Environmental Assessment

Tygart Lake 2020 Master Plan and Shoreline Management Plan

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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) and a Shoreline Management Plan (SMP) for each reservoir project. A 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. An SMP provides policies and guidelines for the effective long-term management of shoreline resources. An SMP is an appendix of a project's Operational Management Plan, mandated by Engineer Regulation (ER) 1130-2-406, which manages the aesthetic and environmental characteristics of a reservoir and protects limited resources in the face of increasing public shoreline license requests. The Pittsburgh District is proposing to adopt and implement revisions to both the Tygart Lake MP and SMP.

Tygart Lake (the Project) was authorized by the Rivers and Harbors Act of 1935. The Project was one of the first of 16 flood control facilities in the Pittsburgh District. The Project, which became operational in 1938, was initially authorized for flood control, navigation, water supply, low flow augmentation, and water quality. Subsequent authorizations provided for water quality improvement, fish and wildlife management, and recreational use of the impoundment and Project land (Corps 1992). The Project provides flood protection for the Tygart River Valley as well as for the Monongahela and upper Ohio Rivers. The original MP was completed in 1954 and last updated in 1976. The original SMP was drafted in 1978 and last revised in 1982. Changes in Corps regulations and community needs necessitate revisions to these planning documents. The revised MP and SMP will replace the former versions and provide a balanced, up-to-date management plan that follows current Federal laws and Corps regulations while sustaining Tygart Lake's natural resources and providing outdoor recreational experiences.

1.1.1 Project Area

Tygart Lake is a multi-purpose project which provides a storage system for flood risk reduction on the Tygart, Monongahela, and Ohio River Valleys. It is located in northern West Virginia, approximately 100 miles south of Pittsburgh. Tygart Lake consists of 4,599.8 acres including road and flowage easements. Near the dam, the Corps maintains an information center, project office, two dwellings, a maintenance building, walking trail to the dam, outdoor restrooms, and Corps boat ramp. The Corps leases 1,379 acres to the West Virginia Department of Natural Resources (WVDNR). A Project Area map is located in Appendix A, Plate 1.

1.1.2 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. Such a plan is in compliance with current regulations, policies and laws governing MPs. The original 1954 MP focused on development recommendations for recreational areas. A 1976 revision updated data on existing conditions, maintenance, and expansion of recreational facilities. This version is the current working version of the MP; however, this 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 Engineering Pamphlet (EP) 1130-2-550 Change 5, dated 30 January 2013) which includes updating the categories of land classifications used to define project lands.

An evaluation of the 1976 MP identified a number of deficiencies that indicated a need for an updated MP. There have been significant changes in regional natural resources management, including the listing 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. In order to meet these new directives and comply with Corps policy requiring regular updates to MPs, the District proposes to adopt the revised Tygart Lake MP with updated land classifications and a revised set of recommendations for future developments and improvements.

An SMP provides policies and guidelines for the effective long-term management of shoreline resources to balance increasing recreational demands and development with conservation of fixed resources for current and future generations. The Corps drafted the original SMP in 1978 in response to the unregulated growth of private development including boat docks, paths, steps, mowing, and erosion control. The 1978 SMP established policies and guidelines for the protection and preservation of the desirable environmental characteristics of the Tygart Lake shoreline. The SMP was revised in 1982 and has remained in effect since.

Over the past 38 years, changes have occurred that warrant an update to the SMP. These include changes in policy regulations, and recreational use, as well as surrounding population growth. Pursuant to Title 36 Code of Federal Regulations (CFR) Part 327.30 and ER 1130-2-406, the objective of the updated SMP is to maintain a balance between permitted private uses, long-term natural resource protection, and public recreation opportunities. Specifically, the intended purpose of a SMP is to provide policies and guidelines for effective long-term management of shoreline resources around Tygart Lake, to provide optimum use of finite resources for present

and future generations, and to consider shoreline restoration measures where erosion has occurred.

This Environmental Assessment (EA) addresses the proposed adoption and implementation of the revised Tygart Lake MP and SMP. The EA analyzes potential impacts of implementing the MP and SMP 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 ER 200-2-2, Procedures for Implementing NEPA. The EA references and supports the Tygart Lake MP and SMP.

Often, the typical focus of NEPA compliance consists of environmental impact assessments for individual projects, rather than for long-range planning. 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.

This EA analyzes potential impacts of the proposed changes in land and shoreline management as associated with the implementation of the new MP and SMP. It also assesses the impacts of known development requests, as described in Section 7 of the Master Plan and below in Section 2.2 of this EA. Furthermore this EA will also programmatically analyze impacts associated with the review and renewal of shoreline licenses, as allowed within the SMP (Section 4).

The District would comply on a site-by-site basis with all applicable environmental statutes listed in Section 4.5 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.

1.1.3 Land and Shoreline Allocations and Classifications

As part of updating the MP and SMP, land and shoreline allocations and use classifications will be updated to ensure consistency with authorized purposes. Allocations identify the authorized purposes for which the Corps lands and shoreline were acquired. Per EP 1130-2-550, land allocations include:

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: This allocation would denote lands acquired specifically for the congressionally authorized purpose of recreation. However, no specific parcels at Tygart Lake

were acquired for or assigned to the 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: This allocation would denote lands acquired specifically for the congressionally authorized purpose of Fish and Wildlife. However, no specific parcels at Tygart Lake were acquired for or assigned to the purpose of Fish and Wildlife. 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: This allocation would denote lands acquired specifically for the congressionally authorized purpose of Mitigation. However, no specific parcels at Tygart Lake were acquired for or assigned to the purpose of Mitigation. 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, consider public desires, legislative authority, regional and Project-specific resource requirements, and suitability. Land classifications indicate 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 used an obsolete classification scheme that has been rectified in this document to meet current standards. Land classifications, described below, include project operations, high-density recreation, environmentally sensitive areas (ESAs), multiple resource managed lands, and water surface.

1. 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 Tygart Lake. 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. Project operations are compatible with the operations land allocation.

2. High-Density Recreation: These lands are designated for intensive levels of recreational use to accommodate and support the recreational needs and desires of visitors. They include lands on which existing or planned major recreational facilities are located and allow for developed public recreation facilities, concession development, and high-density or high-impact recreational use. In general, any uses of these lands that interfere with public enjoyment of recreation opportunities are prohibited. Low-density recreation, such as hiking and tent camping, and wildlife management activities compatible with intensive recreation use are acceptable, especially on an interim basis. The Corps does not permit agricultural uses on those lands except on an interim basis for maintenance of scenic or open space values. The Corps will

not issue permits, licenses, or easements 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. High-density recreation is compatible with the recreation land allocation.

3. Environmentally Sensitive Areas (ESAs): This classification consists of areas where scientific, ecological, cultural, or aesthetic features have been identified. The Corps generally prohibits development for public use on lands within this classification to ensure that these sensitive areas are not adversely impacted. Agricultural uses are not permitted on lands with this classification. ESAs are compatible with the fish and wildlife land allocation.

4. 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: Use of these lands include agricultural activities that do not greatly alter the natural character of the environment and 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 state fish and wildlife management regulations where these activities are not in conflict with the safety of visitors and Project personnel, or the operation of the facilities.

- Wildlife Management: Proper management techniques will be applied 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

  Multiple resource management lands are compatible with the recreation land allocation.

5. Water Surface: This refers to collected waters on the surface of the grounds, such as rivers, lakes, and wetlands. 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.

Water surface is compatible with the operations, fish and wildlife, and recreation land allocations.

Shoreline allocations include:

1. Prohibited Access Areas: The Corps has established these areas for the physical safety of the public or for security reasons. Shoreline use privileges are not allowed in these areas. These areas include the immediate area of Tygart Dam, posted danger/restricted areas upstream and downstream, and the service base and maintenance facilities.

2. Public Recreation Areas: Public recreation areas include Tygart Dam Day Use Area and the West Virginia Division of Natural Resources areas including both Tygart Lake State Park and Pleasant Creek Wildlife Management Area. These areas have been developed in accordance with the project's MP to provide for public recreational needs.

3. Protected Shoreline Areas: Protected shoreline areas retain the natural, undeveloped character of the shoreline, maintain aesthetics, prevent erosion, and protect other environmental values of the lake. Fish and wildlife areas; scenic areas; areas of cultural, historical, or archaeological sites; areas impractical for moorage due to water depths or too shallow for navigation; and areas subject to excessive siltation, erosion, rapid dewatering, or exposure to high wind, wave, or currents are included in this designation.

4. Fee Limited Development Areas (LDAs): LDAs are areas established through prior development, public use, and management designation. Floating facilities and certain land-based activities may be authorized in these areas if a permit and/or license is obtained.

5. Flowage Easement Limited Development Areas: Easement lands are those sections of the Tygart Lake shoreline for which the Government purchased the perpetual right to flood or clear to the 1190 Mean Sea Level (MSL) elevation contour. Activities on easement lands are

subject to the terms of the specific easement, but generally such activities are prohibited if, in the opinion of an authorized Corps representative, may be detrimental to the continued operation and maintenance of Tygart Lake and/or Tygart Dam.

1.2 Prior NEPA Documentation

The original 1954 MP predates NEPA requirements. No environmental compliance documentation was found for the 1976 update. No NEPA documentation was found for the 1982 SMP.

2 Alternatives

This EA examines two alternatives: a No-Action Alternative, in which the current MP from 1976 and SMP from 1982 would continue to guide operations and management, and a Preferred Alternative of adopting a revised MP and SMP.

Data collection, public comments, and findings of the MP/SMP team determined that the Preferred Alternative was the only alternative that would meet the purpose, need, and objectives of the master planning process for Tygart Lake. The Preferred Alternative also 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 providing consistency with updated the Corps regulations. Compared to the No-Action Alternative, the preferred alternative presents minor changes to existing management practices and brings them in line with current practices.

2.1 No-Action Alternative

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 SMP would not meet current regulations or goals to regularly update a master planning document.

The 1976 MP and 1982 SMP would continue to provide the only source of comprehensive management guidance; however, this information is out of date and no longer adequately address the needs of the District, other management partners, or users of Tygart Lake. Furthermore, the 1976 MP does not include the revised land classifications (see MP Section 3.2) in accordance with current Corps regulations, and, due to adjoining land development, the 1982 SMP's shoreline allocations (see SMP Section IV) must be revised to address management of docks, utility installation, shoreline usage, and boundary management.

2.2 Preferred Alternative: Adoption of the revised MP and SMP

Adopting this course of action is the District's preferred alternative as retaining the current MP and SMP would prevent a proactive approach to managing Tygart Lake; future major developments or resource management policies would require approval on a case-by-case basis and would be using outdated guidance. The revision changes the land and water classifications, most notably the addition of environmentally sensitive areas. 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 revised SMP will apply more stringent criteria for permit applications.

The management recommendations were developed through public meeting workshops and comments provided by the public at the workshops and online. These management recommendations are non-regulatory and available for access by any citizen, group, or agency. Potential partners for the implementation are groups with the resources best suited to assist in meeting these objectives, such as the West Virginia Division of Natural Resources (WVDNR), a future "Friends of Tygart Lake" group, other conservancy groups, sportsmen's clubs, and cultural and recreational groups.

Table EA-1. Existing and Proposed Land Classification Category Names and Acreages.

1976 Master Plan		2020 Master Plan	
Existing Land Use Class	**Acres**	**Proposed Land Use Class**	**Acres**
Wildlife Management	894	Wildlife Management Areas	1,024.7
Fish and Wildlife Lands	22	ESAs	101.5
n/a	n/a	Project Operations	50.3
Recreation Intensive Use	232	High-Density Recreation	69.8
Recreation Low Density Use	306	Low-Density Recreation	290
n/a	n/a	Future Recreation	0.0
Boating Prohibited	83	Restricted	47.5
Unlimited Speed Zone	890	Open Recreation	1,428.4
Idling "No Wake" Speed Zone	813	Designated No Wake	331.3

Land and water classification acreages were derived using geographic information system (GIS) technology that was not available during the 1976 classifications. These totals do not reflect the official land acquisition records and no additional acres have been acquired. Therefore, acreages represented in Table EA-1 as land classification and the resulting totals may differ from official land acquisition and allocation. Additionally, 1,253 acres of flowage easement are not classified in either MP.

To better define protected resources, the Corps changed the land classification nomenclatures used in the 1976 MP, concurrent with new land surveys (Table EA-1). The purposes of the

former Wildlife Management and Fish and Wildlife Lands categories are contained within the replacement ESA and Wildlife Management Areas; however, ESAs are inclusive of specific types of lands, including wetlands and sites with archaeological potential.

The 1976 classifications do not specifically identify lands reserved for future recreational or operational functions. The 2020 classifications have identified the future recreation category, even though no acreage is currently designated, and approximately 50 acres for project operations. The Fish & Wildlife Lands category is being incorporated within the broader ESA classification that would also include archaeological sites, something the 1976 MP did not address. Other changes from 1976 to 2020 are nomenclature, but the functions are similar.

Significant land management changes between 1976 and 2020 are conservation related, pertaining to the increase in wildlife management areas to 115% of the original 1976 wildlife management acreage and a reduction of high-density recreation by 70% of the 1976 recreation intensive use acreage. Current low-density recreational areas have decreased by approximately 9% from the 1976 recreation low-density use acreage.

The Master Plan conceptually establishes and guides the management decisions for all natural, cultural, and recreational resources at the Project. The MP also provides specific recommendations to guide the direction of project management into the future including: to coordinate partnerships with stakeholders and the community, to modernize facilities within existing footprints, to update land classifications, to add non-motorized mountain bike trails at the request of the WVDNR, to construct a conference room addition at the visitor's center, to add a volunteer host site, to implement hydroelectric power, and to develop survey methods to identify and delineate areas that can be classified as ESAs (see MP Section 7).

The proposed mountain bike trail development is located within the footprint of existing hiking trails on the east side of the lake. These trails would be combined into four designated trails that would be improved through widening to 5 feet and grading in certain areas (see Figure 1-1).

The proposed facility developments would be located in restricted areas on land allocated for operations where prior grading and leveling has been performed (see Figure 1-2). The conference room, with a footprint of 0.13 acres, is an addition to the visitor's center. The host site, intended for volunteers staying overnight, would be a concrete pad or gravel bed on a 0.1-acre area that would include utility hook-ups for a single camper for electricity, water, and sewage. The utilities would tie into the existing ones at the Project.

Tygart Dam was built with a diversion gate in anticipation of future hydropower. While the dimensions of a future hydropower plant are unknown, the structure would have to fit within a 2-acre parcel that abuts the property line of a water company. This action is outside the scope of this EA and would need to be addressed in a separate NEPA analysis.

Figure 1-1. Proposed bike trails.

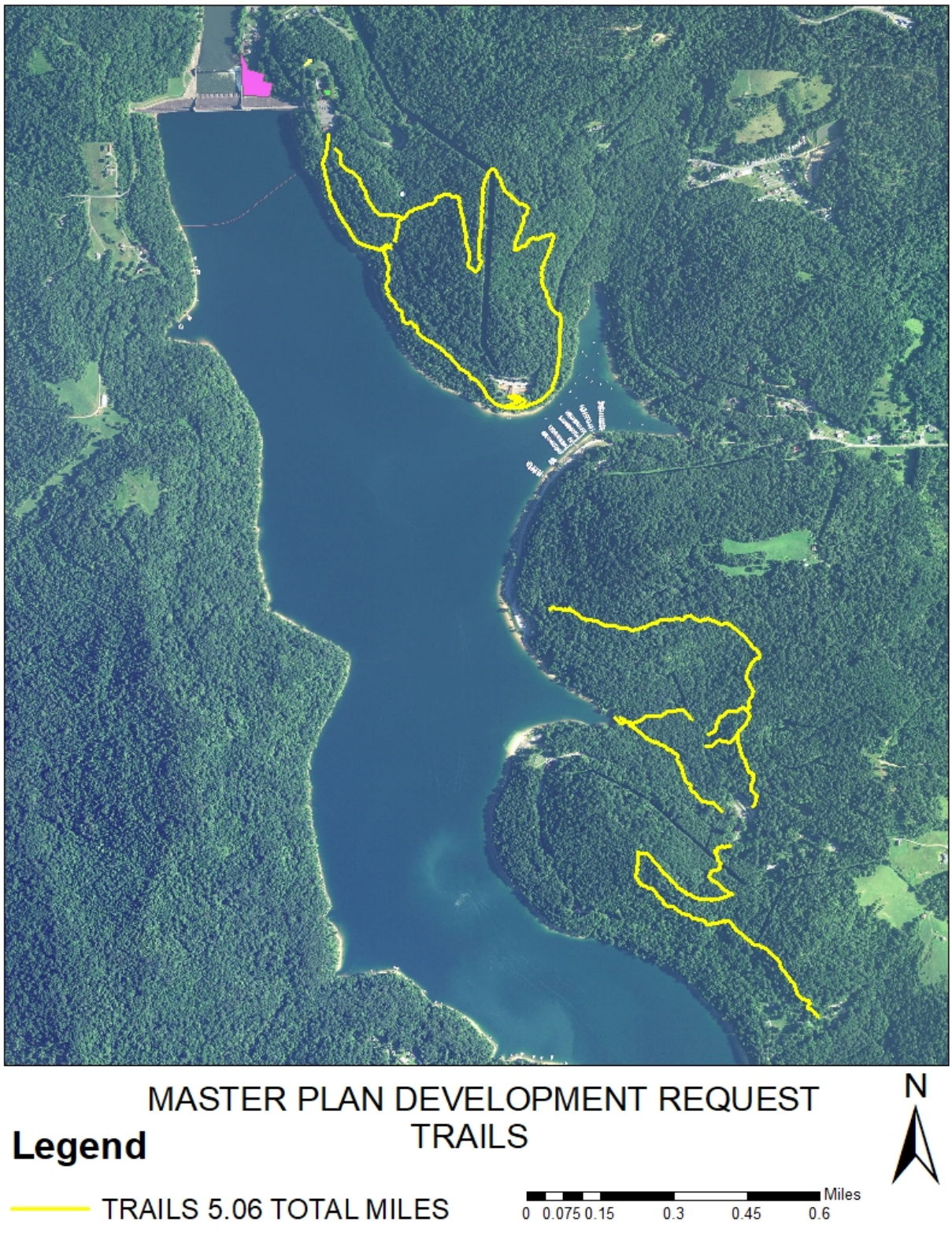
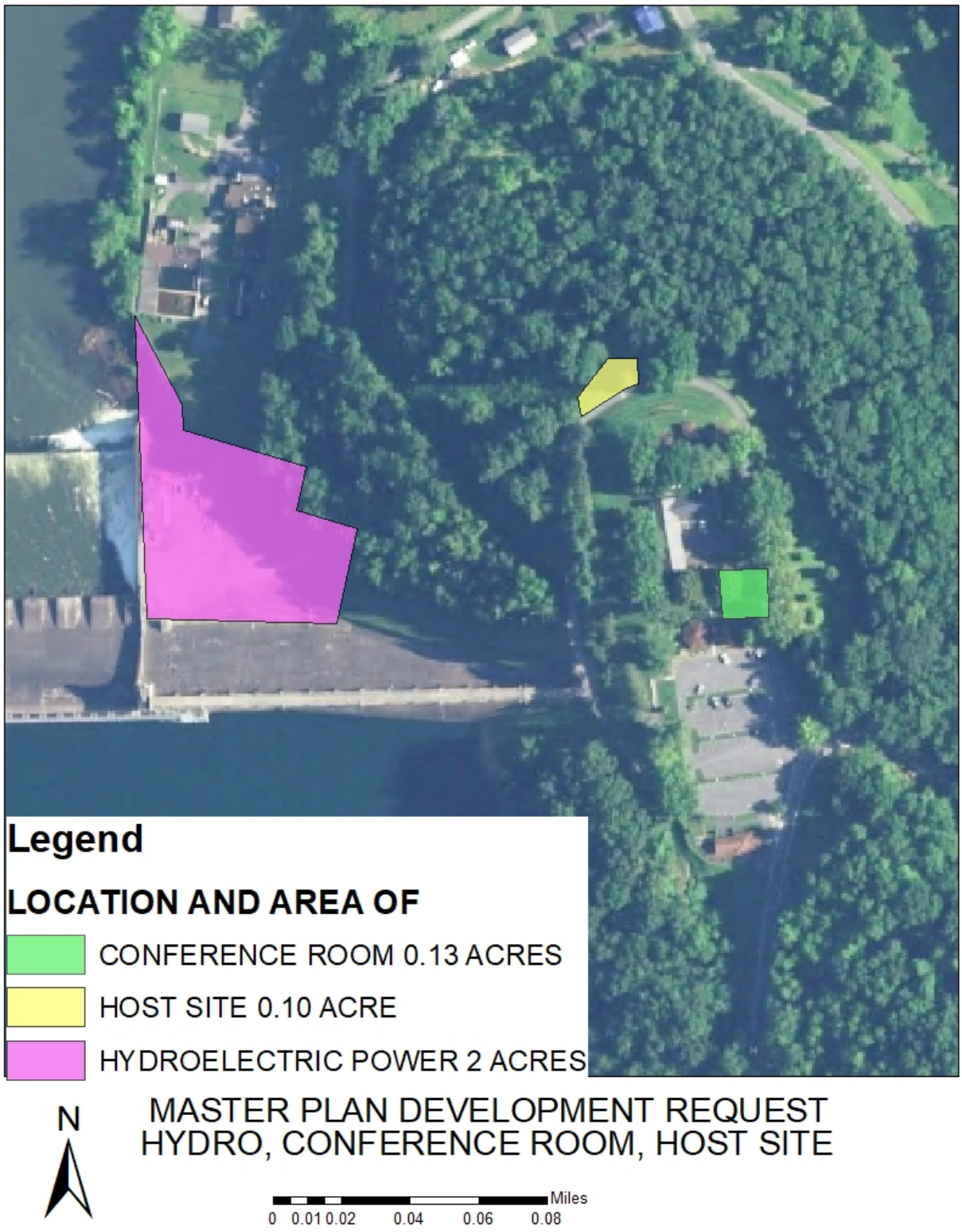


Figure 1-2. Proposed facility developments.



The SMP is an update of the 1982 plan. Unlike the 1982 SMP, the 2020 SMP will apply allocations to flowage easement lands. This appears to be a 26% increase in developable area but the Corps has been issuing dock permits and managing this land similarly to an LDA previously (see Table EA-2). The SMP also addresses with dock construction criteria and anchoring to address environmental, safety, and aesthetic issues. The revisions also recommend the use of shared docks instead of private ones as a cost-savings measure for permit applicants, to reduce the number of docks, and to reduce surrounding land impacts from access roads and parking. Table EA-3 illustrates primary changes in the proposed 2020 SMP from the present 1982 SMP in relation to topics pertaining to docks, boundaries, and Limited Development Area (LDA) shoreline usages:

Table EA-2 Shoreline Allocations

1982 SMP		2020 SMP	
Allocation	**Miles**	**Allocation**	**Miles**
Prohibited Access Areas	6.45	Prohibited Access Areas	6.45
Public Recreation Areas	6.79	Public Recreation Areas	6.79
Protected Shoreline Areas	13.24	Protected Shoreline Areas	13.24
Fee LDA	8.50	Fee Limited Development Area	8.50
		Flowage Easement LDA	3.04

Table EA-3. SMP changes.

Changes to Shoreline Management Plan (SMP)		
Topic (SMP)	**1982 SMP**	**2020 SMP**
Private Docks, Land Allocations	Limited Development Areas Public Recreation Areas Protected Lakeshore Areas Prohibited Access Areas	No change.
Private Docks, Size	The dock size is not to exceed 500 square feet.	No change.
Private Docks, Location and Spacing	Docks are authorized in Limited Development Areas only.	Docks are authorized in Limited Development Areas only. The dock must also be located at least 50 feet from every other dock using the outer edge of the dock structure as a reference point for measuring. In addition, the applicant must have at least 40 feet of frontage to be eligible for Shoreline Use Permit (SUP).

Private Docks, Standards for Color Restrictions	Solid, neutral color.	Neutral earth tone colors: white, dark green, black, tan, brown or gray.
Private Docks, Storage Compartments/Ladders	Storage and enclosed locker facilities permitted.	Enclosed storage on docks will be limited to a maximum of 50 cubic feet and used for recreation equipment only. Ladders for entry and exiting from the water may be attached to the dock structure.
Community Dock Associations and Boat Clubs	Applications for community boat docks or boat club docks must be accompanied with a photocopy of appropriate Articles of Incorporation of a non-profit corporation. A complete and current listing of the names and addresses of all members utilizing the facility must be provided. Only one application should be filed under the official name of the non-profit corporation.	A **community dock** is owned by members of a community that have a common boundary with the Corps. The Association must be a legally incorporated non-profit organization. Each member will have their own SUP. A new community dock cannot accommodate individuals who do not own adjacent property to the reservoir. A **boat club** is owned by members of an association that must be a legally incorporated non-profit organization. While each member has access to their own individual slip, only one SUP is required for a boat club. Existing boat clubs will continue to operate under their approved Corporate Charter and by-laws. Liability insurance may be required.
Roofs and Sundecks	Not in this Plan.	Docks shall not contain roofs or sundecks
Lights and Equipment	Light poles and their accompanying electric lines may be licensed where necessary as safety items. Electric lines shall either be buried or strung no lower than 8 feet above the ground and have a shut-off device above the flood pool elevation of 1190 msl. No electric lines or lights will be attached to trees. All applicable state and local health and electrical codes	Electrical equipment, including service for a private dock or shoreline security light, may be permitted provided that the installation of such equipment must conform to the National Electric Code, the National Electric Safety Code and all other applicable federal, state and local codes and regulations. The electrical installation must be completed by a licensed electrician and a copy of the electrical

	shall be adhered to. All electrical plans and work must be certified by a licensed electrician and documentation provided to the Resource Manager.	inspection certificate must be furnished to the Resource Manager before final approval. Electrical facilities on public property will only be approved to provide security lighting or power for a permitted private dock. Overhead electrical lines will not be permitted unless the Resource Manager determines that natural conditions preclude underground installation. Electrical lines or fixtures cannot be affixed to trees on public property. This will require a real estate license..
Steps and Walkways	Steps and Walkways will be licensed in Limited Development Areas and easement areas. They will remain only as long as the dock is in use under a SUP.	Materials used must be structural lumber. Metal staircases, placed concrete, or mortared block, brick or stone will not be authorized. Composite decking may be used on the walkways and railings. All wooded materials shall be pressure treated or otherwise treated with wood preservative that will not damage the environment. Wood treated for 'ground contact' or for marine environment is recommended. Painting of steps or walkways shall only consist of the following neutral earth tone colors: white, dark green, black, tan, brown or gray. This will require a real estate license.
Regeneration of Open Areas	Not in this Plan.	Unauthorized trees/vegetation cutting will result in a violation, a regeneration plan at the owner's expense, and suspension of a SUP if applicable. If plantings need to be done, a plan will be developed for the area with a mixture of native trees/shrubs and approved by the Resource Manager. Corps staff will periodically evaluate the planting areas to ensure successful regeneration.

Boundary Line Surveillance and Encroachment Policy	Not in this Plan.	Local survey standards include boundary monuments, H-beams and/or carsonite posts, and paint blazes on trees. In areas where the distance between corners is such that the monuments or pins are not visible, posts with signs may be placed by the Corps to witness the property line.
Duration of Shoreline Use Permit	Five-year term.	No change.
Mowing Limits in Limited Development Areas	40ft x 40ft, issued for a five-year term.	20 ft x 20 ft, issued for a five-year term.
Boundary Delineations	Not in this Plan.	The permittee shall submit his/her proposed method of delineation to the Resource Manager for consideration.
Erosion Control Methods	The erosion control structure may be of rip-rap (stone) type, wooden, placed concrete, or masonry.	Biotechnical erosion control methods are encouraged. Use of rip-rap is authorized. R-4 rip-rap or larger stone must be used. Small stone may also be approved provided it is topped with large stone. Public land disturbed by equipment used for placing rip-rap must be leveled, seeded, mulched and replanted with native trees (if required) to restore vegetative cover to the shoreline. Retaining walls or seawalls may be authorized provided it is built with proper footing, drainage behind the wall, and use of tie-backs. Erosion control methods will require a real estate license and may also require a Regulatory Permit.

SUPs may granted for docks. Shoreline licenses with stipulations may be granted for the following earth-disturbance activities:

1. Access Steps

2. Walkways

3. Light Poles

4. Electric Power Lines

5. Electric Chair Lifts

6. Rip Rap/Erosion Control

7. Flagpoles

Requirements for shoreline licenses typically include provisions for applicants to pay for repairs to Government property caused by exercising license privileges; prohibitions against air, ground, water, and noise pollution, prohibition against the use of chemicals to control or enhance vegetation; and prohibition against tree cutting or removal without prior written approval.

Currently, Tygart Lake has issued 130 permits and has the capacity for an additional 50 to 60 permits for docks based on the current number of parcels around the Project. The proposed changes to the SMP have no effect on this. Subdivision of parcels may create additional capacity in the future, subject to dock spacing requirements.

The total shoreline area is approximately 38.2 linear miles of which LDAs represent approximately 30%. The updated SMP will not change the sizes of the designated areas and shoreline licenses will be restricted within the 11.45 linear miles identified for LDAs.

3 Affected Environment

3.1 Physical Environment

3.1.1 Hydrology and Floodplains

Tygart Lake Project is part of a comprehensive system of storage reservoirs for flood control for the Tygart, Monongahela, and Upper Ohio Rivers. The Tygart Lake reservoir drainage area encompassed 1,184 square miles, coming from several tributary inlets. The lake is surrounded by steep slopes covered in timber and undergrowth, inhibiting soil erosion.

3.1.2 Water Quality

Tygart Lake is currently listed as having a good status overall and has improved from historical conditions. Historical impairments of Tygart Lake and its tributaries have largely been associated with mining in the region. Little Sandy Creek, a tributary to Sandy Creek which eventually drains into Tygart Lake, is known to have acidic mine drainage (AMD) parameters such as pH and metals (specifically iron and aluminum). Concerns about mercury and polychlorinated biphenyls (PCBs) at Tygart Lake existed from 2004-10, but the water quality had shown improvement by 2014. Abatement of AMD conditions have largely improved in the tributaries and streams of the Tygart Lake watershed due to the implementation of nonpoint source management measures by entities like the "Save the Tygart Watershed Association." The broader impacts of AMD inputs, specifically a reduction in biological activity such as primary productivity, can still be seen in the moderated trophic state of the lake. Current conditions are good for aquatic life though and the lake supports cold water fisheries of walleye and muskellunge. See MP section 2.1.7 Water Quality & Sedimentation for information.

3.1.3 Air Quality

Tygart Lake is located in the predominantly rural area of Taylor and Barbour Counties, West Virginia, and exhibits good air quality. There are only minor sources of air pollution within the Project Area, primarily associated with vehicles. Table EA-4 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 Taylor and Barbour 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-4. National Ambient Air Quality Standards (NAAQS) and air quality status for Taylor and Barbour Counties as of Jan. 31, 2020 U.S. Environmental Protection Agency (USEPA 2020a).

Pollutant	NAAQS (standards)	Averaging Time	Status (County) *
Carbon Monoxide	9 ppm (10 mg/m^3)	8-hour	Full Attainment
	35 ppm (40 mg/m^3)	1-hour	Full Attainment
Lead	0.15 $\mu g/m^3$	Rolling 3-Month Avg	Full Attainment
Nitrogen Dioxide	53 ppb	Annual	Full Attainment
	100 ppb	1-hour	Full Attainment
Particle pollution	150 $\mu g/m^3$	24-hour	Full Attainment
Particle pollution	12.0 $\mu g/m^3$	Annual	Full Attainment
	35 $\mu g/m^3$	24-hour	Full Attainment
Ozone	0.075 ppm	8-hour	Full Attainment
Sulfur Dioxide	75 ppb	1-hour	Full Attainment

As the above table indicates, Taylor and Barbour Counties are within NAAQS standards. As of 2009, the most recent available data, air quality has improved nationally and regionally during a 10-year span beginning in 1999 (see graphs below). An Air Quality Index (AQI) reading of 0-50 is considered "good," 51-100 is "moderate."

Figure 3-1. EPA data averaged from 1999-2009 for Taylor County monitoring sites. (World Media Group, LLC, 2019a.)

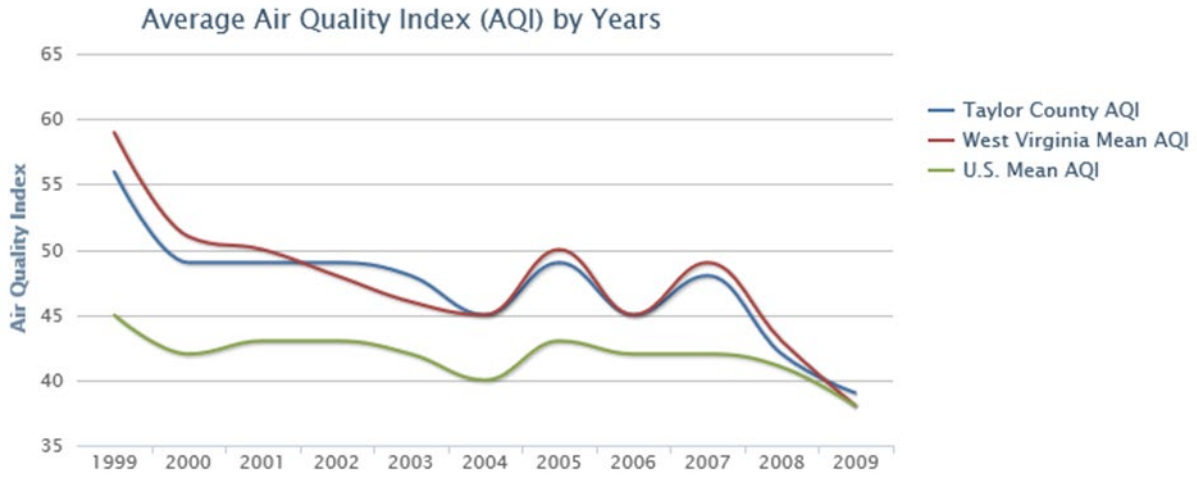
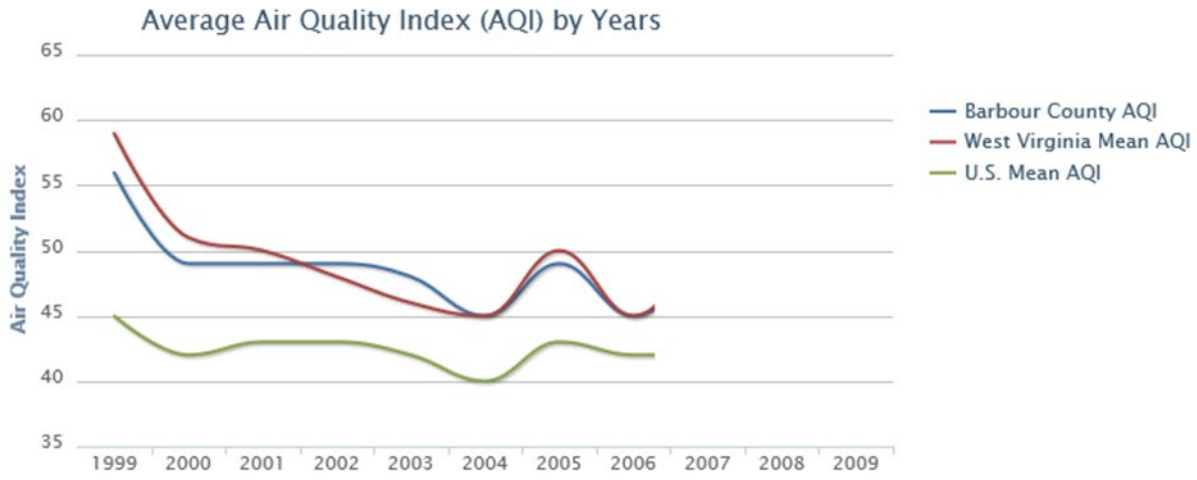


Figure 3-2. EPA data averaged from 1999-2006 for Barbour County monitoring sites. (World Media Group, LLC, 2019b.)



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 moist convection 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 systems 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 is highest for the late winter-early spring season (Corps 2017).

Climate change is expected to continue to warm the region throughout the 21st century, with temperature increases projected to occur relatively evenly throughout the year. Such change will impact interconnected hydrologic aspects, including: precipitation, snowpack, runoff, soil moisture and drought, evapotranspiration, groundwater, stream temps, floods and water quality. See MP Section 5, No. 9.

Table EA-5. Summary of General Projections for Regional Water Resources for 21st Century (Corps 2017)**.**

Hydrologic Aspects	Projections, including Confidence Levels for impacts to Hydrologic Aspects
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**]

3.1.5 Geology, Topography and Soils

The Tygart Valley, which contains Tygart Lake, is located within the Appalachian Plateaus Province, marked by steep side slopes that surround the lake. Many of the slopes immediately adjacent to the shoreline are inaccessible and remain in their natural state, enhancing the rugged character of the Project and limiting the amount of available land for development or high-density recreation. Soil characteristics in this region are residual, formed in place by rock decay and left as a residue after leaching out soluble products, or colluvial, loose and unconsolidated sediments that have been deposited at the base of hillslopes through rain or slow, continuous downslope creep. These residual or colluvial soils lie within the lake shore and surrounding valley slopes although some deposits have been reported in the river bottom. The residual soils are normally thin but their thickness varies in areas where the underlying bedrock is easily decomposed and where chemical and mechanical weathering agents have ready and constant access to the rock strata. The colluvial soils generally occur on the steeper slopes and tend to move downhill under the influence of gravity or flowing water, and commonly occur as wedges at the bases of the slopes. These slopes are potentially unstable if changes occur in the groundwater system or the slope is disturbed (Corps 1976).

Overlying the sandstone bedrock, soils tend to be sandy with sandstone fragments occurring throughout and scattered over the surface. Where the bedrock is shale and claystone, the soils are clayey silts and silty clays with rock fragments. The soils which tend to develop on the weak red claystones of the Conemaugh Formation are frequently subject to soil creep and slumps. These claystones erode easily and tend to become waterlogged because of low permeability which inhibits drainage. The rocks generally contain a plastic clay which, when saturated, makes these materials subject to sliding movements (Corps 1976).

Data from the Soil Conservation Service indicate the Dekalb very stoney loam and Gilpin-Dekalb very stoney complex are typical of the soils blanketing the upland areas, while the

Holston silt loam and Huntington silt loam are characteristic of the terraces and bottomland. These soils have low to moderate sensitivity to erosion; however, slope length, slope gradient, and vegetative cover are other factors that affect soils' resistance to erosion. (Corps 1976)

3.1.6 Noise

The area surrounding Tygart Lake is mainly rural. 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 lake 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

Tygart Lake Marina, operating at the northern end of the lake on the eastern shoreline, has a refueling point and a maintenance shop. A search of the U.S. Environmental Protection Agency's database identified the Carr China Manufacturing Facility brownfields site located approximate 0.75 miles northeast of Tygart Dam (USEPA 2020b). If any developments on Corps property are proposed, Federal law requires site-specific environmental 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 West Virginia. Any change in the storage or use of hazardous materials must comply with these regulations. The primary statutes governing oil and gas development on federally-managed lands are the General Mining Act of 1872 (30 USC 22, et seq.), the Mineral Leasing Act of 1920 (30 USC 181, et seq.), as amended by the Federal Onshore Oil and Gas Leasing Reform Act of 1987, and the Federal Land Policy and Management Act of 1976 (45 USC 1701, et seq.). The Mineral Leasing Act of 1920 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, but does not mandate that the Secretary of the Interior do so. BLM would coordination with the Corps for title information and any stipulations. The Corps has the final approval of whether minerals would be made available and the Assistant Secretary of the Army has final approval on any non-availability determinations. Oil and gas well locations would be managed for surface disturbances such as invasive species and erosion control. See MP Section 5, Nos. 2 and 3.

3.2 Biological Environment

3.2.1 Fish and Wildlife

The Project's forested habitat, scrub-shrub uplands, wetlands, streams, and river and reservoir support a variety of wildlife species common to West Virginia. A few of the more common species likely to be observed in the Project area, include: bald eagle (Haliaeetus leucocephalus),

turkey (Meleagris gallopavo), red-winged blackbirds (Agelaius phoeniceus), robins (Turdus migratorius), song sparrows (Melospiza melodia), common mergansers (Mergus merganser), mallards (Anas platyrhynchos), red fox (Vulpes vulpes), white-tailed deer (Odocoileus virginianus), raccoon (Procyon lotor), and opossum (Didelphis virginiana). In addition, the Project supports a variety of amphibians and reptiles, including multiple frog, turtle, salamander, and snake species.

The Project also provides habitat for a diverse array of fish species which include smallmouth bass (Micropterus dolomieu), muskellunge (Esox masquinongy), walleye (Sander vitreus), bluegill (Lepomis macrochirus), white bass (Morone chrysops), rock bass (Ambloplites rupestris), yellow perch (Perca flavescens), various catfish (Ictalurus punctatus, Ameiurus catus, etc.), carp (Cyprinus carpio), among others. Golden rainbow trout (Oncorhynchus mykiss, color variant) are stocked in the tailwaters below the dam. The depths of the reservoir accompanied by the dissolved oxygen coming out of the ringjets provide optimal habitat for cold water fisheries. Additionally, northern pike (Esox lucius), muskellunge (Esox masquinongy), walleye (Sander vitreus), and bass (Micropterus salmoides) are stocked in the reservoir periodically.

3.2.2 Terrestrial Vegetation and Land Cover

Much of the Tygart Valley has been timbered for agricultural or grazing use since the 18th century. Existing forested areas are second- or third-growth stands. The vegetation at the Project Area is a mix of mesophytic forest, located in more moist areas on the lower slopes valleys that are protected from winds, and Northern hardwood forests, located on upper slopes. Mesophytic vegetation includes ferns, fungi, perennial and annual herbaceous plants, shrubs, small trees that house a variety of fauna, including songbirds, salamanders, land snails, and beetles. Northern Hardwood forests are a mixture of deciduous trees and understory shrubs that typically grow together at more northern latitudes such as American beech (*Fagus grandifolia*), red maple (*Acer rubrum*), black cherry (*Prunus serotina*), sugar maple (*Acer saccharum*), and yellow birch (*Betula alleghaniensis*). Northern hardwood forests provide habitats to a variety of mammals, birds, and insects. Table EA-6 provides a breakdown of additional classifications of vegetation from MP Appendix B, Plate 4. See also MP Section 2.1.2

Table EA- 6. Classification of Vegetation on Corps Lands

National Vegetation Classification	Acres
Agricultural Vegetation	15.6
Developed & Other Human Use	174.6
Forest & Woodland	1148.1
Shrub & Grassland	1.6
Total:	**1,339.9**

3.2.3 Threatened and Endangered Species

There are no confirmed federally threatened and endangered species at the Project property. However, potentially occupied habitat may be present for the Northern long-eared bat (*Myotis septentrionalis*), a threatened mammal species, the Indiana bat (*Myotis sodalis*), an endangered mammal species, and Running Buffalo Clover (*Trifolium stoloniferum*), an endangered flowering plant. During the summer months, the Northern long-eared bat resides in live trees and snags (dead trees) and the Indiana bat roosts under the peeling bark of dead and dying trees. Running Buffalo Clover requires period disturbance and somewhat open habitat to flourish; however, it cannot tolerate full sun or shade, or severe disturbance. No critical habitat has been identified. See MP Section 2.1.3.

3.2.4 Invasive Species

In accordance with Executive Order (EO) 13112 (as amended by EO 13751), the Corps will manage land in accordance with best practices for invasive and exotic species in the area. The most common invasive terrestrial plant species occurring at Tygart Lake are: Japanese honeysuckle (*Lonicera japonica*), Japanese knotweed (*Polygonum cuspidatum*), autumn-olive (*Elaeagnus umbellata*), buckthorns (Rhamnus frangula, R. cathartica), purple loosestrife (Lythrum salicaria), common reed or phragmites (*Phragmites australis*), reed canary grass (*Phalaris arundinacea*), garlic mustard (*Alliaria petiolata*), multiflora rose (*Rosa multiflora*), giant hogweed (*Heracleum mantegazzianum*), and bush honeysuckles (*Lonicera maackii*, *L. tatarica*, *L. morrowii*). The most common invasive insects are: Emerald Ash Borer (EAB) (*Agrilus planipennis*), Gypsy Moth (*Lymantria dispar*), and the Hemlock Woolly Adelgid (HWA) (*Adelges tsugae*). The most common aquatic invasive species are: hydrilla (Hydrilla verticillata), parrot feather milfoil (*Myriophyllum aquaticum*), Asian clam (*Corbicula fluminea*), zebra mussel (*Dreissena polymorpha*), virile crayfish (*Orconectes virilis*), and rusty crayfish (*Orconectes rusticus*). See MP Section 2.1.4.

3.2.5 Wetlands

According to the National Wetland Inventory (NWI), there are approximately 61.4 acres of delineated wetlands of which 23.7 acres are freshwater emergent wetlands and 37.7 acres are freshwater forested/shrub wetlands. See MP Section 2.1.6.

3.3 Community Setting

3.3.1 Cultural Resources

Prior coordination with the West Virginia State Historic Preservation Office (WVSHPO) indicated a number of identified archaeological sites on Corps property dating from an undetermined Prehistoric period to Early Archaic (ca. 8,000 – 7,000 BCE) and Late Woodland (ca. 500 – 1000 CE) eras. An eligibility determination for listing on the National Register of Historic Places has not been made for every site, and additional site excavation would be required before making a final determination.

Historic structures located at the Project include the Tygart Dam, which is listed on the National Register of Historic Places (NRHP) (Reference #95000763) under the Secretary of the Interior's Criterion A (broad patterns of United States history) as a contributing element of the Monongahela River Navigation System during the industrial era and from association with the Corps of Engineers' policy adoption of reservoirs in addition to levees for flood control during the early 20th century. It is also eligible under Criterion C (architectural distinction) for its engineering.

Included within the National Register nomination area are other contributing and non-contributing resources. Contributing elements are structures which add to the historic integrity of the area. In addition to Tygart Dam itself, there are two damtender dwellings; a detached garage; a comfort, storage, and concession building; and an overlook and parking area that are classified as contributing elements. The resource manager's office and two maintenance buildings are considered non-contributing elements. See MP Section 2.2.

3.3.2 Socio-Economic Profile

The Project is located in both Taylor County West Virginia and Barbour County West Virginia, and also serves as a destination for visitors from neighboring counties including Harrison, Marion, Monongalia, and Preston. In 2017, the median household income in Barbour County was $37,516 (Datawheel, 2020a). The median household income in Harrison County was $48,315 (Datawheel, 2020b). The median household income in Marion County was $48,158 (Datawheel, 2020c). The median household income in Monongalia County was $49,624 (Datawheel, 2020d). The median household income in Preston County was $46,673 (Datawheel, 2020e). The median household income in Taylor County was $45,916 (Datawheel, 2020f). All except Barbour County are above the state of West Virginia's average of $44,061, although most

are fairly close. Based on these facts, a sizable portion of the local population will likely use Tygart Lake as a vacation destination based on proximity and economic viability. See MP Sections 2.3 and 2.4.

3.3.3 Recreation

Tygart Lake had a visitation of approximately 289,457 from 2014 to 2016. The Project is a popular local attraction with a campground, lodge, and historical dam. Tygart Lake State Park Campground is managed by the WVDNR. Other recreational facilities include a marina, swim beach, hiking trails, and an overnight lodge. See MP Section 2.5 for additional information.

3.3.4 Transportation

Tygart Lake is accessible from north-south by Interstate 79 and U.S. Route 119, and from east-west by U.S. Route 50. 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.

4 Environmental Consequences

This section describes and compares effects of the alternatives on existing conditions within each environmental resource 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 specifically included in the MP and SMP, or not included in the MP or SMP, but consistent with the MP and SMP. Other proposed actions not addressed in the MP or SMP would be analyzed on a case-by-case basis. The approval process for those proposed actions would still require adequate NEPA consideration (whether categorically excluded or requiring an additional EA) and compliance with other environmental laws and regulations prior to initiating construction.

The MP recommendations in the MP Section 7 include modernizing facilities within existing footprints, updating land classifications, adding mountain bike trails at the request of the WVDNR, construct a conference room addition at the visitor's center, constructing a volunteer host site, implementing hydroelectric power, and developing survey methods to identify and delineate areas that can be classified as ESAs. The SMP will be used to cover all shoreline license renewals without further analysis.

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

Table EA-7. Summary of Impact Analysis for Alternatives

Resource	No-Action Alternative	Preferred Alternative
Physical Environment		
Hydrology & Flood Plains	No Impact	No Impact
Water Quality	No Impact	No Impact
Air Quality	No Impact	No Impact
Climate	No Impact	No Impact
Geology, Topography, & Soils	Adverse Impact. Current guidance is slow to respond to soil erosion, potentially exacerbating conditions.	Potential adverse impacts to increased erosion from additional docks in extended LDA and impacts of open recreation boating; however, beneficial impacts erosion control measures that are identified in the MP and expedited by the SMP.
Noise	No Impact	No Impact
Hazardous Materials	No Impact	No Impact
Biological Environment		
Fish & Wildlife	No Impact	Beneficial impact for wildlife sanctuaries, habitat areas, and ESAs identified in the MP
Terrestrial Vegetation & Land Cover	No Impact	Beneficial Impact from addressing invasive species in the MP, and expedited and improved erosion control measures

Threatened & Endangered Species	No Impact	No Impact
Invasive Species	No Impact	Minor beneficial impact from addressing invasive species
Wetlands	No Impact	No Impact
Socioeconomic Environment		
Cultural Resources	No Impact	Beneficial impact from proper land designation and management in the MP The SMP designates protected shoreline areas to address cultural resources
Socioeconomic Profile	No Impact to environmental justice, increasing visitation benefits local economies	No Impact to environmental justice, increasing visitation benefits local economies
Transportation	No Impact	No Impact
Recreation	No Impact	Beneficial impact from designated recreational areas in the MP and from properly managed resources and dock policy adoption in the SMP

4.1 Physical Environmental Impacts

4.1.1 Hydrology and Floodplains

No-Action Alternative; Preferred Alternative. Neither alternative impacts hydrology nor floodplains. All actions occurring within floodplains must be consistent with EO 11988, Floodplain Management, and related Corps policy. Any construction activities would not adversely impact 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, docks, and maintenance dredging and disposal of sediment.

4.1.2 Water Quality

No-Action Alternative; Preferred Alternative. No impact to water quality would occur under either alternative. Clean Water Act permits would be completed, as needed, when project specific information is obtained.

4.1.3 Air Quality

No-Action Alternative; Preferred Alternative. No impact to air quality would occur. 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.

4.1.4 Climate

No-ActionAlternative; Preferred Alternative. Neither of the alternatives will significantly impact current or future expected climate conditions.

4.1.5 Geology, Topography and Soils

No-Action. Adverse impact. The current MP and SMP do not address soil erosion and current approval processes are slow to react, potentially allowing eroded areas to worsen.

Preferred Alternative. Potential adverse impact of additional soil erosion to the northern end of the Project from open recreation boating; however, the MP specifies the creation of a habitat restoration plan to minimize or mitigate negative impacts through revegetation, soil stabilization, and erosion reduction measures. The SMP will also expedite approval of licenses for erosion control.

4.1.6 Noise

No-Action Alternative; Preferred Alternative. Neither alternative will have an impact on existing noise levels. Increase in conservation areas will reduce human noise. While there is an increase in unlimited boating area, speed restrictions for safety reasons will not cause a significant increase in noise levels. Construction activities along the shoreline or facility modernization within existing footprints could have local, temporary impacts. 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 Alternative; Preferred Alternative. No impacts are expected from hazardous materials with either alternative. As needed, further site-specific reviews of any development would be conducted for compliance with the Comprehensive Environmental Response, Compensation and Liability Act, HTRW regulations, and the Corps real estate requirements.

4.2 Biological Environment

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 using outdated guidance from an MP and SMP that do not adequately reflect current land and shoreline uses that have changed significantly over time with the concurrent management requirements.

Preferred Alternative. This alternative would have an overall beneficial impact on fish and wildlife resources through a systematic approach to management of Project land and water resources. Designating "Wildlife Management" and "Fish and Wildlife Lands" as "Wildlife Management Areas" and "Environmentally Sensitive Areas," respectively, is more reflective of current land usage. 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. Wildlife Management has grown from 894 acres in 1976 to 1,024.7 in 2020, while fish and wildlife lands, redesignated as ESAs, have expanded from 22 to 101.5 acres. The inclusion of flowage easement into LDAs does not change where SUPs may be granted.

4.2.2 Terrestrial Vegetation and Land Cover

No-Action. No impact to fish and wildlife would occur. The Corps would continue to operate the Project but using outdated guidance from an MP and SMP that do not adequately reflect current land and shoreline uses that have changed significantly over time with the concurrent management requirements. While the current MP does not address invasive species, current best management practices will be used to control invasives.

Preferred Alternative. The revised MP will take a proactive approach in addressing invasive species. There is a beneficial impact from the SMP for the expedited approval process for erosion control along with updated guidelines for erosion control methods that will protect and prevent the loss of vegetation.

4.2.3 Threatened and Endangered Species

No-Action, Preferred Alternative. Neither of the alternatives would have any impact on threatened or endangered species. Best management practices, to include seasonal restrictions on

vegetation removal, would insure that no impact would occur. These restrictions would be species specific, based on recovery plans. 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. Prior to any clearing of vegetation or construction activities, coordination with the U.S. Fish & Wildlife Service will be performed and surveys for Indiana bats, Northern long-eared bats, and running buffalo clover would be conducted as necessary to ensure compliance. Botanical surveys will also be conducted during the full-bloom season prior to construction activities and proper special buffering added to avoid impacting running buffalo clover. By avoiding sensitive areas and sensitive seasons (April-October for trees more than 3-inches thick that may be used as bat habitats) and using adaptive management as needed to correct any unforeseen impacts, no significant impact to threatened or endangered species is expected.

4.2.4 Invasive Species

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

Preferred Alternative. Minor beneficial impact. The revised MP proactively addresses invasive species issues and will follow current District policy by using a formalized process of adaptive and best management practices in prevention, education, early detection, rapid response, and containment to try to control and manage invasive species.

4.2.5 Wetlands

No-Action Alternative; Preferred Alternative. Neither alternative 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 Tygart Lake and the surrounding tributaries and wetlands. 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 mitigation would be needed for that action. Wetland areas are identified in the MP in areas classified as ESAs and in the SMP through Protected Shoreline Area designation. For recreation, water surface areas adjacent to wetlands areas are designated as no-wake zones to prevent erosion. Dock locations currently avoid wetland areas; however, with the inclusion of flowage easement areas into LDAs, requests to construct docks in flowage easement areas will be reviewed and regulatory permits obtained in advance.

4.3 Community Setting Impacts

4.3.1 Cultural Resources

No-Action. The current MP does not include cultural resources within a specific land classification; however, the No-Action Alternative would have no impact on historic or archeological resources. 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. Shoreline license are required for earth-disturbing activities including: construction of steps and walkways; installation of light poles, electric lines, electric chair lifts, and flag poles; and performance of erosion control methods would include site specific coordination in accordance with the Section 106 process. No significant impact to cultural resources would be expected.

Preferred Alternative. The revised MP would also have a beneficial impact on cultural resources by allowing these locations to be managed accordingly through ESA designation in the MP. The MP prescribes developing survey methods to identify and delineate areas that can be classified as ESAs. Due to prior earth grading during the mid-1930s in the Project's operations area for construction of the dam, reservoir, supporting facilities, and infrastructure, the proposed conference room and host site have no potential to cause effects. Because the proposed bike trails are in undisturbed areas that have not been surveyed, Section 106 consultation would be required prior to construction.

4.3.2 Socio-Economic Profile

No-Action Alternative; Preferred Alternative. Neither alternative will have a significant impact to the local economy or to low-income and minority populations. All Project actions will remain within the existing footprint. While 178 acres of land has been reclassified from recreation to ESA and wildlife management areas, these lands remained undeveloped and were never used for recreation; therefore, there is no substantive loss of existing recreational capacity. Existing trails, camping areas, and boat launches are unaffected and there is no harm caused to local economies. Visitation of the Project Area continues to increase, which has a beneficial impact to local economies.

4.3.3 Transportation

No-Action Alternative; Preferred Alternative. Neither alternative would impact transportation. Recommendations for improvements and construction projects 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 and SMP as guidance for management decisions. Without an updated MP, it is possible that Project-wide consideration of individual actions may be lost.

Preferred Alternative. The recreational needs of the public would be better accommodated through the implementation of the proposed alternative and is reflective of the changes in land usage since 1976. Potential beneficial impacts include the delineated 69.8-acre area for designated high-density recreation and 290-acre area for low-density recreation. Open recreation area for navigation has increased 160% from the former Unlimited Speed Zone's 890 acres of surface water. It should be noted that 178 acres of undeveloped lands in the southwest along the lake that were originally designated by the 1976 plan for recreational use are being reclassified as ESA and Wildlife Management because the anticipated recreational development and expansion never came to fruition. A recent assessment determined that the new classifications are more compatible with adjoining land use. No recreational capacity or facilities are lost on account of this reclassification. The SMP has more stringent dock administration policies that will prevent overdevelopment of the shoreline and protect the lake's aesthetics.

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 Tygart Lake. Past actions include the construction and operation of the reservoir and the construction of the surrounding recreation areas. Concurrent regional development include residential and commercial construction throughout the region, in addition to historical industries including timbering and coal mining. 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 WVDNR. The development of Tygart Lake created new natural conditions, which, through careful management by the Corps and other management partners, have created new and successful habitats.

Current actions include updating the MP and SMP to reflect operations under existing congressional authorizations, taking into account changes in basin hydrology and demands from years of growth and development, new or rehabilitated structural features, legal developments, and environmental issues. Prior planning designated areas for recreational expansion but when the growth did not occur, approximately 178 acres of undeveloped recreational land were reclassified for ESA and wildlife management. This change does not impact existing recreational capacity or facilities.

In recent years, oil and gas development has boomed across the region, creating direct impacts from earth disturbance associated with construction of wells and pipelines, and indirect effects from the growth of local service industries and population increases. Any gas and oil development encroaching on public lands at Tygart Lake would be addressed on a case-by-case basis, ensuring the continued protection of environmental resources.

Existing and future actions also contribute to the noise and traffic cumulative impacts in and around Tygart Lake, including the operation of project facilities, dam maintenance, upgrades and maintenance of recreation sites, as well as residential, commercial, and industrial development throughout the region.

Under the No-Action Alternative (baseline conditions), land management would continue, somewhat inefficiently, using out-of-date guidance from an MP and SMP that do not adequately reflect current land and shoreline uses that have changed significantly over time with the concurrent management requirements.

Under the Preferred Alternative, ongoing land management would be enhanced by new processes for efficient management of environmental resources and integrating any future actions with minimal adverse impacts. Such a system would be responsive to both changes in the environment and recreational demands. This emphasis will preserve the region's aesthetics, maintain thriving ecosystems and habitats, and enhance recreation activities. The planned approach will continue to attract visitors, benefitting the local economy. The programmatic approach to land management, included in this EA and the associated MP and SMP, 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.

4.5 Compliance with Environmental Statutes

Table EA-8 provides documentation of how the agency's preferred alternative complies with all applicable Federal environmental laws, statutes, and executive orders, as follows:

Table EA-7. Compliance with Environmental Statutes.

Federal Policy	Compliance Status
16 U.S.C. 469, et seq., Archaeological and Historic Preservation Act	Full Compliance
42 U.S.C. 1857h-7, et seq., Clean Air Act, as amended	Full Compliance
33 U.S.C. 1857h-7, et seq., Clean Water Act	Full Compliance
42 U.S.C. 9601 et seq., Comprehensive Environmental Response, Compensation, and Liability Act	Meets all requirements for this stage of planning, but future recommendations contained within this EA may require additional action for compliance.
16 U.S.C. 460*l*-12) to 460*l*-21, Federal Water Project Recreation Act	Full Compliance
16 U.S.C. 703-712, Migratory Bird Treaty Act	Corps activities will not result in the taking of bird species.
16 U.S.C. 1271, et seq., Wild and Scenic Rivers Act	Not Applicable
EO11988, Flood Plain Management	Corps activities will avoid building in floodplains or altering the floodplain.
EO11990, Protection of Wetlands	Meets all requirements for this stage of planning, but future recommendations contained within this EA may require additional action for compliance.
EO12898, Environmental Justice in Minority Populations and Low-Income Populations	Existing operations will remain within the current footprint and will not create a burden on low-income or minority populations.
EO13112, Invasive Species	The preferred alternative addresses invasive species in order to control, manage, and contain invasive species in the
PL101-601, Native American Graves Protection & Repatriation Act	Full Compliance
PL59-209, Antiquities Act of 1906	Full Compliance
PL74-292, Historic Sites Act of 1935	Full Compliance

PL78-534, Flood Control Act of 1944	Full Compliance
PL85-500, Rivers and Harbor Act of 1958	Not Applicable
PL85-624, Fish and Wildlife Coordination Act 1934	Meets all requirements for this stage of planning, but future recommendations contained within this EA may require additional action for compliance.
PL86-717, Forest Conservation	The MP provides for the conservation of forested areas at the reservoir to meet intended purposes.
PL87-874, Rivers and Harbors Act of 1962	Not Applicable
PL88-578, Land and Water Conservation Fund Act of 1965	Full Compliance
PL89-90, Water Resources Planning Act (1965)	Full Compliance
PL89-272, Solid Waste Disposal Act, as amended by PL 94-580, dated October 21, 1976	Full Compliance
PL89-665, National Historic Preservation Act of 1966	The Tygart Dam is a historic structure listed on the NRHP. All requirements have been met thus far, however, actions suggested in the preferred alternative may require additional consultation with the WVSHPO.
PL90-483, River and Harbor and Flood Control Act of 1968, Mitigation of Shore Damages	Not Applicable
PL91-611, River and Harbor and Flood Control Act of 1970	Full Compliance
PL92-463, Federal Advisory Committee Act	Full Compliance
PL92-500, Federal Water Pollution Control Act Amendments of 1972	Full Compliance
PL92-516, Federal Environmental Pesticide Control Act of 1972	Full Compliance
PL93-81, Collection of Fees for Use of Certain Outdoor Recreation Facilities	Full Compliance
PL93-251, Water Resources Development Act of 1974	Full Compliance
PL93-291, Archeological Conservation Act of 1974	Full Compliance
PL93-303, Recreation Use Fees	Full Compliance
PL93-523, Safe Drinking Water Act	Full Compliance
PL98-63, Supplemental Appropriations Act of 1983	Full Compliance

PL99-662, The Water Resources Development Act of 1986	Full Compliance
PL99-88, Supplemental Appropriations Act of 1985	Full Compliance
PL101-640, Water Resource Development Act of 1990	Full Compliance
PL101-646, Coastal Wetlands Planning, Protection, & Restoration Act of 1990	Not Applicable
PL101-676, Water Resource Development Act of 1988	Full Compliance
PL102-580, Water Resource Development Act of 1992	Full Compliance
PL104-303, Water Resource Development Act of 1996	Full Compliance
PL106-53, Water Resource Development Act of 1999	Full Compliance
PL106-541, Water Resource Development Act of 2000	Full Compliance
PL109-58, Energy Policy Act of 2005	Due to the number of existing utility licenses and easements crossing the project, designation of an energy corridor is not feasible.
PL110-114, Water Resource Development Act of 2007	Full Compliance
PL113-121, The Water Resources Reform and Development Act of 2014	Full Compliance
16 U.S.C. 668-668d, Bald and Golden Eagle Protection Act of 1940 as amended	Corps operations would take nesting locations into consideration and avoid creating disturbances.
16 U.S. C. 1531-1544, Endangered Species Act of 1973	Meets all requirements for this stage of planning, but future recommendations contained within this EA may require additional action for compliance.
16 U.S.C. 1001, et seq., Watershed Protection and Flood Prevention Act	Full Compliance
PL85-500, River and Harbor Act of 1958	Full Compliance
PL89-90, Water Resources Planning Act (1965)	Full Compliance
PL91-190, National Environmental Policy Act of 1969 (NEPA)	This EA and FONSI was developed to ensure compliance with NEPA.

*Meets all requirements for this stage of planning, but future development that is not considered in this EA may require additional action for compliance.

5 Coordination and Public Involvement

Agency and public involvement was initiated in 2018, when the District published notices announcing its plan to revise the MP and SMP. This notice was followed by a public meeting on March 17, 2020. These public involvement activities and comments are described in detail in section 6 of the MP.

The Tygart Lake MP and SMP, Environmental Assessment, and draft Finding of No Significant Impact were circulated for public review between March 10 and April 24, 2020. A public meeting was held on March 17, 2020. Public questions and comments are addressed, below.

Table EA-8. Public Questions and Comments

Shoreline Management Plan
Q. *Frontage requirement should be lessened from 50 feet to 30 feet.* **A.** Based on Project calculations of land owner parcels, 40 feet is adequate in determining frontage requirements. It still protects the majority of current and future dock owners in obtaining and retaining a shoreline use permit.
Q. *Clarification of Frontage requirements for Boat Clubs, Community Docks and Shared Docks.* **A.** Added in language to clarify same frontage requirements for Boat Clubs, Community Docks, and Shared Docks.
Master Plan
Q. *Concerns about recreational drone usage.* **A.** Added in Resource Objective for establishing designated unmanned aircraft designation area in accordance with Corps policies and guidelines in the future.
Q. *Question in regards to water levels and if we anticipate of holding water back for longer later in the recreation season.* **A.** This content is not addressed in the Master Plan.

6 Conclusion

The Preferred 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 and SMP into compliance with updated Corps regulations. An Environmental Impact Statement is not required and a FONSI will be prepared.

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