existing oil and gas networks. In general, these larger networks/systems typically include: gathering lines, water lines, compressor stations, road crossings, fresh water impoundments, water intakes/outfalls that were previously constructed, or proposed in areas adjacent to Corps land. In essence, the Corps land crossings and right-of-way requests serve as network connections.

Ownership of the minerals rights underlaying Mahoning Creek Lake may be owned outright by the federal government, may be third party owned, or some combination thereof. There may be subordination agreements or surface restrictions in place. It is also possible for the Bureau of Land Management (BLM) to lease federally owned mineral interests beneath the surface of Project land. It is necessary to review and consider the specific ownership documentation of each tract in order to determine the rights and controls that the Corps has on said tracts.

Federally-Owned Minerals

Under the multiple-use principle, federal minerals beneath the surface of Corps lands may be made available for mineral exploration and extraction, consistent with Project activities. The primary statute governing oil and gas development on federally-managed lands is the Lease of Oil and Gas Lands (30 U.S.C. 226 et. al.), the Mineral Leasing Act of 1920 (30 U.S.C. 181 et. seq.), as amended by the Federal Onshore Oil and Gas Leasing Reform Act of 1987. This statute authorizes the Secretary of the Interior, through the BLM, to issue leases to private individuals and corporations to extract federal oil and gas from public lands. While the Mineral Leasing Act authorizes the BLM to issue oil and gas leases, it does not require that leases be issued. The BLM must obtain the Army's approval and the Army, through the Engineering District, can place limitations in the lease regarding the extractions of these minerals (See AR 405-30; *See* 43 CFR § 3503.20). If a developer approaches the BLM for access to a certain parcel or mineral interest, the BLM notifies the Corps and requests title information for the parcel and any use stipulations the Corps might require. The Real Estate Office for the Corps provides the BLM the title information along with any stipulations (AR 405-30). The BLM would in turn inform the party interested in leasing the federal minerals of all of the stipulations. If the developer is still interested, the BLM follows its procedures to make the minerals available. The Corps has the final say in whether minerals will be made available, and the Assistant Secretary of the Army (ASA) has final approval on any non-availability determination.

Owners of Private and State Minerals

Owners of private and state oil and gas rights have a property right to develop their interests, which generally includes reasonable use of the surface to the extent necessary to accomplish such development. However, this does not mean their operations are free from limitation or reasonable regulation that might originate under state and/or federal law, whether pursuant to property law concepts or other legal authorities. Under applicable state and federal laws and regulations, the mineral owner, whether it is private or state, and/or the lessee must coordinate with the Project to use the federally-controlled surface. For all types of mineral leases where surface occupancy is approved under a lease, the lessees must obtain prior approval for any surface activities on Corps-managed lands (Title 43 – Public Lands: Interior Code of Federal Regulations [CFR] Subpart 3160). It is the Project's responsibility to protect project purposes when allowing surface use. Moreover, while owners of oil and gas interests generally have the right to reasonable use of the surface to the extent necessary for private oil and gas exploration and development, they are not exempt from possible liability to the surface owner for damages stemming from such exploration and development.

State or Privately-Owned Minerals Accessed from State or Privately-owned Land

Effective control of mineral extraction activities, particularly when the Corps does not own the necessary estates in real property to control development within the close proximity of dams and other structures, requires close coordination among the Project Staff and the District Office, especially Operations, Real Estate, Engineering-Construction and Office of Counsel. Operations personnel are often the first Corps employees to become aware of new or proposed mineral extraction activities near the Project. Mineral extraction activities may include exploration operations, mining operations, drilling operations, production operations, reworking operations (including hydraulic fracturing), and high pressure pipeline operations. Real Estate personnel must investigate the location of activities and determine the federal real property interests in the location. Engineering-Construction personnel must evaluate any new or proposed activities in order to make determination whether said activity is compatible with the structural integrity of the dam and other major structures. The Corps' ability to regulate and dictate private mineral extraction on adjacent private lands is minimal; however, federal agencies have a duty to protect federal resources for authorized purposes.

3. Indiana Bat and Northern Long-Eared Bat

Currently listed as federally endangered, the Indiana Bat (*Myotis sodalis*) is a small, gray to chestnut-brown bat that hibernates in caves and abandoned mines during winter months (starting mid-September into November) and roosts under peeling tree bark, under bridges, and sometimes in buildings, during warmer months (starting mid-April into May). The total body length of an adult Indiana bat averages between 2-3 inches, with a wingspan of 9.5-10.5 inches. Populations have been declining since the 1960's, largely due to disturbance of winter cave hibernacula. The Northern Long-Eared Bat (*Myotis septentrionalis),* listed as federally threatened, is a medium-sized bat with a total body length of 3-3.7 inches and a wingspan of 9-10 inches. Their fur color can be medium to dark brown on the back and

pale-brown on the underside; primarily distinguishable by their long ears. The Northern Long-Eared Bat, has similar behavior, threats to their existence, habitat, and range as the Indiana Bat.

While no known hibernacula for these bats exist on Mahoning Creek Lake property, there is sufficient potential summer roosting habitat present in and amongst the forested components of the Project. At present, there is no current management or survey plan in effect; however, the US Fish and Wildlife Service (USFWS) has adopted regional, seasonal cutting/disturbance restrictions. Generally, tree-cutting activities should be carried out from mid-November through the end of March, during which time bats are hibernating. If any tree-cutting is necessary from the beginning of April to mid-November, trees greater than or equal to five inches in diameter at breast height should not be cut or physically disturbed in order to avoid potentially killing or injuring roosting bats. Further, the following general guidelines apply to tree characteristics indicative of potential bat habitat: 1) dead or dying trees and snags (with exfoliating bark); 2) live trees (such as shagbark and shellbark hickory) which have exfoliating or defoliating bark in the trunk or branches; and 3) trees or snags that have characteristics typical of roost sites for bats (i.e., have exfoliating or defoliating bark, or contain cracks, crevices, or holes that could be used by the species as a potential roost).

Currently, no known occurrence of these bats has been reported or observed at Mahoning Creek Lake. Staff are aware of and abide by the cutting/disturbance restrictions. Corps staff at the Project will continue to work with the USFWS and partner with other state and federal resource agencies to assure that potential detrimental effects to managed resources are minimized on public lands entrusted to the Corps.

Motorized Vehicles and Equestrian Trails

Due to limited land use, motorized vehicles and equestrian trails will not be allowed on Corps property at this time. Some undesirable impacts of motorized vehicles include severely eroded soils, user-created unplanned roads, disrupted wetland ecosystems, general habitat destruction, and degraded water quality throughout forested lands. One of the main activities at Mahoning Creek Lake is hunting, creating equestrian trails would only conflict with the already existing user group.

Climate Change

Any long-term change (wetter, dryer, hotter, colder) in Pennsylvania's climate will affect habitats and species. Lesser tolerant flora and fauna will be impacted first regardless of their condition. Also at risk will be ecosystems already stressed by previously mentioned threats. It is unlikely that much can be done for species on the edge of their range in terms of buffering them from the effects of climate change; however, healthy and connected habitats are likely the best chance that the remaining species have in terms of mitigating the effects of climate change.

6. Agency and Public Coordination

Throughout the scoping process, the Corps involved the public; engaged with partners and stakeholders representing interests at the local, regional, state, and federal levels; and coordinated with sovereign (recognized) tribal nations.

Comments from the various partner, stakeholder, and public meetings were received on a variety of topics, including:

Preferred qualities, characteristics, and components of the Project:

- Keeping guidelines within the Master Plan focused on Conservation Weighted scenario
- Creating a space that serves as a 'hub' within the Project
- Balancing the overall Project experience between its overarching primitive character and interest in introducing technology to enhance visitor experience
- Opportunities for boating, trail activities, picnicking, fishing, and hunting were chosen to be the types of recreation that should be prioritized in the future, as most visitors to Mahoning Creek Lake come for day-use purposes

Potential Threats:

- Increasing number of oil/gas wells in area and how to plan for such future development
- Addressing invasive species control, using a multi-stakeholder, multi-pronged approach

Regional Needs/Opportunities:

- Improving hunting and fishing opportunities; stocking lands for pheasant, muskellunge, etc., and hosting related events
- Establishing a protocol for sharecropping and prescribed burn plans
- Connecting trail systems (Rails-to-Trails, bridle trails, Baker Trail, water trail)
- An improved emergency response system for both visitors and park rangers
- Improved signage, leading to and throughout the Project

See Appendix C for the compilation of the comments collected during the Scoping and Draft Release meetings. All comments made during these meetings and submitted online were considered for incorporation into the Master Plan. All formal comments submitted during the Draft Release meeting will also be found, with the Corps response, in Appendix C.

6.1 Scoping Meetings

Scoping efforts began in March 2017 with a meeting between Corps staff and Project partners. A stakeholder meeting with state environmental agency representatives such as the Pennsylvania Department of Environmental Protection, and local governmental agency representatives (Armstrong County - Department of Public Safety & Department of Planning; Indiana County - Office of Planning & Parks and Trails) in attendance, was conducted on May 2, 2017. A public meeting was held that same evening. These scoping meetings focused on communicating the Corps' intent and need to revise the Master Plan; establishing the scope of the Master Plan update; and most importantly, learning about the

needs, opportunities, and concerns of partners, stakeholders, and the public. See Appendix C for a summary of the meetings and the public notice.

For stakeholders and the public unable to attend the scheduled meetings, they could visit the Mahoning Creek Lake Project Office to participate in a scoping exercise for two weeks following the scheduled meeting in order to provide input into the direction of the suggested updates to the Mahoning Creek Lake Master Plan. The scoping exercise was also featured on the Mahoning Creek Lake Master Plan website, providing interested parties who are not located close to the Project site an opportunity to also engage in the scoping process.

A second partner will be held March 2018 and a second stakeholder/public meeting will be held during April 2018. The purpose of the second set of meetings will be to unveil the proposed recommendations and proposed land use classification proposals and to elicit any remaining feedback on the proposed updates to the Master Plan and accompanying Environmental Assessment. Corps personnel will set up displays to depict the Project areas and the proposed changes resulting from the Master Plan revision.

6.2 Draft Release Meetings

Meetings for partner, stakeholder, and public review for the updated Master Plan and Environmental Assessment were held on 28 March and 4 April, 2018, respectively. Scoping efforts began in March 2017 with a meeting between Corps staff and Project partners. The purpose of the second set of meetings was to unveil the proposed recommendations and proposed land use classification suggestions based off of internal Corps discussions and input received from partners, stakeholders, and the public during the public scoping phase of the project and to elicit any remaining feedback on the proposed updates to the Master Plan and accompanying Environmental Assessment. Notice of the public meeting was sent out as part of a press release, Facebook posts on the Mahoning Creek Lake page, and fliers distributed to local community venues. As a large portion of the visitors to Mahoning Creek Lake are part of the local Amish community, efforts were made to ensure that the Amish community was notified of the Master Plan revision efforts and comment cards were provided. Comments collected via comment cards and during the meetings themselves can be found in Appendix C.

6.3 Outreach Efforts

The following outreach efforts were conducted to notify the public, stakeholders, and partners of the opportunities for input and to solicit input into the Master Plan update process:

- Website: A dedicated website was developed to describe the Master Plan process, changes in the Master Plan, and recommendations resulting from the Master Plan Revision as well as provide an avenue for additional comments to be submitted http://www.lrp.usace.army.mil/Missions/Recreation/Lakes/Mahoning-Creek-Lake/Mahoning-Creek-Lake-Master-Plan-Copy/

- Fact Sheet: A Master Plan Update fact sheet was developed to inform partners, stakeholders, and the public on the purpose and scope of the Master Plan update. This fact sheet was sent in all email correspondence, handed out at each of the meetings, and provided on the Project website.

- Agency, Partner, and Stakeholder Letters: Letters were sent directly to agencies, partners, and stakeholders inviting them to attend the scheduled meetings and to send any comments or concerns to the Corps.

- Indian Nation Coordination Letters: Letters were sent directly to Indian Nations in recognition of the Corps' Federal Tribal Trust responsibilities. The letters invited them to attend the scheduled meetings, to send any comments or concerns to the Corps, and/or indicate how they would prefer to engage with the Master Plan update process.

- Agency, Partner, and Stakeholder Email Invitations: Email invitations for both the partner and stakeholder meetings were sent out via email to all partners and stakeholders with available contact information. A Project fact sheet, timeline, and public scoping meeting flyer was attached.

- Public Meeting Press Releases: Sent to local media a week prior and the day before the public meetings.

- Public Meeting Facebook Posts: Facebook posts were made on the Mahoning Creek Lake Facebook page advertising the Public Meeting.

- Public Meeting Flyers: Flyers were posted around the community, at the meeting site, and shared with Project partners and stakeholders accompanied with the request to share widely with the public.

7. Summary of Recommendations

This Master Plan conceptually establishes and guides the orderly development, administration, maintenance, conservation, enhancement, and management of all natural, cultural, and recreational resources at the Project. This section summarizes the proposed changes that can be found within this Master Plan and provides specific recommendations to be considered that will help guide the direction of Mahoning Creek Lake management into the future.

Derived through correspondences, comments, scoping meetings (described in further detail, below in Section 7) by local citizens, stakeholders, and current and potential Project partners, along with Corps staff knowledge of Mahoning Creek Lake, the recommendations below address the regional needs, threats, and opportunities identified throughout the planning process. Section 2 describes those identified topics and the Project conditions that inspired the recommendations.

These management recommendations are non-regulatory and available for use by any citizen, group, or agency. They have been analyzed in the Environmental Assessment associated with this Master Plan in order to identify potential impacts, and any additional analysis and coordination that may be necessary.

7.1 Coordination and Partnerships

The modest size of the staff at Mahoning Creek Lake creates a prime opportunity for partners and volunteers to strengthen and advance the operations and management at Mahoning Creek Lake. Therefore, an overarching recommendation for Mahoning Creek Lake is to create partnerships to leverage fiscal resources and continue to involve local communities and stakeholders in achieving the resource objectives set forth above, in Section 1.7. This recommendation includes working with federal and state agencies to leverage resources for complimentary natural resources management, with recreation service providers to improve user experiences, with environmental groups to improve habitat, and with educational and community groups to encourage volunteer activities that are mutually beneficial.

In accordance with other plans regarding resources and opportunities within Indiana, Armstrong, and Jefferson counties, the Corps shall keep abreast of content within the existing plans reviewed during the update of this Master Plan, as well as any future plans that are developed for the area.

The Corps should also seek to continuously stay engaged and further coordination efforts. To encourage coordination and partnership, Mahoning Creek Lake staff should engage with external partners, including, but not limited to:

- Pennsylvania Department of Environmental Protection Clean Water Program
- Pennsylvania Game Commission
- Pennsylvania Fish and Boat Commission
- Armstrong County
- Indiana County
- Little Mahoning Creek Watershed Association
- Cube Hydro Partners
- Borough of Smicksburg
- Rachel Carson Trail Conservancy
- Milton Loop Campground Concessionaires
- Water Safety Council
- Trout Unlimited
- Boy Scouts of America
- Indiana University of Pennsylvania
- Local Amish Community
- Dayton Area Local History Society

7.2 Facility Modernization

It is the goal of the Corps at Mahoning Creek Lake to continue to modernize current facilities within existing footprints of recreation areas and prioritize improvements for safety and improved visitor experience where

funding is available and in accordance with Engineer Manual 1110-1-400, Engineering and Design – Recreation Facility and Customer Service Standards, 1 Nov 2004. However, modernization is recommended only to the degree that conservation remains the main priority within the Project.

Potential improvements include those described above, in Section 1.7 Resource Objectives of this Master Plan, which were adopted from the public input process and the needs identified from the Project staff including these examples below:

Specific potential improvements for safety, if resourcing and/or a successful partnership becomes available at Mahoning Creek Lake, should include:

- Installation of an emergency call-out system
- Creation of a road and a boat launch for Mahoning Creek Lake staff located near the Project Operations site to improve staff's ability to respond to emergencies on the water
- Informational and directional signs around the lake and trails, including demarcation of property lines
- Improvements to roads leading to and surrounding Mahoning Creek Lake
- American's with Disabilities Act (ADA) facilities, such as a compliant floating dock at Milton Loop

Specific potential improvements for improved visitor experience, if resourcing and/or a successful partnership becomes available at Mahoning Creek Lake, should include:

- Pavilion installed near the Mahoning Creek Lake Visitor Information Center
- Extension of the Baker Trail to remove the trail from the roads in the area and connect the dam site to the Milton Loop with accompanying day-use sites
- Installation of a parking lot and drop in zone for kayaking at either the outflow or at existing boat launches
- Identify Project Site Areas (PSAs) with low use and degraded facilities; divest when appropriate
- Establish different ways for visitors to explore Mahoning Creek Lake: brochures, maps, or development of a phone app in which visitors could access park maps, learn about the Project, and log information from their experience at the site

7.3 Land Classification Changes

The land use classification changes discussed in this document and evaluated in the attached Environmental Assessment represent the changes in land use, management strategies, and guidance concerning naming conventions that have occurred since the original Master Plan for this Project was developed in the late 1970's. The primary change in the Master Plan, the previous four Land Classifications (Agricultural Lands, Game Management, Natural Area and Wild Area) are now consolidated under the Multiple Resource Management Land Classification (Low Density Recreation; Wildlife Management; Vegetative Management; and Future or Inactive Recreation Areas) in this revised Master Plan. As a result, more of the Project lands are classified as Multiple Resource Management.

Other updates to this Master Plan include the renaming of archeological and historical sites as the new land classification of Environmentally Sensitive Areas and the addition of water classifications, which

did not exist in the original Master Plan (Tables 7-1 & 7-2, below). Updating and highlighting naming conventions and/or classifications as part of the Master Plan will ensure the conservation of valuable resources continues uninhibited.

Table 7-1. Conversion of Land and Water Classifications

Original	Proposed
Game Management Special Preservation Wild Area	Environmentally Sensitive Area
Recreation (Milton Loop Campground, Old Smicksburg Park, Mahoning Dam Outflow)	High Density
Recreation (Sportsman's Boat Launch, Fishing Bank)	Low Density
Administrative	Operations
N/A	Water Surface

This table reflects a change in terminology classifications of land and water.

Table 7-2. Summary of Land Class Changes

Existing Land Use Class	Existing Land Use Acres	Proposed Land Use Class	Proposed Land Use Acres
Game Management Special Preservation Wild Area	13 10 194	Environmentally Sensitive Areas Wildlife Management Areas	231.63 2003.01
Administrative		Operations	9.91
Recreation	207	High Density Recreation Low Density Recreation	73.68 166
		Future Recreation	8.56

This table reflects a change in acreage due to the modification of existing land classifications along with absent land classifications from previous Master Plans.

As this updated plan focuses on a Conservation Weighted scenario, Multiple Resource Management - Wildlife Management is the largest land classification designated at the Project, along with several Environmental Sensitive Areas which will further protect particular wildlife and vegetative species at Mahoning Creek Lake. The Master Plan also includes small pockets of land that will be primarily managed low density and high density recreation, with one small area designated for future recreation.

While these land use classifications may be updated in the future, those described in this document, dated 2018, represent the most current and relevant uses of various Project lands. Additional details of the uses and management goals for individual Project site areas will be provided in a forthcoming OMP for the Project.

7.4 Development Requests

Historically, Mahoning Creek Lake has received oil and gas requests, a trend that is anticipated to continue, if not increase, into the future. In recognition of these trends, Mahoning Creek Lake should prepare for an increase in non-recreational requests (e.g. Pennsylvania Shell ethylene cracker plant-related infrastructure, natural gas transmission lines) by purposefully limiting development to existing disturbed areas, communicating Corps land use policies, and encouraging the development of mitigation plans in line with the Resource Objectives outlined in Section 1.7.

Furthermore, in keeping with the conservation focus of this Master Plan, this document also highlights where the Corps will allow utilities to cross government land at Mahoning Creek Lake. This Master Plan has determined that additional oil and gas infrastructure will not be permitted on Environmentally Sensitive Areas, in order to limit existing disturbances, which will best protect Corps lands from negative impacts of fragmentation, erosion, wildlife value, and aesthetic quality decline. In addition, the Master Plan identifies the areas in which viewsheds should not be compromised. Best Management Practices, which should be used and applied to any future oil and gas development requests at Mahoning Creek Lake, have been outlined in Section 5.

This Master Plan further recommends that no additional sharecropping leases will be issued on Mahoning Creek Lake property. Areas currently authorized for sharecropping will be reverted back to wildlife management areas.

The parcel of land marked as future recreation, while currently anticipated to be classified as Low or High Density Recreation in the future in order to support an access road and boat dock for Project staff, will require approval for any change to the current use. The proposed change to the land classification and site use will be reviewed and will involve real estate agreements and, if applicable, fee payment to the Corps.

7.5 Wildlife Management and Environmentally Sensitive Areas

The Corps land at Mahoning Creek Lake represents a significantly-sized riparian corridor of valuable wildlife lands. These lands are vulnerable to change by human disturbance; therefore, large portions of these lands are outgranted to other agencies, whose primary purpose is wildlife management, with secondary use being recreation. While some areas of Mahoning Creek Lake have developed recreation areas, a large portion of land acreage remains in an undeveloped natural state, being heavily forested and rich in riverine habitat, including wetlands. The goal is to continue coordination with resource agency partners, continue to successfully manage these lands for the use and enjoyment of our visitors, and the conservation of our valuable natural resources. In the future, the Corps should develop survey methods to identify sensitive habitats, possibly using a MSIM, and use the results to designate additional Environmentally Sensitive Areas, which would be converted from multiple resource managed lands. These lands should be protected from human disturbance and development activities to the extent possible, and ensure compliance with all applicable laws and regulations. If development activities are proposed for these areas, the Corps will work with partners to minimize the disturbance or mitigate the impacts. The Corps will also consider proactive steps to enhance natural areas for sensitive species and

to restore sensitive habitats through native vegetation plantings, removal of invasive species through prescribed burns, or other efforts targeted at non-game species habitat. In addition, the Corps will continue to protect cultural resources in existing Environmentally Sensitive Areas and promote education related to these resources.

7.6 Threatened and Endangered Species

Federally-listed Threatened and Endangered plant and animal species will be managed according to USFWS Recovery Plans. State listed species will be protected through partnerships and agreements with state agencies. Best Management Practices, which should be used to manage Threatened and Endangered Species at Mahoning Creek Lake, have been outlined in Section 2.

7.7 Water Quality

Currently, the water quality at Mahoning Creek Lake is in a state of transition. Stressors such as excessive amounts of fine sediment, hydropower operations, waste water point sources, agricultural run-off, and climate change are increasingly recognized as a potentially detrimental threat.

On a more positive note, the elimination of invasive species and reintroduction of native species, as recommended within this plan, may be further enhance watershed health. The existing MOA between the Corps and hydropower operator ensures continued non-degradation of water quality. Also, further reduction of AMD may lead to an increased productivity and biological activity within the lake. Existing fisheries and aquatic habitats require more intensive management so that no additional degradation is experienced. Riparian areas need to be managed to provide for the vegetative, hydrologic, and soil-stability attributes needed to create and maintain quality aquatic habitats. Aquatic and riparian habitats need to be managed so fish habitat is protected. Road crossing of streams should be designed or modified to avoid barriers to the passage of fish and other aquatic species and to avoid degrading the riparian areas. Management strategies are needed to prevent infestation of aquatic habitat by increasing numbers of invasive species.

7.8 Summary

The original Mahoning Creek Lake Master Plan dated 1950 adopted the guidelines for a Conservation Intensive scenario. In the 1976 update, which projected population growth for the area, the guidelines were changed and the Master Plan established objectives for moving from a previously Conservation Intensive management scenario to a Conservation Weighted scenario. Through our analysis, and in accordance with ER 1105-2-100, we recommend this Master Plan staying at the Conservation Weighted planning scenario; which still allows for an additional 60-acres of developed recreation. The resulting resource objectives, resource plans, and specific recommendations found within this Master Plan, reflect this goal.

8. Bibliography

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APPENDIX A

MAP PLATES

MAHONING CREEK LAKE

ARMSTRONG, INDIANA, & JEFFERSON COUNTIES, PA

Plate 1, PROJECT AREA

US Army Corps of Engineers
Pittsburgh District

BUILDING STRONG®

Timblin

Jefferson County

Punxsutawney

Armstrong County

Dayton

Smicksburg

Indiana County

Plumville

Legend

- City
- U.S. Government Property Line
- Conservation Pool
- County Boundary

N
W E
S

DATE: JANUARY 2017

0 0.5 1 2 Miles

Geospatial Section POC: Kristen Scott, 412.395.7553

MAHONING CREEK LAKE

ARMSTRONG, INDIANA, & JEFFERSON COUNTIES, PA

Plate 2, WATERSHED BOUNDARY

US Army Corps of Engineers
Pittsburgh District

BUILDING STRONG®

Elk County
Jefferson County
Venango County
Mercer County
Clarion County
Butler County
Clearfield County
Allegheny County
Armstrong County
Indiana County
Westmoreland County

North Fork Redbank Creek
Mill Creek
Mill Creek
Lick Creek
Sandy
Soldier Run
Stump Creek
Pine Creek
Little Sandy Creek
Bear Creek
Redbank Creek
Sugar Creek
Mahoning Creek
Canoe Creek
Little Mahoning Creek
Ross Run
Cowanshannock Creek
North Branch Plum Creek
Crooked Creek

Legend

Stream
U.S. Government Property Line
County Boundary
HUC8 Watershed*
Middle Allegheny-Redbank

Drainage Basins
Mahoning Creek

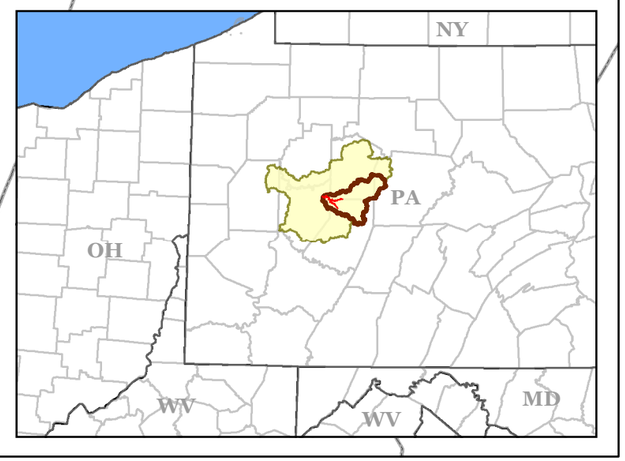
N
W
E
S

DATE: DECEMBER 2016

*Source: Watershed Boundary Dataset (USGS) - 2014

0 3.75 7.5 15 Miles

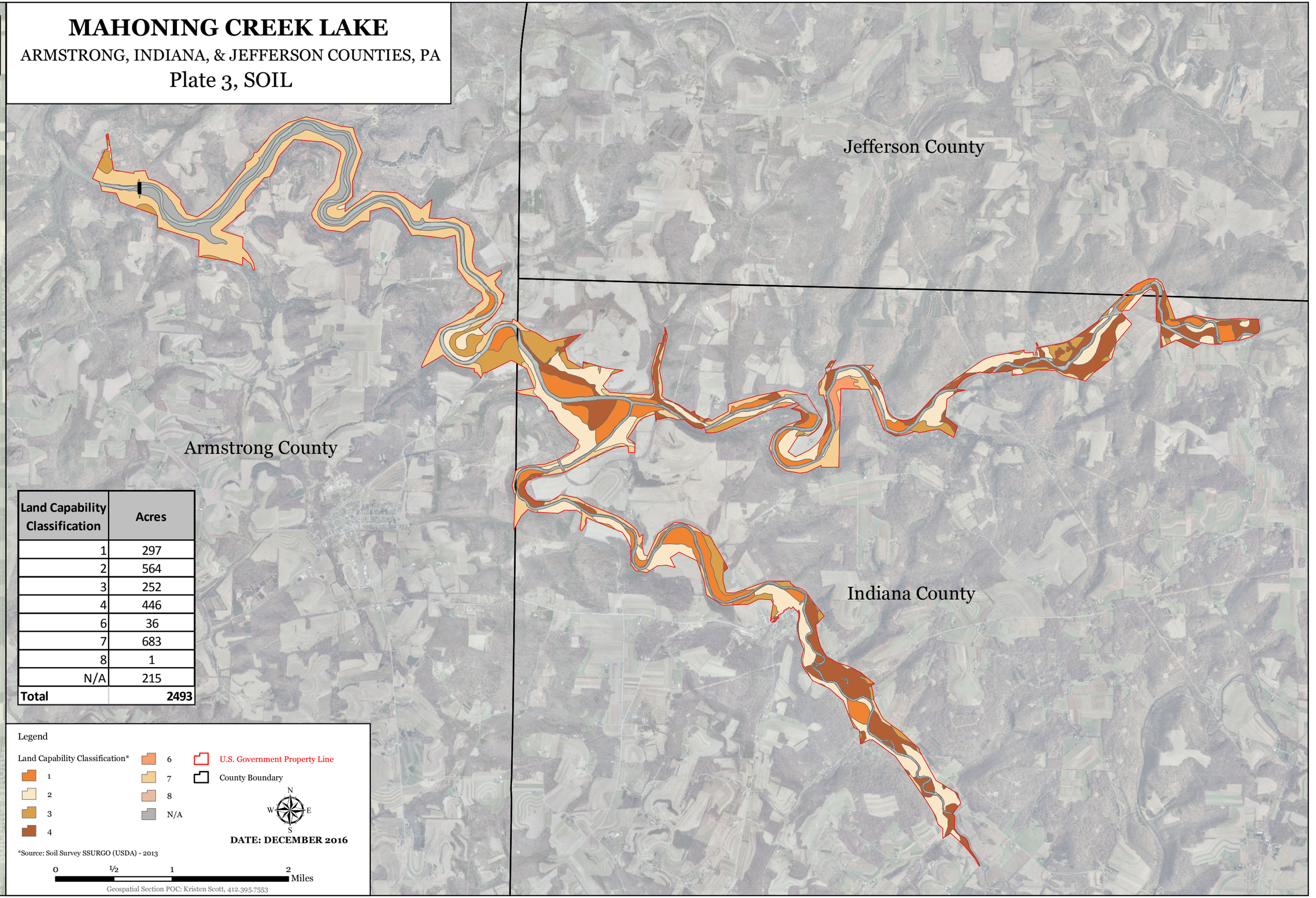
Geospatial Section POC: Kristen Scott, 412.395.7553



MAHONING CREEK LAKE

ARMSTRONG, INDIANA, & JEFFERSON COUNTIES, PA

Plate 3, SOIL



Land Capability Classification	Acres
1	297
2	564
3	252
4	446
6	36
7	683
8	1
N/A	215
Total	**2493**

Legend

Land Capability Classification*

1
2
3
4
6
7
8
N/A

U.S. Government Property Line

County Boundary

N
W
E
S

DATE: DECEMBER 2016

*Source: Soil Survey SSURGO (USDA) - 2013

0 ½ 1 2 Miles

Geospatial Section POC: Kristen Scott, 412.395.7553

US Army Corps of Engineers
Pittsburgh District

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MAHONING CREEK LAKE

ARMSTRONG, INDIANA, & JEFFERSON COUNTIES, PA

Plate 4, VEGETATIVE RESOURCES

US Army Corps of Engineers
Pittsburgh District

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Armstrong County

Jefferson County

Indiana County

National Vegetation Classification - Class	Acres
Agricultural Vegetation	171
Developed & Other Human Use	142
Forest & Woodland	1575
Recently Disturbed or Modified	1
Shrubland & Grassland	2
Total	**1891**

Legend

National Vegetation Classification - Class*

- Agricultural Vegetation
- Developed & Other Human Use
- Forest & Woodland
- Open Water
- Recently Disturbed or Modified
- Shrubland & Grassland

- U.S. Government Property Line
- County Boundary

N W E S

DATE: DECEMBER 2016

*Source: GAP Land Cover (USGS) - 2001

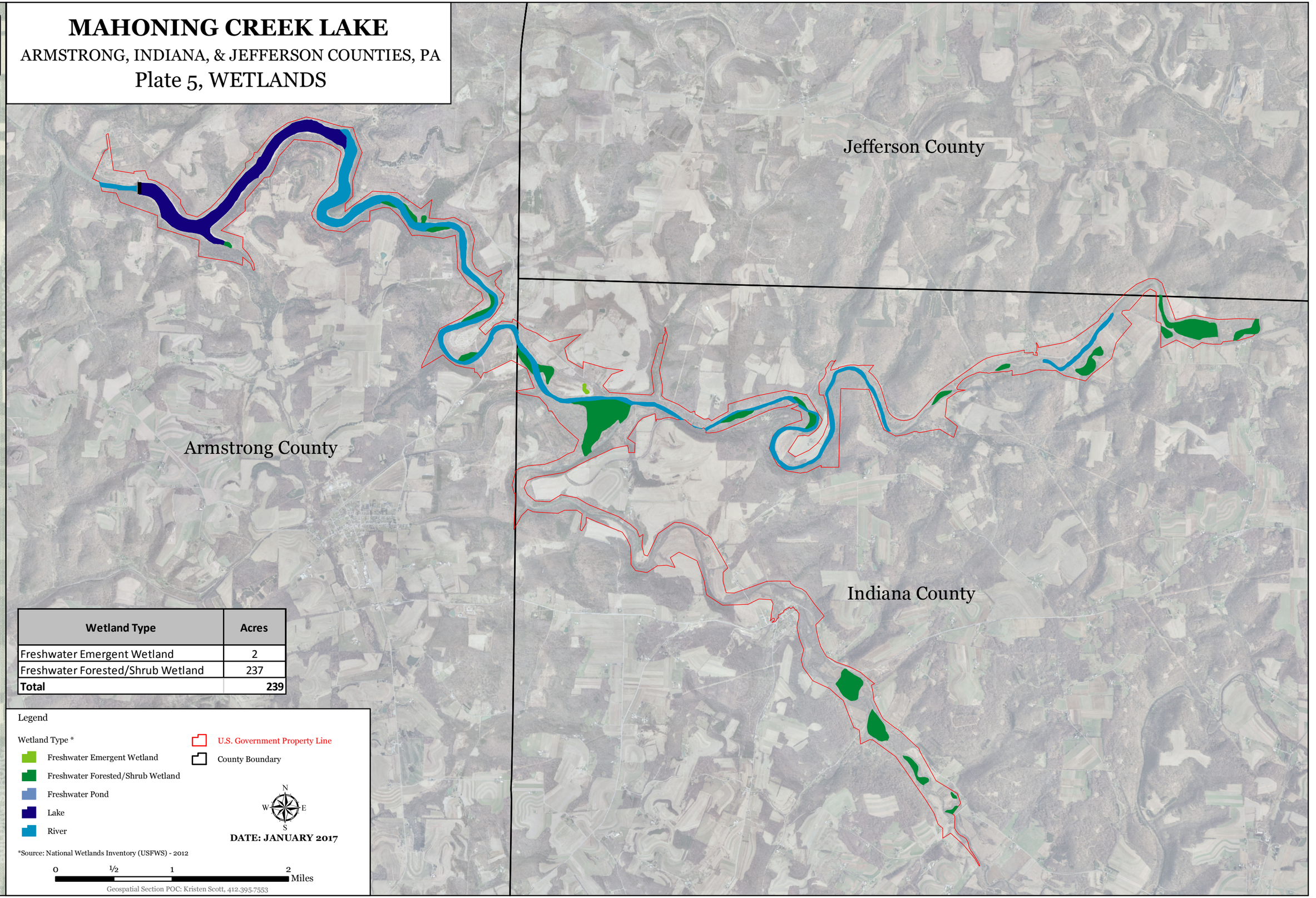
0 ½ 1 2 Miles

Geospatial Section POC: Kristen Scott, 412.395.7553

MAHONING CREEK LAKE

ARMSTRONG, INDIANA, & JEFFERSON COUNTIES, PA

Plate 5, WETLANDS



Wetland Type	Acres
Freshwater Emergent Wetland	2
Freshwater Forested/Shrub Wetland	237
Total	**239**

Legend

Wetland Type *

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- River

- U.S. Government Property Line
- County Boundary

N W E S

DATE: JANUARY 2017

*Source: National Wetlands Inventory (USFWS) - 2012

0 ½ 1 2 Miles

Geospatial Section POC: Kristen Scott, 412.395.7553

US Army Corps of Engineers
Pittsburgh District

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MAHONING CREEK LAKE

ARMSTRONG, INDIANA, & JEFFERSON COUNTIES, PA

Plate 6, Land Use Classification

US Army Corps of Engineers
Pittsburgh District

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Sportsmen's Boat Launch

Outflow Area

Milton Loop Campground

Jefferson County

Dayton

Armstrong County

Indiana County

Old Smicksburg Park

Smicksburg

Inset Map: Outflow Area

Legend

- Project Operations
- High Density Recreation
- Environmentally Sensitive Areas
- Multiple Resource: Low Density Recreation
- Multiple Resource: Wildlife Management
- Multiple Resource: Future or Inactive Recreation
- Flowage Easement
- U.S. Government Property Line
- County Boundary

*Source: USACE

N W E S

DATE: MAR 2018

0 ½ 1 2 Miles

Geospatial Section POC: Kristen Scott, 412.395.7553

Land Use Classification	Acres
Project Operations	6.91
High Density Recreation	89.93
Environmentally Sensitive Area	249.00
Multiple Resource: Wildlife Management	1993.98
Multiple Resource: Low Density Recreation	174.63
Multiple Resource: Future or Inactive Recreation	4.91
Flowage Easement	92.46

MAHONING CREEK LAKE

ARMSTRONG, INDIANA, & JEFFERSON COUNTIES, PA

Plate 7, Recreation

US Army Corps of Engineers
Pittsburgh District

BUILDING STRONG®

SPORTSMANS
BOAT LAUNCH

Mahoning Creek

MILTON
BOAT LAUNCH

MILTON LOOP
CAMPGROUND

3001

3002

3006

339

OLD SMICKSBURG
PARK

954

Little Mahoning Creek

210

210

Outflow Inset

Overlook Pavilion

Fisherman
Trail

Outflow Fishing
Pier

Mahoning Creek

Legend

- Resource Office
- Visitor Center
- Rest Room
- Camp Sites
- Parking
- Fishing Access
- Pavilion
- Picnic Area
- Playground
- Boat Launches
- Hunter Access Points
- Recreation Trails
- Dam Site and Outflow

Water Zoning

- Open Recreation
- Restricted Area
- U.S. Government Property Line
- County Boundary

0 ½ 1 2 Miles

N W E S

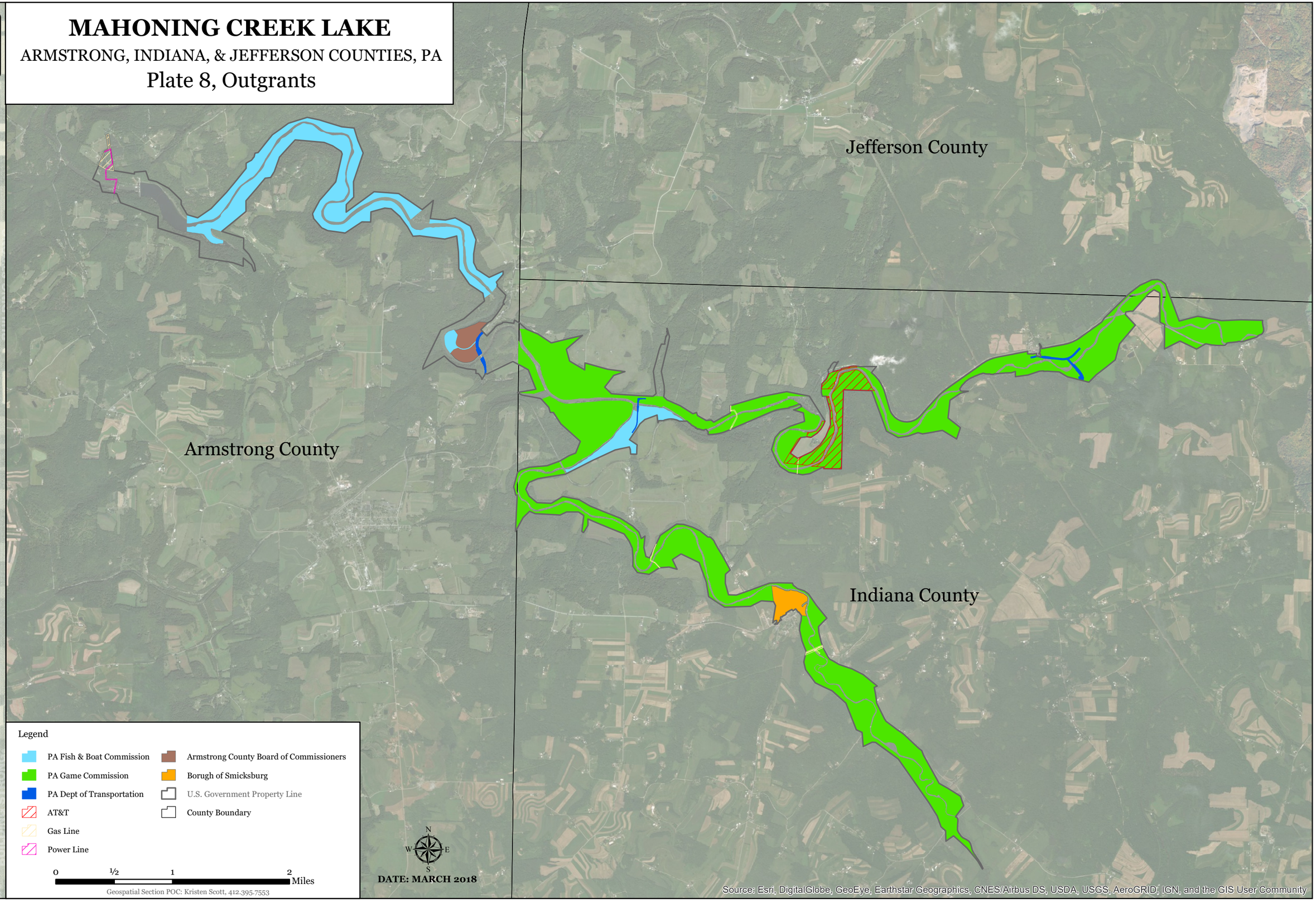
Geospatial Section POC: Kristen Scott, 412.395.7553

DATE: MARCH 2018

MAHONING CREEK LAKE

ARMSTRONG, INDIANA, & JEFFERSON COUNTIES, PA

Plate 8, Outgrants



US Army Corps of Engineers
Pittsburgh District

BUILDING STRONG®

Legend

- PA Fish & Boat Commission
- PA Game Commission
- PA Dept of Transportation
- AT&T
- Gas Line
- Power Line
- Armstrong County Board of Commissioners
- Borugh of Smicksburg
- U.S. Government Property Line
- County Boundary

0 ½ 1 2 Miles

Geospatial Section POC: Kristen Scott, 412.395.7553

N W E S

DATE: MARCH 2018

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

MAHONING CREEK LAKE

ARMSTRONG, INDIANA, & JEFFERSON COUNTIES, PA

Plate 9, LAND COVER

US Army Corps of Engineers
Pittsburgh District

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2011 National Land Cover Data - Middle Allegheny Redbank Watershed	Acres
Open Water	10664
Developed, Open Space	73055
Developed, Low Intensity	15645
Developed, Medium Intensity	4797
Developed, High Intensity	1154
Barren Land	5783
Deciduous Forest	640906
Evergreen Forest	34108
Mixed Forest	33267
Shrub/Scrub	2838
Herbaceuous	17518
Hay/Pasture	169771
Cultivated Crops	65277
Woody Wetlands	2543
Emergent Herbaceuous Wetlands	347
Total	**1077673**

Legend

Land Cover Classification *

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Herbaceuous
- Hay/Pasture
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceuous Wetlands
- U.S. Government Property Line
- County Boundary

N W E S

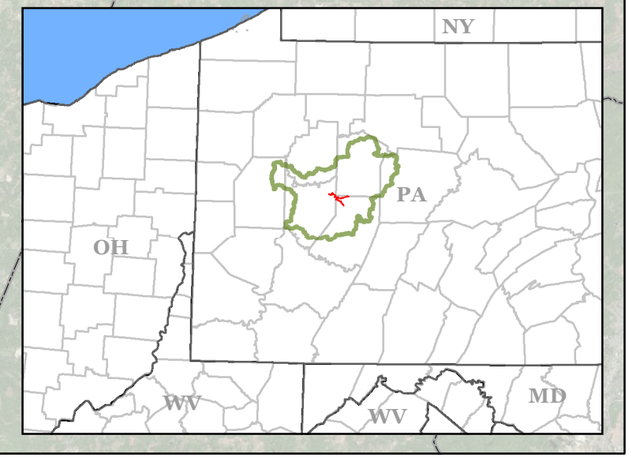
DATE: DECEMBER 2016

* Source: National Land Cover Database (USGS) - 2011

0 3.75 7.5 15 Miles

Geospatial Section POC: Kristen Scott, 412.395.7553

Forest County
Jefferson County
Elk County
Venango County
Clarion County
Clearfield County
Butler County
Indiana County
Armstrong County



MAHONING CREEK LAKE

ARMSTRONG, INDIANA, & JEFFERSON COUNTIES, PA

Plate 10, LAND COVER

US Army Corps of Engineers
Pittsburgh District

BUILDING STRONG®

Jefferson County

Armstrong County

Indiana County

2011 National Land Cover Data - Mahoning Creek Lake & Little Mahoning Creek - Mahoning Creek Watershed	Acres
Open Water	559
Developed, Open Space	4099
Developed, Low Intensity	615
Developed, Medium Intensity	71
Developed, High Intensity	8
Barren Land	289
Deciduous Forest	43633
Evergreen Forest	1014
Mixed Forest	951
Herbaceuous	378
Hay/Pasture	14275
Cultivated Crops	5925
Woody Wetlands	8
Total	**71825**

Legend

Land Cover Classification *

- Open Water
- Developed, Open Space
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, High Intensity
- Barren Land
- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Shrub/Scrub
- Herbaceuous
- Hay/Pasture
- Cultivated Crops
- Woody Wetlands
- Emergent Herbaceuous Wetlands

- U.S. Government Property Line
- County Boundary

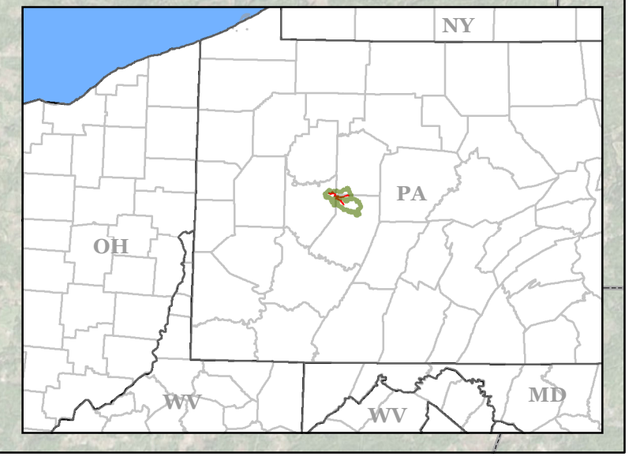
N W E S

DATE: DECEMBER 2016

* Source: National Land Cover Database (USGS) - 2011

0 1.25 2.5 5 Miles

Geospatial Section POC: Kristen Scott, 412.395.7553



MAHONING CREEK LAKE

ARMSTRONG, INDIANA, & JEFFERSON COUNTIES, PA

Plate 11, TRANPORTATION CORRIDOR

US Army Corps of Engineers
Pittsburgh District

BUILDING STRONG®

Legend

- City
- U.S. Government Property Line
- Highway Class*
- County Boundary
- U.S. Route
- State Route

*Source: TIGER Roads (USCB) - 2010

DATE: JANUARY 2017

0 1 2 4 Miles

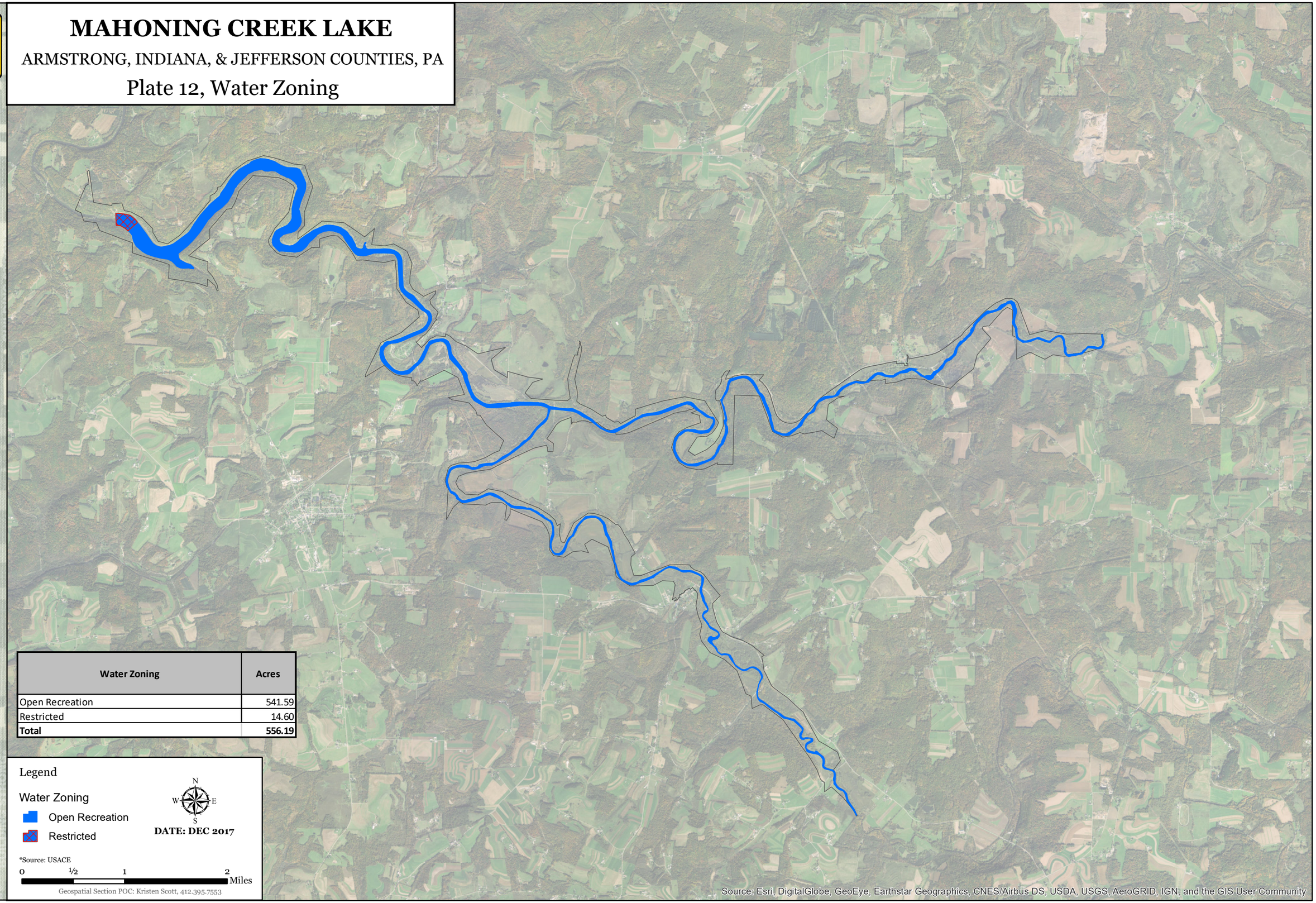
Geospatial Section POC: Kristen Scott, 412.395.7553

Worthville
Sykes
Anita
Jefferson County
Timblin
Big Run
Punxsutawney
Rossiter
Clearfield County
South Bethlehem
New Bethlehem
Dayton
Smicksburg
Armstrong County
Yatesboro
Rural Valley
Plumville
Indiana County
Sagamore
Marion Center
Atwood
Elderton
Cambria County

MAHONING CREEK LAKE

ARMSTRONG, INDIANA, & JEFFERSON COUNTIES, PA

Plate 12, Water Zoning



Water Zoning	Acres
Open Recreation	541.59
Restricted	14.60
Total	**556.19**

Legend

Water Zoning

- Open Recreation
- Restricted

N W E S

DATE: DEC 2017

*Source: USACE

0 ½ 1 2 Miles

Geospatial Section POC: Kristen Scott, 412.395.7553

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

US Army Corps of Engineers
Pittsburgh District

BUILDING STRONG®

APPENDIX B

APPLICABLE PUBLIC LAWS & FEDERAL STATUTES

The following public laws (PL) are applicable to Mahoning Creek Lake.

B.1 PL59-209, Antiquities Act of 1906: The first Federal law established to protect what are now known as "cultural resources" on public lands. It provides a permit procedure for investigating "antiquities" and consists of two parts: An act for the Preservation of American Antiquities, and Uniform Rules and Regulations.

B.2 PL74-292, Historic Sites Act of 1935: Declares it to be a national policy to preserve for (in contrast to protecting from) the public, historic (including prehistoric) sites, buildings, and objects of national significance. This act provides both authorization and a directive for the Secretary of the Interior, through the National Park Service, to assume a position of national leadership in the area of protecting, recovering, and interpreting national archeological historic resources. It also establishes an "Advisory Board on National Parks; Historic Sites, Buildings, and Monuments, a committee of eleven experts appointed by the Secretary to recommend policies to the Department of the Interior".

B.3 PL74-738, Flood Control Act of 1936: Authorizes civil engineering projects (e.g. dams, levees, dikes) and other flood control measures through the U.S. Army Corps of Engineers and other federal agencies.

B.4 PL75-761, Flood Control Act of 1938: Authorizes civil engineering projects (e.g. dams, levees, dikes) and other flood control measures through the U.S. Army Corps of Engineers and other federal agencies.

B.5 PL78-534, Flood Control Act of 1944: Section 4 of the act as last amended in 1962 by Section 207 of PL87-874 authorizes the Corps to construct, maintain, and operate public parks and recreational facilities in reservoir areas and to grant leases and licenses for lands, including facilities, preferably to federal, state or local governmental agencies.

B.6 PL85-500, River and Harbor Act of 1958: This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.

B.7 PL85-624, Fish and Wildlife Coordination Act 1934: This act, as amended, sets down the general policy that fish and wildlife conservation shall receive equal consideration with other project purposes and be coordinated with other features of water resource development programs. Opportunities for improving fish and wildlife resources and adverse effects on these resources shall be examined along with other purposes which might be served by water resources development.

B.8 PL86-717, Forest Conservation: This act provides for the protection of forest cover for reservoir areas under this jurisdiction of the Secretary of the Army and the Chief of Engineers.

B.9 PL87-874, Rivers and Harbors Act of 1962: This act authorizes the construction, repair, and preservation of certain public works on rivers and harbors for navigation, flood control, and for other purposes.

B.10 PL88-578, Land and Water Conservation Fund Act of 1965: This act established a fund from which Congress can make appropriations for outdoor recreation. Section 2(2) makes entrance and user fees at reservoirs possible by deleting the words "without charge" from Section 4 of the 1944 Flood Control Act as amended.

B.11 PL89-72, Federal Water Project Recreation Act of 1965: This act requires that not less than one-half the separable costs of developing recreational facilities and all operation and maintenance costs at federal reservoir projects shall be borne by a non-federal public body. An OCE/OMB implementation policy made these provisions applicable to projects completed prior to 1965.

B.12 PL89-90, Water Resources Planning Act (1965): This act established the Water Resources Council and gives it the responsibility to encourage the development, conservation, and use of the Nation's water and related land resources on a coordinated and comprehensive basis.

B.13 PL89-272, Solid Waste Disposal Act, as amended by PL 94-580, dated October 21, 1976: This act authorized a research and development program with respect to solid-waste disposal. It proposes (1) to initiate and accelerate a national research and development program for new and improved methods of proper and economic solid-waste disposal, including studies directed toward the conservation of national resources by reducing the amount of waste and unsalvageable materials and by recovery and utilization of potential resources in solid waste; and (2) to provide technical and financial assistance to state and local governments and interstate agencies in the planning, development, and conduct of solid-waste disposal programs.

B.14 PL89-665, National Historic Preservation Act of 1966: This act provides for: (1) an expanded National Register of significant sites and objects; (2) matching grants to states undertaking historic and archeological resource inventories; and (3) a program of grants-in aid to the National Trust for Historic Preservation; and (4) the establishment of an Advisory Council on Historic Preservation. Section 106 requires that the President's Advisory Council on Historic Preservation have an opportunity to comment on any undertaking which adversely affects properties listed, nominated, or considered important enough to be included on the National Register of Historic Places.

B.15 PL90-483, River and Harbor and Flood Control Act of 1968, Mitigation of Shore Damages: Section 210 restricted collection of entrance fee at Corps lakes and reservoirs to users of highly developed facilities requiring continuous presence of personnel.

B.16 PL91-190, National Environmental Policy Act of 1969 (NEPA): NEPA declared it a national policy to encourage productive and enjoyable harmony between man and his environment, and for other purposes. Specifically, it declared a "continuing policy of the Federal Government…to use all practicable means and measures...to foster and promote the general welfare, to create conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans." Section 102 authorized and directed that, to the fullest extent possible, the policies, regulations and public law of the United States shall be interpreted and administered in accordance with the policies of the Act.

B.17 PL91-611, River and Harbor and Flood Control Act of 1970: Section 234 provides that persons designated by the Chief of Engineers shall have authority to issue a citation for violations of regulations and rules of the Secretary of the Army, published in the Code of Federal Regulations.

B.18 PL92-463, Federal Advisory Committee Act: The Federal Advisory Committee Act became law in 1972 and is the legal foundation defining how federal advisory committees operate. The law has special emphasis on open meetings, chartering, public involvement, and reporting.

B.19 PL92-500, Federal Water Pollution Control Act Amendments of 1972: The Federal Water Pollution Control Act of 1948 (PL 845, 80th Congress), as amended in 1956, 1961, 1965 and 1970 (PL 91- 224), established the basic tenet of uniform State standards for water quality. PL92-500 strongly affirms the Federal interest in this area. "The objective of this act is to restore and maintain the chemical, physical and biological integrity of the Nation's waters."

B.20 PL92-516, Federal Environmental Pesticide Control Act of 1972: This act completely revises the Federal Insecticide, Fungicide and Rodenticide Act. It provides for complete regulation of pesticides to include regulation, restrictions on use, actions within a single State, and strengthened enforcement.

B.21 PL93-81, Collection of Fees for Use of Certain Outdoor Recreation Facilities: This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended to require each Federal agency to collect special recreation use fees for the use of sites, facilities, equipment, or services furnished at Federal expense.

B.22 PL93-251, Water Resources Development Act of 1974: Section 107 of this law establishes a broad Federal policy which makes it possible to participate with local governmental entities in the costs of sewage treatment plan installations.

B.23 PL93-291, Archeological Conservation Act of 1974: The Secretary of the Interior shall coordinate all federal survey and recovery activities authorized under this expansion of the 1960 act. The Federal Construction agency may transfer up to one percent of project funds to the Secretary with such transferred funds considered non-reimbursable project costs.

B.24 PL93-303, Recreation Use Fees: This act amends Section 4 of the Land and Water Conservation Act of 1965, as amended, to establish less restricted criteria under which federal agencies may charge fees for the use of campgrounds developed and operated at federal areas under their control.

B.25 PL93-523, Safe Drinking Water Act: The act assures that water supply systems serving the public meet minimum national standards for protection of public health. The act (1) authorizes the Environmental Protection Agency to establish federal standards for protection from all harmful contaminants, which standards would be applicable to all public water systems, and (2) establishes a joint federal-state system for assuring compliance with these standards and for protecting underground sources of drinking water.

B.26 PL94-422, Amendment of the Land and Water Conservation Fund Act of 1965: Expands the role of the Advisory Council. Title 2 - Section 102a amends Section 106 of the Historical Preservation Act of 1966 to say that the Council can comment on activities which will have an

adverse effect on sites either included in or eligible for inclusion in the National Register of Historic Places.

B.27 PL98-63, Supplemental Appropriations Act of 1983: The act authorized the Corps of Engineers Volunteer Program. The United States Army Chief of Engineers may accept the services of volunteers and provide for their incidental expenses to carry out any activity of the Army Corps of Engineers except policy making or law or regulatory enforcement.

B.28 PL99-662, The Water Resources Development Act of 1986: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

B.29 PL99-88, Supplemental Appropriations Act of 1985: This act authorized the partnership of local and federal government and private interests to develop ecosystem improvements and recreational opportunities in the Des Moines River Corridor.

B.30 PL101-640, Water Resource Development Act of 1990: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

B.31 PL101-646, Coastal Wetlands Planning, Protection, & Restoration Act of 1990: Provides authorization to carry out projects for the protection, restoration, or enhancement of aquatic and associated ecosystems, including projects for the protection, restoration, or creation of wetlands and coastal ecosystems.

B.32 PL101-676, Water Resource Development Act of 1988: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

B.33 PL102-580, Water Resource Development Act of 1992: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

B.34 PL104-303, Water Resource Development Act of 1996: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation’s water resources infrastructure.

B.35 PL106-53, Water Resource Development Act of 1999: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation’s water resources infrastructure.

B.36 PL106-541, Water Resource Development Act of 2000: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation’s water resources infrastructure.

B.37 PL109-58, Energy Policy Act of 2005: Directed the Secretaries of Agriculture, Commerce, Defense, Energy and Interior to identify corridors for oil, gas, and hydrogen pipelines and electrical

transmission and distribution facilities on federal lands and to schedule prompt action to identify, designate, and incorporate the corridors into the applicable land use plans.

B.38 PL110-114, Water Resource Development Act of 2007: Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation's water resources infrastructure.

B.39 PL113-121, The Water Resources Reform and Development Act of 2014: This act authorizes the U.S. Army Corps of Engineers to carry out missions to develop, maintain, and support the nations vital ports and waterways infrastructure needs and support effective and targeted flood protection and restoration needs.

B.40 30 U.S.C. 181, Mineral Leasing Act of 1920 as amended by the Federal Onshore Oil and Gas Leasing Reform Act of 1987: Authorizes and governs leasing of public lands for developing deposits of coal, petroleum, natural gas, and other hydrocarbons, in addition to phosphates, sodium, sulfur, and potassium.

B.41 30 U.S.C. 226, Lease of Oil and Gas Lands: Authorizes the use of public lands for oil and gas exploration and development.

B.42 16 U.S.C. 661-664, Fish and Wildlife Coordination Act of 1934 as amended by PL85-624: Provides the basic authority of the U.S. Fish & Wildlife Service to become involved in the evaluation of impacts to fish and wildlife from proposed water resource development projects or when federal actions result in the control or modification of a natural stream or body of water.

B.43 16 U.S.C. 668-668d, Bald and Golden Eagle Protection Act of 1940 as amended: Prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald eagles (Haliaeetus leucocephalus), including their nests or eggs.

B.44 16 U.S. C. 1531-1544, Endangered Species Act of 1973: Provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend.

B.45 16 U.S.C. 703-712, Migratory Bird Treaty Act of 1918: Makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to federal regulations.

B.46 AR 405-30, Mineral Exploration and Extraction of 1984: Governs exploration and extraction of minerals on Department of Army property.

B.47 43 CFR § 3503.20 Title 43 – Public Lands: Interior Code of Federal Regulations [CFR] Subpart 3160: Gives the Bureau of Land Management authority to issue permits or leases on public lands.

APPENDIX C

Summary of Public Comments

DEPARTMENT OF THE ARMY
PITTSBURGH DISTRICT, CORPS OF ENGINEERS
WILLIAM S. MOORHEAD FEDERAL BUILDING
1000 LIBERTY AVENUE
PITTSBURGH, PA 15222-4.186

March 8, 2017

REPLY TO
ATTENTION OF
Planning & Environmental Branch

Dear Interested Party:

Invitation to Scoping Meeting /or the Mahoning Creek Master Plan Update: The U.S. Army Corps of Engineers, Pittsburgh District, invites you to assist in shaping the future of recreational and environmental stewardship opportunities at Mahoning Creek Lake to better serve the needs of visitors, residents, businesses, agencies, and other potentially interested parties.

We're beginning the modification of a Master Plan for Mahoning Creek Lake, located in portions of Armstrong, Indiana, and Jefferson Counties. The Master Plan is a strategic land use management document that guides the comprehensive management and development of recreation, natural and cultural resources at Corps reservoirs. This first update since 1976 will examine the impacts of various land management strategies including conservation and different types of recreational development.

As the initial step to scoping potential updates to the Master Plan, we would like to invite you to attend a project scoping meeting to be held Tuesday March 28, 2017, from 1:30 to 3:00 · p.m. at:

Mahoning Creek Lake/Dam
145 Dam Site Rd, New Bethlehem, PA 16242

If able to attend, please RSVP to this invitation on or before March 21, 2017, by emailing Mr. Bruce Kish at bruce.kish@usace.army.mil or calling 412-395-7205. Should you be unable to join, but are interested in being added to our mailing list, participating in upcoming stakeholder events, and/or sharing information relevant to this project, please also email Mr. Kish indicating your interest. A fact sheet on the Mahoning Creek Lake Master Plan Update also has been attached for your reference.

Please join us in this exciting new process that we hope will result in improved recreational and environmental stewardship services for Mahoning Creek Lake. Thank you in advance for helping to shape the Master Plan update process.

Sincerely,

Ryan A. Fisher
Chief, Planning & Environmental Branch

PARTNER MEETING
MAHONING CREEK LAKE MASTER PLAN UPDATE

Tuesday, March 28th, 2017
1:30 PM – 3:00 PM
Mahoning Creek Lake/Dam - 145 Dam Site Rd, New Bethlehem, PA 16242

When the meeting is over:
Partners will leave with an understanding of:

- Scope and purpose of a Master Plan
- Pittsburgh District's Vision for the Mahoning Creek Lake Master Plan
- How they can/are able to share in Pittsburgh District's Vision

US Army Corps of Engineers Pittsburgh District will leave with:

- Feedback from our partners on the – 1. Regional needs; 2. Potential threats; 3. Best management practices; and 4. Preferred qualities, characteristics, and components of Mahoning Creek Lake that should be incorporated into the Master Plan Update.

AGENDA

1:30 PM INTRODUCTIONS

Meeting Objectives

Overview of Master Plan Purpose & Process

- Project Timeline

Description of Mahoning Creek Lake Master Plan Update

- Driving Vision for Resource Objectives
- Preliminary Alternatives

Discussion - Scoping of Master Plan & Partner Feedback

- Opportunities for us to work together
- Regional needs & potential threats to be addressed
- Best Management Practices to include
- Preferred qualities, characteristics, and components
- Gaps and missing opportunities

Next Steps

- Upcoming Public Meeting
- Additional partnering opportunities

3:00 ADJOURN

*Potential Partnering Opportunity

NOTES

Questions guiding scoping:
What does the using public want?
How can we make this a destination point?
How can we provide services the community wants while minimizing the effect the project has on the resources? And while keeping the corps mission of the flood protection?
What partnerships can we build in order to accomplish what we want in our Master Plan?

Master Plan changes over time:

- The original Master Plan adopted the guidelines for a Lowest Rec/Highest Conservation scenario.
- In the '76 update, which projected population growth for the area, the guidelines were changed and the Master Plan established objectives for a 10-30 Rec/Conservation Weighted scenario.
- Since expected population growth did not occur, USACE is now proposing reverting back to the Lowest Rec/Highest Conservation planning scenario again; which still allows for additional 60 acres of developed recreation. Under this conservation scenario, primitive recreation and wildlife-nature trails are allowed.

Defining our user and their interests:
Who is the user?
Pittsburgh probably the farthest people come (50-60 miles). Small population of Armstrong for hunting, fishing. And potentially Pittsburgh for state park feel. Also bring in folks from Dubois/Puxy area.

What do our user groups see recreation as?

- Primarily Hunting, fishing, and using public land. But at the same time, people want a place to go (kayaking).
- Types of Boats: Amish boats, kayaking, and fishing boating. Seeing more motorized boats rather than kayaking. Lots of fishing/pontoon boats.
- Types of Camping: Millennials seem to like primitive, older generations like more developed areas.

Preferred qualities, characteristics, and components:

Armstrong County:

- We are one of the counties in the state that doesn't have a state park. Would like to see state park "kind of feel" – a destination spot/hub. Currently, there's no true destination spot in the area. (For example: Have Mahoning Creek Lake act as a 'hub' that brings everyone to a center, trails/streams that loop off from a center point where folks can go explore)
- Trying to drum up tourism through recreation. Would be interested in having a parking lot & drop in zone to kayak.
- Would like to see more developed past 10%, although population still decreasing. But shouldn't consider population, look to draw folks in from outside the immediate area.

US Army Corps of Engineers:

- Consider partnering with the Crooked Creek facility more often*. Perhaps Crooked Creek could serve the 'hub' idea better? And Mahoning Creek Lake stay more conservation focused? How can we make Mahoning Creek Lake unique?

*Potential Partnering Opportunity

- Canoe launch would need to bring in Private Entity. Launch at Creighton Farmers Bridge, but would need blessing from the landowner*.

Campground:

- Interested in changing the timing of the raised water levels/Operation of the Dam for boaters. Interested in having the pool higher, sooner so folks can get in the water with their boats. But recognizes since flood control is the primary mission, hard to change.
- Campground split between primitive and developed camping. Currently are redoing 4 cabins, with electric & water. Putting primitive camping spots by the water. Goal is to make this a nice getaway rather than a busy campground.
- Cell phone service (if possible). But also recognizes that many people come to this area BECAUSE of the lack of cell phone service.
- Wading/Swimming beach would be nice.

Game Commission:

- Notice & appreciates diversity of wildlife, in particular water fowl.
- Figure out how to work with them to improve/encourage hunting opportunities*.
- Also open to hear what USACE would like to improve on the land leased from the Game Commission. Do we have top ideas for that land?
- Interested in revisiting concept of prescribed fires/burn fields. Would like to discuss when they could consider doing that, based on schedule and approval; would be interested in establishing burn plans (which would need to involve the community).

CubeHydro:

- Interest is in capturing more water; and dealing with water quality. But recognize this may not be of particular relevance to this Master Plan. But if there's a synergy with some type of recreation – they could support.
- The problem with Hydro right now is the warming temperature of the water.
- Concerned with flow and pressure on the unit. So the higher the reservoir level, the better.

Amish Community (while not represented at meeting, spoke with separately):

- Primarily are interested in improving Hunting and Fishing.

Potential Threats and Regional Needs to be considered in the planning process:
Threats

- Prior interest in the county for ATVs – not sure if need or threat (Push a few years ago, not so much now). Previously, interested private parties were looking for ground to develop ATV park since believed there were not enough parks to ride in based on fees. DCNR looking to support this.
    - What about mountain bikers?
- Oil and gas exploration trailed off a bit, but may be an uptick. Not a lot of well pads being planned, but pipelines are active right now to connect all the well pads. The relationship with oil and gas and the County is fairly cordial.
    - USACE would have to look at these trends more closely and investigate specific locations. There are a lot of wells near the facility.
- Invasive Species Control. (Especially knotweed, also ash borer & autumn olive.) Will need to include in the Master Plan what steps we plan to address these invasive species when they come onto USACE lands. Will need to take a collective, multi-agency approach to battle this*. Could share with local farms on our approach*.

*Potential Partnering Opportunity

- Consider what you would need for emergency response if bringing more folks to the Project. Consider access issues.
- Potential problem/interest with logging all around our land. It's been brought up as a question – can the Amish cut timber on our land?? Certain groups have a 'black ops' approach to cutting trees. If timbering goes on adjacent to the property, end up putting up a primitive road which sometimes is turned into a sub-development.
- Poaching? Does happen, but not necessarily on Corps land. If we wanted to know more about it, we would need to talk to the Game Warden*.
- The access road is getting rough, may inhibit the visitation.

Regional Needs/Opportunities

- Rails to Trails could be an opportunity. There is a piece of land that could be used for this purpose. For example, the dam spur trail.
- Heritage Tourism could be of interest.
- Horses are in the area. Also there is a horse park in Crooked Creek. Could potentially look into creating a larger trail system.
- Baker Trail Challenge – could we tie both lakes into that a bit more? Active Trail group with the Baker Trail*. Could we think about doing more 'spartan challenges'?
- Stocked location for youth pheasant hunt. Don't do any wounded warrior hunts, but could consider doing that as well.
- Geocaching does occur to some degree.
- Demarcation of the property could be improved. Especially in light of ATV groups.
- Perhaps build something similar to a 'refuge town' to be a 'Corps town' FWS is doing this model.
- Looking at Mahoning for a Muskie Fishery (PA F&B). DNA is showing pure muskie. This could be a draw for the area.
- Share cropping – Should be figuring out how best to do this process and see who is responsible for the ultimate authority. Need to establish protocol for having the Corps make a decision on what is allowed, it's not the Game Commission's decision to make*. (Sublease on the Game Commission lease – and required to leave some in the field). Share cropping is up to us about what we allow people to do. (For example, if local Amish communities want to use the field (most likely for a corn crop), it's the Corps decision. Not the game commission decision.)
    - On State game lands, the Game Commission wants to not being doing that anymore/already took that away. But on the Mahoning leased lands, that's OK.
- Could use more signs to help people get here, but have 10 signs going in shortly. These are township roads, so county doesn't have a say. The commissioners are interested in working with the township to help develop the road system. Conservation District has $$ for dirt/gravel roads.
- Establish different ways for visitors to explore Mahoning: Ap? Map? Brochure?

Is everyone planning on being here?
Game commission lease is coming up in 2027.
Hydro is here to stay. At least 50 years or more.

Best Management Practices:
Surrogate species to manage for the experience? Muskie, Pheasant? **Water fowl.**

Resources to include in Master Planning Efforts:
Armstrong County – Water Trail map.
Armstrong County - Comprehensive Conservation Plan.

*Potential Partnering Opportunity

Next Steps

- Incorporating this feedback into the resource objectives. Make jive with what USACE has preliminary developed.
    - Due-Out: Will send out what's been developed. And see what we got wrong or needs to change.
- USACE to send out notes. Partners to send us feedback.
- Public Meeting on Tuesday May 2 – Plan to ask the public: Here's what we're considering doing with Mahoning for next 25 years, what do you think?

Other stakeholders to reach out to:
IUP – North Point Campus is a commuter campus. Connect to Programming.
Amish Elders.
Pheasants Forever (Indiana County)
Ducks Unlimited (Indiana County)
Other Water Fowl orgs - Contact local chapters to get word out.
Historical Society.
Baker Trail Group.
Armstrong Conservation District.

*Potential Partnering Opportunity

DEPARTMENT OF THE ARMY
PITTSBURGH DISTRICT, CORPS OF ENGINEERS
WILLIAM S. MOORHEAD FEDERAL BUILDING
1000 LIBERTY AVENUE
PITTSBURGH, PA 15222-4186

REPLY TO
ATTENTION OF

April 12, 2017

Planning & Environmental Branch

Dear Mahoning Creek Lake Prospective Stakeholder:

The U.S. Anny Corps of Engineers, Pittsburgh District, invites you to assist in shaping the future of recreational and environmental stewardship opportunities at Mahoning Creek Lake, located in pmiions of Armstrong, Indiana, and Jefferson Counties, to better serve the needs of visitors, residents, businesses, agencies, and other potentially interested parties. Your input is invaluable to this process.

The existing land and water use management document which guides the management and development of recreation, natural and cultural resources at Mahoning Creek Lake is now over 40 years old. To keep up with changes in Corps regulations and community needs, the Pittsburgh District is revising the Mahoning Creek Lake Master Plan to guide the management of government-owned and -leased lands around the lake.

The Pittsburgh District believes the ideas and guidance for land and water use incorporated into this Master Plan should also be included from the users of Mahoning Creek Lake. As the initial step to scoping potential updates to the Master Plan, we invite you to attend a project scoping meeting to be held:

Tuesday, May 2, 2:00 -- 3:30 p.m.
Dayton Senior Center
134 N Milton Street, Dayton PA 16222
Apublic meeting will follow from 4:30 to 7:00p.m.

If able to attend, please confirm by April 20, 2017, by contacting Mr. Bruce Kish at bruce.kish@usace.army.mil or 412-395-7205. Should you be unable to attend but are interested in joining our mailing list and/or sharing information or your perspective relevant to this project, please also contact Mr. Kish. A fact sheet on the Mahoning Creek Lake Master Plan Update has been enclosed for your reference.

We hope you will join us in this exciting process to improve recreational and environmental stewardship services for Mahoning Creek Lake. Thank you in advance for helping to shape this Master Plan.

Sincerely,

Cir- 11Js

Encl

Ryan A. Fisher
Chief, Planning & Environmental Branch

STAKEHOLDER SCOPING MEETING
MAHONING CREEK LAKE - MASTER PLAN UPDATE

Tuesday, May 2nd, 2017
2:00 PM – 3:30 PM
Dayton Senior Center - 134 N Milton Street Dayton PA 16222

When the meeting is over:
Stakeholders will leave with an understanding of:

- What's addressed in a Master Plan & Why USACE is considering updating
- Types of feedback/information USACE is looking for
- What was heard from USACE partners about preferred updates
- How to submit feedback and comments

US Army Corps of Engineers Pittsburgh District will leave with:

- Feedback from our stakeholders on the – 1. Regional needs; 2. Potential threats; 3. Best management practices; 4. Potential opportunities/gaps; 5. Awareness of environmentally/culturally sensitive areas and 6. Preferred qualities, characteristics, and components of Mahoning Creek Lake.

AGENDA

2:00 PM WELCOME

Expectations for Meeting

Introductions

Presentation of Master Plan Process & Vision for Mahoning Creek Lake

Clarification Questions & Answers

Scoping Workshop Exercises
Use Comment Cards and Visit 4 Stations
Interactive Polling

3:30 PM ADJOURN

The Public Open House will then take place from 4:30-7:00 PM.

MAHONING CREEK LAKE MASTER PLAN UPDATE

ATTEND A PUBLIC SCOPING WORKSHOP

Please drop in at any time during the following scheduled time:

Tuesday, May 2 | 4:30 - 7 p.m.
Dayton Senior Center | 134 N Milton Street, Dayton, PA 16222
Overview presentations will be given at 5:00 and 6:00 p.m.

Or visit the **Mahoning Creek Lake Park Office**
May 3 - May 19 | Monday - Friday | 7 a.m. - 3:30 p.m.
145 Dam Site Road, New Bethlehem, PA 16242

If you cannot attend in-person, send us your feedback via our website:
http://www.lrp.usace.army.mil/Missions/Recreation/Lakes/Mahoning-Creek-Lake/Mahoning-Creek-Lake-Master-Plan-Copy/

We Want To Hear From You!

The Mahoning Creek Lake Master Plan which guides the management of government-owned and leased lands at the Lake is being revised. This revision will guide natural resource management and recreation activities for the next 25 years.

These upcoming meetings are your opportunity to let the Corps know how you would like the Lake to be managed in the future.

To learn more or to tell us what you would like to see happen at Mahoning Creek Lake, visit our website.

Comments should be submitted by Friday, May 19 by:

- Visiting our USACE Pittsburgh District Website, click on the Master Plan logo.
- Sending mail to
  Bruce Kish, Environmental Specialist
  USACE, Pittsburgh District
  1000 Liberty Avenue, Pittsburgh, PA 15222
- E-mailing celrp-pa@usace.army.mil

PITTSBURGH DISTRICT
US ARMY CORPS OF ENGINEERS

MASTER PLAN
MAHONING CREEK LAKE

NEWS RELEASE

U.S. ARMY CORPS OF ENGINEERS **BUILDING STRONG®**

Pittsburgh District
Public Affairs Office
1000 Liberty Avenue
22nd Floor
Pittsburgh, PA 15222-4186

FOR IMMEDIATE RELEASE
April 16, 2017
Release No. NR17-0xx
Contact: Jeff Hawk
Phone 412-395-7500/01/02
CELRP-PA@usace.army.mil

Mahoning Creek Lake Seek Public Input on Master Plan Update

Who: U.S. Army Corps of Engineers, Pittsburgh District

What: The U.S. Army Corps of Engineers (USACE), Pittsburgh District, is revisiting the Master Plan (MP) for Mahoning Creek Lake and is seeking input on the public's preferences for the future management of Mahoning Creek Lake. The MP update, which was last updated in 1976, will affect future use of natural resources and recreational activities at Mahoning Creek Lake for the next 25 years.

Where:
Dayton Senior Center
134 N Milton Street
Dayton, PA 16222

When: Tuesday May 2, 2017, 4:30 – 7 p.m., informational presentations at 5 p.m. and 6 p.m.

If members of the public are unable to attend public information session, they can visit the Pittsburgh District homepage and click on the master plan logo, or visit the Mahoning Creek Lake Park Office May 3-5, 8-12, and 15-19 from 7 a.m. to 3:30 p.m. to learn more about the project, share their perspective and sign up for the project mailing list.

Why: Public input is critical to the MP update. We invite the public to tell us what about Mahoning Creek Lake is most important to them and share what they'd like to do and see changed in the future at the Lake. An open-house-style meeting will be held to hear the public's preferences for the management of Mahoning Creek Lake, inform the public about the master plan update process and share the proposed MP content as it's been developed through discussions with Corps partners. This is everyone's opportunity to let the Corps know how they would like the Lake to be managed in the future.

Changes in Corps regulations and community needs necessitate a revision to this Master Plan. The revision will classify the government lands around the lake based on environmental and socioeconomic considerations, public input and an evaluation of past, present, and forecasted trends.

A master plan is the strategic land use management document that guides the comprehensive management and development of recreation, natural and cultural resources at Corps reservoirs now and into the future. The master plan

and does not address water management operations, associated prime facilities (dam, spillway etc.), or shoreline management as those operations are outlined in separate documents.

For additional information, please contact Bruce Kish, 412.395.7205, Bruce.Kish@usace.army.mil

Master Plan Update Fact Sheet
Mahoning Creek Lake

Master Plan Revision

The Army Corps of Engineers, Pittsburgh District, is revising the Mahoning Creek Lake Master Plan to guide the management of government-owned and leased lands around the lake. This update will impact the future use of natural resources and recreational activities at Mahoning Creek Lake.

This is your opportunity to let the Corps know how you would like the lake to be managed in the future. The planning process will include an analysis of potential effects of any proposed changes to the Master Plan on the natural and social environment, including: fish and wildlife, cultural and historic resources, recreational opportunities, economics, land use, aesthetics, and public health and safety.

Objectives of Update

- Conserve the resources of the lake within the current policies and guidelines of the Corps of Engineers
- Accommodate current and projected use patterns with maximum effi
- Identify and protect cultural and natural resources
- Attract maximum participation by the general public and local government

Why Update

The current Master Plan, the land and water use management document which guides the comprehensive management and development of recreation, natural and cultural resources at Mahoning Creek Lake, is now over 40 years old. To keep up with changes in Corps regulations and community needs, the Army Corps of Engineers, Pittsburgh District, is revising the Mahoning Creek Lake Master Plan.

The Master Plan revision will classify the government lands around the lake based on environmental and socioeconomic considerations, public input, and an evaluation of past, present, and forecasted trends. This update is stewardship-driven and seeks to balance recreational development and use with the goal of conservation of natural and cultural resources.

MASTER PLAN
MAHONING CREEK LAKE

About the Lake

Authorized by the Flood Control Acts of 1936 and 1938, Mahoning Creek Lake is one of 16 fl control projects in the Pittsburgh District. An important link in a system of fl control projects, Mahoning Creek Lake provides fl protection for the lower Allegheny River Valley and the upper Ohio River.

Since its completion in 1941, the Mahoning Creek Lake reservoir has prevented fl damages estimated to be in excess of $686 million. Mahoning Creek Lake has the capability to store the equivalent run-off of 4.09 inches of precipitation from its 340 square mile drainage area. Mahoning Creek Lake also stores water and releases it downstream during dry periods to improve water quality and quantity for domestic and industrial use, navigation, recreation, esthetics and aquatic life.

Recreational activities at Mahoning Creek Lake are managed by the following partners:

- Armstrong County, 28 acres, to operate 52 units at Milton Loop Campground
- Pennsylvania Game Commission, 1280 acres, in Indiana County for wildlife management and public hunting
- Pennsylvania Fish & Boat Commission, 860 acres and waters, to operate the Milton Loop Boat Launch and Sportsman's Area

Master Plan 101

The Corps is responsible for the maintenance, restoration and stewardship of natural resources on the multipurpose reservoir projects it manages. To facilitate the management and use of these lands, a Master Plan is maintained for each reservoir.

A Master Plan is a strategic land use management document that guides the comprehensive management and development of recreation, natural and cultural resources at Corps reservoirs and provides a vision for how the lake should look in the future.

The Pittsburgh District is proposing to adopt and implement a revision to the Mahoning Creek Lake Master Plan which was originally developed in 1976.

If you are interested in learning more about this project, signing up for our mailing list, or sharing information relevant to this project, please visit our website at:

http://www.lrp.usace.army.mil/Missions/Recreation/Lakes/Mahoning-Creek-Lake/Mahoning-Creek-Lake-Master-Plan-Copy/

MASTER PLAN
MAHONING CREEK LAKE

APPENDIX D

Design Memorandums/Studies/Contracted Work

DM#	Design Memorandums/Studies/Contracted Work Related to Mahoning Dam
	As-Builts
0	Index Map of Aerial Photographs (Oct 1938)
100	Drawings Accompanying Correspondence (Jan 1938)
10	Core Borings (20 Nov 1943)
11	Property Surveys (Oct 1938)
12	Recreation & Landscaping (Site Plan) (31 Aug 1938)
14	Gage Records, Hyrdrographs, & Discharges (20 Nov 1943)
15	Profiles & Hydrographic Studies (24 Apr 1939)
17	Geological Surveys (May 1938)
18	Preliminary Locations (13 May 1976)
3	Project Location Vicinity (27 Jul 1977)
40	Dam Masonry (Jul 1938)
42	Butterfly Valves (10 Jun 1943)
49	Needle Valves (24 Jul 1997)
4	General Plans (Oct 1938)
50	Vertical or Direct Lift Gates (2 Mar 1942)
51	Piping (Jul 1938)
56	Electrical Systems (Jul 1938)
57	Crane & Hoists (1 Jun 1943)
5	Preliminary Studies (May 1938)
61	Stilling Basin (20 Nov 1943)
62	Discharge Duct & Bulkheads (Sluice Gates) (24 May 1943)
64	Preliminary Studies (Mar 1932)
65	Miscellaneous (20 Nov 1943)
66	Railroads (Aug 1940)
67	Power, Telephone, Radio Commo, Gas, Water (Jun 1939)
68	Highways & or Access Roads (Oct 1939)
69	Cemeteries & Parks (May 1941)
71	Powerplant Machinery & Equipment (11 Mar 1940)
72	Waterhouses & Storage (5 Mar 1946)
74	Dwellings (10 Jun 1943)
88	Instrumentation (4 Feb 1971)
92	Proposed Railroad Spur to Dam (Jul 1938)

DM#	Design Memorandums/Studies/Contracted Work Related to Mahoning Dam
97	Field Offices (Oct 1938)
	Crane (Shop Drawings) (24 Feb 1999)
	Background Documents
	Bridge Inspection Program
1	Mahoning In-Depth Bridge Inspection Program 2011
2	Mahoning In-Depth Bridge Inspection Program 2003
3	Mahoning In-Depth Bridge Inspection Program 2008
4	Mahoning In-Depth Bridge Inspection Program 2014
5	Mahoning Service Bridge Load Rating, Final - 2011
	Dam Safety (Intermediate Inspection Reports)
1	Mahoning 2013 II Report - Final
2	Mahoning 2014 II Report - Final
3	Mahoning 2015 II Report - Final
4	Mahoning 2016 II Report - Final
	Dam Safety (Periodic Inspection Reports)
1	Mahoning 1st PI Report (1968)
2	Mahoning 2nd PI Report (1972)
3	Mahoning 3rd PI Report (1977)
4	Mahoning 4th PI Report (1982)
5	Mahoning 5th PI Report (1987)
6	Mahoning 6th PI Report (1992)
7	Mahoning 7th PI Report (1997)
8	Mahoning 8th PI Report (2002)
9	Mahoning 9th PI Report (2007)
10	Mahoning 10th PI Report (2012)
	Design
1	Analysis of Design (Jul 1938)
2	1520-03 Mahoning Creek Dam, Design, Consultants Correspondence (1939)
3	Design, Comps, & Estimates (1966)
4	Master Land Use Plan (1953)
5	Master Plan Design Memo No. 1 (Oct 1976)
6	Tech Memos on Hydraulic Design – CE Barnes Consultant (1937)
	Foundation & Materials
1	Bank Erosion (1978)
2	Direct Shear Testing of the Mahoning Dam Foundation – R.K. Thorper & R.E. Goodman, Department of Civil Engineering, UC Berkley (3 Jun 1975)
3	Drilling Logs MX1 to MX6 (1974)

DM#	Design Memorandums/Studies/Contracted Work Related to Mahoning Dam
4	Drilling Logs, Trackings (1937)
5	Drilling Logs & Reports – B&ORR Bridge Relocations (1 Jul 1938)
6	Drilling Logs (Bridge Relocations) – Trackings (18 Oct 1939)
7	Drilling Specs (1938)
8	Foundations & Materials Photoelastic Test file I (3 Jan 1938)
9	Foundations & Materials Photoelastic Test file II (3 Jan 1938)
10	Field Books – Coal (1939)
11	Foundation Drainage Holes & Deep Curtin Grouting (29 Jun 1945)
12	Gas & Oil Well Release Data (1938)
13	Gas, Oil, Coal Correspondence & Reports (1944)
14	Foundations & Materials General (1936-81)
15	Lab Logs (Bridge Relocations) (ca. 1939)
16	Landslides (1980-81)
17	Pressure Test Reports (1937)
18	Reports (Contract DA-75-C-0061) Rock Foundation – Hamel Geotechnical Consultants (6 Apr 1976)
19	Reports on Subsurface Solid Minerals — E.M. Merrill (2 Dec 1940)
20	Rock Strength & Joint Property Data – R.S. Rosso, Terra Tek, Inc.; University Park Research (Jul 1975)
	General Correspondence
1	General Correspondence (1938-39)
2	General Correspondence (1993)
3	General Outside Interests (1987)
	Geotech
1	Boring Logs – Inspectors – Fishing Pier (1987-88)
2	General Correspondence (1985)
3	Inspectors Logs – Concrete Cores – Pitt Service Center (22 Jul 1987)
4	Rock Strength & Joint Property Data – R.S. Rosso, Terra Tek, Inc. (Jul 1975)
	H&H
1	Drought Contingency Plan (1992)
2	Hydrology (1985)
3	Hydrology, General Correspondence (1943-83)
4	Hydrology of Drainage Basin re-Spillway Requirements (9 Jan 1939)
5	Model Test on Spillway & Outlet Works (May 1938)
6	Model Test Spill & OW Model of Sluice Outlet (1938_
7	Model Tests – 1-to-24 Model of Sluice Outlet (15 Dec 1938)
8	Model Tests – General (1937-39)

DM#	Design Memorandums/Studies/Contracted Work Related to Mahoning Dam
9	Model Tests – Photoelastic Studies (1938)
10	Technical Memos – G.E. Barnes (1937-38)
	H&H
1	2014 Mahoning Dam Gate Inspection
	Hydropower
1	FERC 3228 part 2 (11 Dec 1986)
2	FERC 3228 part 3 (24 Nov 1986)
3	Penstock Inspection (CCTV Inspection Survey) (8 Apr 2010)
4	FERC Letter – Backfilling (28 Jan 2014)
5	C-024 Pages from Mahoning Construction Set (4 Dec 2012)
6	Dive Inspection (11 Sep 2009)
7	FERC 10521 (26 Aug 1988)
8	Piezometer (6 Dec 2013)
9	MCHC Letter re: Backfilling (10 Feb 2014)
10	MCHC Punchlist (17 May 2014)
11	MCHC walk through (12-17kg) (18 Dec 2013)
12	MCHC walkthrough (12-17kg) (17 Dec 2013)
13	Proposed Piezometer Location (ca. 2013)
	O&M
1	Foundation Drainage System Revision (16 Dec 1946)
2	Manual (1944)
3	Photo Negatives (undated)
4	O&M Manual (1995)
5	O&M Manual (Correspondence 1991)
6	Original Comps for Periodic Inspection (23 Apr 1969)
7	Periodic Inspections Correspondence (1968-)
8	Pre-Inspection Data for 2PI (1972)
9	Reservoir Regulations Manual (1974)
10	Uplift Pressures (Piezometer Readings) (3 Nov 1969)
	Stability
1	Concrete Dam Stability Evaluation – Design Documentation Rpt (Aug 2008)
	Misc.
1	Mahoning Water Control Manual 1979, Change 1
2	OCA Mahoning 2015 (18 Dec 2015)
	Location Data
	Directions
1	Mahoning Creek Lake via PA-28N (19 Dec 2013)

DM#	Design Memorandums/Studies/Contracted Work Related to Mahoning Dam
	Project Location & Vicinity Maps
1	District Map with Major Highways (12 Jun 2014)
2	Mahoning Map 1 (13 Jun 2014)
3	Mahoning Map (13 Jun 2014)
	O&M Manuals
	Mahoning Dam O&M Manual (1995)
	Photos (Construction)
	1936-39, 1939, 1940, 1941, 1942, 1943, 1944, 1945-48, 1962-64
	Survey Data
1	2010 Mahoning Creek Dam NAVD 1988 Evaluations
2	Mahoning Alignment and Settlement Report 2010
3	Mahoning Alignment and Settlement Report 2011
4	Mahoning Deformation Report 2015
5	Mahoning Sections 1 to 3 (undated)
6	Spillway Section (20 Mar 2013)
7	Weir at Mahoning (20 Mar 2013)
8	Weir Survey at Mahoning 2009
	Dam Service Bridge Replacement 2012
	Meeting Minutes
1	Mahoning PDT Meeting (25 Feb 2013)
	QCP
1	QCP Mahoning Service Bridge Replacement (28 Nov 2013)
	Historic Info
00	Index (Oct 1938)
03	Project Location (Jul 1938)
04	General Plans (Oct 1938)
11	Property Surveys (Oct 1938)
40	Dam Masonry (Jul 1938)
56	Electrical Systems (15 Jun 1999)
57	Crane & Hoists (1 Jun 1943)
68	Highways & Access Road (Oct 1939)
1	Crane Shop Drawings (11 Mar 1999)
2	Gantry Crane Shop Drawings (20 Jun 1940)
	MAHP (Hydrographs)
1	2002 MAHP
2	2003 MAHP
3	2004 MAHP

DM#	Design Memorandums/Studies/Contracted Work Related to Mahoning Dam
4	2005 MAHP
5	2006 MAHP
6	2007 MAHP
7	2008 MAHP
8	2009 MAHP
9	2010 MAHP
10	2011 MAHP
11	Meeting Minutes (25 Feb 2013)
	Map Survey
1	District Map (undated)
2	Mahoning 1 (undated)
3	Mahoning Dam Photo (undated)
4	Mahoning Map 1 (1 Apr 1992)
	Photos
1	13 Nov 2012 Site Visit Photos
	Project Review (Contract Reference Drawing)
1	Mahoning Dam Gantry Crane 038a.5-U1-57 1.1 (1 Jun 1943)
2	Mahoning Dam Gantry Crane - Lakeside 5581 D1 (20 Jun 1940)
	Structure (Mahoning Concrete Repair 2008 Monolith Joints As-Built
1	Dam-Concrete Repairs (Aug 2011)
	Misc
1	Mahoning Gantry Crane (20 Nov 2012)
	Dam Service Bridge Replacement TSNL Report (LRE)
	Cost
1	Mahoning ATR Checklist Feasibility (10 Jan 2013)
2	Mahoning Cost Appendix Language (undated)
3	Mahoning Dam Estimate (undated)
4	Mahoning Dam Service Bridge Replacement (25 Jan 2013)
5	Mahoning Dam Service Bridge Replacement CWE (25 Jan 2013)
6	PA4 Wages (14 Dec 2012)
7	US Army Corps of Engineers 122012 Flexi Barge Quote (20 Dec 12)
	Docs (DDR)
1	Draft -Mahoning Service Bridge Replacement Project – TS&L Report (Jan 2013)
2	DS CIP T Beam STAAD Report (23 Jan 2013)
3	DS Precast Beam STAAD Report (4 Dec 2012)
4	DS Steel STAAD Report (4 Dec 2012)

DM#	Design Memorandums/Studies/Contracted Work Related to Mahoning Dam
5	Final – Mahoning Service Bridge Replacement TS&L Report (Jan 2013)
6	Mahoning CIP T Beam Calculations (28 Nov 2012)
7	Mahoning Calculations, All (28 Nov 2012)
8	Mahoning Cost Appendix Language (undated)
9	Mahoning Dam Service Bridge Replacement CWE (25 Jan 2013)
10	Mahoning Precast Prestressed Calculations (26 Nov 2012)
11	Mahoning Service Bridge Replacement TS&L Report (Jan 2013)
12	Mahoning Service Bridge Replacement TS&L Report (Jan 2013)
13	Mahoning Service Bridge Replacement TS&L Report (Jan 2013)
14	Mahoning Steel Design Calculations (26 Nov 2012)
15	Quantity Takeoffs (6 Dec 2012)
16	Sign-Off Sheet (undated)
17	US CIP T Beam STAAD Report (25 Oct 2012)
18	US Precast Beam STAAD Report (4 Dec 2012)
19	US Steel STAAD Report (15 Nov 2012)
	Docs (Meeting Minutes)
1	Mahoning Bridge TSL Meeting Minutes (13 Nov 2012)
2	Mahoning Bridge TSL Kickoff Meeting Agenda (29 Oct 2012)
3	Mahoning Bridge TSL Kickoff Meeting Minutes (30 Oct 2012)
4	Mahoning Bridge TSL Kickoff Meeting Agenda (4 Dec 2012)
5	Mahoning Bridge TSL Kickoff Meeting Minutes (4 Dec 2012)
	Docs (QCP)
1	FY13 Mahoning Service Bridge Replacement TSL QCP (PDF) (Oct 2012)
2	FY13 Mahoning Service Bridge Replacement TSL QCP (DOC) (Oct 2012)
	Docs (Reference Materials – As-Builts)
1	038-U1-40-1A_3 (20 Nov 1943)
2	038-U1-40-40_1 (20 Nov 1943)
3	038-U1-40-41_1 (20 Nov 1943)
4	038-U1-40-41_2 (20 Nov 1943)
5	038-U1-40-41_3 (20 Nov 1943)
	Docs (Reference Materials – Mahoning Reference Drawings)
1	038aa-U1-40_1.2 (1 Dec 1943)
2	038aa-U1-40_6.2 (May 1939)
3	038aa-U1-40_8.2 (1 Dec 1943)
4	038aa-U1-53_1.2 (1 Dec 1943)
5	038aa-U1-53_2.1 (1 Dec 1943)
	Docs (Reference Materials – Memos)

DM#	Design Memorandums/Studies/Contracted Work Related to Mahoning Dam
1	Mahoning Service Bridge Concrete Repair Inspection Memo (29 Jul 2010)
2	Mahoning Service Bridge Operational Restrictions Memo (16 Feb 2011)
3	Mahoning Service Bridge Operational Restrictions Memo (8 Nov 2011)
	Docs (Reference Materials – Original Design Calculations)
1	Mahoning Service Bridge Original Design Calculations (1938)
	Docs (Reference Materials – Photos)
1	12 Aug 2003, 22 Jul 2010, 30 Mar 2011
	Docs (Reference Materials)
1	Mahoning Creek Dam Non-Public-Use Spillway Service Bridge, Bridge No. CENLRPPA1003930 In-Depth Bridge Inspection Report & Analysis (May 2011)
	Docs (Resourcing)
1	Mahoning Access Bridge (18 Sep 2012)
2	Mahoning Bridge Design Proposal (undated)
3	SOW for LRE – Mahoning Bridge (undated)
	Photos
1	13 Nov 2012 Site Visit (2 folders)
	Project Review (Contract Reference Drawings – 40 Dam Masonry)
1	0038a.5-U1-40_1
2	0038a.5-U1-40_10
3	0038a.5-U1-40_10A.3
4	0038a.5-U1-40_11
5	0038a.5-U1-40_11A.4
6	0038a.5-U1-40_12
7	0038a.5-U1-40_12A.6
8	0038a.5-U1-40_13
9	0038a.5-U1-40_13A.4
10	0038a.5-U1-40_14
11	0038a.5-U1-40_14A.2
12	0038a.5-U1-40_15
13	0038a.5-U1-40_15A.4
14	0038a.5-U1-40_16
15	0038a.5-U1-40_16A.3
16	0038a.5-U1-40_17
17	0038a.5-U1-40_17A.3
18	0038a.5-U1-40_18
19	0038a.5-U1-40_18A.3

DM#	Design Memorandums/Studies/Contracted Work Related to Mahoning Dam
20	0038a.5-U1-40_19.2
21	0038a.5-U1-40_1A.3
22	0038a.5-U1-40_2
23	0038a.5-U1-40_20.2
24	0038a.5-U1-40_21
25	0038a.5-U1-40_21A.3
26	0038a.5-U1-40_22
27	0038a.5-U1-40_22A
28	0038a.5-U1-40_22B.2
29	0038a.5-U1-40_23
30	0038a.5-U1-40_23A.3
31	0038a.5-U1-40_24
32	0038a.5-U1-40_24A.1
33	0038a.5-U1-40_25
34	0038a.5-U1-40_25A.4
35	0038a.5-U1-40_26
36	0038a.5-U1-40_26A
37	0038a.5-U1-40_26B
38	0038a.5-U1-40_27
39	0038a.5-U1-40_27A.2
40	0038a.5-U1-40_28
41	0038a.5-U1-40_28A
42	0038a.5-U1-40_29
43	0038a.5-U1-40_29A.2
44	0038a.5-U1-40_3
45	0038a.5-U1-40_30
46	0038a.5-U1-40_30A
47	0038a.5-U1-40_31
48	0038a.5-U1-40_31A.3
49	0038a.5-U1-40_32.3
50	0038a.5-U1-40_33.1
51	0038a.5-U1-40_34
52	0038a.5-U1-40_34A
53	0038a.5-U1-40_34B
54	0038a.5-U1-40_35
55	0038a.5-U1-40_35B.2
56	0038a.5-U1-40_36

DM#	Design Memorandums/Studies/Contracted Work Related to Mahoning Dam
57	0038a.5-U1-40_36A.5
58	0038a.5-U1-40_37
59	0038a.5-U1-40_37A.4
60	0038a.5-U1-40_38
61	0038a.5-U1-40_38A
62	0038a.5-U1-40_39
63	0038a.5-U1-40_39A.2
64	0038a.5-U1-40_3A.1
65	0038a.5-U1-40_3B
66	0038a.5-U1-40_4.2
67	0038a.5-U1-40_40.1
68	0038a.5-U1-40_41.1
69	0038a.5-U1-40_42.2
70	0038a.5-U1-40_43.1
71	0038a.5-U1-40_44
72	0038a.5-U1-40_44A.2
73	0038a.5-U1-40_47
74	0038a.5-U1-40_48
75	0038a.5-U1-40_49
76	0038a.5-U1-40_5
77	0038a.5-U1-40_50
78	0038a.5-U1-40_51
79	0038a.5-U1-40_52A
80	0038a.5-U1-40_53A
81	0038a.5-U1-40_54A
82	0038a.5-U1-40_55A
83	0038a.5-U1-40_56A
84	0038a.5-U1-40_57A
85	0038a.5-U1-40_58
86	0038a.5-U1-40_59
87	0038a.5-U1-40_5A.3
88	0038a.5-U1-40_5B
89	0038a.5-U1-40_6.3
90	0038a.5-U1-40_60
91	0038a.5-U1-40_61
92	0038a.5-U1-40_62
93	0038a.5-U1-40_63

DM#	Design Memorandums/Studies/Contracted Work Related to Mahoning Dam
94	0038a.5-U1-40_64
95	0038a.5-U1-40_65
96	0038a.5-U1-40_66
97	0038a.5-U1-40_67.1
98	0038a.5-U1-40_67
99	0038a.5-U1-40_68.1
100	0038a.5-U1-40_68
101	0038a.5-U1-40_69
102	0038a.5-U1-40_7
103	0038a.5-U1-40_70.1
104	0038a.5-U1-40_70
105	0038a.5-U1-40_71.1
106	0038a.5-U1-40_71
107	0038a.5-U1-40_72.1
108	0038a.5-U1-40_72
109	0038a.5-U1-40_73.1
110	0038a.5-U1-40_73
111	0038a.5-U1-40_74.1
112	0038a.5-U1-40_74
113	0038a.5-U1-40_75.1
114	0038a.5-U1-40_75
115	0038a.5-U1-40_7A.2
116	0038a.5-U1-40_8
117	0038a.5-U1-40_9
118	0038a.5-U1-40_9A.3
	Structure (Design Info)
1	Mahoning CIP T Beam Bridge (8 Nov 2012)
2	Mahoning Precast Girder Bridge (26 Nov 2012)
3	Mahoning QTO (4 Dec 2012)
4	Mahoning Steel Design Calculations (26 Nov 2012)
5	Sequence of Work (no date)
	Structure (Concrete Repair 2008 Monolith Joints As-Built)
1	Mahoning Concrete Repair 2008 Monolith Joints As-Built
	Structure (Misc)
1	Mahoning Lake Brochure
	Gantry Crane Rehabilitation 2012
	Construction (Contract Mods – Jib Crane Boom Damage)

DM#	Design Memorandums/Studies/Contracted Work Related to Mahoning Dam
1	Mahoning Dam, Gantry Crane Rehabilitation Design Document (W911WN-12-C-0007) (undated)
2	Attachment #1 Proposed Jib Boom Crane Fix Checklist (22 Jan 2014)
3	Attachment #1 Proposed Jib Boom Crane Fix Computation (22 Jan 2014)
4	Attachment #2 Jib Boom Picture (undated)
5	Register (undated)
6	Request for Modified Gantry #2 Jib Repair (12 Feb 2014)
7	Request for Mod – Damaged Jib Crane (12 Feb 2014)
	Construction (Photos)
1	2 May 2013, Gantry #1 Operation Test, Jib Hoise Reeving, Pre-Final Gantry #2 2014-06-11, Pre-Final Gantry #1 2014-01-21, Site Visit 9-9-14, Site Visit 11-4-13, Site Visit 11-19-13
	Construction (Pre-Final Inspections)
1	Gantry Crane #1 Operations Test (doc) (14 Jan 2014)
2	Gantry Crane #1 Operations Test (pdf) (14 Jan 2014)
3	Gantry Crane #1 Operations Pre-Final (doc)(24 Jan 2014)
4	Gantry Crane #1 Operations Pre-Final (pdf) (24 Jan 2014)
5	Gantry Crane #2 Operations Test (doc) (10 Oct 2014)
6	Gantry Crane #2 Operations Test (pdf) (10 Oct 2014)
7	Gantry Crane #2 Operations Pre-Final (doc) (23 Jun 2014)
	Construction (Site Visit Memos)
1	9-15-14 Site Visit Att #1 Photo
2	Mahoning Site Visit 11-19-13
3	Mahoning Site Visit 11-4-13
4	Mahoning Site Visit 9-15-14
	Construction (Transmittals)
1	W911WN-12-0007 TR 41 01 20.72 08-6 (undated)
	Docs (Amendment 0001)
1	Design Document 01 22 00.00 10Am1 – Measurement & Payment (W911WN-12-B-0007) (undated)
2	Design Document 02 41 00Am1 – Demolition (undated)
3	Design Document 05 01 50.71 08Am1 – Modify Platform Gantry Crane #2 (undated)
4	Design Document 41 01 20.71 08Am1 – Rehabilitation of Gantry Crane Operating Machinery (undated)
5	Design Document 41 01 20.72 08Am1 – Rehabilitation of Gantry Crane Electrical Equipment (undated)
6	Mahoning Dam Gantry Crane Photographs (8 Feb 2012)
7	Design Document Table of Contents (undated)

DM#	Design Memorandums/Studies/Contracted Work Related to Mahoning Dam
	Docs (Certs – BCOE)
1	BCOE Signed Cert 2 w VE (14 Jun 2012)
2	BCOE Signed Cert 2 (14 Jun 2012)
3	BCOE Signed Certs (14 Jun 2012)
4	BCOE_TR Comments Closed Reports (8 Jun 2012)
	Docs (Certs – Real Estate)
1	Memo Mah.G-008 (12 Jun 2012)
	Docs (Certs – Technical Review TR)
1	TR Signed Certs (13 Jun 2012)
	Docs (DDR)
1	Gantry Crane Rehabilitation DDR, Main Report w/ Appendices A-G (13 Jun 2012)
	Docs (ECIFP)
1	ECIFP Mahoning Crane Rehabilitation (doc) (Oct 2012)
2	ECIFP Mahoning Crane Rehabilitation (pdf) (Oct 2012)
	Docs (Email)
1	ECIFP – Mahoning (18 Oct 2012)
2	Mahoning Cranes Submittal Register (13 Jun 2012)
3	Mahoning Gantry Crane Rehabilitation 95% (11 Jun 2012)
4	Mahoning (13 Jun 2012)
5	Mahoning Cranes Submittal Register (13 Jun 2012)
6	Mahoning Gantry Crane Rehabilitation 95% (13 Jun 2012)
	Docs (LRE Value Engineering Study)
1	Balvac – Vacuum Injection Epoxy Polymer Concrete Repair (11 Sep 2007)
2	BCOE Signed Cert 2 w VE (14 Jun 2012)
3	BCOE Signed Certs 2 (14 Jun 2012)
4	BCOE Signed Certs (14 Jun 2012)
5	Draft Report Comments (undated)
6	Final CELRP VE 13 01. Mahoning Creek Lake Dam VE (25 Feb – 1 Mar 2013)
7	Mahoning Draft VE (doc) (25 Feb – 1 Mar 2013)
8	Mahoning Draft VE (pdf) (25 Feb – 1 Mar 2013)
9	Mahoning Final VE (pdf) (25 Feb – 1 Mar 2013)
10	Mahoning VE Cert (undated)
11	Mahoning VE Presentation 2013 (27 Mar 2013)
12	Mahoning VE Proposal Estimates Combined (undated)
	Docs (QCP)
1	Mahoning Gantry Crane Rehabilitation QCP (10 May 2012)

DM#	Design Memorandums/Studies/Contracted Work Related to Mahoning Dam
2	Mahoning Gantry Crane Rehabilitation Signed QCP (10 May 2012)
	Docs
1	Final Statement of Work – Mahoning Cranes (undated)
2	Liquidated Damages Memo (23 May 2012)
3	Mahoning Final Review Conference Memo (14 Jun 2012)
4	Mahoning Gantry Crane Rehabilitation Signed QCP (10 May 2012)
5	Mahoning Quantities (Electrical) (13 Jun 2012)
6	Mahoning Quantities (undated)
7	Responses to Questions for 12B0007 (undated)
8	Summary of Changes (undated)
	DrChecks
1	Final Review Submittal (May 2012)
2	Final Review Technical Specifications (undated)
	Electrical
1	Lighting Fixture Schedule (12 Jun 2012)
2	Lighting Panel (12 Jun 2012)
3	Mahoning Electrical (14 Jun 2012)
4	Motor Schedule (6 Jun 2012)
	FedTdDs (Contract – Plan)
1	W911-12-B-0007 (Jun 2012)
2	W911-12-C-0007 (Jun 2012)
	FedTdDs (Contract – Solicitation)
1	Award for Gantry Cranes (27 Sep 2012)
	FedTdDs (Contract No. – Specs)
1	As-Awarded Certified Final Technical Specifications (11 Sep 2012)
2	Certified Final Technical Specifications (10 Jul 2012)
3	Price (14 Jun 2012)
4	Required Contracting Fill-ins (14 Jun 2012)
	Gen
1	AO38a.5 Contract Drawings Index GI-001 (6 Jun 2012)
2	AO38a.5 Reference Drawings Index GI-001 (6 Jun 2012)
	Mech
1	Appendix F – Mechanical V1.0 (12 Jun 2012)
2	Mahoning Gantry Rehabilitation Quantity (31 May 2012)
3	Mahoning Gantry Rehabilitation Quantity Crane 1 (12 Jun 2012)
4	Mahoning Gantry Rehabilitation Quantity Crane 2 (12 Jun 2012)
	Photos

DM#	Design Memorandums/Studies/Contracted Work Related to Mahoning Dam
1	Gantry Cabs, John Nites', Neil Anderson's, Pat Kline's, 01-21-14 EC-NT Visit, Photos 8-30-2011 001 thru 009
	Sheet
1	Reference Drawings (11 Jun 2012)
	Str
1	4469A1 sheet 1 (16 Jul 2012)
2	4469A1 sheet 2 (16 Jul 2012)
	Service Bridge ASR Study 2015
	As-Builts (In-House As-Builts)
1	Routing Slip OF 411 (11 Jul 2014)
2	W911WN-xx As-Built Memo (22 Jul 2014)
	Background Documents
1	ACI 221.1R-98 Report on Alkali-Aggregate Reactivity (29 Apr 2010)
2	As-Built DEGs – Pier (Jul 1938)
3	Final – Mahoning Service Bridge TS&L (Jan 2015)
4	Mahoning Final VE (25 Feb – 1 Mar 2013)
5	Mahoning In-Depth 2011 Final (May 2011)
	Construction (RFIs)
1	RFI Log W911WN-XX-C-00XX (26 Aug 2014)
2	RFI Routing Form W911WN-XX-C-00XX (26 Aug 2014)
	Construction (Transmittals)
1	Transmittal Log W911WN-XX-C-00XX (26 Aug 2014)
2	Transmittal Routing Form W911WN-XX-C-00XX (26 Aug 2014)
	Documents
1	Cost Estimate – NAB Drilling Group, Summary Field Investigation Costs, Geology & Investigations Section, Geotechnical & Environmental Investigation & Design (26 Mar 2015)
2	Mahoning Core Drilling Site Visit Notes – JMC (21 May 1986)
3	Mahoning Creek Dam 2015 Boring Logs – NAB (22 Apr 2015)
4	Mahoning Creek Dam Petrography Report DRAFT (Nov 2015)
5	Mahoning Creek Dam Petrography Report FINAL (Jan 2016)
6	SOW for ERDC – Mahoning Creek Service Bridge – Alkali-Silica Reaction Investigation (24 Nov 2015)
7	SOW for LRE – Mahoning Bridge (24 Nov 2015)
	Photos
1	Drilling Photos – Core Samples, Drilling Photos – Wrapped Core Samples, Mahoning Creek Dam 2015 Boring Logs

DM#	Design Memorandums/Studies/Contracted Work Related to Mahoning Dam

APPENDIX E

ENGINEER REGULATIONS, PAMPHLETS, AND MANUALS

E.1 ER 200-1-5, Environmental Quality – Policy for Implementation and Integrated Application of the U.S. Army Corps of Engineers Environmental Operating Principles and Doctrine, 30 Oct 2003

E.2 ER 200-2-2, Environmental Quality – Procedures for Implementing the National Environmental Policy Act, 4 Mar 1988

E.3 ER 1105-2-100, Planning Guidance, 22 April 2000 (with Appendices D and G revised Jun 2004 and Appendix F revised Jan 2006)

E.4 ER 1130-2-540, Environmental Stewardship Operations and Maintenance Policies, 4 Nov 2002

E.5 ER 1130-2-550, Project Operations – Recreation Operations and Maintenance Guidance and Procedures (Change 5; 30 Jan 2013)

E.6 Executive Order (EO) 13751 - Safeguarding the Nation From the Impacts of Invasive Species (FR: 08 Dec 2016; amending EO 13112)

E.7 EO 11987 - Exotic Organisms (FR: 24 May 1977)

E.8 Engineer Manual 1110-1-400, Engineering and Design – Recreation Facility and Customer Service Standards, 1 Nov 2004

APPENDIX F

PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

FINDING OF NO SIGNIFICANT IMPACT
MAHONING CREEK LAKE MASTER PLAN UPDATE
MAHONING CREEK WATERSHED

The US Army Corps of Engineers, Pittsburgh District (Corps) is proposing to adopt a new Master Plan as the strategic land use planning document to guide comprehensive management and development of all project recreational, natural and cultural resources at Mahoning Creek Lake in southwestern Pennsylvania. The original Master Plan (MP) was completed in 1950 and last updated in 1976. Changes in Corps regulations and community needs necessitate a revision to these Master Plans. The revised MP will replace the draft and provide a balanced, up to date management plan that follows current Federal laws and Corps regulations while sustaining natural resources and providing outdoor recreational experiences.

In compliance with the National Environmental Policy Act, the Corps prepared an Environmental Assessment (EA) that evaluated impacts to the physical environment, biological environment and community setting. The EA examines three alternatives: No Action, the preferred alternative of adopting a revised MP with an emphasis on conservation and low-density recreation development, and a revised MP alternative with high-density recreational development. The preferred alternative changes the land and water classifications, most notably the addition of sensitive area and water surface classifications. The revised plan also lays out future recommendations for management of both recreation and natural resources.

The No Action alternative does not meet the purpose of providing a strategic land use management plan that balances the development of recreation features with environmental stewardship practices and natural resource conservation and is in compliance with current regulations, policies and laws governing Master Plans. Under the No Action alternative, the original development-focused document would prevent a proactive approach to resource management.

I have reasonably determined that implementation of the revised Mahoning Creek Lake MP will not constitute a major Federal action significantly affecting the quality of the human environment, as defined in the Council on Environmental Quality's current regulations for implementing the National Environmental Policy Act. The preparation of an environmental impact statement is therefore unwarranted and the public interest will be best served by the implementation of the proposed action. This determination precedes the Corps of Engineer's final decision concerning this proposed action. The MP and EA will be circulated for a 30-day review period.

28 NOV 18
Date

Andrew J. Short
Colonel, Corps of Engineers
Commanding

Table of Contents

1 Purpose and Need

1.1 Introduction and Background

The US Army Corps of Engineers (Corps) is responsible for the maintenance, restoration and stewardship of natural resources on the multipurpose reservoir projects it manages. To facilitate the management and use of these lands, the District maintains a Master Plan (MP) for each reservoir project. An MP is a strategic land use management document that guides the comprehensive administration and conservation of natural and cultural resources, and the development of recreation at Corps reservoirs. The Pittsburgh District is proposing to adopt and implement a revision to the Mahoning Creek Lake MP.

Authorized by the Flood Control Acts of 1936 and 1938, Mahoning Creek Lake became operational in 1941 after a two-year construction period. It is one link in a system of 16 Flood Control Projects and provides protection for the Lower Allegheny River Valley and the Upper Ohio River.

The original MP was completed in 1950 and last updated in 1976. Changes in Corps regulations and community needs necessitate a revision. The revised MP will replace the former version and provide a balanced, up to date management plan that follows current Federal laws and Corps regulations while sustaining Mahoning Creek Lake's natural resources and providing outdoor recreational experiences. The revised MP applies changes to the land and water classifications and lays out future recommendations for management of both recreation and natural resources.

1.1.1 Land Allocations and Classifications

As part of updating the MP, land allocation and land use classifications will be updated to ensure consistency with the land's authorized purpose. Land allocations identify the authorized purposes for which Corps' lands were acquired. There are four categories of allocation:

1. Operations: These are the lands acquired for the congressionally authorized purpose of constructing and operating the Project. The location of all dam facilities as well as the lake, are included in this allocation.
2. Recreation: These lands were acquired specifically for the congressionally authorized purpose of recreation. These lands are referred to as separable recreation lands. Lands in this allocation can only be given a land classification of "Recreation".
3. Fish and Wildlife: These lands were acquired specifically for the congressionally authorized purpose of fish and wildlife management. These lands are referred to as separable fish and wildlife lands. Lands in this allocation can only be given a land classification of "Wildlife Management".
4. Mitigation: These lands were acquired specifically for the congressionally authorized purpose of offsetting losses associated with development of the project. These lands are

referred to as separable mitigation lands. Lands in this allocation can only be given a land classification of "Mitigation".

Land classifications refine the land allocations considers public desires, legislative authority, regional and Project-specific resource requirements, and suitability. Land classification indicates the primary use for which Project lands are managed. Classifications provide for development and resource management consistent with authorized purposes and other Federal laws. The previous MP uses an obsolete classification scheme that has been rectified in this document to meet current standards. The system for land classification has been realigned to meet current standards.

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

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

Environmentally Sensitive Areas (ESAs)
This classification consists of areas where scientific, ecological, cultural, or esthetic features have been identified. Development of public use on lands within this classification is normally prohibited to ensure that these sensitive areas are not adversely impacted. Agricultural uses are not permitted on lands with this classification.

Multiple Resource Management Lands
This classification includes lands managed for one or more of the following activities:

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

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

- Wildlife Management. Proper management techniques will be applied wherever the opportunity exists to improve conditions for wildlife, recreation, scenic value, timber, wildfire prevention, pest control, watershed protection or for use on the project.
- Future or Inactive Recreation Areas. This sub-classification consists of lands for which recreation areas are planned for the future or lands that contain existing recreation areas that have been temporarily closed

Water Surface

There are four possible sub-classifications:

- Restricted. Water areas restricted for project operations, safety, and security purposes.
- Designated No-Wake. To protect environmentally sensitive shoreline areas, recreational water access areas from disturbance, and/or public safety.
- Fish and Wildlife Sanctuary (FWS). Annual or seasonal restrictions on areas to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning.
- Open Recreation. Those waters available for year-round or seasonal water-based recreational use.

1.2 Project Area

The Project area is defined as the land held by the Corps in fee at Mahoning Creek Lake, located in the Allegheny River watershed of southwestern Pennsylvania. Mahoning Creek Lake is located on Mahoning Creek along portions of Armstrong, Indiana, and Jefferson Counties. It has approximately 2,500 acres that will be covered by the revised MP. The dam is 21.6 river miles from the Allegheny River confluence near Templeton, and approximately 77 river miles from the Ohio River in Pittsburgh. A project area map is located in Appendix A, Plate 1.

1.3 Purpose and Need

An MP conceptually establishes and guides the orderly development, administration, maintenance, preservation, enhancement, and management of all natural, cultural, and recreational resources of Corps lands. The purpose is to provide a strategic land use management plan that balances the development of recreation features with environmental stewardship practices and natural resource conservation and is in compliance with current regulations, policies and laws governing MPs. The original 1950 MP focused on construction and development of recreation areas. The 1976 revision updated data on existing conditions, anticipated recreational use and types of facilities required to fulfill expected use. This 1976 MP

no longer serves its intended purpose based on a combination of age and substantial changes to the Project, regional demographics, and surrounding land usage. The Corps has also updated its policies directing the development and implementation of MPs (most notably in EP-1130-2-550 Change 5, dated 30 January 2013) which includes updating the categories of land classifications used to define project lands.

The need for the update was determined by an MP evaluation that identified a number of deficiencies that no longer made it a viable document. There have been significant changes in regional natural resources management, including: the naming of special status species, competing interests for resources, energy extraction, invasive species, and development of state wildlife plans. Changes in area demographics and culture have also changed the types of recreation demanded. Philosophical changes in agency management have occurred, notably, the 2009 establishment of a Non-Recreational Outgrant Policy that altered permitted land use on all Corps properties. Significant data gaps were also identified. In order to meet these new directives and comply with Corps policy requiring regular updates to MPs, the District proposes to adopt the revised Mahoning Creek Lake MP with updated land classifications and a revised set of recommendations for future developments and improvements.

This Environmental Assessment (EA) addresses the proposed adoption and implementation of the revised Mahoning Creek Lake MP – Conservation/Low-Density Development. It analyzes potential impacts of implementing the MP upon the natural, cultural, and human environment. The EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended; regulations of the Council on Environmental Quality (CEQ); and Corps regulations, including Engineer Regulation 200-2-2, Procedures for Implementing NEPA. The EA references the attached Mahoning Creek Lake MP.

The typical focus of NEPA compliance consists of environmental impact assessments for individual projects, rather than for long-range Plan. However, application of NEPA to broader and more strategic decisions not only meets the CEQ implementing regulations and Corps regulations for implementing NEPA, but also allows the Corps to begin considering the environmental consequences of their actions long before any physical activity is undertaken.

Environmental documents prepared concurrently with the MP can influence and modify strategic land use decisions. The intention of the MP is to develop land classifications that will guide the sustainable development of resources within the Mahoning Creek Lake Projects. This EA evaluates a variety of approaches to assess potential environmental impacts of proposed future recreation features. It examines recreational activities in broad categories listed as “high” and “low” density based on developmental needs, rather specific projects. Additional coordination and documentation will be conducted, as appropriate, for future projects that are the result of this proposed MP. If the District determines it is in the best interest of the public to accept the MP and reclassify Corps-managed lands, the District would perform additional site-specific compliance with Section 106 of the National Historic Preservation Act and Section 7 of the

Endangered Species Act and obtain any required permits for specific future projects/actions. Future projects would also be reviewed to identify which actions discussed within this EA may be classified as categorical exclusions in accordance with Paragraph 9 of ER 200-2-2, consistent with CEQ definitions under 40 CFR 1508.4, and which actions would require additional analysis under a tiered NEPA document.

1.4 Prior NEPA Documentation

Mahoning Creek Lake, Allegheny River Basin, Pennsylvania, Environmental Report – Addition of a Conservation Pool (1974) was prepared in conjunction with the 1976 MP update. The report was prepared to examine the impacts of raising the summer pool elevation by 23 feet to accommodate recreation and fish and wildlife management.

2 Alternatives

This EA examines three alternatives; a preferred alternative of adopting a revised MP with an emphasis on conservation/low-density development, a secondary alternative of a revised MP with an emphasis on high-density development, and a No-Action Alternative in which the current MP would continue to guide operations and management.

Data collection, public comments, and findings of the MP team determined that conservation/low-density development was the only alternative that would meet the purpose, need, and objectives of the master planning process. It also meets 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 providing consistency with updated Corps regulations. Compared to the No-Action Alternative, Conservation/Low-Density Development presents minor changes to existing management practices while High-Density Development represents a marked change from the current MP, emphasizing significant construction of infrastructure and utilities to support recreational activities.

2.1 No Action

Inclusion of the No-Action Alternative is prescribed by CEQ regulations and serves as the baseline against which Federal actions can be compared. Under this alternative the District would not approve the adoption or implementation of a revised MP and would not meet current regulations or goals to regularly update a master planning document. The 1976 MP would continue to provide the only source of comprehensive management guidance; however, information provided in the 1976 plan is out of date and no longer adequately addresses the needs of the District, other management partners, or users of Mahoning Creek Lake. Furthermore, the 1976 MP does not include the revised land classifications in accordance with current Corps regulations (See Chapter 2.3). Retaining the 1976 MP would prevent a proactive approach to managing Mahoning Creek Lake. Future major developments or resource

management policies would require approval on a case-by-case basis without the benefit of evaluation in the context of an overall plan.

2.2 Revised MP – Conservation/Low-Density Recreation Development

Adopting this course of action is the District's preferred alternative. The revision changes the land and water classifications, most notably the addition of sensitive area and water surface classifications. The revised MP also lays out future recommendations for management of both recreation and natural resources, with emphasis on conservation and low-impact development.

The management recommendations were developed through comments, interviews, public meeting workshops, and the completion of surveys. These management recommendations are non-regulatory and available for use by any citizen, group, or agency. Development of new, modern facilities would potentially include partnering with stakeholders to share in the cost, operation and maintenance of any such asset. Potential partners for the implementation are groups with the resources best suited to assist in meeting these objectives, such as Western Pennsylvania Conservancy, Evergreen Conservancy, Little Mahoning Creek Watershed Association, sportsmen's clubs and other cultural and recreational groups.

Table EA- 1. Existing and Proposed Land Classification Categories and Acreages

Existing Land Use Class	Proposed Land Use Class	Proposed Land Use Acres
Agricultural Management	Environmentally Sensitive Areas	13.2
	MRML Low Density Recreation	3.0
	MRML Wildlife Management	428.5
Esthetic Management	MRML Low Density Recreation	13.9
	MRML Wildlife Management	16.8
	Project Operations	13.6
Game Management	Environmentally Sensitive Areas	13.4
	MRML Wildlife Management	164.8
Natural Area	MRML Low Density Recreation	60.5
	MRML Wildlife Management	54.8
Special Preservation	Environmentally Sensitive Areas	10.4
	MRML Low Density Recreation	3.8
Wild Area	Environmentally Sensitive Areas	194.6
	High Density Recreation	21.4
	MRML Low Density Recreation	127.1
	MRML Wildlife Management	1338.1
	Project Operations	15.0
TOTAL		**2492.8**

**Calculated from GIS overlays. Acreages presented are for planning purposes only and not intended for real estate or survey use.*

Further detail of the recommendations is available within the MP (Section 5). Below are the recommendations, grouped by similar impact types:

Terrestrial recreation development:

- Continuously work to develop and connect regional multi-use trails - Provide trail opportunities of all types, with minimum adverse impacts and maximum benefits for natural, cultural, and community resources
- Provide support to relocate the Baker Trail off Route 839 onto reservoir property and extend it to Milton Loop with accompanying day-use sites
- Provide connection between recreation facilities and cultural heritage sites
- Identify opportunities with Dayton Area Local History Society
- Help maintain cultural traditions and improve or develop unique historic, artistic, and heritage sites
- Explore opportunity to partner with the Boy Scouts of America to establish a special-use tent camping area near the Manager's office
- Enhance wildlife viewing opportunities
    - Focus on Bald Eagle; possible eagle-cam

Aquatic recreation development:

- Provide support for water trails
    - recreational corridors for canoes, kayaks, and small motorized watercraft, includes access points, boat launches, day use areas and sometimes overnight camping locations
- Explore opportunity to assist Smicksburg designation as "River Town"
    - Pennsylvania Environmental Council's River Town Program helps local communities recognize the river as a potential economic and community asset, and thus a resource worthy of protection.
- Provide access to and promote awareness of opportunities for public participation and enjoyment of recreational fishery resources
- Support outreach programs designed to stimulate angler participation in the conservation and restoration of aquatic systems
- Develop and encourage partnerships with the private sector to advance aquatic resource conservation and enhance recreational fishing opportunities

Habitat modifications:

- Improve habitat and water quality to support viable, healthy, and, where feasible, self-sustaining recreational fisheries
- Manage wildlife and wildlife habitats on public lands in a manner that expands and enhances hunting opportunities
- Explore and implement solution for horse manure at Milton Loop boat launch
- Prepare for increase in non-recreational requests (i.e. Pennsylvania Shell ethylene cracker plant-related infrastructure, natural gas transmission lines)

    - Coordinate early to communicate Corps land use policies, identify ESAs and FWSs, develop mitigation plans
- Continuously monitor for invasive species
    - Focus on aquatic plants: Hydrilla has hit OH and MON rivers as well as most PA state parks
- Focus on conservation and preservation
    - Continuously work to identify Environmentally Sensitive Areas (ESAs) and Fish and Wildlife Sanctuaries (FWSs)
    - Protect open space and wildlife habitat
    - Identify opportunities for increasing regional greenways

Maintenance and visitor safety improvements

- Integrate emergency management
    - Improve communications
    - Support rescue efforts and training
    - Aid visitors and responders with improved signs (i.e. body of water, river mile, etc.)
    - Consider response efforts in recreation resource development
- Maintenance of existing park and recreation facilities
    - Road repair and improvement
    - Identify partnering opportunities
    - Identify project areas with low use and degraded facilities; divest when appropriate

Outreach

- Continuously improve, develop, and support educational programs to support green-collar workers
    - Provide venue for environmental education
    - Provide opportunities for renewable energy
- Continuously work to stay engaged and further coordination efforts with external partners, including PA DEP Clean Water Program, PA Game Commission, Armstrong County, Indiana County, Little Mahoning Creek Watershed Association

2.3 Revised MP – High-Density Recreational Development

An alternative revision for recreation use is to expand existing developed areas and seek to create new ones. Development of up to 90 percent of the low-density recreation as high-density recreation could occur under this alternative. This would necessitate the creation of additional impervious surfaces (roads and parking lots), plus extension of existing water and electricity utilities, and possible construction of new permanent structures. This would require regular maintenance and services.

This is not the preferred plan because of the initial cost of the development and the recurring costs of operation and maintenance of added facilities. With a significant increase in funding and visitor numbers, feasibility of this alternative could improve in the future.

3 Affected Environment

3.1 Physical Environment

3.1.1 Hydrology and Floodplains

See MP sections 2.2 Hydrology and 2.4.7 Water Quality & Sedimentation for information.

3.1.2 Water Quality

See MP section 2.4.7 Water Quality & Sedimentation for information.

3.1.3 Air Quality

Mahoning Creek Lake is located in a generally rural area of Pennsylvania that exhibits fair air quality compared to more urbanized areas. There are only minor sources of air contamination within the project area, primarily associated with vehicles. The following table provides current air quality standards for six principal air pollutants, as defined by the Clean Air Act, and their current levels (i.e., "status"), averaged across Armstrong, Indiana, and Jefferson Counties. The National Ambient Air Quality Standards (NAAQS) are the concentrations of these principal pollutants, above which, adverse effects on human health may occur.

Table EA- 2. National Ambient Air Quality Standards (NAAQS) and air quality status (either attained on non-attained) for Armstrong, Indiana, and Jefferson Counties as of Feb. 13, 2017.

Pollutant	NAAQS (standards)	Averaging Time	Status (County) *
Carbon Monoxide (as of 2011)	9 ppm (10 mg/m^3)	8-hour	Full Attainment
	35 ppm (40 mg/m^3)	1-hour	Full Attainment
Lead (as of 2008)	0.15 µg/m^3	Rolling 3-Month Avg	Full Attainment
Nitrogen Dioxide (as of 2010)	53 ppb	Annual	Full Attainment
	100 ppb	1-hour	Full Attainment
Particle pollution (PM_{10} as of 2012)	150 µg/m^3	24-hour	Full Attainment
Particle pollution ($PM_{2.5}$ as of 2012)	12.0 µg/m^3	Annual	Armstrong (Elderton) – Nonattainment (Moderate)
	35 µg/m^3	24-hour	Indiana - Nonattainment
Ozone (as of 2008)	0.075 ppm	8-hour	Armstrong – Marginal Nonattainment
Sulfur Dioxide (as of 2010)	75 ppb	1-hour	Armstrong – Nonattainment Indiana – Nonattainment

*Status obtained from the USEPA Green Book (https://www3.epa.gov/airquality/greenbook/qbstateb.html)

As the above table indicates, Elderton, Armstrong County and Indiana County exceed NAAQS in particle pollution ($PM_{2.5}$) and sulfur dioxide, due to effluent from local and up-wind industries. Armstrong County is also rated as marginal non-attainment for ozone. Air quality has been improving nationally and regionally. Armstrong, Indiana, and Jefferson ranked 17th, 6th, and 11th, respectively, in Pennsylvania's county air quality index (see graphs below).

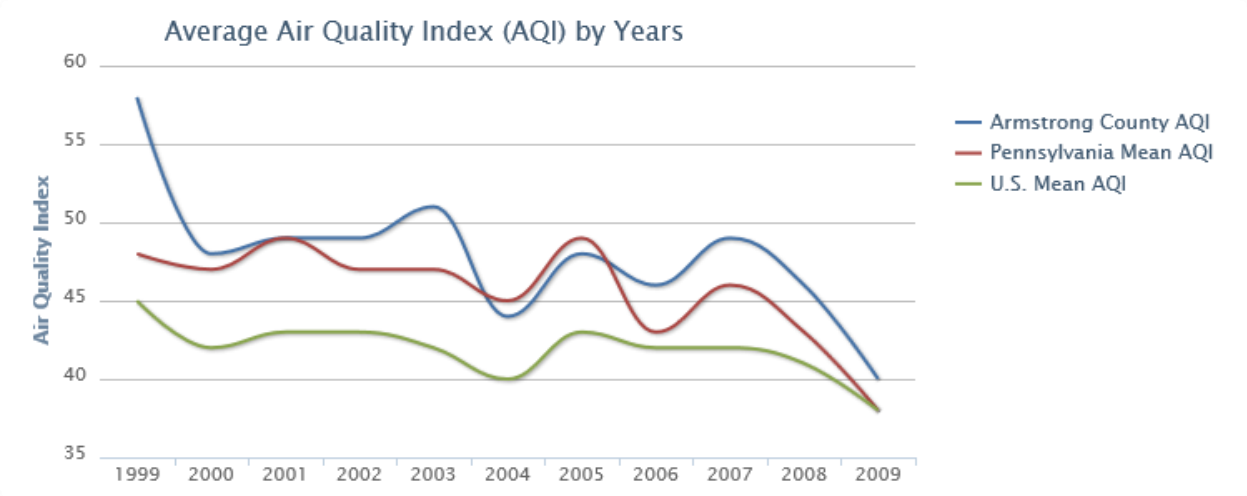


Figure 2-1 - EPA data averaged from 1999-2009 for Armstrong County monitoring sites.

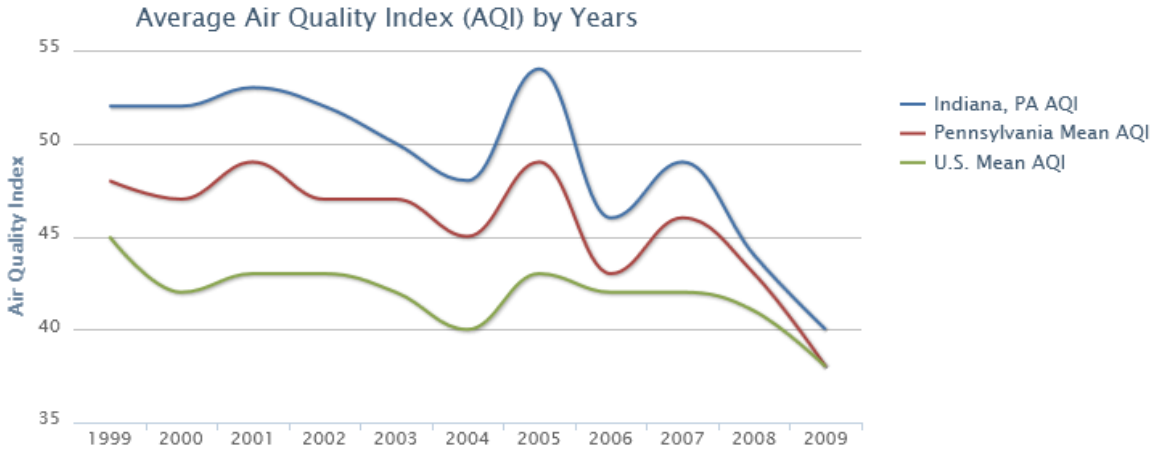


Figure 2-2 – EPA data averaged from 1999-2009 for Indiana County monitoring sites.

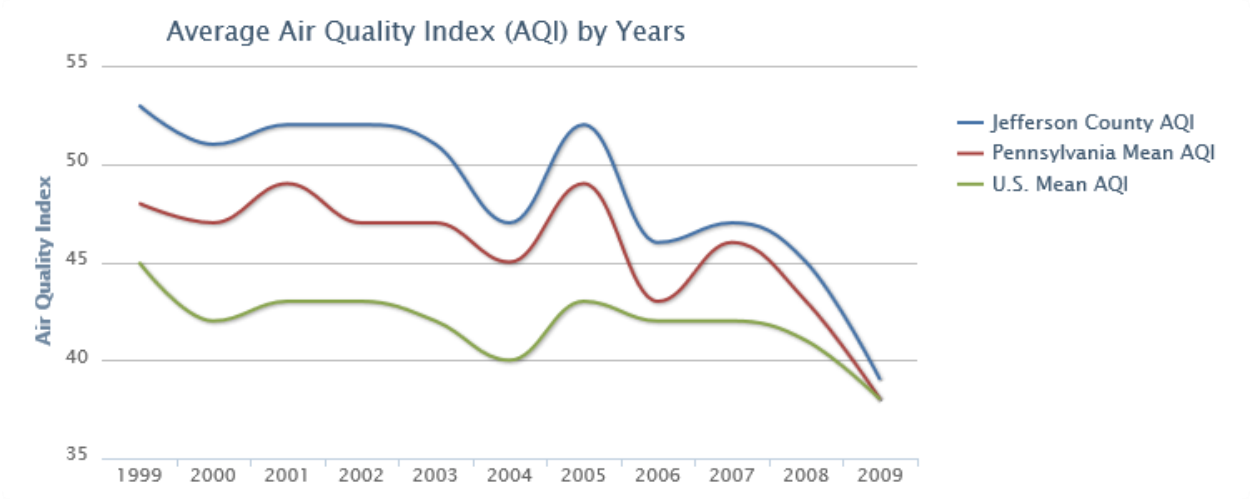


Figure 2-3 – EPA data averaged from 1999-2009 for Jefferson County monitoring sites.

3.1.4 Climate

The climate in the project area is temperate and humid, with an appreciable seasonal variation in temperature. It is geographically in a region of variable frontal activity, being subjected to alternate polar and tropical air-mass invasion. The prevailing wind direction is from the west or has a westerly component. Summer precipitation is usually associated with thunderstorms resulting from convectional activity, and is generally confined to small areas, with short durations and high intensities. In the late fall, winter, and early spring months, precipitation is usually the result of the passage of low-pressure system over the basin. Occasional stagnation and stationary development produce prolonged precipitation. Snowmelt is frequently a contributing factor to winter and early spring flood runoff. A study of floods indicates a possibility of serious flooding during any season of the year. The frequency of flooding however is highest for the late winter-early spring season.

The future effects of anticipated climate change on water resources are of increasing concern. It is considered highly likely that the region will continue to warm throughout the 21st century, with temperature increases projected to occur relatively evenly throughout the year. Such change may impact interconnected hydrologic aspects, including: precipitation, snowpack, runoff, soil moisture & drought, evapotranspiration, groundwater, stream temps, floods and water quality. The following table illustrates the general climate projections for regional water resources.

Generally, it is possible that the region's climate will become warmer and more extreme in the future, with longer dry periods and precipitation events of greater intensity. The most significant effects predicted for stream and wetland communities are increased water temperature and increased variability of the water environment. The latter may be reflected in changing seasonal patterns of water levels, reduced stream flows during dry periods, larger floods and longer droughts.

Table EA- 3. Summary of General Projections for Regional Water Resources for 21st Century

Hydrologic Aspects	Projections, including Confidence Levels
Precipitation	Increase in winter precipitation as rain. Small to no increase in summer precipitation. Increase in heavy precipitation events [**high confidence for winter, lower for summer**].
Snowpack	Substantial decrease in snow cover extent and duration [**high confidence**].
Runoff	Overall increase, but mainly due to higher winter runoff. Decrease in summer runoff due to higher evapotranspiration [**moderate confidence**].
Soil moisture/ droughts	Decrease in summer and fall soil moisture. Increased frequency of short and medium-term soil moisture droughts [**moderate confidence**].
Evapotranspiration	Increase in temperature throughout the year. Increase in evapotranspiration during spring, summer and fall [**high confidence**].
Groundwater	Increase in recharge due to reduced frozen soil and higher winter precipitation when plants are not active and evapotranspiration is low [**moderate confidence**].
Stream temperature	Increase in stream temperature for most streams likely. Some spring-fed headwater streams less affected [**high confidence**].
Floods	Decrease of rain-on-snow events, but more summer floods and higher flow variability [**moderate confidence**].
Water Quality	Flashier runoff and increasing water temperatures might negatively impact water quality [**moderate confidence**].

Source: *Pennsylvania Climate Impact Assessment Update*, 2015.

3.1.5 Geology, Topography and Soils

See MP section 2-3 for information.

3.1.6 Noise

The area surrounding Mahoning Creek Lake is mainly rural and there are no apparent intrusive noise sources from around the lakes. At the lakes themselves, noise sources include watercraft motors, vehicular traffic, and human voices at areas of concentrated use (for example, day use areas and campgrounds). Noises along the creek vary as a function of proximity to human noise sources as sections by more populated areas or transportation corridors can have substantial noise from those sources.

3.1.7 Hazardous Materials

The EPA's Envirofacts website lists one coal mine within close proximity to Mahoning Creek Lake. As there are no specific plans to develop federal lands and adjacent properties are undeveloped, the potential for discovery of hazardous materials is remote. In the event that any developments on Corps property are proposed, however, Federal law requires site-specific due diligence on a case-by-case basis before development can occur. Hazardous materials are regulated by the Resource Conservation and Recovery Act, the Comprehensive Environmental

Response, Compensation, and Liability Act, Oil Pollution Act, Toxic Substances Control Act, and related guidelines established by the Corps and Pennsylvania. Any change in the storage or use of hazardous materials must comply with these regulations.

3.2 Biological Environment

3.2.1 Fish and Wildlife

See MP section 2.4.1 for information.

3.2.2 Terrestrial Vegetation and Land Cover

Lands at Mahoning Creek Lake are both predominately vegetated by deciduous forest. The following table lists the vegetation type and amount of acres at each project.

Table EA- 4. Terrestrial Vegetation Types

Predominant Vegetation Type	Acres
Annual And Perennial Forb/Grass	518
Deciduous Forest	2293
Deciduous Shrub land	136
Evergreen Forest	28
Maintained Lawn	39
Mixed Deciduous-Evergreen Forest	9

Land Cover within the watershed consists mainly of forested area and agricultural areas. A land cover map is located in Appendix A, Plate 10.

3.2.3 Threatened and Endangered Species

See MP section 2.4.3 and Table 2-2 for information.

3.2.4 Invasive Species

See MP section 2.4.4 for information.

3.2.5 Wetlands

See MP section 2.4.6 for information.

3.3 Community Setting

3.3.1 Cultural Resources

See MP section 2.5 for information.

3.3.2 Socio- Economic Profile

See MP sections 2.6 and 2.7 for information.

3.3.3 Recreation

See MP section 2.8 for information.

3.3.4 Transportation

Located less than an hour away from Downtown Pittsburgh, Mahoning Creek Lake is crossed and bounded by a number of roads including State Routes 28/66, 839, 954, and U.S. 119.

Developed roads and parking lots exist on project lands. These roads and parking lots are confined to areas that support developed recreational sites. The undeveloped portions of the project have limited transportation infrastructure. Trails run throughout the project and provide access to certain portions of these lands. The transportation corridor map is in Appendix A, Plate 11.

4 Environmental Consequences

This section describes and compares effects of the alternatives to existing conditions within each environmental media category. NEPA requires consideration of context, intensity, and duration of adverse and beneficial impacts (direct, indirect, and cumulative) and measures to mitigate for impacts. These elements are considered in the following impact analysis.

Adoption of the proposed MP would help define the approval process for future actions affecting project lands, depending on whether the actions are 1.) specifically included in the MP, 2.) not included in the MP, but consistent with the Plan, or 3.) not included and not consistent with the recommendations, objectives and policies stated in Corps regulation. For actions that are identified in the MP, the approval process would still require adequate NEPA consideration (whether categorically excluded or requiring an additional tiered EA) and compliance with other environmental laws and regulations prior to initiating construction.

The following table presents a summary of potential impacts. Impacts are described in detail by environmental media category:

Table EA- 5. Summary of Impact Analysis for Alternatives

Resource	No-Action Alternative	Conservation/Low-Density Development	High-Density Development
Physical Environment			
Hydrology & Flood Plains	No Impact	No Impact	No Impact
Water Quality	Potential long-term degradation from outdated planning	No Impact	Minimal Adverse Impact
Air Quality	No Impact	No Impact	Temporary Minimal Adverse Impact
Climate	No Impact	No Impact	No Impact
Geology, Topography, & Soils	No Impact	No Impact	Temporary Minimal Adverse Impact
Noise	No Impact	No Impact	Temporary Minimal Adverse Impact
Hazardous Materials	No Impact	No Impact	No Impact
Biological Environment			
Fish & Wildlife	Potential long-term degradation from outdated planning	Minimal Beneficial Impact	Minimal Beneficial Impact
Terrestrial Vegetation & Land Cover	Potential long-term degradation from outdated planning	Minimal Beneficial Impact	Temporary Minimal Adverse Impact
Threatened & Endangered Species	No Impact	No Impact	No Impact
Invasive Species	No Impact	Minimal Beneficial Impact	Minimal Beneficial Impact
Wetlands	No Impact	No Impact	No Impact
Community Setting			
Cultural Resources	No Impact	No Impact	No Impact
Socioeconomic Profile	Potential long-term degradation from outdated planning	No Impact	No Impact
Transportation	No Impact	No Impact	No Impact
Recreation	Minimal Adverse Impact	Minimal Beneficial Impact	Minimal Beneficial Impact

4.1 Physical Environmental Impacts

4.1.1 Hydrology and Floodplains

No-Action, Conservation/Low-Density Development, High-Density Development. None of the alternatives would have a significant impact to hydrology or floodplains. In order to meet the missions of the Corps and the other management partners, many developed sites and facilities are located within the floodplain. Most of these structures have been designed to withstand and not interfere with the conveyance of floodwaters. This is important, as periodically it becomes necessary for these lands to be flooded to achieve the Corps' flood risk management purpose. All

actions occurring within floodplains must be consistent with EO 11988, Floodplain Management, and related Corps policy. Any construction activities would not impede the flood storage capacity of the Project. This would include improvements to existing recreation facilities, addition of buildings/facilities to previously disturbed areas, addition or improvement to boat launches, and maintenance dredging and disposal of sediment.

4.1.2 Water Quality

No-Action. No significant impact to water quality would occur. The Corps would continue to operate the Project but without the benefit of an updated MP as guidance for management decisions. Without an updated MP, it is possible that Project-wide consideration of individual actions may be lost, leading to an overall degradation of water resources over time.

Conservation/Low-Density Development. No significant impact to water quality is anticipated. For the known proposed activities noted in Section 2 (terrestrial recreation development, aquatic recreation development, habitat modifications, maintenance and safety improvements, and outreach) overall water quality benefits are expected. Some construction activities, such as trail construction, may have temporary adverse impacts to water quality. However, these impacts would be minimal as construction would be done with an approved erosion and sedimentation plan, as needed. Clean Water Act permits would be completed, as needed, when project specific information is obtained. Removal of invasive species in areas adjacent to bodies of water should only be undertaken using herbicides approved for aquatic use and in approved doses to ensure impacts to water quality are avoided. Habitat improvement projects and thoughtful management of non-recreational requests are expected to have direct benefits to water quality. Additionally, increased outreach and public education regarding water resource vulnerability can increase awareness and sensitivity, as well as community feelings of responsibility, ownership, and protection of the resource.

High-Density Development. Potential impact to water quality is anticipated. This alternative could create additional areas of impervious surfaces that would generate additional stormwater runoff. Depending upon the size of paved areas and proximity to Mahoning Creek, there is the potential for introducing nutrients to waters from soil erosion and sediment. In addition, runoff could temporarily raise local water temperatures and impact turbidity, thereby effecting local habitats.

4.1.3 Air Quality

No-Action, Conservation/Low-Density Development. Air quality within the project boundary can be influenced by exhaust from motor vehicles and boats, the use of grills and fire pits. The large open area that is created by the reservoir allows for strong breezes to blow through the project area. These breezes can rapidly reduce and/or eliminate any localized air quality concerns caused by these pollutants. Neither the No-Action Alternative nor the Conservation/ Low-Density Development alternatives would have significant adverse impacts to air quality.

High-Density Development. Temporary, minor impacts could occur during construction activities. In addition, increased recreational traffic could increase local emissions for the long term. While local impacts could occur, overall the level of increase would be expected to be minimal in comparison to the general emissions of the surrounding counties.

4.1.4 Climate

No-Action, Conservation/Low-Density Development, High-Density Development. None of the alternatives will significantly impact current or future expected climate conditions.

4.1.5 Geology, Topography and Soils

No-Action, Conservation/Low-Density Development. No impacts will occur to geology, topography or soils from either alternative.

High-Density Development. There is a potential for limited minor impacts to soils from the creation of additional impervious surfaces (roads and parking lots), plus extension of existing water and electricity utilities, and possible construction of new permanent structures. No significant impact to geology, topography, or soils would occur.

4.1.6 Noise

No-Action, Conservation/Low-Density Development. None of the alternatives will have a significant impact on existing noise levels. Construction activities and habitat maintenance activities could have local, temporary impacts. Additionally, trail development could lead to increased human access and noise to new areas of the Project, particularly any heritage trail development. By avoiding any known sensitive areas, such as nesting sites or culturally important quiet areas, and using adaptive management as needed to correct any unforeseen impacts, no significant impact to noise levels is expected.

High-Density Development. Construction activities would temporarily increase noise levels, however not to the level of a significant adverse impact. The effects of converting lands to High-Density recreation and improvements leading to increased car and boat traffic would have permanent impacts on noise levels. By avoiding any known sensitive areas, such as nesting sites or culturally important quiet areas, and using adaptive management as needed to correct any unforeseen impacts, no significant impact to noise levels is expected.

4.1.7 Hazardous Materials

No-Action, Conservation/Low-Density Development, High-Density Development. No impacts are expected to hazardous materials from any alternative. As needed, further site-specific reviews of any development site would be conducted for compliance with the Comprehensive Environmental Response, Compensation and Liability Act and Corps real estate requirements (Environmental Condition of Property/Preliminary Assessment Screening).

Additionally, thoughtful preparation and planning for the projected increase in non-recreational requests (i.e. Pennsylvania Shell ethylene cracker plant-related infrastructure, natural gas

transmission lines) will protect the Project resources from any negative impacts. Designation of ESAs and FWSs will protect the most sensitive sites on Project lands.

4.2 Biological Environmental Impacts

4.2.1 Fish and Wildlife

No-Action. No significant impact to fish and wildlife would occur. The Corps would continue to operate the Project but without the benefit of an updated MP as guidance for management decisions. Without an updated MP, it is possible that Project-wide consideration of individual actions may be lost, leading to an overall degradation of the land and water resources over time.

Conservation/Low-Density Development, High-Density Development. These alternatives would have an overall beneficial impact on fish and wildlife resources through a systematic approach to management of Project land and water resources. The monitoring, adaptive management and habitat improvement efforts will all have beneficial impacts. Protection and management of sensitive areas through the designation of ESAs and FWSs will also be beneficial. Additionally, increased outreach and public education regarding fish and wildlife resources can increase awareness and sensitivity, as well as community feelings of responsibility, ownership, and protection of the resource.

Construction activities associated with the planned projects would have short duration negative impacts due to increased noise and human disturbance. Also the development of new trails into new areas of the Project could disturb individual animals. Prior to any clearing of trees or construction activities, surveys for nesting birds or protected species would be conducted as necessary to ensure compliance. By avoiding sensitive areas and sensitive seasons (nesting, bat roosting, etc.) and using adaptive management as needed to correct any unforeseen impacts, no significant impact to fish and wildlife is expected.

4.2.2 Terrestrial Vegetation and Land Cover

No-Action. No significant impact to vegetation and land cover would occur. The Corps would continue to operate the Project but without the benefit of an updated MP as guidance for management decisions. Without an updated MP, Project-wide consideration of individual actions may be lost, leading to an overall degradation of the land and water resources over time.

Conservation/Low-Density Development, High-Density Development. Vegetation would be surveyed and a management plan implemented under these alternatives. Removal of invasive species and addition of environmentally sensitive areas would improve native terrestrial vegetation within the area. Additionally, increased outreach and public education can increase awareness and sensitivity, as well as community feelings of responsibility, ownership, and protection of the resource.

Proposed construction and maintenance activities could have local impacts to vegetation, however in the context of the overall size of the natural areas within the Project, these impacts would not be significant.

4.2.3 Threatened and Endangered Species

No-Action, Conservation/Low-Density Development, High-Density Development. None of the alternatives would have any effect on threatened or endangered species. Best management practices, to include seasonal restrictions on vegetation removal, would insure that no impact would occur. Any recommended development actions that may impact protected species would require consultation with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act once site specific details are available.

4.2.4 Invasive Species

No-Action. The original MP does not address invasive species, and is out of date and non-compliant with current laws and regulations. However, under the No Action alternative the District would continue to implement best management practices with regards to invasive species management.

Conservation/Low-Density Development, High-Density Development. The low- and high-density development alternatives would address invasive species issues and will follow current District policy by using adaptive and best management practices in prevention, education, early detection, rapid response, and containment to try to control and manage invasive species. Overall a positive effect with regard to reducing the prevalence of invasive species is anticipated as a result of the preferred alternative.

4.2.5 Wetlands

No-Action, Conservation/Low-Density Development, High-Density Development. None of the alternatives would impact wetlands. Wetlands are regulated under Section(s) 401 and 404 of the Clean Water Act. Section 401 Water Quality Certification ensures compliance with water quality standards. Section 404 regulates activities within Waters of the U.S., which includes Mahoning Creek Lake and their surrounding tributaries. Further direction is provided by EO11990: Protection of Wetlands and related Corps regulations. Recommendations included within the preferred alternative will need to comply with Clean Water Act regulations and permitting prior to initiation of construction. Any proposed development would avoid impacting wetlands. If wetland impacts could not be avoided, then further analysis and coordination would be needed for that action.

4.3 Community Setting Impacts

4.3.1 Cultural Resources

No-Action. The No-Action Alternative would have "No Effect" on historic or archeological resources.

Conservation/Low-Density Development, High-Density Development. Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations 36 CFR Part 800 require Federal agencies to take into account the effect of an undertaking on historic and archeological resources if that Project is under the direct or indirect jurisdiction of the agency or has been licensed or assisted by that agency. The recreation recommendations contained within the Low- and High-Density Development alternatives would include site specific coordination in accordance with the Section 106 process. The Low- and High-Density Development alternatives would also have a beneficial impact on cultural resources by allowing these locations to be managed accordingly. Development of heritage trails would be developed in such a way as to protect sensitive resources and would use adaptive management as needed to correct any unforeseen impacts. No significant impact to cultural resources would be expected

4.3.2 Socio- Economic Profile

No-Action. No significant impact to socioeconomics would occur. The Corps would continue to operate the Project but without the benefit of an updated MP as guidance for management decisions. Without an updated MP, it is possible that Project-wide consideration of individual actions may be lost, leading to an overall degradation of the land and water resources over time. Degradation of the resources could potentially reduce the recreation opportunities and, therefore, recreation related business opportunities.

Conservation/Low-Density Development, High-Density Development. None of the action alternatives would significantly impact socioeconomics. Future plans under the low- or high-density development alternatives could enhance concessions in the area with a likely small positive impact to the local economy. None of the alternatives would adversely affect minority populations, low-income populations or children. No significant impact to socioeconomics and environmental justice are anticipated.

4.3.3 Transportation

No-Action, Conservation/Low-Density Development, High-Density Development. None of the alternatives would impact transportation. Recommendations for improvements and construction projects under the low- or high density alternatives could have short-term adverse impact on transportation within the region from traffic diversions during construction; however, no significant long-term adverse impacts are anticipated.

4.3.4 Recreation

No-Action. Although maintenance of current recreational facilities would continue under the No-Action Alternative, continued use of the existing MP would not accurately reflect the current status of facilities or existing and future recreational needs which would impact the recreation activities within the project area. . The Corps would continue to operate the Project but without the benefit of an updated MP as guidance for management decisions. Without an updated MP, it is possible that Project-wide consideration of individual actions may be lost, leading to an overall degradation of the land and water resources over time.

Conservation/Low-Density Development, High-Density Development. The recreational needs of the public would be better accommodated through the implementation of either of the other two proposed alternatives. Potential beneficial impacts include modernizing and upgrading existing facilities and increased management of natural resources through some of the Resource Plan recommendations.

4.4 Cumulative Impacts

The CEQ regulations that implement NEPA require assessment of cumulative impacts in the decision-making process for Federal projects. Cumulative impacts are defined as impacts which result when the impact of the preferred alternative is added to the impacts of other present and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions (40 CFR 1508.7).

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts of activities in and around Mahoning Creek Lake. Past actions include the construction and operation of the reservoir and the construction of the surrounding recreation areas. Concurrent regional development included construction of residential, commercial, and industrial facilities throughout the region. All of these developments have had varying levels of adverse impacts on the physical and natural resources in the region. Many of these developments, however, have had beneficial impacts on the region's socioeconomic resources. In addition, many of the historic impacts have been offset throughout the years by the resource stewardship efforts of the District, the Pennsylvania Game Commission, and the Pennsylvania Fish & Boat Commission.

The development of the dam and reservoir created new natural and physical conditions, and altered Mahoning Creek's hydrology, which, through careful management by the District and other management partners, have created new and successful habitats and other natural resource conditions. The District and the other management partners have also brought a wide variety of high-quality recreational opportunities to the reservoir.

Existing and future actions also contribute to the cumulative impacts in and around the reservoirs. Existing and future actions include the operation of project facilities, upgrades and maintenance of recreation sites, as well as residential, commercial, and industrial development throughout the region.

Under the No-Action Alternative (baseline conditions), project operations would continue, somewhat inefficiently, using out-of-date guidance that is not agile and slow to respond to potential environmental changes. Consequently, threats such as invasive species could establish prior to detection and remediation, potentially harming local ecosystems in the process. Existing recreational activities would continue but no new types would be generated. Modernized emergency response systems would not be implemented, thus leaving safety degraded. No new visitors who would otherwise be a benefit for the local economy would be attracted.

Under the Conservation/Low-Density Development Alternative, ongoing project operations would be enhanced by new processes for efficient management of environmental resources and integrating any future recreational activities in a manner with minimal adverse impacts. Such a system would be responsive to both changes in the environment and recreational demands. The emphasis on conservation will preserve the region's aesthetics, maintain thriving ecosystems and habitats, and enhance recreation activities. The planned approach will continue to attract visitors and potentially bring in new ones, benefitting the local economy. The programmatic approach to project management, included in this EA and attached MP, would allow for future development plans and mitigation responses to be adapted to address any adverse actions. This would allow the District and other management partners to continue to reduce the negative contribution of its activities to regional cumulative impacts through proactive actions and adaptive resource management strategies.

The High-Density Development Alternative would include some of the land management processes; however, concentrations of high-density development would have a variety of adverse impacts – short-term for air and soil from construction activities, longer-term to the creek bank from possible soil erosion and water from effects of runoff from impervious surfaces. Runoff has the potential to impact water temperatures and introduce nutrients which may be harmful to local habitats. These consequences can be mitigated, but a constant expense which may not always be available in an era of declining budgets. High-density development would bring in additional management expenses for utilities infrastructure installation and maintenance. The clearing of significant amounts of trees for new developments would eliminate certain habitats and alter the aesthetics of the region. High-density development would be driven by demand, which current polls have determined to support the opposite types of recreation.

4.5 Compliance with Environmental Statutes

Federal Policy	Compliance Status
Archaeological and Historic Preservation Act, 16 U.S.C. 469, et seq.	Full Compliance
Bald and Golden Eagle Protection Act, 16 U.S.C. 668-668c	Full Compliance
Clean Air Act, as amended, 42 U.S.C. 1857h-7, et seq.	Full Compliance
Clean Water Act, 33 U.S.C. 1857h-7, et seq.	Full Compliance
Comprehensive Environmental Response, Compensation, and Liability Act 42 U.S.C. 9601 et seq.	Full Compliance
Endangered Species Act, 16 U.S.C. 1531, et seq.	Full Compliance*
Federal Water Project Recreation Act, 16 U.S.C. 460-1(12), et seq.	Full Compliance
Fish and Wildlife Coordination Act, 16 U.S.C. 601, et seq.	Full Compliance*
Land and Water Conservation Fund Act, 16 U.S.C. 460/-460/-11, et seq.	Full Compliance
Migratory Bird Treaty Act 16 U.S.C. 703-712	Full Compliance
National Environmental Policy Act, 42 U.S.C. 4321, et seq.	Full Compliance**
National Historic Preservation Act, 16 U.S.C. 470a, et seq.	Full Compliance*
River and Harbors Act, 33 U.S.C. 403, et seq.	Full Compliance
Watershed Protection and Flood Prevention Act, 16 U.S.C. 1001, et seq.	Not Applicable
Wild and Scenic Rivers Act, 16 U.S.C. 1271, et seq.	Full Compliance
Flood Plain Management (EO11988)	Full Compliance
Protection of Wetlands (EO11990)	Full Compliance*
Environmental Justice in Minority Populations and Low-Income Populations (EO12898)	Full Compliance
Invasive Species (EO13112)	Full Compliance

*Having met all requirements for this stage of planning, but future recommendations contained within this EA may require additional action for compliance.

**Full compliance anticipated after public review and District Commander signs FONSI.

5 Coordination and Public Involvement

Agency and public involvement was initiated in 2017, when the District published notices announcing Plan to revise the MP. This notice was followed by public comment periods, agency meetings, and additional public open houses. These public involvement activities and comments are described in detail in Chapter 7 of the MP and Appendix B, Agency and Public Coordination.

The Mahoning Creek Lake MP, Environmental Assessment, and draft Finding of No Significant Impact will be circulated for a 30-day public review period.

6 Conclusion

The Conservation/Low-Density Development Alternative meets currently foreseeable recreation and environmental stewardship needs and addresses environmental issues, with no significant environmental impacts anticipated. The recommended alternative also brings the MP into compliance with updated Corps regulations. An Environmental Impact Statement is not required and a FONSI will be prepared.