CORALVILLE LAKE RESERVOIR MASTER PLAN

IOWA RIVER WATERSHED
CORALVILLE, IOWA

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US Army Corps
of Engineers®
Rock Island District

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CHAPTER 1

INTRODUCTION

1.1. PROJECT AUTHORIZATION

Coralville Lake was authorized by Section 4 of the Flood Control Act of 28 June 1938 (Flood Control Committee Document No. 1, 75th Congress, First Session) and was placed in operation in 1958. The drainage area above the dam is 3,115 square miles.

1.2. PROJECT PURPOSES

The Coralville Lake project is a unit of the comprehensive plan for flood risk management in the Upper Mississippi River basin. Although originally authorized for flood risk management and low flow augmentation along the Iowa and Mississippi Rivers, subsequent legislation authorized the project to be managed to fulfill a multi-purpose role with benefits to recreation and fish and wildlife as well. From the beginning of the project in 1958, through calendar year (CY) 2021, the estimated benefits from flood damage prevention amount to $683,522,491. Recreation benefits attributable to the project through CY 2021 are estimated at $28,795,000.

1.2.1. Flood Risk Management. The purpose of the U.S. Army Corps of Engineers' (Corps) flood risk management mission is to reduce the threats to life and property damages from riverine and coastal inundation. The Corps' flood and coastal storm damage reduction projects include structural and non-structural measures. The Corps is an integral part of the Nation's efforts to manage flood plains and maintain and operate aging water resources infrastructure. Execution of the inundation risk reduction program serves to integrate and synchronize programs and activities within the Corps and with counterpart activities of the Department of Homeland Security, Federal Emergency Management Agency (FEMA), and other Federal, state, regional and local agencies. Coralville Lake's inundation risk reduction structures include: the main dam, control tower structure, spillway, and the Amana levee.

1.2.2. Low Flow Augmentation. Low Flow Augmentation is maintaining downstream outflows to support fish and wildlife habitats. Coralville Lake conservation objectives are meant to augment Iowa River flows during low flow periods. Therefore, a minimum flow of 150 cubic feet per second (CFS) in maintained at Iowa City. This improves downstream water quality for aquatic and riverine habitat at a time that is greatly stressed. Prolonged periods of low inflow may result in a situation where downstream water quality releases cannot be met. This occurs when the reservoir falls below elevation 678 feet NGVD.

1.2.3. Natural Resource Management. Numerous Federal laws and executive orders establish national policy for, and Federal interest in, the protection, restoration, conservation, and management of fish and wildlife resources. These Federal statutes include compliance requirements and emphasize protecting environmental quality. Recent water resources authorizations have enhanced opportunities for the Corps' involvement in studies and projects to specifically address the restoration of ecological resources and ecosystem management. Specific authorities for new individual studies and projects to restore ecological resources lost or damaged by the project have also been provided in legislation.

Examples of legislation that broadly support Federal involvement in the restoration and protection of ecological resources include:

- Federal Water Project Recreation Act of 1965, as amended. (Appendix C.9)
- The National Environmental Policy Act of 1969, as amended. (Appendix C.14)
- U.S. Fish and Wildlife Coordination Act of 1958 (Appendix C.5)
- Water Resources Development Acts of 1986, 1988, 1990, 1992, 1996, 1999, 2000, 2007, 2016, as part of the Water Infrastructure Improvements of the Nation Act, and 2018. (Appendix C.28, C.32, C.33, C.34, C.35, C.36, C.37, and C.41)
- Water Resources Reform and Development Act of 2014. (Appendix C.40)
- Coastal Wetlands Planning, Protection and Restoration Act of 1990 (See Appendix C.31)

The Corps is responsible, directly, or indirectly, for the maintenance, restoration, and stewardship of natural resources on the flood risk management projects it owns and manages. At Coralville Lake, a wide variety of habitat types are managed on the 24,597 acres of land and water, including 14,772 acres managed by Iowa Department of Natural Resources (DNR), 675 acres managed by Kirkwood Community College-Atherton Memorial Wetland Area, and 456 acres managed by the University of Iowa-Macbride Nature Recreation Area. These lands are managed under lease agreements from the Corps to facilitate stewardship and expand outdoor recreation opportunities. Waterfowl management has been a priority at Coralville Lake. Every year, 50-70,000 migrating waterfowl use the lake, including large portions of the nation's water birds such as gulls, terns, and pelicans. Open water below the dam also attracts scores of bald eagles each winter. In all aspects of natural and cultural resources management, the Corps promotes awareness of environmental values while adhering to sound environmental stewardship practices that protect the resources and maintain compliance with regulations.

1.2.4. Recreation. The Corps is one of the nation's leading Federal providers of outdoor recreational opportunities. As host to approximately 250 million visitors a year, the Corps plays a major role in meeting the outdoor recreation needs of Americans. Corps' projects contribute economically and socially to the communities in which they are located, providing a natural resource setting for visitors to reap the benefits of engaging in outdoor activities to improve their physical, mental, and emotional health. The Corps' Natural Resources Management Mission is to manage and conserve those natural resources, consistent with

ecosystem management principles, while providing quality outdoor public recreation experiences to serve the needs of present and future generations. The Corps manages for long-term public access and use of the natural resources in cooperation with other Federal, state, and local agencies, as well as the private sector. The Corps integrates the management of diverse natural resources components such as fish, wildlife, forests, wetlands, grasslands, soil, air, and water with the provision of public recreation opportunities.

Coralville Lake offers a wide variety of recreational facilities including campgrounds, day use and picnic areas, trails, beaches, boat ramps, marinas, and a visitor center provided by the Corps and/or lessees. The Corps provides facilities for water-based recreation activities such as boating, water skiing, fishing, etc. through the operation of three leased concession marinas and along with partners, provides several additional public boat ramps around the lake.

1.3. PURPOSE AND SCOPE OF MASTER PLAN

The Master Plan provides guidance and facilitates appropriate management, use, development, enhancement, protection, and conservation of the natural, cultural, and man-made resources at Coralville Lake Project. It is a vital tool for the responsible stewardship of project resources to benefit present and future generations. A master plan is programmatic and identifies conceptual types and levels of activities, not designs, project sites, nor estimated costs. All actions by the Corps and the agencies and individuals granted leases to Corps' lands (out-grantees) must be consistent with the Master Plan. Therefore, it must be kept current in order to provide effective guidance in the Corps' decision-making. The most recent Coralville Lake Master Plan was approved in 1977.

The Master Plan is based on responses to regional and local needs, resource capabilities and suitability, and expressed public interests consistent with authorized project purposes and pertinent legislation and regulations. It provides a District-level policy consistent with national objectives and other State and regional goals and programs. The plan is 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 E), and the Annual Management Plans. This Master Plan supersedes the previous Coralville Lake Master Plans, except for any specific requirements in previously signed cost-share agreements.

This revised Master Plan and integrated Environmental Assessment (EA) was prepared in accordance with the following guidance:

- Engineer Pamphlet *1130-2-550, Project Operations – Recreation Operations and Maintenance Guidance and Procedures*, 15 November 1996 (with changes 1 October 1999, 1 March 2002, 15 August 2002, 30 August 2008, and 30 January 2013). (See Appendix D.9.)

- Engineer Regulation (ER) 1130-2-540, *Project Operations – Environmental Stewardship Operations and Maintenance Policies,* 15 November 1996. (See Appendix D.6.)
- ER 1130-2-550, *Project Operations – Recreation Operations and Maintenance Guidance and Procedures,* 15 November 1996 (with changes 1 October 1999, 1 March 2002, 15 August 2002, 30 August 2008, 30 March 2009, 30 January 2013, and 30 September 2013). (See Appendix D.7.)
- Engineer Manual (EM) 1110-1-400, *Engineering and Design – Recreation Facility and Customer Service Standards*, 1 November 2004. (See Appendix D.11.)
- ER 200-1-5, *Environmental Quality – Policy for Implementation and Integrated Application of the USACE Environmental Operating Principles and Doctrine*, 30 October 2003. (See Appendix D.1.)
- ER 200-2-2, *Environmental Quality – Procedures for Implementing the National Environmental Policy Act*, 4 March 1988. (See Appendix D.2.)
- ER 1105-2-100, *Planning Guidance, 22 April 2000 (with App D and G revised June 2004 and App F revised January 2006)*. (See Appendix D.3.)
- ER 1110-2-8160, *Engineering and Design, Policies for Referencing Project Elevation Grades to Nationwide Vertical Datums –,* 1 March 2009.
- EM 1110-2-6056, *Engineering and Design, Standards and Procedures for Referencing Project Elevation Grades to Nationwide Vertical Datums – 31* December 2010.

1.4. DESCRIPTION OF PROJECT AND WATERSHED

The watershed above Coralville Lake Dam has a total area of 3,115 miles. Most of the Iowa River Basin is naturally well drained. The upper 1,300 square miles of the Iowa River watershed lie in the area covered by the most recent glacial drift, which is relatively poorly drained, and from which runoff is relatively light. The remaining portion of the basin above Coralville Lake Dam is covered by the windblown loess soil that overlies the maturely dissected drift of older glaciations. Runoff from this mature terrain is relatively high. Maximum difference in elevation between uplands and streams is approximately 150 feet. Most of the land in the watershed is cultivated and is therefore vulnerable to erosion, resulting in rather high sediment loads for the streams (See Appendix F.2 for Coralville Lake Watershed Map). The watershed is long and narrow with a length of nearly 180 miles and its greatest width approaching 38 miles with an average width of 18.5 miles. The Cedar River, with a watershed area of about 7,870 square miles, is considered a tributary of the Iowa River. The rivers converge 29.6 miles upstream of the Mississippi River. The total drainage area for the Iowa River and its tributaries is approximately 12,640 square miles.

The estimated 2021 total population for the five-county area including Benton, Johnson, Linn, Louisa, and Washington counties surrounding Coralville Lake is 442,618. This is a 10 percent

increase over the 2010 population. The majority of this growth has been in Johnson and Linn Counties, which experienced a population increase, while Benton and Jones Counties had a minor decrease during this period. Non-farm employment in the five-county area is dominated by the Iowa City Metropolitan Statistical Area (MSA) where the University of Iowa and its Hospitals and Clinics have a major influence. Section 2.8 contains specific demographic information.

Coralville Lake is located on the Iowa River, immediately upstream from Iowa City. The reservoir occupies approximately 39 square miles when the water level is at the top of the flood storage pool, or at 712 feet, National Geodetic Vertical Datum of 1929 (NGVD29). Vertical datums typically represent a terrestrial or earth-based surface to which geospatial coordinates such as heights, elevations, or depths of project grades are referenced. The vertical datum is the base foundation for nearly all civil and military design and engineering & construction projects in the USACE, especially projects that interface with water. Most existing USACE projects were designed and referenced to older, superseded datums that are no longer supported such as NGVD29. These older reference datums are known as legacy or "local" datums and typically have unknown origins and may have significant elevation grade errors relative to updated datums. However, these local datums are critical to long-term hydrologic and hydraulic analyses and are allowed to be converted utilizing the North American Vertical Datum of 1988, NAVD88. (ER 110-2-8160) The conversion at Coralville Lake requires a reduction of 0.115 feet from NGVD to obtain NAVD.

Coralville Lake has 52 public access areas. The Corps of Engineers manages 30 of these areas. The Iowa DNR manages the Hawkeye Wildlife Management Area, Lake Macbride State Park, and an Off Highway Vehicle (OHV) park. The Macbride Nature Recreation Area, managed by the University of Iowa, is also for public use. In addition to these areas, the Corps oversees the management of three marinas and one camping facility, which operate as commercial concessions. Maps detailing Corps areas are a located in Appendix F, *Maps*. (Appendix F.1 is a map of the Coralville Lake Project Area.)

The Hawkeye Wildlife Management Area consists of 13,048 acres of land and water, surrounding the northwestern 2.5 miles of the lake and over 6 miles of the Iowa River Basin at the north end of the lake. The area offers several boat launches and is one of the most popular waterfowl hunting areas in the State of Iowa. Though hunting in this area is allowed, there are restrictions. This area includes a 1,200-acre refuge that is closed to the public during portions of the year.

Existing local protective works in the basin above Coralville Lake are few. These consist of low levees, channel straightening and bank protection. Downstream from the reservoir, at Iowa City, some protection is afforded to the University of Iowa property by low levees and riprapped banks. Iowa City has made several improvements raising elevations of Dubuque Street, buy-outs of affected landowners, and redesign of Mayflower housing units. The city of Coralville also improved flood protection by increasing their levee and incorporating a floodwall project. Between Iowa City and the mouth of the Cedar River, two organized levee

districts protect approximately 3,450 acres. Several areas downstream have been taken out of crop production and placed into permanent NRCS conservation easements. Downstream from the mouth of the Cedar River there are three organized levee districts providing oversight for flood protection of approximately 6,400 acres. Several private levees near the mouth of the Iowa River protect a much more extensive area of Mississippi River bottomland and the town of Oakville, Iowa. These levees are not constructed to a height or section necessary to protect against more severe floods.

1.5. PERTINENT PROJECT INFORMATION

Table 1-1 provides pertinent information regarding existing water storage/levels. Table 1-2 provides pertinent information regarding recreation and visitation.

Table 1-1. Coralville Lake Existing Water Storage and Level

Construction	
Began	1949
Completed	1958
Cost	
Federal Estimate	$15,744,000
Reservoir at Normal Pool (683)	
Length	18.7 miles
Area	4,100 acres
Storage	24,800 acre feet[1]
Reservoir at Flood Storage Pool (712)	
Length	27 miles
Area	25,000 acres
Storage	412,300 acre-feet
Water Surface Elevation	
Normal Pool	683' NGVD29[2]
Flood Storage Pool	712' NGVD29
Dam	
Type	Earth-Filled Embankment
Length	1,400'
Height	100'
Top Width	22'
Spillway Elevation	712' NGVD29
Top of Dam	743' NGVD29
Damages Prevented[3]	
1958-2021	$683,522,491
2014	$76,970,000
2013	$105,185,100
2010	$8,553,900
2008	$66,842,000

1993	$3,148,700
Average Inflow	
June	3,400 cfs[4]
July	2,600 cfs
Highest Inflows	57,000 cfs (June 12, 2008)
Previous Highest	36,200 cfs (July 18, 1993)
Average Outflow	
June	3,700 cfs
July	3,400 cfs
Highest Outflows	39,500 cfs (June 15, 2008)
Previous Highest	25,800 cfs (July 19, 1993)
Record High Pool Elevations	
June 15, 2008	717.02' NGVD29
July 24, 1993	716.71' NGVD29
July 21, 1969	711.85' NGVD29
June 30, 1984	711.53' NGVD29
May 31, 1991	710.67' NGVD29
April 26, 1973	710.46' NGVD29
June 4, 2013	708.47' NGVD29
July 8, 2014	708.14' NGVD29
Duration of Spillway Discharges	
June 10, 2008	14 Days
July 5, 1993	28 Days

[1] One acre-foot is one acre of water one foot deep. One-acre foot is equivalent to 325,851.4 U.S. gallons.
[2] National Geodetic Vertical Datum of 1929. The Sea Level Datum of 1929 was the vertical control datum established for vertical control surveying in the United States of America by the General Adjustment of 1929.
[3] $ Estimates are price leveled to their respective years and are not recalculated to current-year equivalents.
[4] Cubic feet per second (cfs). The rate of flow past a given point, measured in cubic feet per second. One cubic foot of water equals about 7.5 gallons and weighs 62 pounds.

Table 1-2. Recreation Areas [1]

Recreation	
Beaches	3
Camping Areas	10
Marinas	3
Boat Ramps	21
Disc Golf	2

[1] Recreation areas include both Corps managed and outgranted areas.

Table 1-3. Annual Visitation [1]

Number of Visitors	
2021	1,163,057
2020	1,126,235
2019	1,122,690
2018	1,336,245
2017	1,201,591
2016	1,171,580
2015	1,106,398
2014	852,087

[1]Annual Visitation includes numbers from Corps and outgranted areas.

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CHAPTER 2

SETTING AND FACTORS INFLUENCING, MANAGEMENT AND DEVELOPMENT, AND AFFECTED ENVIRONMENT

2.1. CORALVILLE LAKE PROJECT DESCRIPTION

The Coralville flood risk management project consists of a lake impounded by a main dam, outlet works and stilling basin, spillway, related control works and public use lands and facilities. The lake was put into operation in 1958. Approximately 24,597 acres of land were acquired for the lake and related control facilities. In addition, 8,607 acres in flowage easements were acquired, generally to an elevation of 717.0 ft. NGVD29. Of the fee title land, partnering organizations manage 63 percent of the land at Coralville Lake, equaling 15,104 acres. For flowage easement lands, no additional management activities are authorized under this Master Plan revision. At the normal, summer-pool elevation of 683 ft. NGVD29, Coralville Lake covers 4,100 surface acres and extends approximately 18.7 miles upstream from the dam.

2.1.1. Dam. The dam is a rolled-fill earth structure, containing approximately 1,000,000 cubic yards of material, with an impervious core and pervious flanks. The height above the riverbed is approximately 100 feet. The length at the crest is approximately 1,400 feet and the maximum base width is approximately 650 feet. The crest elevation is 743 ft. NGVD29. The upstream face slopes one on three from the crest to elevation 696, and one on four from that elevation to natural ground. The downstream face slope is one on two and one-half from the crest to elevation 698, and one on three and one-half from elevation 698 to natural ground. A berm 10 feet wide is provided on the downstream slope at elevation 698. The entire upstream face and the downstream face up to elevation 698 are covered with 2 feet of riprap on nine inches of gravel, and one foot of riprap on 6 inches of gravel covers the remainder of the downstream slope (Is there a figure showing all these dimensions?). Beneath the entire length of the earth dam at its axis is an impervious earth cut-off extending to bedrock, designed to prevent underseepage through the pervious materials beneath the valley floor.

2.1.2. Outlet Works and Stilling Basin. Normal discharge from the lake is accomplished by means of a gated conduit beneath the earth embankment at the toe of the left bluff on the left descending bank. The conduit is a single reinforced- concrete tube 23 feet in diameter. The length, including the intake structure and transition section, is 410 feet. Three gates, each 8.33 feet wide by 19 feet high and operated by electrically driven drum hoists, are

located in the intake structure. High velocities of the discharge from the conduit are reduced in a stilling basin, which is 180.33 feet in length and 75.35 feet wide at the sill (downstream end). The capacity of the outlet structure is approximately 20,000 cubic feet per second (cfs) when the lake is filled to spillway crest level (712 elevation).

2.1.3. Spillway. The saddle spillway is located directly west of the dam. The weir is curved, has an ogee section, is 500 feet in length, and 500 feet wide at the base. When reservoir levels exceed an elevation of 712.0 ft. NGVD29, the spillway automatically releases water, thereby protecting the earth embankment against overtopping. The spillway channel downstream from the weir is paved for approximately 600 feet with concrete and concrete training walls protect the sides of the channel. The spillway is designed to accommodate a flow of 244,000 cfs. With this discharge the water level in the lake would be 25.9 feet above the spillway crest. What is the maximum cfs event to date?

2.1.4. Coralville Lake. The dam and lake are located in Johnson County, Iowa. The dam is located on the Iowa River, 83.3 miles above its mouth and 5 miles upstream of Iowa City. The major streams entering Coralville Lake drain the eastern and northern shores and include Price, Knapp, Plum, Swisher, McAlister, West Hoosier, Lingle, and Turkey Creeks. Jordan and Mill Creeks also drain the eastern shore, but these streams first flow into 950-acre Lake Macbride, which adjoins the northeastern corner of Coralville Lake. A 3,115 square-mile watershed flows into Coralville Lake. At the flood storage pool elevation of 712 ft. NGVD29 the reservoir extends 27 miles upstream and inundates 25,000 acres. The summer conservation pool, at elevation 683.0 ft. NGVD29 extends 18.7 miles upstream and forms a 4,100-acre lake. Under normal conditions, the seasonal conservation pool level of 683 ft. NGVD29, will be maintained, insofar as possible. Seasonal variations occur for the conservation level to be maintained up to 5 feet above the authorized conservation pool in the fall for waterfowl migration and up to 4 feet below the authorized conservation pool in the spring to provide additional flood storage capacity.

2.1.5. Related Control Facilities

Lake Macbride. The lake was formed when Mill and Jordan creeks were dammed in the 1930s prior to the construction of Coralville Lake. The dam forming Lake Macbride was raised to elevation 712.0 ft. NGVD29 following construction of Coralville Dam and spans approximately 812 acres. Operation for the standard project flood required a pool elevation of 717.0 ft. NGVD29. At this elevation minor inconveniences to some recreational areas occur in Lake Macbride. The crest of the riprap protected earth embankment section of the dam was established at elevation 721.0 ft. NGVD29 providing four feet of freeboard above the standard project flood level in Coralville Lake.

Amana Colonies. The Coralville Lake, Amana Redial Works Levee system is a federally-operated and maintained, flood risk reduction project. The system was initially built 1957 as a part of the Coralville Lake Dam flood risk reduction project in order to help reduce damages to the town's historic and commercial buildings. The levee system was upgraded

following the flood of 1993 and continues to reduce flood risk for Amana's historic commercial buildings.[1] This also extends along Price Creek in the Amana area.

The project has two separate segments of floodwall. One is 124 feet long and 17 feet high and abuts the foundation of the historic woolen mill building. The second is 180 feet long and 6 feet high and is classified as a T-Wall. The system provided risk reduction up to an elevation of 717.0 feet, NGVD 1929. This corresponded to the same elevation flowage easements were obtained for the construction of Coralville Dam. This elevation is 5 feet above the full flood pool of 712.00 feet. After the 1993 flood event, the concrete wall at the Woolen Mill was raised to an elevation of 719.0 feet.

2.1.6. Park and Recreation Facilities. The Coralville Lake Project has recreation facilities developed and operated by Federal, state, and county agencies and by private organizations. Public use areas associated with the lake include a visitor center, nature education area, trails, day use recreation areas, campgrounds, and boat launching facilities. Facilities include: campsites, swimming beaches, playground areas, disc golf courses, picnic shelters, universally accessible picnic sites, volleyball courts, horseshoe pits, an amphitheater, basketball court, boat ramps and two universally accessible fishing piers.

2.2. HYDROLOGY

The Iowa-Cedar Rivers Basin is generally long, narrow, and sinuous with variable topography. The average slope of the river is 1.9 feet per mile.. Its length is approximately 180 miles and its greatest width is about 38 miles with an average width of 18.5 miles. The maximum difference in elevation between uplands and streams is approximately 150 feet. The Cedar River, having a watershed area of about 7,870 square miles, but considered a tributary of the Iowa River, joins the latter 29.6 miles above its mouth. The total drainage area for the Iowa River and its tributaries is approximately 12,640 square miles. (USACE 2021. See also Appendix F.2 *Coralville Lake Watershed*).

The topography of the river valley is varied. Elevations in the Coralville Lake vicinity range from 645 ft. NGVD29 in the river valley to 800 ft. NGVD29 in the uplands. Downstream from U.S. Highway 965, the lake at all levels occupies a narrow sinuous valley. Upstream from Highway 965, the river meanders through a flat floodplain 1 to 2 miles wide. This area now provides the majority of the lake's floodwater storage capacity.

The flood risk reduction storage capacity (volume below elevation 712 ft. NGVD29) of the project is 412,300 acre-feet. The lake's 679 ft. NGVD29 spring conservation pool level is maintained to allow for snowmelt runoff, and for predicted and actual rainfall to minimize downstream flooding. The average annual runoff above Coralville Lake is 10.61" (1958–2019) as highlighted in the 2019, Coralville Lake Sedimentation Re-Survey.

[1] Amana Remedial Levee Works, Final Periodic Inspection Report September 2014

At maximum flood risk reduction elevation, Coralville Lake extends approximately 41.5 river miles up the Iowa River; including Lake Macbride there are 100.1 miles of shoreline. At the spring conservation pool elevation (679 ft. NGVD29), Coralville Lake is 23 river miles long, and the shoreline of the conservation pool is 68 miles long. The shoreline is irregular and broken by several large and many small inlets and coves. Downstream from Interstate 380 there are fairly steep ridges and valley slopes, which are partially stabilized with mixed stands of upland hardwoods interspersed with small clearings. There are also areas of gently rolling open land with isolated clumps of upland hardwoods. Upstream from Interstate 380, the terrain is much broader and flatter on the first and second levels of the Iowa River floodplain. Most of the lower woodlands in the flood pool have died off as a result of frequent extended periods of inundation. This has caused a transition from bottomland hardwoods to marsh-type areas. Much of the land is nearly devoid of woody vegetation. Some willows, which apparently were large trees at the time of impoundment, have survived at elevations between 680 and 685 ft. NGVD29, even though they were partially inundated for up to 10 months in some years. However, there is no long-term willow reproduction in this area and eventually the older trees will be eliminated. Between 685 and 695 ft. NGVD29, perennial vegetation has been partially established. It appears silver maple may become the dominant species in this higher flood community if it is able to gain sufficient height to photosynthesize during flood periods.

2.3. SEDIMENTATION AND SHORELINE EROSION

The rate of sedimentation within the lake is influenced by regional and site-specific conditions, including annual and seasonal precipitation patterns and associated storm water runoff, as well as riverbank erosion and agricultural runoff. Sedimentation is unavoidable for lakes like Coralville Lake due to steep banks, frequent high-water events, and wind and wave action. Accounting for sedimentation was included in the design and management of the lake; however, sedimentation rates have been higher than anticipated.

In 2019, there was a resurvey to the previous resurvey conducted in 2008. The purpose of the resurvey is to obtain information on the amount and distribution of sediment in the reservoir and the resulting rate of depletion in storage. The results of the 2019 resurvey showed the amount of deposition below elevation 712 ft. NGVD29 (Flood risk reduction pool elevation) amounted to 79,700 acre-feet since operation of the reservoir began in September 1958(Appendix F.3 *2019 Report of Sedimentation Resurvey Map*). This equates to about 1,320 acre-feet of storage loss per year. For visualization purposes, this is approximately 1.5 Empire State buildings filled with sediment each year. This number is approximately three to four times as large as the original 1948 predicted value of 400 acre-ft./year but is consistent with the overall rates calculated in 1999 and 2008 that utilized GIS and modern elevation survey methods. Based on the 2019 resurvey, the amount of sediment deposition below 683 ft (conservation pool) amounted to 51% of the total deposition in the reservoir since September 1958.

Similar to previous resurveys, results of the 2019 resurvey indicate the elevation increment 675-680 ft has one of the highest rates of sediment deposition. . The sedimentation rate in this increment could be due to its proximity to current and historical conservation pool elevations; the conservation pool is the most frequent elevation. Another possible explanation is wave action and erosion along the shoreline with deposition in low flow areas with shallow depths, particularly areas at the elevation near the conservation pool elevation like coves, slack water areas adjacent to bridge embankments, and the regions near shorelines.

A conservation pool of 680.0 ft. NGVD29, was recommended by Design Memorandum #17 entitled Conservation Storage. The conservation pool elevation of 680.0 ft. NGVD29 was maintained from the time operation began in September 1958 until June 1989. At that time, the North Central Division gave temporary permission to the Rock Island District to raise the conservation pool to 683.0 ft. NGVD29 because of a loss of conservation storage due to sedimentation. A permanent change of the conservation pool to elevation 683.0 ft. NGVD29 was recommended in the U. S. Army Corps of Engineers' Water Control Plan, dated November 1991, and was subsequently approved. Under the 2022 Coralville Lake Water Control Plan, the conservation pool is managed utilizing operating bands. The conservation pool operates 683-688 in the fall and has the option to lower the pool to 679 in the Spring.

Conversely, when looking at elevation versus capacity, data shows that the sediment deposition volume at the upper elevations of the reservoir is lower than might be expected and even shows an increase in capacity at elevations from 715 to 720 ft. NGVD29 which could be due to over land flow and erosion occurring at these elevations. Additionally, the water elevation does not frequently reach these upper elevations, resulting in little opportunity for significant sedimentation to occur. Land use at higher elevations in the watershed is primarily farming, which is likely contributing to erosion above elevation 715 and deposition of material within the lake as the suspended solids fall out. In comparing the 2008 resurvey rates to the 1958 survey, there are higher than expected sediment deposition volumes and rates for the entire reservoir. Possible explanations for these findings include changes in survey technology/methodology, and multiple high-water events over the past 49 years. Some changes in the sedimentation resurvey process include use of high-resolution aerial photography, LIDAR and bathymetry data, and GIS software. The changes allow for more accurate computation of sedimentation, capacity, and area. With these data gathering and processing tools, the amount of data collected is vastly greater; leading to less interpolation between data points compared to previous resurvey techniques. High water events have occurred more frequently than anticipated over the life of the reservoir, with elevations exceeding 690 ft. NGVD29 only 12 times in 54 years from 1904 to 1958, while exceeding that elevation 29 times in the 60 years since the project was completed in 1958. High water events have occurred more frequently than anticipated which could have contributed to unexpected erosion rates at higher elevations and additional sediment deposition at lower elevations.[2]

[2] USACE 2011. Coralville Reservoir, Iowa River Basin, Iowa River, Iowa, Report of Sedimentation, 2019 Resurvey

2.4. SUSTAINABILITY AND CLIMATE CHANGE

Executive Order 13693, *Planning for Federal Sustainability in the Next Decade* (March 19, 2015), directs Federal agencies to conduct their environmental, transportation and energy-related activities in an environmentally, economically and fiscally sound and sustainable manner. The District strives to protect, sustain, and improve the natural and man-made environment of the Nation, and is committed to compliance with applicable environmental and energy statutes, regulations, and Executive Orders. Sustainability is an overarching concept that encompasses energy, climate change, and the environment to ensure Federal activities do not negatively impact resources for future generations. Proposed alternative plans must provide for sustainable solutions addressing both short- and long-term environmental considerations as well as social and economic considerations.

Climate change impacts in Iowa would likely involve increased temperatures (Figure 2-1) and increased precipitation leading to further altered (flashier) hydrologic conditions (Figure 2-2). Any changes in hydrologic conditions occurring within the basin would likely result from less frequent but more intense warm-weather precipitation events, moderately to severely reduced summer flow conditions and degraded water quality, less winter ice cover and more cold-weather erosion events. The character of riparian habitats may also change, and invasive species may move into the area with changing climate (Pryor et al., 2014). Extreme rainfall events and flooding have increased during the last century and these trends are expected to continue, causing erosion, declining water quality, and negative impacts on transportation, agriculture, human health, and infrastructure. The range and distribution of fish and other aquatic species will likely change, and an increase in invasive species would also likely occur (Pryor et al., 2014).

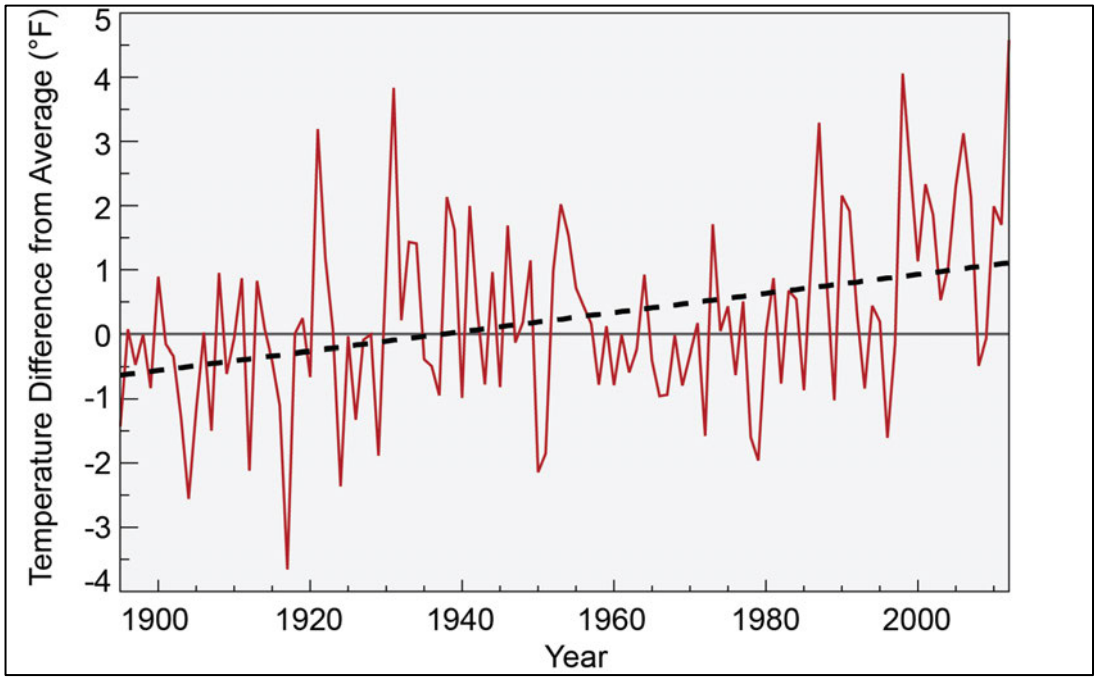

Figure 2-1 Temperatures are Rising in the Midwest. Annual average temperatures (red line) across the Midwest show a trend towards increasing temperature. The trend (heavy black line) calculated over the period 1895-2012 is equal to an increase of 1.5°F.(Adapted from Kunkel et al., 2013).

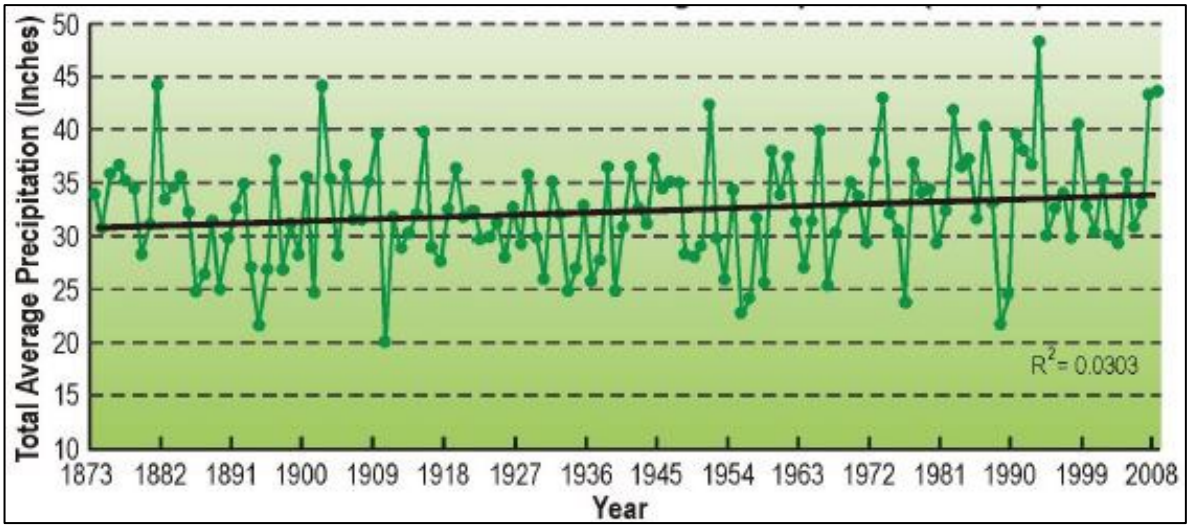

Figure 2-2 Iowa Annual State-wide Precipitation in Inches from 1873-2008
Note the State has had an 8 percent increase in annual precipitation over this 136-year period
(Iowa Climatology Bureau, 2010)

In the next few decades, it is expected longer growing seasons and rising CO_2 levels would increase yields of some crops, though such benefits will be progressively offset by extreme

weather events. Though adaptation options can reduce some of the detrimental effects, in the long-term, the combined stresses associated with climate change are expected to decrease agricultural productivity (Pryor et al., 2014).

2.5. TOPOGRAPHY, GEOLOGY, SOILS & UNIQUE FARMLAND

Much of the lake lies in the physiographic region of the Southern Iowa Drift Plain and some Iowan Surface in the northern reaches. The reservoir is complemented by a combination of broad flood plains, moderately rolling hills, and upland areas.

Most of the Iowa River Basin is naturally well drained. The upper 1,300 square miles of the Iowa River watershed lie in the area covered by the most recent glacial drift. The remaining portion of the basin above the Coralville Lake Dam is covered by the windblown loess soil that overlies the maturely dissected drift of older glaciations. Runoff from this mature terrain is relatively high. Maximum difference in elevation between uplands and streams is at or near 150 feet. The topography of the Coralville Lake area is primarily defined by a number of glacial events involving the erosion and deposition of material. The area was covered and shaped by deposits of two early ice sheets, the Nebraskan and the Kansan, approximately 10,000 years ago. In addition, three lobes of younger Wisconsin-Age glacial drift (Iowa sub-stage) extend into northern Johnson County, overlying the older glacial deposits. The rest of the drainage area was either un-glaciated or shaped by older glaciations. The Coralville Lake drainage area is underlain by older drift materials that have been moderately dissected by streams and are in a stage of maturity.

The main bedrock of the county is Devonian age limestone. Weathering (physical and chemical) contributes to the high erodibility and wave-action degradation of limestone and may create unstable slopes wherever it occurs. A large section of the Devonian bedrock was exposed below the spillway at Coralville Dam during the 1993 and 2008 flood events.

According to the Natural Resource Conservation Service's Web Soil Survey, the major soil regions within the area of Coralville Lake (Johnson County) include: Eolian (windblown) sand, Loess-Timbered, Loess Ridges and Slopes, and Shallow Loess Over Glacial Till.

Soil mapping is available showing the various soil types, parent material, slope, drainage, and fertility characteristics for unique farming. This information is used to determine resource protection needs, historic biotic occurrence, stability, fertility, and drainage characteristics for various uses. The Gridded Soil Survey Geographic Database was developed by the National Cooperative Soil Survey, Natural Resources Conservation Service, U.S. Department of Agriculture (Soil Science Division Staff, 2017). Table 2-1 summarizes the planning area's soil information.

Table 2-1. Soil Farm Class near the Coralville Lake Reservoir

Soil Farm Class	Area (ha)
Farmland of Statewide Importance	4,905.61
All Areas Are Prime Farmland	8,706.57
Prime Farmland if Drained	9,984.73
Prime farmland if Irrigated	609.50
Prime Farmland if Protected from Flooding or Not Frequently	800.86
Prime Farmland if Drained and Either Protected from Flooding	3,197.32
Not Prime Farmland	17,867.37

2.6. NATURAL RESOURCES

Iowa ranks among the lowest in public land ownership and is considered to have one of the most altered landscapes nationally (National Wilderness Institute, 1995). Large, intact tracts of wildlife habitat are uncommon in most of the state and as a result, the full value of the resources found at Coralville Lake, and their impact on wildlife and vegetation native to eastern Iowa are difficult to measure but are assuredly high. Identified as a "Large Habitat Complex in the Southern Iowa Drift Plain" by the Iowa Wildlife Action Plan (2006, update 2015), it is the largest contiguous area of undeveloped land between the Mississippi and Des Moines Rivers. This is critical for species whose populations are negatively impacted by habitat fragmentation. All of Coralville Lake fee title lands, as well as several tributaries, have been recognized as an "Important Bird Area" or IBA for the State of Iowa by the Audubon Society in 2004. Confirmed Criteria are "rare or unique habitat" and "significant species concentrations" for this designation, with more than 300 avian species recorded. Coralville Lake is also considered an important part of the Mississippi Flyway, a migratory bird corridor.

The 24,597 acres of Coralville Lake include (at conservation pool level): 4,100 acres of water, 9,897 acres of deciduous and coniferous forest, 3,506 acres of wetland, and 1,318 acres of prairie and savannah. 463 acres of land have been developed for project operations, campgrounds and day use recreational areas. 4,066 acres of land are in agricultural production, which provides funding for outgrantees, act as food plots in designated areas, and allows farmers to continue farming the land until funding is available to convert the land to forest or prairie. Since the completion of Coralville Dam, 309 acres of deciduous forest and 67 acres of coniferous forest, along with 338 acres of prairie have been planted. Project lands outgranted to the Iowa DNR for wildlife management total 13,507 acres.

Pressures on the resource are significant and multifaceted. Invasive species, climate change, and urbanization pose the greatest threats to maintaining sustainable ecosystems. Annual visitation of over one million people also has an impact on Coralville Lake's natural resources. Recreational activities from boating, hiking, snowmobiling, horseback riding and hunting all pose some degree of disturbance to wildlife and natural resources. Human disturbance can be a limiting factor and dense visitation impacts are difficult to quantify.

2.6.1. Threatened and Endangered Species. The District conducted a preliminary review of federally-listed threatened and endangered species in the study area using the IPAC website (USFWS, 2022) (Appendix B). Seven federally-listed species are identified as present or potentially occurring on project lands (Table 2-2). Multiple state-endangered species occur or potentially occur on Federally-managed lands (IANDR, website) (Appendix G). No designated critical habitats of any listed species are present within the project.

Table 2-2. Coralville Threatened and Endangered Species (USFWS, 2022)

Species	Scientific Name	Status	Habitat
Eastern prairie fringed orchid	*Platanthera leucophaea*	Threatened	Mesic to wet unplowed tallgrass prairies and meadows. Also, occurs in bogs, fens, and sedge meadows.
Western prairie fringed orchid	*Platanthaera praeclara*	Threatened	Mesic to wet unplowed tallgrass prairies and meadows
Indiana bat	*Myotis sodalis*	Endangered	Caves, mines (hibernacula); small stream corridors with well-developed riparian woods; upland forests (foraging)
Northern long-eared bat	*Myotis septentrionalis*	Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests and woods.
Higgins Eye pearly mussel	*Lampsilis higginsii*	Endangered	Large rivers with deep water with moderate currents and sand and gravel substrates
Rusty patched bumble bee	*Bombus affinis*	Endangered	Grasslands and tallgrass prairies of the Upper Midwest and Northeast
Monarch Butterfly	*Danaus plexippus*	Candidate	Prairies, meadows, grasslands and along roadsides, across most of North America

Eastern Prairie Fringed Orchid. The eastern prairie fringed orchid occurs in a wide variety of habitats, from mesic prairie to wetlands such as sedge meadows, marsh edges, even bogs. It requires full sun for optimum growth and flowering and a grassy habitat with little or no woody encroachment.

Western Prairie Fringed Orchid. The western prairie fringed orchid is restricted to west of the Mississippi River and currently occurs in Iowa, Kansas, Minnesota, Nebraska, North Dakota, and in Manitoba, Canada. This orchid occurs most often in mesic-to-wet unplowed tallgrass prairies and meadows but has been found in old fields and roadside ditches.

Indiana Bat and Northern Long-eared Bat. The listed bat species may inhabit the wooded areas within the Study area. Both bat species utilize mature or dead trees with flaky bark as their summer maternity sites and may forage in open areas near the rivers and lake.

Higgins Eye Pearlymussel. The Higgins eye pearlymussel relies on deep, free-flowing rivers with clean water. Much of their historic habitat has been changed from free-flowing river systems to impounded river systems. Impoundments changed water flow patterns, substrate

characteristics, and host fish habitat which, in turn, affect how Higgins eye feed, live, and reproduce. Municipal, industrial, and farm run-off degrade water quality. As filter-feeders, mussels concentrate chemicals and toxic metals in body tissues and can be poisoned by chemicals in their water. Dredging and waterway traffic produce siltation which can cover river substrate and mussel beds. Higgins eye pearlymussel have been documented immediately downstream of the Coralville Dam as recently as August 2019.

Rusty Patched Bumble Bee. The rusty patched bumble bee was listed as federally-endangered in March 2017. The population has declined by 87 percent in the last 20 years. The species is likely to be present in only 0.1% of its historical range (USFWS, 2019). There are many potential reasons for the rusty patched bumble bee decline including habitat loss, intensive farming, disease, pesticide use and climate change. Currently, three rusty patched bumble bee "High Potential Zones" overlap parts of the project area and nearly all of the project area is within the "Low Potential Zones." It is likely more rusty patched bumblebees will be identified at Coralville Lake, since it is a large contiguous area with relatively undisturbed habitat. (Appendix F.4 *Rusty Patched Bumblebee Zones.*)

Monarch Butterfly. During the breeding season, monarchs lay their eggs on their obligate milkweed host plant (primarily Asclepias spp.). Sufficient quality and quantity of nectar from flowers are needed for adult feeding throughout the breeding and migration seasons. Individual monarchs in temperate climates, such as eastern and western North America, undergo long-distance migration, where the migratory generation of adults is in reproductive diapause and lives for an extended period of time.

State Listed Species. The Iowa DNR lists 86 species in the study area. . The entire list of Iowa state listed species is included in Appendix G.

Bald and Golden Eagle Protection Act. Although bald eagles have made an incredible recovery and are no longer considered threatened or endangered listed under the Endangered Species Act, the Bald and Golden Eagle Protection Act prohibits killing, selling or otherwise harming eagles, their nests, or eggs. Large numbers of bald eagles use the lake for feeding and roosting during the winter, which attracts many visitors to Coralville Lake. Several nests have also been observed around the lake.

2.6.2. Invasive Species. Invasive species continue to pose significant threats to project resources. Sixty-four terrestrial invasive plant species and 11 terrestrial animal species have been identified on project lands. Many species pose relatively minor risk to altering native systems, while others have the potential to greatly impact them. The emerald ash borer (*Agrilus planipennis*) will have tremendous consequences, both in actual costs to manage and the overall dynamic change that will occur within forests. A few species including: Sericea lespedeza (*Lespedeza cuneata*), autumn olive (*Elaeagnus umbellate*), garlic mustard (*Alliaria petiolata*), and oriental bittersweet (*Celastrus orbiculatus*) cause serious threats and expensive control measures on an annual basis.

2.6.3. Wildlife Management. Wildlife and fisheries management are important components of the resource management program. There are 13,507 acres of Project lands the Iowa DNR manages for to wildlife management. Close coordination and partnering occurs between District staff and the Iowa DNR to reach management objectives. Hunting, fishing, and wildlife viewing are popular at Coralville Lake and efforts will continue to preserve and promote these activities.

Wildlife management activities are targeted primarily at white-tailed deer, eastern wild turkey, waterfowl and mourning doves. Additionally, small game hunting and upland birds are managed species, but limited by lack of suitable habitat. Non-game wildlife species benefit from habitat provided project wide.

2.6.4. Fisheries Management. Fisheries and other aquatic resources are managed by Iowa DNR Fisheries. Work is primarily aimed at monitoring fish, mussels and other aquatic life. Coralville Lake is annually stocked to provide additional popular sport fish species. Common species include channel catfish, flathead catfish, crappie, white bass, walleye, hybrid striped bass and largemouth bass. A contract commercial fish harvester is allowed to remove rough fish species from September 15th to May 15th. They may take common carp, buffalo, carp-suckers, gizzard shad, freshwater drum and white amur (grass carp). Each year they remove approximately 250,000 pounds of rough fish from Coralville Lake. Water fluctuations make it difficult for aquatic macrophytes to become established. Invasive Eurasian watermilfoil, and brittle naiad have not been observed. Zebra mussels, silver carp and bighead carp are present in the Iowa River but have not been observed in Coralville Lake.

2.7. CULTURAL AND HISTORIC RESOURCES

Human habitation around the lake, which is located almost entirely within the Southern Iowa Drift Plain landform, spans the past 13,000 years, from the Paleo-Indian period through the Archaic and Woodland periods and into the Meskwaki occupation of the area and subsequent Euro-American settlement.

Archaeological survey, testing and data recovery excavations have occurred at Coralville Lake. Notable surveys and excavations include the Smithsonian's work in advance of and concurrent with reservoir construction (Caldwell 1961; Wheeler 1949), large-scale surveys in the 1980s (Anderson and Overstreet 1986; Emerson et al. 1984; Overstreet and Stark 1985; Overstreet et al. 1985, 1987; Richardson et al. 1989; Schermer 1983), and a survey in anticipation of Lake Macbride restoration (Sellars and Ambrosino 2000). The 1980s' work formed the basis for the majority of the conclusions and recommendations within the most recent Historic Properties Management Plan (HPMP; Overstreet 1986).
Many small-scale investigations have occurred, mainly related to construction projects (e.g., Doershuk and Peterson 2005; Fishel 1993; Kendall 2016; Peterson 1999; Rogers 2015). Examples of testing or excavations include those at the Late Woodland Walter's Site (13JH42; Anderson 1971), multicomponent Woodpecker Cave (Enloe 2014, 2016), indeterminate-aged prehistoric sites (Titus 1996), and historic farmstead remnants (Gade

1998; Peterson and Jones 1996; Snow and Link 1997). Approximately 11,744 acres of the Project's 24,597 acres of land and water have been subjected to archaeological investigation, although some surveys pre-date the utilization of modern archaeological field methods. In addition, avocational archeologists have recorded many sites in the Iowa Site File.

Some of Coralville Lake's 411 U.S. Government fee-titled archaeological sites are located in impounded areas, and others lies along the lake's periphery or on adjacent uplands. A wide variety of site types are represented, from historic sites such as farmstead remnants, an 1838–1839 Meskwaki village, and a Euro-American cemetery, to precontact era mounds, lithic scatters, habitations, and rock shelters. One midden has yielded only shells, and therefore may be non-cultural (13JH207). Two hundred and twenty-six precontact-aged sites around Coralville Lake lack diagnostic materials. The exact period during which American Indians utilized those sites is not known.

Thirteen sites around the lake have yielded or are likely to contain human remains. These include 10 mounds or mound groups (13JH1, 13JH3, 13JH6, 13JH331, 13JH343, 13JH519, 13JH1303-1304, 13JH1443-1444), a corner of one historic cemetery (the Alt/Wein Cemetery; 13JH1365), isolated prehistoric-aged human remains from the Sandy Beach site (13JH43; habitation/scatter; Middle Archaic and Woodland era site components) and Woodpecker Cave (13JH202; Middle and Late Archaic, Early to Late Woodland eras and Great Oasis site components). There are no identified Traditional Cultural Properties at Coralville Lake.

Confirmed National Register of Historic Places (NRHP)-listed or eligible archeological sites are limited to the Woodland Era habitation site called Sugar Bottom NW (13JH272). Thirty-eight sites are recommended for testing to assess NRHP eligibility, 300 are recommended or determined ineligible, and the remaining 72 archaeological sites have no associated NRHP eligibility recommendation. Sites in the latter category primarily relate to avocational archeologist recorded finds or historic sites recorded on the basis of archival information alone.

There are three known Paleo-Indian Period (11,500-8,500 B.C.E.) sites around the reservoir (13JH53, 13JH126, 13JH161). Paleo-Indian populations consisted of small groups of highly mobile hunter-gatherers who seasonally followed big game herds.

The area's Archaic Period (8,500-800 B.C.E.) inhabitants are represented by at least 34 sites. The number of persons living in small settlements increased, sometimes forming small villages. A greater diversity of lithic (stone), animal, and plant resources are seen in the archeological record. Archaic sites here include scatters, habitations and a rock shelter. Although some crop domestication occurred during the Late Archaic, not until the Woodland Period (800 B.C.E.-C.E. 1250) did farming intensify. This reliability on crops meant that people could live at one location longer, since there was a dependable food supply. Village size increased, food storage pits became common, and ceramics were developed to aid in food processing. A greater variety of exotic raw materials and finished goods can be found, showing that trade networks became increasingly complex. The Coralville Lake area includes

93 identified Woodland sites, including mounds, two possible villages, other habitations, scatters, and rock shelters. Two Great Oasis-like (C.E. 900-1100) sherds from Woodpecker Cave (13JH202) are that culture's easternmost manifestation. This site has also yielded two "Central Plains tradition" -like sherds.

Five Late Prehistoric sites are recorded around the lake. Oneota tradition (C.E. 1000-1650) components have been suggested mostly on the basis of avocational reports of isolated shell-tempered sherds at multicomponent sites 13JH2, 13JH26, and 13JH205. A number of modern tribes descend from Oneota peoples, including the Baxoje (Ioway), Ho-Chunk/Winnebago, Oto-Missouri, Omaha, and Ponca. Sites 13JH1379 and 13JH1380 each yielded a small projectile point, very tentatively associated with the Late Woodland or Late Prehistoric periods.

The arrival of Marquette and Joliet to the Upper Mississippi River in 1673 represents the first documented European contact with native peoples in the land that eventually became Iowa. Verified historic era American Indian sites around Coralville Lake are limited to a Poweshiek's 1838-1839 Meskwaki village (associated with two site numbers: 13JH1177, 13JH1337), its associated trading post (13JH1251), and a nearby artifact scatter (13JHJ1252). In addition, the location of the "paper" town (platted but probably never occupied) of Monroe (13JH1338) likely was chosen due to its proximity to the trading post, river, and cultivated Meskwaki farm fields. Other Meskwaki-related sites such as winter camps may be present but unidentified.

Following Meskwaki removal westward in 1839, Euro-American settlers arrived, quickly purchasing all available lands and converting much of the prairie and timber into farmland. There are 95 known historic era archeological sites in and around the reservoir. In addition to the Meskwaki-related sites, historic era archeological sites include a sawmill, flouring mill, school, church/school, farmsteads, rural residences, road/trail remnants, and scatters.

Reservoir erosion destroyed many recorded sites. However, sedimentation has mantled some sites with historic alluvium, effectively sealing deposits. Some archeological sites remain in relatively undisturbed contexts, such as those found on ridgetops and high terrace landforms. Well-preserved examples include the Woodland era habitation Sugar Bottom NW (13JH272; on an upland nose-slope) and McAllister Creek VI (13JH151; Archaic habitation on a high terrace).

In addition to archeological resources, inventoried architectural buildings and structures at Coralville Lake include NRHP-listed resources at Lake Macbride State Park that contribute to the Multiple Property listing "Civilian Conservation Corps (CCC) Properties in Iowa State Parks: 1933-1942" (McKay 1989). These CCC-constructed resources include the superintendent's stone residence, a frame maintenance building, a set of portals, a culvert, and a limestone footbridge. Non-contributing resources include a refectory, a pit vault latrine, a shelter, the bathhouse, and archeological remnants of limestone stairs (13JH1083).

The Old State Quarry (Iowa Architectural Site 52-00166) is NRHP listed due to its association with construction of important buildings, including the Iowa Territorial Capitol at Iowa City and the present Iowa State Capitol. Several other inventoried architectural resources are NRHP-ineligible (Hoosier Creek bridges 52-00250 and 52-00170; Krieger Farmhouse 52-05039).

The Coralville Lake Dam complex construction began in 1949 and the dam became operational in 1958. Original (1948) plans group dam-related structures or objects into the categories of earth embankment (dam), outlet works (gates, approach channel, outlet control house, service bridge to control house, conduit, stilling basin, and outlet channel), spillway, and hydraulic gages. The Coralville Lake Dam complex minimally includes those structures and objects, and may additionally include other associated resources, such as roads, recreational facilities, and administrative buildings. The District plans to conduct an NRHP eligibility assessment of the complex in the coming years.

2.8. SOCIOECONOMIC RESOURCES

2.8.1. Demographics. There are five counties bordering the project along the Iowa River that are considered the Region of Influence (ROI). Table 2-3 provides a comparative summary of population trends within these counties. The total population (estimates base) of all counties in 2010 was 402,306, with the 2017 population estimated at 432,128. The 2017 population represents a 7% increase since 2010. During the same time period, the State of Iowa had an estimated population increase of 3.2%.

2.8.1.1. Population. Table 2-3 displays population estimates and trends for the 2010-2017 period. While statewide population in the Iowa has been slightly increasing for this timeframe, county population trends are more variable between the five counties.

Table 2-3. Zone 2 Population Trends

	Population 2017	Population 2010	Percent Change
Johnson County, IA	149,210	130,882	14
Linn County, IA	224,115	211,226	6.1
Benton County, IA	25,642	26,076	-1.7
Iowa County, IA	16,103	16,355	-1.5
Washington County, IA	17,058	17,767	-4.0
Total	**432,128**	**402,306**	**7**

Source: http://www.census.gov/

2.8.1.2. Housing. Table 2-4 portrays selected housing characteristics related to the number of units, median value, vacancy rate, and size of household. According to the 2010 U.S. Census, in 2010, there were 172,070 housing units within the surrounding counties. Approximately 65% of the housing units were owner occupied, with the average household size being approximately 2.5 people per unit.

Table 2-4. Housing Characteristics 2017

	Total Housing Units 2017	% Owner Occupied	Median Value	Average. Household
Johnson Co., IA	63,859	59.3	$210,400	2.37
Linn County, IA	97,259	74.2	$150,600	2.42
Benton County, IA	11,155	81.7	$147,800	2.48
Iowa County, IA	7,338	77.4	$143,900	2.35
Tama County, IA	7,777	77.4	$105,300	2.52
Total	**178,137**			

Source: http://www.census.gov/

2.8.1.3. Income and Education. Table 2-5 displays median household income and percentage level of education attained by county.

Table 2-5. Zone 2 Income and Education 2017

	Median Income	Persons Below Poverty Level (%)	High School Graduates (%)	Bachelors or Higher (%)
Johnson Co., IA	$59,965	15.3	95.1	52.7
Linn County, IA	$62,702	9.0	94.7	32.3
Benton County, IA	$64,061	7.8	92.8	22
Iowa County, IA	$58,077	7.2	92.5	20.2
Tama County, IA	$56,110	9.5	91.1	16.5

Source: http://www.census.gov/

2.8.1.4. Race and Origin. Table 2-6 portrays the ethnic composition of the population in each of Zones 1 through 4.

Table 2-6. Zone 6 Population Percentage by Race and Origin 2017

	White	Black	Hispanic or Latino Origin	Other
Johnson Co., IA	78.6	7	5.7	8.7
Linn County, IA	86.1	5.6	3.3	5
Benton County, IA	96.4	0.6	1.5	1.5
Iowa County, IA	95.2	0.7	2.8	1.3
Tama County, IA	80.9	0.9	9.7	8.5

Source: http://www.census.gov/

2.8.2. Land Use Development Surrounding Coralville Lake. Lands within Johnson County bordering Coralville Lake are experiencing considerable urban development. The main body of the lake is surrounded by the cities of Iowa City, North Liberty, Coralville, Shueyville and Solon. Rural areas within a few miles of the lake are also being parceled into larger residential lots. Development near the lake has many impacts and challenges the ability of the Corps to meet its missions. Minimal project fee lands were acquired, supplemented by flowage easements, which has enticed neighboring development and induces encroachments.

(Appendix F.5, *Coralville Lake Developed Land Map*.) As adjacent populations increase, so will visitation to Corps-managed lands. Limited resources will begin to experience increased use and in turn, apply pressure to the recreation facilities. Overuse of lands can cause the resource to degrade and impacts negatively on the overall quality of the recreation experience.

Neighboring urban development will have a significant impact on local wildlife populations. A majority of the lands being converted to residential and commercial purposes were once either primarily forested, row crop agriculture, or pasture. Forested and agricultural lands provide a higher wildlife habitat value than do urban landscapes. This reduction in habitat will place more demand on remaining ecosystems found on Corps lands. An increase in the urban/parkland interface will also create more opportunities for human conflict with wildlife that inhabits parklands adjacent to housing developments (i.e., raccoons, White-tailed deer, and opossums).

One of the most effective ways to manage both grassland and timber resources at Coralville Lake is to utilize prescribed fire. The use of fire becomes increasingly difficult for sites adjacent to urban development, due to additional site preparations that must be taken to ensure that private lands and structures are not placed at risk. Even when prescribed fire is a significant distance from private lands, smoke from the fire can impact visibilities on roadways and irritate health problems of local residents. The development of adjacent lands will certainly affect the ability to manage natural resources with prescribed fire.

Historically, adjoining developments have also increased storm-water runoff or concentrated flows, causing increased erosion and damage to Corps lands. With stormwater also comes pollution in the form of nutrient and chemical runoff. Once insufficient storm-water infrastructure is in place, it is very costly to correct these problems. Increased urbanization complicates management of natural resources on Corps' lands. The Corps will continue to work with adjacent landowners and developers regarding future management.

2.8.3. Minority and Low-income Populations (Environmental Justice).

Environmental justice is defined as the fair treatment and meaningful involvement of all people, the final decision should be whether the Study area is likely to, or is already, impacted by greater adverse effects than a demographically similar reference community.

The five-year average (2014-2018) American Community Survey (ACS) data was queried to obtain relevant information associated with environmental justice. This ACS data is tabulated by the U.S. Census Bureau and was procured from the national, state, and county perspective in order to provide a multi-level geographical analysis.

In order to identify whether the potential alternatives may disproportionately affect minorities or impoverished citizens, an analysis was conducted utilizing county obtained from ACS. The following information was collected from specific census block groups in the Study area.

- Racial and Ethnic Characteristics. Race and ethnic populations in each census block

of the Project area were characterized using the following racial categories: Hispanic, White, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Persons of Hispanic Origin, and Other. These categories are consistent with the affected populations requiring study under Executive Order (EO) 12898. Table 2-6 lists race and ethnic characteristics per County in the ROI.

- Percentage of Minority Population. As defined by the U.S. Census Bureau, the minority population includes all non-Whites and White-Hispanic persons. According to Council of Environmental Quality (CEQ) guidelines, "Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50% or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis." The map following this section displays the block group locations in relation to the ROI.

- Low-Income Population. The percentage of persons living below the poverty level, as defined in the 2014-2018 ACS, was one of the indicators used to determine the low-income population in a given census block or tract. Low-income population is defined as a group with 20% or more of its residents below the poverty threshold.

Minority and population below poverty level percentages are shown in Table 2-7 and Table 2-8. Percent minority represents the fraction of the entire population that is not White Alone. The population below the poverty level is calculated from the Census Bureau's American Community Survey 5-year summary estimates. This metric lists the percent of individuals whose ratio of household income-to-poverty level in the past 12 months was less than 2.

Table 2-7. Percentage of Minority Population in Study Area

	Johnson County	**Linn County**	**Louisa County**	**Washington County**	**ROI**
White Alone	82.1%	88.4%	91.2%	96.2%	86.6%
Black or African American Alone	6.8%	5.3%	1.1%	0.9%	5.5%
American Indian and Alaska Native Alone	0.2%	0.2%	0.5%	0.3%	0.2%
Asian Alone	6.3%	2.3%	3.8%	0.5%	3.7%
Native Hawaiian and Other Pacific Islander Alone	0.1%	0.1%	0.0%	0.0%	0.1%
Some Other Race Alone	2.2%	0.9%	2.5%	0.8%	1.4%
Two or More Races	2.4%	2.8%	0.9%	1.3%	2.5%

Source: 2018 American Community Survey (ACS) 5 Year Estimate

Table 2-8. Low Income Population in Study Area

	Population for Whom Poverty Status Is Determined	
Johnson County	**Total**	138,866
	Below Poverty Level	24,728
	Percent Below Poverty Level	17.8%
Linn County	**Total**	216,510
	Below Poverty Level	20,566
	Percent Below Poverty Level	9.5%
Louisa County	**Total**	11,074
	Below Poverty Level	1,231
	Percent Below Poverty Level	11.1%
Washington County	**Total**	21,749
	Below Poverty Level	2,021
	Percent Below Poverty Level	9.3%

Source: 2018 American Community Survey (ACS) 5 Year Estimate

2.9. RECREATIONAL FACILITIES, ACTIVITIES AND NEEDS

2.9.1. Zones of Influence. The primary area of influence encompasses the Iowa City MSA, located in Johnson County, Iowa. This region has been utilized as the basis in summarizing the population characteristics of Coralville Lake. The Iowa City MSA, in which the lake is located, had an estimated total population of 161,453 according to the U.S. Census Bureau's 2015 American Community Survey. This region saw a 5.8 percent growth in population since the 2010 census. The area witnessed an increased pattern of urbanization accounting for 5.2 percent of Iowa's total population according to the 2015 American Community Survey. Between 2000 and 2010, Johnson County had a population growth of 18%, the second highest rate of growth in the State of Iowa (US Census, 2017).

2.9.2. Visitation Profile. Coralville Lake is one of the most popular recreation locations in Iowa, primarily due to its location in the Iowa City area. The majority of the visitors to Coralville Lake come from within a 50-mile radius of the metro area. The diverse population consists of campers, adjacent residents, hunters, disc golfers, marina patrons, and day users who picnic, hike, bike, and cross-country ski. Coralville Lake is a popular location for water-related recreation in East Central Iowa. Coralville provides the public a location for boating, sailing, kayaking, paddle boarding, fishing, and swimming. On average, Coralville Lake entertains over one million visits per year. Peak visitation at Coralville Lake occurs April through September and accounts for 80 percent of the total visitation. In 2017, visitation resulted in $31,958,000 in visitor spending and 310 jobs within 30 miles of Coralville Lake (source of information).

2.9.3. Recreation Analysis. Coralville Lake's recreation areas, trails, and water areas add to its attractiveness, vitality, and interest. The lake facilities provide a sense of place and allow a growing population to enjoy outdoor recreation opportunities in an ever-growing suburban landscape.

While visitation in recreation areas remains strong, there are indications there is new demand for upgraded facilities and non-traditional recreation opportunities. Recreation has evolved into a modernized and high-tech activity since the construction of Coralville's recreation areas. For example, sewer hookups, 50-amp electrical hookups, concrete sites, and wireless internet are becoming the new standard for campers. Technology has changed the habits of modern camping and campgrounds are vital to Coralville Lake. The popularity of cabins, all-season shelters, natural- surfaced trails, dog parks, educational centers, and archery ranges have also become apparent in other Federal, state, county, and municipal parks in the region. These are examples of unmet recreation demands at Coralville Lake. The majority of Iowans (59%) believe there are about the right amount of outdoor recreation opportunities available, and Coralville is a large contributor to those opportunities [Iowa Survey for the State Comprehensive Outdoor Recreation Plan (SCORP), 2012]. However, facilities and recreation demands have become more upscale than the facilities typically found in Corps-operated parks. There is also an increasing demand for water related recreation activities. Increased adjacent development and intensive agriculture has not only increased sedimentation into the lake but has also fueled nutrient loading. These environmental impacts have the potential to make Coralville Lake water conditions unsustainable and undesirable for water related recreation. The challenge for the future will be maintaining and improving water resources and infrastructure to meet recreation demands.

2.10. REAL ESTATE

The acquisition policy for the Coralville Lake Project was the purchasing of a fee area encompassing all lands at or below elevation 702.0 ft. NGVD29 (Authorized 1977), which is 10 feet below the flood pool elevation. Permanent flowage easements were purchased to elevation 717 ft. NGVD29 for surcharge storage above the spillway crest (712 ft. NGVD29), adverse effects due to ground saturation, wave action or shoreline erosion, and adverse backwater effects on several small tributaries to the reservoir. The total fee title real estate interest at Coralville Lake is 24,597 acres. The total flowage easement interest at Coralville Lake is 8,607 acres.

The majority of fee title land is leased to other state and local agencies to manage for wildlife and recreation. The largest single lessee is the Iowa DNR, with over 13,507[3] acres designated for wildlife management and for parks and recreation. Other lessees include Kirkwood Community College Atherton Memorial Wetland Area (675 acres[4]), University of Iowa

[3] The acreage is according to the real estate outgrant or lease document
[4] The acreages are according to the respective real estate outgrant or lease documents

Macbride Nature Recreation Area (456 acres), National Science Foundation (18 acres) and private marinas (71 acres). Chapter 8 contains a detailed breakdown of land management by agency.

2.11. PERTINENT PUBLIC LAWS

Appendix D *Engineering Regulations, Pamphlets, and Manuals* lists the pertinent public laws

2.12. CORALVILLE LAKE AESTHETIC RESOURCES

NEPA requires the Master Plan to consider unique characteristics of the geological area of the Coralville Lake Reservoir. Chapter 8 also addresses aesthetic resources and recognizes that any recreational use in an area may reduce the aesthetic qualities at varying scales. Although a small amount of development is needed for health and safety reasons, it is critical to make determinations on the types of amenities that will result in the lowest impact to the resource.

Aesthetic resources under this Master Plan would be the Federal land the Corps leases at Coralville Lake to state and local agencies for recreational, wildlife management, and educational purposes. These leases, often referred to as outgrants, specify what types of activities are allowed on Federal lands and all Federal regulations still apply. Outgranted lands provide additional recreational opportunities to the general public. Examples of outgranted recreational lands include Hawkeye Wildlife Management Area, Macbride State Park, Macbride Recreation Area, Off Highway Vehicle Park, and Atherton Wetland. (See Appendix F.9, *Coralville Lake Managing Agencies Maps*.)

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CHAPTER 3

RESOURCE OBJECTIVES

The U.S. Army Corps of Engineers' (Corps) vision for the future management of the land, water, and recreational resources of the Coralville Lake Project will be focused on protecting, conserving and sustaining natural resources and historic properties, especially environmentally sensitive resources, and provide robust outdoor recreation opportunities that complement project resources for the benefit of present and future generations.

This vision is supported by the following broad management goals:

- Practice professional and active environmental stewardship of Corps-managed lands and waters consistent with the primary missions of the Corps and partnering agencies' missions
- Identify and protect environmentally sensitive species, habitats and landscapes, historic properties, and important scientific research locations
- Avoid, minimize, and manage activities with harmful effects to land, water, wildlife, other ecological resources (natural resources) and historic properties
- Manage public lands for equitable use by all members of the public while retaining existing commitments for private structures and use
- Identify outdoor recreation needs and provide those that complement the natural resources
- Manage public use areas to provide safe and enjoyable opportunities
- Collaborate with community leaders and academic entities
- Maintain open communication with the public at large
- Foster partnerships and volunteer opportunities to leverage fiscal resources

3.1. RESOURCE OBJECTIVES

Resource considerations at the Coralville Lake Project exist primarily from needs of flood risk management, natural and cultural resource management, recreational access, and public use. Multiple user types have interests in the project lands, recreation facilities, and waters; demands from each user type may create conflicts.

The Project will manage natural resources for the overall interest of the general public. Corps Rock Island District and Project staff will coordinate with partnering agencies for review to provide a balance of natural resources and recreational opportunities and ensure availability of resources for future generations. The Project also includes a Shoreline Management Plan which designates Limited Development Areas (LDA). Designated LDAs are areas where private shoreline uses or facilities are authorized through the issuance of a permit or license by the Corps (Coralville Shoreline Management Plan, 2017). Impacts on natural and cultural resources will be assessed during the decision-making process prior to any change to management plans, strategies, developments, or policies.

Environmental Stewardship Resource Objectives

1. Manage, promote, restore, and establish important native prairie, forest, and wetland community types where best suited in order to maintain diversity, health, and sustainability on Project lands. The Operational Management Plan (OMP) Volume 1 will be updated annually and will contain plans for achieving environmental stewardship resource objectives, with details regarding specific tasks and locations for the subsequent five years.

2. Proactively manage to sustain habitats or habitat conditions to protect, promote, and benefit Federally and state listed special status species.

3. Monitor lands for invasive and exotic species and take action when feasible to prevent and/or reduce their spread.

4. Inventory, monitor and interpret current and historic conditions of natural resource community types.

5. Maintain, enhance, develop, and promote communication channels between project personnel with inside and outside agency professionals to maximize cooperative exchange of management philosophies, practices, and implementation.

6. Natural resource management activities will be done in a manner to ensure safety for public users of project lands and waters.

7. Carefully evaluate land use requests that will alter current habitat conditions and functions, in order to avoid unnecessary natural resource damage, fragmentation and permanent loss to environmental benefits.

8. Minimize encroachments and trespassing by maintaining an easily recognized federal property boundary line and performing periodic inspections of the boundary. Maintain contact with federal, state, county and local government staff; adjoining landowners; real estate agents; and developers to help ensure understanding of the Corps' and managing agencies' roles, responsibilities and policies. Take prompt action or coordination as appropriate to help resolve encroachments and trespasses.

9. Identify and evaluate cultural resources; protect historic properties; practice good stewardship to reduce impacts from natural erosion and management actions; and seek funding to update the project's Historic Properties Plan.

Recreation Resource Objectives

1. Improve and modernize day use and campground facilities through addition of amenities, including, but not limited to: sewer hook-ups, increased electrical service, concrete RV pads, wireless internet access, amphitheaters, fish cleaning stations, restrooms, trails, and improved park entrance complexes. The Operational Management Plan (OMP) Volume 2 will be updated annually and will contain plans for achieving recreational resource objectives, with details regarding specific tasks and locations for the subsequent five years.

2. Improve and expand opportunities for passive recreation such as hiking, birding, biking and nature study by providing and maintaining high quality trails and wildlife viewing stations.

3. Improve interpretive services through collaboration with partners, construction of amphitheaters and other facilities conducive to group gatherings, and through community outreach programs.

4. Enhance the recreation experience by promoting and protecting water quality and improving and maintaining facilities in a safe and attractive condition.

5. Carefully monitor public hunting activities to ensure public safety and resource protection.

6. Work toward universal accessibility in all aspects of the recreation mission. Provide access opportunities that contribute to the quality of life for all ages, ethnic backgrounds and for those with physical limitations.

7. Provide and maintain lake and river access, where feasible and efficiently managed, by providing adequate boat ramp and parking facilities in designated areas.

8. Manage recreation opportunities for efficiencies and focus resources to recreation areas with the most benefit to the public. Define the recreation opportunities and manage accordingly with regard to the visitor use.

3.2. ENVIRONMENTAL STEWARDSHIP OBJECTIVE PRIORITIES

Coralville Lake Project faces many challenges in the execution of resource objectives. Limited staffing and budget constraints require constant prioritization of and focus on resource areas with the greatest need of action with the best return for government cost. Priorities are carefully weighed while allowing appropriate time and resource needs.

The linear footprint of the Reservoir and miles of shoreline are winding due to topography. The varying property lines complicate project boundary management. Additionally, areas along the reservoir that were once considered to be rural are increasingly urban. Increased urbanization and population have caused conflicts and encroachments on the Project lands. To reduce the impacts degrading the resources, priority will be placed on continuing boundary inspections, resurveying additional areas, addressing encroachments, and pursuing compliance with regulations.

. Engineering Regulation 1130-2-550, Chapter 2, establishes the policy for the administration and management of Corps' recreation programs and facilities (See Appendix D.6). Engineering Regulation 1130-2-540, Chapter 2, establishes the policy for the administration and management of natural resource activities (See Appendix D.7). The rules and regulations governing public use at Corps water resources development projects are published as Title 36 CFR Chapter III, Sections 327.0 to 327.30 and enforced by Corps personnel with Title 36 citation authority. (See EP 1165-2-316, Appendix D.10).

3.3. RECREATION OBJECTIVE PRIORITIES

Recreation falls within two categories; land or water-based recreation. Management objectives for each type vary depending on the location, safety hazards, and the intensity of use. In this Master Plan, general objectives are provided regarding the work necessary to meet the public's needs for land and/or water-based recreation, while maintaining stewardship to the resource. Implementation of these objectives will be dependent upon budget, manpower, time, and environmental constraints.

Land-based recreation activities include camping, picnicking, biking, hiking, disc golf, shore fishing, hunting, bird and wildlife watching, cross country skiing, sledding, snowmobiling, horseback riding, geo-caching, sightseeing, etc. on or adjacent to Project land. Land-based recreation areas include campgrounds, picnic areas, overlooks, boat ramps, land access points, and wildlife management areas. Facility types typically found within these recreation areas include campsites, picnic shelters, picnic sites, playgrounds, volleyball courts, horseshoe pits, ball fields, and trails. These recreation areas' management responsibilities fall to various groups, including the Corps, state agencies and organizations, public groups through Memorandum of Understandings, and private entities. Land-based recreation objectives will be to continue modernizing and rehabilitating existing recreation areas and providing a justified level of service.

Water-based recreation activities occurring on Corps water managed areas include pleasure boating, fishing, waterfowl hunting, sailing, swimming, canoeing, kayaking, water skiing and tubing, wind surfing, parasailing, paddle boarding, etc. The majority of water-based recreation is managed by the Corps with assistance from the Iowa DNR. The management objective is to ensure public safety, while providing recreation opportunities on the water. This objective will involve promoting water safety, studying recreation carrying capacity vs. current use

patterns, zoning requirements for no-wake or restricted areas, and areas to remain open for public recreation.

Recreation activities should be quality outdoor experiences enjoyed by a diverse public to the largest extent possible, but these activities must respect and ensure public safety and promote a healthful environment that protect natural resources. An objective priority should be to increase the public's opportunity for high quality recreation experiences.

The Shoreline Management Plan (SMP) authorizes private recreational structures on Project lands and waters. The goal of the SMP is to achieve a balance between authorized shoreline uses and resource protection for the benefit of the general public. Priority is given to the protection of the resource over uses that may have damaging effects on that resource.

The Corps recognizes the need to continue to modernize recreation facilities in accordance with Corps recreation facility standards. Improving facilities and amenities will increase visitor satisfaction and quality of their experience. With diminishing funding and work force in future years, this objective is extremely sensitive to time, manpower and budget.

Future funding may make accomplishing these goals and solving these issues challenging, requiring creative solutions. Partnering and technological innovations should be expanded and explored as methods to attain these goals.

Implementation of these objectives is based upon time, manpower, and budget. The objectives provided in this chapter are established to provide high levels of stewardship to Corps-managed lands and resources while still providing a high level of public service. These objectives will be pursued through the use of a variety of mechanisms such as: assistance from volunteer efforts, partnership agreements, hired labor, contract labor, permit conditions, remediation, and special lease conditions. In all recreation management actions, the Corps will strive for a reasonable and pragmatic approach while maintaining protection of natural resources as the highest priority.

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CHAPTER 4

LAND ALLOCATION, LAND CLASSIFICATION, WATER SURFACE, PROJECT EASEMENT LANDS

This Master Plan is essentially a land use plan; specific parcels of land are classified into land use categories based on resource capability. This plan provides a conceptual guide for use, management, and development of all Corps lands.

Coralville Lake Project lands are divided into management areas. Division of these lands into individual management areas was an integral part of the planning process and facilitated identification of the most appropriate land and resource use of the project areas. The boundaries of the management areas are based on physical, administrative, and operational characteristics.

4.1. LAND ALLOCATION

In accordance with Engineer Pamphlet (EP) 1130-2-550 (Appendix D.7) land allocations identify the authorized purposes for which Corps lands were acquired. There are four categories of allocation:

- Operations
- Recreation
- Fish and Wildlife
- Mitigation

The entire 24,597 acres originally acquired at the Coralville Lake Project were allocated for Operations. These lands are to provide safe, efficient operation of the project for its authorized purposes. Coralville Lake's authorizations include flood risk management, low flow augmentation, environmental stewardship, and recreation.

4.2. LAND CLASSIFICATION

All lands acquired for Coralville Lake are further classified to provide for development and resource management consistent with authorized purposes and other Federal laws. This Master Plan revision replaces the land use classifications from previous version of the plan (1977). (Appendix F.6 *Coralville Lake 1977 Land Use Classification*).

According to EP 1130-2-550, there are six categories of classification identified as:

- Project Operations
- High Density Recreation
- Mitigation
- Environmentally Sensitive Areas
- Multiple Resource Management
- 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. Table 4-1 lists the current classifications at Coralville Lake Project and the acres associated with each classification (see Appendix F. 7, *Coralville Lake Land Classification Map*).

Table 4-1. Land Classification Acres

Classification	Acres
Project Operations	73
High Density Recreation	4,993
Environmentally Sensitive Areas	32
Multiple Resource Management Lands:	
Low Density Recreation	546
Vegetative Management	0
Wildlife Management	13,507
Water Surface: Restricted	5,430

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

4.2.2. 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 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.

4.2.3. Mitigation. This classification is only used for lands with an allocation of mitigation and were acquired specifically for the purpose of offsetting losses associated with development of the project. No land was acquired for mitigation at Coralville Lake Project; therefore, this classification was not used.

4.2.4. Environmentally Sensitive Areas. This classification consists of areas where significant scientific, ecological, cultural, or aesthetic features have been identified. Development of public use on lands within this classification is normally prohibited to ensure these sensitive areas are not adversely impacted. Agricultural or grazing uses are not permitted on lands with this classification. (See Appendix F.8 *Environmentally Sensitive Areas.*)

4.2.5. Multiple Resource Management Lands. This classification allows for the designation of a predominate use as described below with the understanding that other compatible uses may also occur on these lands. Land classification maps reflect the predominant sub classification.

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 may be 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 state fish and wildlife management regulations where these activities are not in conflict with the safety of visitors and project personnel.

Vegetative Management. These lands are designated for stewardship of forest, prairie, marsh, submersed aquatic vegetation, and other native cover on Corps managed lands. Management activities in these areas focus on the protection and development of forest resources and vegetative cover**.** Permitted uses and activities, unless posted as prohibited or restricted by special regulation, may also include dispersed recreation and scientific/ecological research.

Wildlife Management. These lands are designated for wildlife management. They contain valuable wildlife habitat components that are maintained to yield habitat suitable for a designated wildlife species or group of species. These lands may be administered by other public agencies under a lease, license, permit, or other formal agreement. The Corps supports these objectives. Private use of wildlife lands is prohibited except for agricultural activities undertaken to improve wildlife habitat. Licenses, permits, and easements are not allowed for such manmade intrusions as pumping plants, pipelines, cables, transmission lines, or non-project roads. Exceptions to this policy are allowable where necessary for the public interest and where no viable alternative location or route exists. Wildlife lands are available for sightseeing, wildlife viewing, nature study, and hiking. Consumptive uses of wildlife, including hunting, fishing, and trapping, are allowed when compatible with the wildlife objectives for a given area and with both Federal and state fish and wildlife management regulations. (See Appendix F)

4.2.6. 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. Annual or seasonal restrictions on areas to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning. Fish and Wildlife Sanctuary areas are subject to change and administered by the Iowa DNR, therefore this classification was not used.

Open Recreation. Those waters available for year-round or seasonal water-based recreational use. Open Recreation areas are subject to change; therefore, this classification was not used.

4.3. EASEMENT LANDS

These are privately-owned lands on which easement interests are held but no fee title ownership was acquired.

4.3.1. Flowage Easement. These are easements purchased by the Corps which grants the right to temporarily flood private land during flood risk management operations. There are 8,607 acres of flowage easement lands located at Coralville Lake. The purpose of these easements is to provide additional storage for floodwaters. No additional management activities are authorized under this Master Plan revision.

4.3.2. Roadway Easement. The Corps has two roadway easements at Coralville Lake. Generally, roadway easements allow the government to operate and maintain roadways to

allow government and public access to Corps-managed lands. There is approximately 1 acre of roadway easements at Coralville Lake.

4.4. OUTGRANTS

The Corps leases federally-managed lands at Coralville Lake to state and local agencies for recreational, wildlife management, and educational purposes. These leases, often referred to as outgrants, specify what types of activities are allowed on Federal lands and all Federal regulations still apply. Outgranted lands provide additional recreational opportunities to the general public. Examples of outgranted recreational lands include Hawkeye Wildlife Management Area, Macbride State Park, Macbride Recreation Area, Off Highway Vehicle Park, and Atherton Wetland. (See Appendix F.9, *Coralville Lake Managing Agencies Maps*.)

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CHAPTER 5

RESOURCE PLAN

The Coralville Lake Master Plan (MP) provides guidance for the orderly development, use and management of Project resources. Resource planning takes into consideration authorized Project purposes, public interests, regional needs, and opportunities and constraints that influence development and management. All proposed development is designed to be compatible with the project's natural and cultural resources. Project planning and land classification was completed with consideration of seasonal flooding, soils, ecological conditions, existing and projected recreation demands, existing plans, objectives of managing agencies, state and local participation and interest, operational characteristics, and applicable laws, regulations, and policies.

This chapter describes in broad terms how Project lands are managed. All the Project lands described below are broken out by classification type. Project Operations areas are managed by the Corps, the main purpose is for the operation of the Project. High Density Recreation areas are managed by either the Corps or leases/outgrantees as described in Section 5.3.2. The Multiple Resource Management classification has four sub classifications outlined in ER 1130-2-550. For the purposes of this Master Plan, the following three classifications for multiple resource management were used: Low Density Recreation, Vegetative Management and Wildlife Management. In general, the Corps or outgrants manages Vegetation Management areas are and the Iowa DNR manages Wildlife Management areas. Other recreational outgrants (leases) managed by the Corps Real Estate Branch are designated as Low Density Recreation described in Section 5.6.1. Two Water Surface areas, above and below the dam structures, classified as Restricted for safety and security reasons, are described in Section 5.7.

5.1. CLASSIFICATION AND JUSTIFICATION

The Coralville Lake Land Classifications are:

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

The management objectives identified in this Master Plan are presented in broad terms. The Coralville Lake Operational Management Plan (OMP) provides a more detailed description for

the management of project lands. Management tasks described in the OMP align with the Resource Objectives, Land Classifications, and Resource Plan set forth in this MP. Site-specific coordination, review, and potential approval of Corps' future plans will be completed, not with this plan, but through use/inclusion in the OMP.

5.2. PROJECT OPERATIONS

This category includes those lands required for the dam, spillway, offices, maintenance facilities, and other areas that are used solely for the operation of the project. There are 73 acres of lands under this classification managed by the Corps. The management plan for this area is to continue providing physical security necessary to ensure continued operations of the dam and related facilities. There are two acres identified under project operations that are managed by the National Science Foundation. Public access to these areas may be restricted.

5.3. HIGH DENSITY RECREATION

Lands developed for intensive recreational activities for the public including day use areas and campgrounds. These could include areas for commercial concessions such as marinas, comprehensive resorts, and quasi-public development. The facilities in these areas will accommodate the recreation needs of visitors in concentrated numbers as well as offering open space lands for the purpose of providing more complete and attractive recreation areas. Descriptions of high-density recreation are provided in two separate areas: those managed and operated by the Corps and those leased to other agencies/entities for management and operation.

5.3.1. Corps Managed High Density Recreation. The Corps operates and manages numerous areas designated as high-density recreation. Table 5-1 shows the current Corps-managed High Density recreation areas.

Table 5-1. Corps-managed High Density Recreation Areas

Recreation Area	Total Acres
Cottonwood Campground	29
East Overlook Day Use Area	5
Linder Point Recreation Area	55
Mehaffey Boat Ramp	13
Sandy Beach Campground & Day Use	39
Sugar Bottom Campground & Day Use	280
Tailwater East Recreation Area	10
Tailwater West Recreation Area	26
West Overlook Campground & Day Use	62

Coralville Lake has gained popularity with the outdoor recreation community over the past 35 years and has become a popular recreation destination within the Iowa City-Coralville area as

well as nationwide. As noted throughout this plan, urban areas are growing and will eventually surround Coralville Lake. The increase in population and changing demographics indicate a need to improve and modify Corps-managed recreation areas as described in the following sections:

5.3.1.1. Cottonwood Campground. Cottonwood Campground is part of the Dam Complex Area and has a total of 15 campsites. The campground offers non-electric tent-only campsites and a shower house. Total parking for this area is 15 single-vehicle spaces. The objective for this recreation area is to maintain and improve existing infrastructure. Proposed improvements would be adding 20-amp electrical service to each campsite, installation of campsite impact areas, the addition of a small playground, and Wi-Fi availability. (See Appendix F.11, *Lower Dam Complex.*)

5.3.1.2. East Overlook Day Use Area. East Overlook Day Use Area has two picnic shelters, a playground, a horseshoe pit, green space, and a waterborne restroom. This area is a popular site for special events including Corps sponsored events. Total parking for this area is 50 single-vehicle spaces. Overflow parking is available at nearby areas within the Dam Complex. The objective for this recreation area is to maintain and improve existing infrastructure. Proposed improvements would be adding individual picnic sites near the playground facility. (See Appendix F.11, *Lower Dam Complex*.)

5.3.1.3. Linder Point Recreation Area. Linder Point Recreation Area, part of the Dam Complex Area, provides 18 customer campsites. The campground offers four RV campsites with no electricity, eight campsites with 20/30/50 Amp electric, water, and sewer, and six campsites with 20/30 Amp electric only. In addition to the customer campsites, there are six contractor and volunteer campsites with 20/30/50 Amp electric plus water and sewer. Two vault restrooms and a waterborne restroom with showers are available. Woodpecker Nature Trail System, accessible from this location, connects to the Squire Point Trail System forming an approximate 5-mile network of trails. The Linder Point Day Use Area offers three single-family picnic sites with grills. Linder Point campers are directed to use the dump station with potable water located near West Overlook. Total parking for this area is 39 single-vehicle spaces. The objective for this recreation area is to maintain and improve existing infrastructure. Proposed improvements would be re-designing the entrance to the recreation area to accommodate today's larger RVs. Additional proposed improvements include concrete campsites, re-designing underutilized sites, installation of a small playground near the waterborne restroom, upgrading electrical, water, and sewer services along with adding Wi-Fi availability. (See Appendix F.12, *Linder Point Recreation Area*.)

5.3.1.4. Mehaffey Boat Ramp. Mehaffey Boat Ramp offers a concrete boat ramp with four launch lanes, a courtesy loading dock and a vault restroom. There are 56 single-vehicle spaces and 52 vehicle-with-trailer spaces. There is an automated fee machine for the collection of recreational day use fees. The objective for this recreation area is to maintain and improve existing infrastructure. Proposed improvements for the south area would be re-

designing the entrance and converting single vehicle parking spaces into vehicle-with-trailer spaces. (See Appendix F.14, *Sugar Bottom, and surrounding areas*.)

5.3.1.5. Sandy Beach Campground. Sandy Beach Campground is the northern most campground managed by the Corps and provides 58 customer campsites and 2 contractor campsites. The campground offers 8 tent-only campsites with no electricity, 48 campsites with 20/30 Amp electric, and two campsites with 20/30 Amp electric plus water and sewer. The two contractor campsites have 20/30/50 Amp electric plus water and sewer. This campground also has an entrance station, a dump station with potable water, playground, two waterborne restrooms with showers, a vault toilet, a fish cleaning station, and a maintenance building. Total parking for this area is 75 single-vehicle spaces. The objective for this recreation area is to maintain and improve existing infrastructure. Proposed improvements would be concrete campsites, installation of tent impact sites, installation of a small playground in the upper loop, upgrading electrical, water, and sewer services along with adding Wi-Fi availability. (See Appendix F.13, *Sandy Beach Area.*)

5.3.1.6. Sandy Beach Day Use Area. Sandy Beach Day Use Area, adjacent to Sandy Beach Campground, offers a boat ramp with two launch lanes, a courtesy loading dock, a non-reservable picnic shelter, and a swimming beach. There are 18 single vehicles spaces and 63 vehicle-with-trailer spaces. The objective for this recreation area is to maintain and improve existing infrastructure. Proposed improvements would be to redesign the entrance to the area, expand the existing parking lot, and incorporate the eastern most parking area of the campground, fish cleaning station and vault toilet into the Sandy Beach Day Use. Additional proposed improvements include the installation of an Automated Fee Machine and pet-friendly shoreline access upon removal of designated swimming area. (See Appendix F.13, *Sandy Beach Area.*)

5.3.1.7. Sugar Bottom Campground. Sugar Bottom Campground provides 250 customer campsites and 9 contractor/volunteer campsites. The campground offers 17 tent-only campsites with no electricity, 185 campsites with 20/30 Amp electric, 23 campsites with 20/30/50 Amp electric, 12 campsites with 20/30/50 Amp plus water, and 13 campsites with 20/30/50 Amp plus water and sewer. Group camping is available via 4 loops consisting of 29 of the 185 campsites that have 20/30 Amp electric. This campground also has an entrance station, three playground areas, five waterborne restrooms with showers, two vault toilets, and a dump station with potable water. There are two group shelters, a boat ramp with two launch lanes, a courtesy loading dock, a swimming beach, a volleyball court, a fish cleaning station, a maintenance building, and an amphitheater. A hard surfaced multipurpose trail provides access between the campground and the Sugar Bottom Day Use area. Total parking for this area is 218 single-vehicle spaces and 64 vehicle-with-trailer spaces. The objective for this recreation area is to maintain and improve existing infrastructure. Proposed improvements would be re-designing the entrance to the recreation area to accommodate today's larger RVs, expanding the existing dump station to provide additional sewage dumps and potable water supplies, creating an overflow vehicle parking lot at the entrance to the campground, and adding additional shower houses. Additional proposed improvements include concrete

campsites, installation of tent impact sites, re-designing underutilized sites, upgrading electrical, water, and sewer services along with adding Wi-Fi availability. (See Appendix F.14, *Sugar Bottom, and surrounding areas*.)

5.3.1.8. Sugar Bottom Day Use Area. Sugar Bottom Day Use Area has an 18-hole disc golf course, 10 miles of mountain bike trails, a playground, a group picnic shelter, a swimming beach, a waterborne restroom and a vault toilet. There are 117 single-vehicle spaces. The objective for this recreation area is to maintain and improve existing infrastructure. Proposed improvements would be adding individual picnic sites near the playground facility. (See Appendix F.14, *Sugar Bottom, and surrounding area*s.)

5.3.1.9. Tailwater East Recreation Area. Tailwater East Recreation Area, part of the Dam Complex, provides 28 customer campsites. The campground offers 5 tent-only campsites with no electricity, 18 campsites with 20/30 Amp electricity, and 5 campsites with 20/30/50 Amp electricity. The campground also has a concrete boat ramp with 1 launch lane into the Iowa River, a fish cleaning station, and a waterborne restroom with showers. Tailwater East campers are directed to use the dump station with potable water located near West Overlook. Total parking for this area is 34 single-vehicle spaces and 10 vehicle-with-trailer spaces. The objective for this recreation area is to maintain and improve existing infrastructure. Proposed improvements would be adding concrete campsites, installing tent impact sites, upgrading electrical, water, and sewer services, and adding Wi-Fi availability. (See Appendix F.11, Lower Dam Complex.)

5.3.1.10. Tailwater West Recreation Area. The Tailwater West Recreation Area is part of the Dam Complex and includes the Tailwater West Campground and the Tailwater West Day Use Area. The campground provides 22 customer campsites and offers two tent-only campsites with no electricity, 12 campsites with 20/30/50 electricity plus water, and eight campsites with 20/30/50 Amp electricity plus water and sewer. The campground also has a waterborne restroom with showers and a vault toilet. The day use area has the Devonian Fossil Gorge, two accessible fishing piers, fish cleaning station, group picnic shelter, playground, and a barrier free river walk trail. Proposed upgrades at the Devonian Fossil Gorge include additional safety rails, signed/marked cross walk, additional interpretive signage, and enhancement of ADA access, picnic tables. Tailwater West campers are directed to use the dump station with potable water located near West Overlook. Total parking for this area is 105 single-vehicle spaces. The objective for this recreation area is to maintain and improve existing infrastructure. Proposed improvements would be adding concrete impact sites for campsites, installing tent impact sites, upgrading electrical, water, and sewer services, and adding Wi-Fi availability. (See Appendix F.11, *Lower Dam Complex*.)

5.3.1.11. West Overlook Campground. West Overlook Campground, the largest campground in the Dam Complex, offers 89 campsites with 20/30 Amp electric and 3 contractor sites with 20/30/50 Amp plus water and sewer. The campground also has an entrance station, a concrete boat ramp with two launch lanes, a courtesy loading dock, two playgrounds, basketball court and two waterborne restrooms with showers. A dump station

with potable water and a fish cleaning station is located just outside the campground which is utilized by all Dam Complex area campers. There are 64 single-vehicle spaces and 26 vehicle-with-trailer spaces. The objective for this recreation area is to maintain and improve existing infrastructure. Proposed improvements would be re-designing the entrance to the recreation area to accommodate today's larger RVs and expanding the existing dump station to provide additional sewage dumps and potable water supplies. Additional proposed improvements would be constructing concrete impact areas, re-designing underutilized sites, upgrading electrical, water, and sewer services, and adding Wi-Fi availability. (See Appendix F.15, *West Dam Complex*.)

5.3.1.12. West Overlook Day Use Area. West Overlook Day Use Area is adjacent to West Overlook Campground and offers a swimming beach, concrete boat ramp with two launch lanes, a courtesy loading dock, playground equipment, three single family picnic sites, three small accessible picnic shelters, a group picnic shelter, horseshoe pit, and volleyball court. There is an automated fee machine for the collection of recreational day use fees. There are 412 single-vehicle spaces and 181 vehicle-with-trailer spaces. The objective for this recreation area is to maintain and improve existing infrastructure. Proposed improvements would be adding additional small accessible picnic shelters, outdoor showers, interpretive amphitheater, and removable vault restrooms near the beach and shelters. (See Appendix F.15, *West Dam Complex*.)

5.3.2. Leased High Density Recreation Areas. In addition to Corps-managed lands, several other high density recreation areas are leased to other organizations for operation and management. The areas currently leased to other organizations can be found in Table 5-2. Acres in this table and Sections 5.3.2.1 through 5.3.2.4 are calculated according to land classification and do not reflect acreages in real estate outgrant or lease agreements. The Corps provides support to the managing organization but does not provide any maintenance within leased lands. The Corps reviews lease requests to ensure compliance with the MP, applicable laws, regulations, and leases for proposed activities. The Corps works with partners to assure recreation areas are being managed in accordance with resource objectives identified in Chapter 3, *Resource Objectives*. Developments at any of the locations listed below will be vetted and approved through the real estate section, per the outgrant agreements for each particular location.

Table 5-2. Leased High Density Recreation Areas

Recreation Area	Total Acres	Managing Agency
Coralville Lake Marina	22	Private Concessionaire
Lake Macbride State Park	471	Iowa DNR
Lakeview OHV Park	147	Iowa DNR
Macbride Nature Recreation Area	456	University of Iowa
Mid River Marina	9	Private Concessionaire
Scales Pointe Marina	40	Private Concessionaire

5.3.2.1. Coralville Lake Marina, Mid-River Marine, and Scales Pointe Marina. Three private marinas are located on Coralville Lake: Mid River Marine (9 acres), Coralville Lake Marina (22 acres), and Scales Pointe Marina (40 acres), as recreational outgrants. (See Appendix F.16, *East Dam Complex, H.17 Hwy 965 locality, and H.18 Scales Point*)

5.3.2.2. Lake Macbride State Park. Lake Macbride State Park is Iowa's largest state park. The park is a total of 2,180 acres, approximately 471 acres are leased from the Corps to the Iowa DNR for High Density Recreation, the remainder is owned by the State. Located in the wooded valleys of Mill and Jordan Creeks,. Macbride State Park has many outdoor activities, including fishing, boating, swimming, camping, hiking, picnicking (reservable shelters and lodge). (See Appendix F.19, *Lake Macbride State Park- North Sites and H.20 Lake Macbride State Park- South Sites*)

5.3.2.3. Lakeview OHV Park. Lakeview OHV Park is 147 acres leased to the Iowa DNR. The Lakeview OHV Park is managed by the Lakeview Off Road Riders, a Non-Profit Group, in cooperation with the Iowa DNR. The park has motocross tracks, an enduro-cross course, side-by-side courses and two children's areas for 100 cubic centimeter or less machines. Improvements include additional vault toilet and other future infrastructure improvements. (See Appendix F.21, *Ely Road locality*)

5.3.2.4. Macbride Nature Recreation Area. The University of Iowa Recreational Services manage Macbride Nature Recreation Area (MNRA). The lease covers approximately 456 acres. There are 12 primitive campsites, picnic shelters, and 10 kilometers of hiking and cross-country skiing trails. The MNRA staff also conduct Environmental Education Programs: School of the Wild, Wildlife Camps, and the Iowa Raptor Project. (See Appendix F.22, *Macbride Nature Recreation Area*)

5.4. MITIGATION

No land was acquired for mitigation at Coralville Lake Project; therefore, no land was assigned this classification.

5.5. ENVIRONMENTALLY SENSITIVE AREAS

Defining sensitive areas as part of the master plan process assists in the protection of valuable resources. Many factors contribute to identifying sensitive areas. Environmental Sensitive Areas may be designated as such due to significant scientific, ecological, cultural, or aesthetic features. Many species of greatest conservation need are found on Corps lands and are identified in various conservation plans including the Iowa Wildlife Action Plan. Degree of sensitivity varies by location and by contributing factors to sensitivity. An area may be available to construct a properly designed hiking trail or may be actively managed by forest practices like timber stand improvement without negatively impacting the site's sensitivity. Other sites can be very sensitive to human disturbance and need adequate protection from development. Table 5-3 depicts the project's identified environmentally sensitive areas. Acres

in this table and the following sections are according to land classification and do not reflect acreages in real estate outgrant or lease agreements

Table 5-3. Environmentally Sensitive Areas

Area	Total Acres	Lessee
Old State Quarry State Preserve	8.5	University of Iowa
Merrill A. Stainbrook State	32.5	University of Iowa

5.5.1. Old State Quarry. Old State Quarry is a historic quarry whose limestone was used to construct the Old Capitol Building when Iowa City was selected to be the Iowa's capital. This preserve is located seven miles north of Iowa City in northern Johnson County. It was dedicated as a geological and historical state preserve in 1969 (State Preserve Guide, Iowa DNR). (See Appendix F.8)

5.5.2. Merrill A. Stainbrook State Preserve. Merrill A. Stainbrook State Preserve features unique fossiliferous limestone and a rare display of glacial grooves. The Devonian-age (375 million years old) limestone fossils were revealed during construction of the Mehaffey Bridge in the 1960s. It was dedicated as a geological state preserve in 1969 in memory of Merrill A. Stainbrook a scholar, teacher and geologist who devoted much of his career to studying fossils of the Cedar Valley (State Preserve Guide, Iowa DNR). (See Appendix F.8)

5.6. MULTIPLE RESOURCE MANAGEMENT

This classification allows for the designation of a predominant use as described below, with the understanding that other compatible uses may also occur on these lands. Land classification maps reflect the predominant sub-classification. The acres by sub-classification can be found in Table 5-4.

Table 5-4. Low Density Recreation Areas

Classification	Acres Managed
Low Density Recreation	212
Vegetative Management	25
Wildlife Management	16
Total	253

5.6.1. Low Density Recreation. Low density refers to lands with minimal development or infrastructure that support passive public recreational use (e.g., primitive camping, fishing, hunting, trails, wildlife viewing, etc.). At Coralville, there are areas that remain undeveloped and are considered areas of low density recreation. Natural conditions preclude intensive public use development because extensive alteration of natural systems would be required. Difficult access also is a factor indicating low-density use as most appropriate for these lands.

This classification may be appropriate when a conflict exists between public use and wildlife habitat. Private or long-term exclusive group use of these lands will not be permitted. Management practices leading to habitat improvements for the benefit of wildlife are encouraged. No licenses, permits, or easements will be issued for non-compatible manmade intrusion, such as underground or exposed pipelines, cables, overhead transmission lines, or non-project roads. Exceptions to this restriction may be made where necessary to serve a demonstrated public need only in those instances where no reasonable alternative is available. Hunting and agricultural uses are permitted on this land.

Corps-managed lands zoned for low density recreation use are located along the North Mehaffey Bridge Access, Curtis Bridge Access, Squire Point Trail System, Woodpecker Trail System, Turkey Creek Recreation Area, and Veterans Trail (Table 5-5). These areas are comprised of both upland and transition zone areas and are either vegetated with uneven-aged mixed forest stands or transition zone species.

The objective for low dense recreation areas is to maintain and improve existing infrastructure. Potential improvements could include trail development, installation of vault toilets, parking areas, primitive campsites, picnic sites and other items that go along with the low density designation.

Table 5-5. Recreation Low Density Use

Managing Agency	Acres Managed
U.S. Army Corps of Engineers	212
State	25
Local Public Agencies	16
Private	0
Total	253

5.6.2. Vegetative Management. These lands are designated for stewardship of forest, prairie, and other native vegetative cover. The majority of the project lands are made up of upland forests, and to a lesser extent, tall grass prairie, bottomland forest and wetlands. There are currently 5,978 acres of land designated as vegetative management.

Surveys conducted by the Government Land Office (GLO) prior to European settlement (circa mid-1800s) recorded the majority of the land along the Iowa River corridor and extending to Corps-managed boundaries were predominantly "Scattered Oaks" (oak savanna as it is identified now), and to a lesser extent "tall grass prairie" and "timber." Oak savanna is the transition zone between timber and tall grass prairie ecosystems and is comprised of large open-grown oak trees with a diverse ground cover of shade tolerant grasses and forbs. What remnant oak savanna remained after European settlers converted the land to agricultural production was most often found in steep valleys that were inaccessible or impractical for farming. Lack of landscape scale fire allowed natural succession to occur in these remnants, and the majority of oak savanna originally found on Corps-managed lands succeeded into Deciduous Forest. .Through combinations of prescribed fire and mechanical thinning

(removal of shade tolerant trees and invasive species), oak savanna is being restored on Corps-managed lands where practical, or timber stands are enhanced to encourage mast production for wildlife enhancement. Timber stands planted on agricultural lands during the 1980s and 1990s are actively managed by mechanical thinning (removal of shade tolerant trees and invasive species) and the introduction of prescribed fire.

Prairie habitat comprises about 1,300 acres or 18% of total acreage of the Coralville Lake Project. The majority of prairie stands resulted from re-establishment of warm season grasses on previous agricultural land or upon conversion of brome sod fields. A few small patches of native prairie are known to occur on the project and may be true remnants of the original tall grass prairie. These areas have been found in railroad rights-of-way and on slopes considered inaccessible for farming. Prairies located on government lands are actively managed through prescribed fires, mechanical removal of brush, and over-seeding with hand collected seed or local ecotype purchased seed.

Invasive species pose a significant threat to the Coralville landscape. Vegetative threats include reed canary grass (*Phalaris arundinacea*), Sericea lespedeza, crown vetch (*Securigera varia*), garlic mustard (*Alliaria petiolata*), oriental bittersweet (*Celastrus orbiculatu*s), Russian and autumn olive (*Elaeagnus angustifolia* and *Elaeagnus umbellata*, respectively), tree of heaven (*Ailanthus altissima*), and European honeysuckle (*Lonicera sp*.). All of these species have the ability to significantly alter native ecosystems.

Invasive species have been identified on project lands and all pose threats to native communities. Trees are very susceptible to invasive species, as evidenced by the emerald ash borer (*Agrilus planipennis*), spongy moth (*Lymantria dispar dispar*), and thousand cankers disease (*Geosmithia morbida*), to name a few. Diligent monitoring and swift reaction are key to successful invasive species management. The environmental stewardship program spends over $20,000 annually on invasive species monitoring, mapping and management. Over 60 terrestrial invasive species have been identified and while eradication is rarely attainable, control is critical to managing sustainable ecosystems.

The objective for vegetative management areas is to maintain and improve existing conditions and complete a vegetation management plan to outline goals and objectives to better inform future management of natural resources. Key components of this plan will set forth a process to identify goals and objectives as management evolves; establish a foundation to improve and enhance coordination with stakeholders; foster a better understanding of current conditions at Coralville Lake and its ecological connection to adjacent watersheds; identify problems, opportunities, and data needs; and develop recommendations that will ensure the long-term sustainability of the resources at Coralville Lake.

Proposed improvements include conversion of agricultural production lands to tall grass prairie, oak savanna or timber, based on soil composition, budget constraints and population density of adjacent lands. The Corps does not directly manage land specifically designated for wildlife management. However, the Corps does incorporate practices that promote healthy and sustainable wildlife populations among the various land designations. Examples include

planting food plots, maintaining public access, and implementing a nesting box program for species negatively impacted by habitat loss. Proposed improvements include installation of fish rearing ponds and expansion of nesting structures.

5.6.3. Wildlife Management. These lands are designated for stewardship of fish and wildlife resources and the management is currently conducted by the Iowa DNR in coordination with the Corps through real estate agreements. This area is known as the Hawkeye Wildlife Management Area. There are currently 13,507 acres of land leased to the Iowa DNR for wildlife management. All of the designated wildlife management land is located on the west side of the reservoir extending from Highway 965 west and from Amana Rd NW to Swan Lake Road NW. The primary strategy for this area is to manage game species with the understanding that those actions benefit both game and non-game species. Fall pool elevations are manipulated to maximize migrating waterfowl habitat. Pool increases are allowed in order to promote wildlife management objectives.

The Iowa DNR also designates a no hunting "refuge" area within the Hawkeye Wildlife Management Area, allowing migrating waterfowl to rest. The refuge area changes based on vegetation and other management constraints; therefore, it was not designated as a land classification. The remaining area is open to hunting according to State of Iowa laws and regulations. Fall pool elevations are manipulated to maximize migrating waterfowl habitat. The Corps integrates environmental water level management, during non-high water events, in order to accomplish wildlife management objectives.

5.6.4. Future or Inactive Recreation Areas. This sub-classification may be used to identify sites with characteristics compatible for future recreational development or recreation areas that are closed. These areas are managed for multiple resources until there is a development opportunity. This revision does not identify any area as Future or Inactive Recreation Areas.

5.7. WATER SURFACE – RESTRICTED

This section is in reference to water surface management needs Coralville utilizes to ensure efficient operations. There are two water surface zones on Coralville Lake designated and posted both upstream and downstream of the dam in accordance with ER 1130-2-520 (Appendix D.5). The purpose of these restrictions is to ensure security of the structures and public safety. (See Appendix F.26, *Macbride Nature Recreation Area*). Restricted areas are for security and safety reasons. Approximately 6 acres are restricted out of the 5,430 total water surface acreage**s.**

CORALVILLE LAKE RESERVOIR MASTER PLAN

IOWA RIVER WATERSHED
CORALVILLE, IOWA

CHAPTER 6

SPECIAL TOPICS, ISSUES, AND/OR CONSIDERATIONS

6.1. COMPETING INTERESTS

Coralville Lake is a large multi-use project with four congressionally authorized purposes: flood risk management; low-flow augmentation; recreation; and environmental stewardship. The benefits stemming from these missions are critical to local and regional economies and are of great interest to the public at large. The interests of the various entities benefitting from Coralville Lake are sometimes competing and can often be in conflict with each other. To the best extent possible, when the constraints of the primary missions of flood risk management and low flow augmentation allow, the Corps will incorporate and maximize the benefits to environmental stewardship and recreation, thereby attempting to balance the needs of all user groups.

6.2. MODERNIZATION OF FACILITIES

Coralville Lake provides over 500 campsites in seven different campgrounds. Most of the campsites only provide 30 amp electrical service and gravel pads. The majority of Coralville Lake's campsites do not provide upgraded amenities that today's camper's prefer such as: 50 amp electricity, water and sewer hookups, and large level concrete camping pads. Therefore, upgrading campsites to 50 amp electric, increasing the number of campsites with water and sewer hookups and concrete pad campsites is recommended in the Linder Point Campground, Sandy Beach Campground, Sugar Bottom Campground, Tailwater East Campground, and West Overlook Campground.

Recreation areas are ideal locations for summer interpretive programs. Currently, only Sugar Bottom Campground has an amphitheater or designated program space. The addition of this type of facility to the Visitor Center grounds would provide a centralized program location to the Dam Complex area. This space would be accessible not only by campers, but also by the visiting public.

The addition of individual picnic sites with overhead shading would welcome small groups of 2-10 people at Coralville Lake. The few sites currently located at West Overlook Day Use Area are utilized on weekends and holidays. Additional sites could be added along the beach in this area.

Other recreation areas for consideration for shaded picnic sites are the beaches at Sugar Bottom Day Use Area, Sugar Bottom Campground, and the fishing pond located in Tailwater West Day Use Area.

6.2.1 Recreational Utilities. Coralville Lake provides recreation and administration utilities that include drinking water supply and waste disposal systems of various designs. The drinking water supply is provided by local wells. The Sugar Bottom Recreation Area utilizes a water tower to store the drinking water supply while the remaining recreation areas utilize smaller storage systems. Both gravity and pressure drains waste water into: lagoon systems, "Wisconsin Mound" systems, conventional septic systems, and holding tanks. These systems were originally installed when the recreation areas were constructed and have met or are nearing the end of their design life cycle. As facilities age and visitation increases, there may be other options for treatment, such as connection to an adjacent municipality or treatment facility. Project personnel will continue to investigate all options and availability of each system.

6.2.2. Interpretive Services and Outreach Program. The Interpretive Services and Outreach Program (ISOP) is an essential part of the Corps' Civil Works program. Through this program, the Corps can communicate missions and accomplishments, achieve management objectives, and foster environmental stewardship. Reaching diverse audiences and partners, it can improve visitor and employee safety, help with team cohesiveness, and enhance visitors' experiences by providing interpretive resources to meet their needs. It is one of the most effective tools to connect with the general public, user groups, partners and stakeholders.

The Corps defines interpretation as "Communication and education processes provided to internal and external audiences, which support the accomplishments of the agency's mission, tell the agency's story and reveal the meanings of and the relationships between natural, cultural, and created environments and their features." The Corps' focus is to help people connect to and relate to Coralville Lake sites, leading to their involvement and support. This outreach can be done through displays, brochures, visitor center exhibits, interpersonal contacts, and special events to name a few.

Interpretive services are usually provided by trained and motivated park rangers. Park rangers have the skills to help visitors relate to Corps missions, promote safety, encourage stewardship, and tell the Corps story. Although park rangers traditionally use these skills, every communication between any Corps team member and a member of the public can benefit from interpretive techniques.

Coralville Lake's ISOP works to communicate to the public through various resources including self-guided signage on the veterans trail, guide-by-cell tours of the Devonian Fossil Gorge, a virtual tour web site and displays throughout the visitor center. Reduced personnel and budget constraints have presented many challenges to providing interpretive services to the public. However, the increased popularity of social media and the internet opened up

many new possibilities to reach more people without direct interaction. Moving forward, new technologies must be embraced in order to connect and communicate with the public to meet their needs. Although there are new ways to reach the public, face-to-face interaction remains one of the most effective means of communication. Coralville Lake will also continue to strive to meet the needs of local school districts in meeting their educational needs through interpretive presentations and tours.

6.2.3. Educational Building for Public Use. Coralville Lake is a large multi-use project with many public user groups who request space for meetings. In addition, the lake hosts thousands of students on field trips each year. Often these students come in groups of 100 or more. Currently, Coralville Lake does not offer an indoor space large enough to fulfill either of these needs. The current visitor center lacks open space and can only accommodate groups of 30 to 40 in a classroom setting and larger groups must utilize the general visitor center space?. Utilizing the visitor center for meetings or field trips also interferes with the public's use of the exhibits and theater. The present building should be evaluated to determine if remodeling or reorganizing the existing visitor center and project office space can accommodate these needs.

6.2.4. Natural Playscape. A relatively new type of playground is becoming increasingly popular in parks. These playgrounds are commonly referred to as natural playscapes, naturescapes, or natural playgrounds. These playgrounds use natural material as much as possible for their play components. Common materials include solid and hollow logs, tree limbs, boulders, rocks, rock structures, grasses, sand and soil. Often times, water features are also incorporated into the play environment. An advantage of the open-ended design of natural playscapes is in allowing children to use their imagination and creativity. Natural playscapes also have fewer injuries caused from falls than traditional playgrounds because of their design. Most of the components of natural playscapes have a height of no more than 3 feet, reducing the risk of injury from a fall.

The design and layout of some Coralville Lake campgrounds creates a barrier to providing modern playground facilities for every loop and campsite. Utilizing natural playscapes in these areas will not affect the natural aesthetic of the landscape as they blend in with the terrain better than a traditional playground. The lower cost of natural playscapes will also allow for more playscapes to be installed, thereby allowing more opportunities for visitors.

6.3. VOLUNTEERS AND PARTNERSHIPS

Volunteering and partnering are essential tools that allow the Corps to effectively manage recreation and environmental resources. In order to successfully meet the agency's recreation and stewardship missions and to foster shared values, vision, and a sense of ownership, it is imperative the Corps work together with volunteers, state and Federal governments, private/public organizations, local communities, and other partners to maintain or advance programs, from wildlife protection and habitat improvement to recreation facility enhancements.

Coralville Lake has several existing partnerships, which include one cooperative agreement, one cooperative association, five Memorandums of Understanding or Memorandums of Agreements, and numerous contribution partnerships. The partnership program at Coralville Lake is committed to fully exploring the potential development of new public-private partnerships to leverage limited appropriated funds and human resources.

Public Law 98-63, Supplemental Appropriations Act of 1983 authorized the Corps' Volunteer Program. (See Appendix D.25.) Volunteers play an important role in protecting the natural resources and maintaining recreation facilities. Volunteers serve as campground hosts, operate visitor centers, conduct programs, clean shorelines, and maintain park trails and facilities, among a number of other tasks. Corps personnel can recruit their own volunteers or get help from the Volunteer Clearinghouse, www.corpslakes.us/volunteer, (1-800-VOL-TEER or 1-800-865-8337), a national information center for people interested in volunteering at Corps lakes across the country. Coralville Lake has shown some decline of annual volunteers compared to other years. This is most likely due to the COVID-19 Pandemic that subsided in FY22. Coralville Lake averaged 193 volunteers between Fiscal Years 2018 – 2021. These volunteers contributed to over 4,000 hours of donated volunteer service (Figure 6-1). The program will continue to grow as connections are made with partners and new volunteer opportunities are explored.

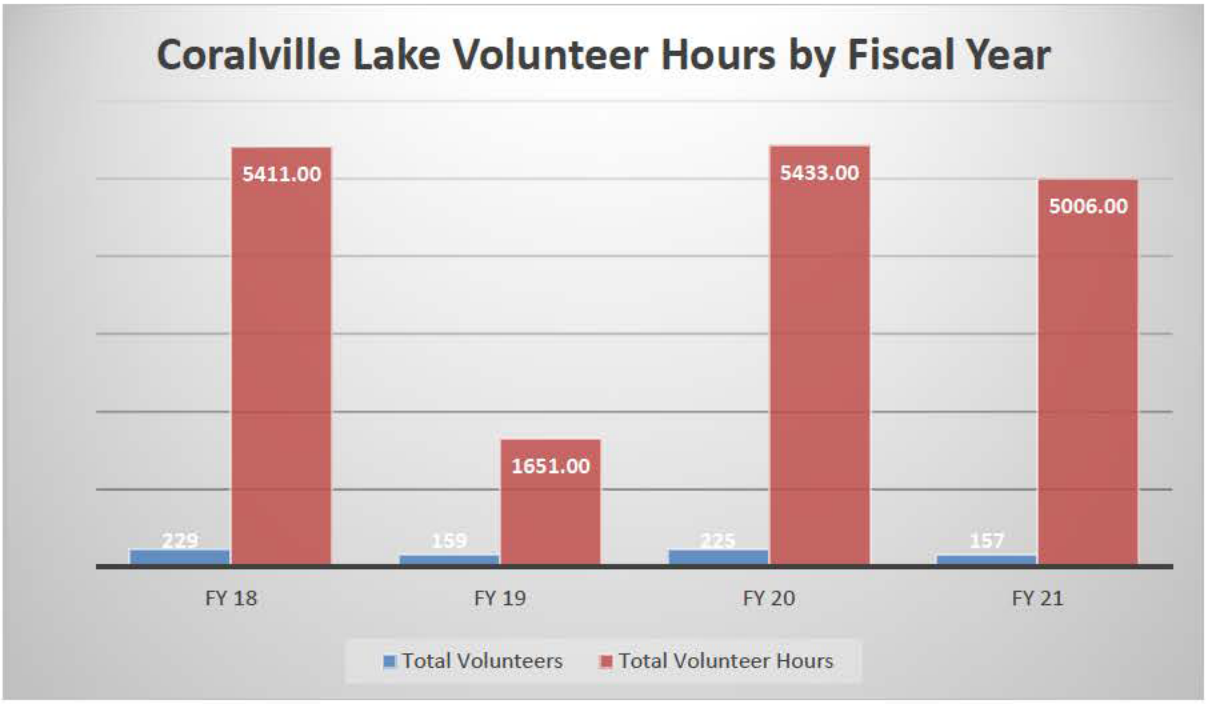

Figure 6-1. Coralville Lake Volunteer Hours by Fiscal Year

6.4. WATER RESOURCES

6.4.1. Water Quality Impacts. Management of erosion and sedimentation in the Iowa River watershed is widely acknowledged as the number one environmental problem in the watershed. It leads to degraded water quality and aquatic habitat, however, there is no comprehensive management plan to deal with this problem. It will remain a major environmental issue for many years to come.

Erosion is a natural process within the river system and most streams experience some form of bank erosion, including wind and wave erosion. In cases where vegetation has been removed from the stream bank leaving it unprotected, bank erosion can be excessive. Channelization projects and river crossing structures, such as bridges, tend to increase the stream bank erosion potential. Stream bank erosion has rapidly accelerated due to human development within the floodplain over the last 200 years, increasing the sediment load of the river and the turbidity of the water.

Agricultural runoff is a difficult problem to solve since its source is off Corps managed lands. Runoff from crop fields can introduce tremendous amounts of sediment and nutrients into the river system. The runoff from livestock feedlots adds nitrates and other nutrients to the system. This runoff affects dissolved oxygen and various water quality parameters, which in turn affects the aquatic habitat and other uses of the water.

Agricultural runoff also introduces additional chemicals into the system, such as inorganic fertilizers, herbicides and pesticides. Some of these chemicals settle out and are incorporated into the bottom substrate. These nitrates/nutrients, etc. produce favorable conditions for unwanted inhabitants, such as blue green algae and E. coli. Water-based recreation is negatively impacted by water quality concerns: blue green algal blooms and elevated levels of E. coli levels are common water quality issues that hinder recreational use of the lake.

6.4.2. Boating Study. A boating study was conducted during the summer of 2015. The study included customer surveys and physical boat counts. The survey provided insight as to how safe boaters feel, areas of concern, what type of activities customers partake in, and favorite locations and facilities. The study also collected boat counts on the lake during the week, weekends and holidays. The data collected will be used to help in making future management decisions. This study did not involve making any recommendations or draw any conclusions from the data collected. In general, the majority of boaters felt safe both on the water and in our recreation areas here at Coralville Lake.

6.4.3. Surface Water Zoning. Certain surface waters have use restrictions around the reservoir. For public safety, no boating or swimming is allowed within 300 feet of the control tower on the east end of the dam and from the outlet tubes to 1,000 feet downstream of the stilling basin.

Boaters have distance restrictions at the beaches located at West Overlook Day Use, Sugar Bottom Campground, and Sugar Bottom Day Use to reduce risk to swimmers. Areas of heavy boat traffic including the marinas, boat ramps, Mehaffey Bridge, and the southern end of the reservoir by the dam are zoned 5 mph for public safety.

The northern reaches of the reservoir from Lake Macbride boat ramp north and west to include the Hawkeye Wildlife Management Area experiences shallow water conditions during the spring draw down period. During this period, buoys and floating signs are placed on the reservoir advising boaters of the shallow water advisory. Throughout the summer recreation season when the lake is at conservation pool levels, the northern reaches are navigable via boat, however areas of shallow water still exist outside of the river channel. Caution should always be exercised as sediment deposits can change shallow water locations from year to year.

6.5. CHALLENGES ON THE HORIZON

This master plan emphasizes the need to have adequate resource protection in place to maintain diversity of species, quality of habitat and outdoor recreational experience. Environmental challenges which cannot be controlled will likely impact the resources.

6.5.1. Climate Change. Climate change will likely alter the landscape of the river valley in multiple ways. Perhaps the most visible will be changes in river flows. More erratic high flows and droughts can influence rates of siltation and rim erosion, affect flood protection capacities, and limit lake access for recreational boating. Habitat degradation will be a concern for migratory birds, as Coralville Lake is an important resting place on the Mississippi Flyway. Wildlife can move or migrate as conditions change but plants lacking this mobility have difficulty surviving significant climatic change. Some species can be generalists across a wide range of growing conditions, but more conservative species with very specific growth niches will be impacted. Impact is difficult to predict but climate is singularly the most influencing determinant of landscapes.

This is only one example of the environmental challenges facing Coralville Lake. Other existing challenges to the resource include: light pollution, noise pollution, water quality degradation (high nitrate and nitrites), loss of aesthetic value, and wildlife disease/mortality. These will continue to impair recreation and environmental stewardship activities at Coralville Lake, resulting in increased funding constraints which reduces the Corps ability to adapt to these changes. Although these issues reach beyond Coralville Lake, wise land use policies, zoning requirements and design criteria can potentially lessen some of these impacts.

6.5.2. Urbanization/Adjacent Development. Lands within Johnson County bordering Coralville Lake are experiencing rapid urban development. North Liberty is one of the fastest growing cities in Iowa. Johnson County has some of the highest land values in the state. This resulted in many of the farms and rural areas within a few miles of the lake to be parceled into smaller residential lots. This development near the lake has many impacts and

challenges the ability of the Corps to meet its mission. (See Appendix F.5, Coralville Lake Developed Land Map)

As adjacent landowner populations increase, so will visitation to Corps-managed lands. Limited resources will begin to experience increased use and in turn apply pressure to the recreation facilities. Overuse of lands can cause the resource to degrade and negatively impact the overall quality of the recreation experience.

Neighboring development will have a significant impact on local wildlife populations. A majority of the lands being converted to residential and commercial purposes were once either primarily forested, row crop agriculture, or pasture. Forested and agricultural lands provide a higher wildlife habitat value than do urban landscapes. This reduction in habitat will place more demand on remaining ecosystems found on Corps-managed lands. An increase in the urban/parkland interface will also create more opportunities for human conflict with wildlife that inhabits parklands adjacent to housing developments (i.e., raccoons, white-tailed deer, and opossums.)

Increased development complicates management of natural resources on Corps-managed lands. Prescribed fire is one of the preferred ways to manage both grassland and timber resources at Coralville Lake. The use of fire is more difficult for sites adjacent to developed areas, due to additional site preparations that must be taken to ensure that private lands and structures are not placed at risk. Even if the prescribed fire is a significant distance from private lands, smoke from the fire can impact visibilities on roadways and irritate health problems of local residents. Development of adjacent lands will affect the ability to manage natural resources with prescribed fire.

Historically, adjoining developments also increased storm water runoff or concentrated flows, which can potentially increase erosion and damage on Corps-managed lands. With stormwater runoff also comes pollution in the form of nutrients and chemical (herbicide & pesticide) runoff. Once insufficient storm water infrastructure is in place it is very costly to correct these problems. A concentrated effort from neighbors, developers, cities, counties, and the Corps to review adjacent developmental plans early in the process will go a long way to reduce or eliminate impacts to Corps-managed lands and water.

Historic land use (forest, row crop agriculture, or pasture) allowed for relatively easy boundary inspection and maintenance. Increased development along Corps-managed lands traditionally results in more encroachments and trespasses from the adjacent landowner. Boundary sign and monument disturbance, storage of personnel property, mowing, trails, and timber alterations become more frequent, which in turn, requires more person hours to address. Limited staffing and resources will affect the ability to inspect and manage the Corps boundary.

6.5.3. Encroachments. In 2018, new nationwide policies on dealing with encroachments was instituted following findings from an US Army Audit Agency's audit on

Preventing and Resolution of Encroachments. The primary recommendation is to remove the encroachment when and where possible. The Corps could issue an outgrant (license/lease), however removal is the primary goal. The boundary maintenance program is designed to clearly identify government property boundaries, prevent encroachments, or discover them in the early stages so that removal is easier. Once discovered, the park rangers and/or District real estate office will work with the adjacent landowner to have the encroachment removed from Government property thereby protecting the lands and resources from further degradation.

6.5.4. Utility Considerations. According to Engineering Pamphlet (EP) 1130-2-550, Recreation Operations and Maintenance Guidelines and Procedures (Appendix D.7), special programs are programs or situations that should be identified and discussed in a Master Plan but are not covered in other sections of the plan. The potential and suitability for utility corridors was identified as the special consideration at Coralville Lake.

The Energy Policy Act of 2005 directed the Secretary of Agriculture, Commerce, Defense, Energy and Interior to identify corridors for oil, gas, and hydrogen pipelines, 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. (See Appendix D.35) In 2009, the Corps issued a Non-Recreational Outgrant Policy stating that the primary rationale for authorizing any future non-recreational outgrant request for use on Corps-managed lands or waters will be (1) no viable alternative to the activity or structure being located on civil works lands or waters, or (2) a direct benefit to the government (See Appendix D.7). Public utilities including power lines and gas and fuel pipelines are past examples or outgrant requests the Corps has received. A designated corridor is defined as "a parcel of land with fixed boundaries that has been identified in the Master Plan or Operational Management Plan as being the preferred location for future outgrants or proposed modifications to existing outgrants suitable to accommodate compatible types of outgrants" (See Appendix F.24 & F.25, *Coralville Lake Utility Corridors Maps*).

6.5.4.1. Land Use Compatibility and Site Suitability Considerations. Developing an alignment for a utility transmission line or pipeline is a complex undertaking and must take into account numerous engineering and environmental issues as well as acquisition of right-of-way and easements. The focus of this section is to evaluate Corps-managed land areas relative to resource suitability, recreational use, and presence of sensitive environmental resources to identify constraints and criteria to designate utility corridor(s) that minimize impacts on environmental and recreational resources.

As noted above, the focus is on identifying existing corridors and sharing these corridors for multiple utilities. Local utilities are also included in this utility corridor program. Coordination with Coralville Lake's Operations Project Manager in the earliest stages of utility planning is essential. Land Use Request Policy and the Non-Recreation Outgrant Lease Policy of 1996 clearly address Corps policy in regard to use of government lands. These policies are included in this document. (See Appendix D.7).

If there are no reasonable and feasible alternatives to avoid Corps-managed lands, initial consideration should include already-disturbed corridors such as existing highways and utility corridors.

6.5.4.2 Existing Roadways. Roadways are present throughout Coralville Lake to provide access to Corps-managed lands and water and allow residents to traverse the area. These roadways have already been removed from recreational use and have disturbed/impacted the natural environment. Placing utility corridors adjacent to primary existing roadways, i.e., state and county arterial and collector roads, rather than small access roads within Corps recreation areas, could potentially decrease the recreational and environmental impacts.

Five primary roadway corridors—State Highway 1; State Highway 965; Sugar Bottom Road NE; Ely Road NE; and Interstate 380—generally traverse north-south, parallel to Coralville Lake. Sandy Beach Road NE, 140th Street NE, County Road 382, Mehaffey Bridge Road NE, West Overlook Road NE, and Prairie Du Chien Road NE bisect Corps-managed lands east-west.

6.5.4.3. Existing Utility Corridors. The use of existing utility corridors should be evaluated to determine whether the proposed utilities can be placed along the same corridor. Using an existing corridor could cause less disruption to Corps-managed lands than constructing a new corridor. Grouping utilities into an existing utility corridor could reduce the recreational and environmental impacts.

There are four existing utility corridors for transmission lines and pipelines identified which traverse Corps-managed lands, generally located in the northern portion of Coralville Lake. (See Appendix F.24 & F.25, *Coralville Lake Utility Corridors Maps*.)

Forested habitats represent a unique resource at Coralville Lake due to the decline associated with the rapid spread of urbanization, as well as the large number of open agricultural lands in the area. Avoiding or minimizing impacts to these forested habitats should be given strong consideration when selecting a potential utility corridor due to the rarity of such habitats in the region. While these areas are not designated as critical habitat for threatened and endangered species, their uniqueness increases the potential for threatened and endangered species in the area to utilize the resource. Before any utility-related corridor work is undertaken, District staff will review the area of proposed impact for the presence or absence of designated sensitive areas which will include historic properties, wetlands, threatened and endangered species, steep slope, and habitats vulnerable to fragmentation.

6.5.4.4. High Density Recreation Areas. One of the missions of Coralville Lake is recreational use. Development of a utility corridor through recreation areas and near recreation facilities could disrupt the use and enjoyment of these areas. The southern portion of the lake has the majority of high density recreational use. Avoiding recreation areas should be a prime consideration in identifying utility corridors.

In addition to direct impacts on recreational use, utility corridors may affect the natural beauty of the Corps-managed lands. If a utility corridor crosses a high density recreation area, it may impact visitors using the recreation areas. For example, an overhead transmission line crossing the lake may impair the view of the landscape. Therefore, the visual impacts to areas that have high density recreational use should be evaluated and considered.

6.5.4.5. Environmentally Sensitive Areas. The Corps classified two environmentally sensitive areas, which are also Iowa State Preserves for their historic importance, rare and distinctive features. These properties are unique and will be maintained; therefore, potential utility corridors shall avoid these areas.

6.5.4.6. Footprint on Corps-managed Land. The footprint of the Coralville Lake Project varies throughout the Iowa River corridor. If a proposed utility corridor alignment cannot avoid Corps-managed lands, options minimizing the utility footprint are the highest priority. The location of the utility footprint is also important in relation to topography, soils, and stream/waterway crossings. Areas with slopes over 15% shall be avoided due to the high erosion potential of some of the soils. This is also important in terms of stream crossings and riparian zones. Stream crossings must be avoided and/or minimized where possible. In the event a stream cannot be avoided, a vegetation buffer could be left in the riparian zone to reduce the potential for erosion and increased sediment in the water body.

Once a formal proposal is received, an evaluation shall be conducted using the factors above to identify potential impacts and alternatives to minimize impacts. Mitigation will be required for both temporary and permanent resource degradation. Vegetative management plans are critical to resource protection within the utility corridors and must be approved in the evaluation process. Recommendations for alternative utility corridor locations shall be based on the evaluation.

6.5.5. Invasive Species. Invasive species are tremendously damaging to the natural resources found at Coralville Lake. In addition to what is currently present and crowding out both terrestrial and aquatic communities, there are several invasive species on the horizon capable of altering entire ecosystems.

6.5.5.1 Emerald Ash Borer. Emerald Ash Borer (EAB) (*Argrilus planipennis*) poses the most significant threat to natural lands and developed recreation sites throughout Coralville Lake. It is currently present on project grounds. Once established, virtually all ash trees will perish, creating hazards to the recreating public, increasing fire potential in natural areas, and providing opportunities for other invasive species to fill the void. The entire state of Iowa has been placed within a forest products quarantine zone and EAB has been confirmed in the majority of Iowa's counties. Preparation for the EAB infestation at Coralville Lake began in 2006, with a policy that included: a comprehensive inventory of all trees; long term plans to remove ash trees based on growth habit and location; planting a diverse array of companion trees; and plans to chemically treat specimen trees for their preservation in key locations. The purpose of the Emerald Ash Borer Policy is to provide Coralville Lake staff

with guidelines related to the Emerald Ash Borer infestation impacting the project. This type of policy can also be instrumental in guiding future plans for other invasive species which have the capacity to seriously alter the landscape.

Ash is a significant component of two common forest associations (riparian and oak-hickory) that dominate the 9,897 acres of forest cover on Coralville Lake lands, and their dynamics will change as ash tree mortality becomes final. Of the two, riparian forests will be the most impacted, as ash is a significant component of these elm, ash and cottonwood associated systems. Loss of ash coupled with Dutch Elm Disease-related loss of elm will alter this forest cover, but offer other species like hackberry, mulberry and cedar the opportunity to fill the voids. Oak-hickory associations have significant numbers of ash trees on their shaded and moister slopes and are home to less common ash species in Eastern Iowa, blue and black ash. While the diversity of Coralville Lake forests should be able to absorb the loss of the ash component, additional impacts ; may occur including :

- 282 species of arthropods rely on ash trees for food and shelter. Forty four species feed exclusively on ash trees and are at risk of extinction.
- Woodpeckers will temporarily respond positively to infestation sites as food source and nesting sites will dramatically increase.
- Generated dead wood on forest floors can significantly impact forest soil ecology including pH, soil moisture mineral content.
- Significant changes to fire risks are anticipated with increased fuel loads complicating fire issues in our urban interface environment.
- Loss of large canopy trees and the corresponding additional sunlight hitting the forest floor will tend to favor invasive species and native poison ivy.
- The impact to oaks is unknown. Coralville Lake lands suffer from poor regeneration and we anticipate that oak will not be able to fill in or take advantage of the canopy changes.

6.5.5.2. Other Threats. Oak wilt, spongy moth, thousand cankers disease of black walnut, Asian long-horned beetle, and sudden oak death are other threats facing our forest communities. These will likely alter the species makeup of the forested lands on Corps property, and potentially changing the management practices upon these lands.

Despite human intervention, the spongy moth is expected to infest central Iowa within 30 years. This insect represents a tremendous threat to native oaks, as well as many other hardwood species. Impacts will be harsh, as evidenced in the eastern United States and control measures prove expensive.

6.6. RESTITUTION

6.6.1. Restitution of Natural Resources. Adverse impacts to Project resources (such as placing fill in wetlands or permanent loss of forested habitat for example) may require

statutory and/or non-statutory restitution. Restitution of Project lands may involve creating, restoring and/or enhancing wetlands or vegetation. The negative impacts to the natural function of the system include maintenance, upgrades, or improvements to existing non-recreational outgrants. Great care needs to be taken to reduce or avoid unreasonable impacts to development of Project lands which will result in further fragmentation of native vegetation community types.

The existing restitution areas on Project lands include requirements that these locations are not developed. If development of these sites cannot be avoided, the additional restitution would typically be calculated at a higher rate. These existing areas should be specifically mapped and documented to ensure the knowledge is retained regardless of current staffing.

Statutory mitigation for permanent impacts to Project lands typically cannot be fully mitigated on other existing Project lands. The moderate enhancement of Project lands does not necessarily equate to the permanent loss of wetland or forested wetland habitat. The acquisition of additional Project lands should be considered when statutory mitigation is required or potentially for other permanent loss of habitat on Project lands.

From presidential memo from 2015. “To improve the implementation of effective and durable mitigation projects on Federal land, agencies should identify, and make public, locations on Federal land of authorized impacts and their associated mitigation projects, including their type, extent, efficacy of compliance, and success in achieving performance measures. When compensatory actions take place on Federal lands and waters that could be open to future multiple uses, agencies should describe measures taken to ensure that the compensatory actions are durable.”

6.7. SHORELINE MANAGEMENT

The goal of Coralville’s Shoreline Management Plan (USACE 2017) is to balance shoreline uses with resource protection. Public meetings and comments were solicited, with the plan being implemented and approved by Mississippi River Valley Division Commanding General on October 25, 2017. The plan will be reviewed every five years to determine if an update or revision is warranted.

6.8. HYDROPOWER

Hydropower is regulated by the Federal Energy Regulatory Commission. At this time hydropower is not feasible due to inconsistencies and low discharge rates for the necessary flows to produce power. However, as technology improves it may become a potential to utilize discharges from Coralville Lake to serve as a renewable power source in the Iowa City Metro Area. Hydropower will continue to be considered in the future.

CORALVILLE LAKE RESERVOIR MASTER PLAN

IOWA RIVER WATERSHED
CORALVILLE, IOWA

CHAPTER 7

AGENCY AND PUBLIC INVOLVEMENT COORDINATION

7.1. PUBLIC AND AGENCY COORDINATION

Public involvement and extensive coordination within the Corps and with other affected agencies and organizations is a critical feature required in the Coralville Lake Project Master Plan Revision. On May 7, 2015, the Corps announced its decision to revise the Master Plan (MP), which was last revised in 1977.

7.1.1. Public Scoping. Throughout the process, the Corps involved the public, and coordinated with Tribes, Federal, state, and local agencies, and communities.

Public and agency scoping meetings were conducted beginning in January 2015 through February 2017. Many different means were used to obtain public and agency input into the master planning process, these included:

- **Mailings.** Letters were sent to local groups, partnering agencies, Congressional representatives and local governments inviting participation.
    - Emails were sent to all Federal and state Congressional representatives within the Project area multiple times, informing them of the MP initiation, public scoping meeting, and public comment period.
    - Letters were sent to partnering Federal and state agency leaders asking for representatives' participation throughout the MP process. Emails were sent multiple times to those representatives, informing them of the MP initiation, public scoping meetings, and public comment period.
    - Postcards were sent to shoreline contacts and adjacent property owners, to inform them of the MP initiation, public scoping meeting, and where to gain additional information.
- **Web Page.** The Coralville Lake Master Plan page invited comments using an online questionnaire; fact sheets were posted along with a copy of the previous master plan.

- **News Releases.** These were mailed to local and state newspapers and radio stations in located in Iowa City, Coralville, and Cedar Rapids in preparation for the public meeting.

- **Comment Boxes, Social Media, and One-on-One Communication.** Scoping Comment Cards and master planning fact sheets were distributed to the public at the Coralville Lake Visitor Center, interpretive programs, Corps-managed campgrounds, boat ramps, day use areas, and the scoping meeting. Master Planning meetings and information was posted to Facebook.

- **Scoping Meeting.** Letters were mailed to local groups, agencies, congressional representatives, and local governments inviting participation to the July 8, 2015, Public Scoping Meeting held at the South Slope Community Center in North Liberty, IA. The meeting was held in an open house format with presentations offered on the hour, 117 people attended and provided 31 comments.

. Comments were submitted in writing, by email, or online to the Coralville Lake Project Office. A synopsis and examples of written comments received at the meetings are provided in Appendix B. Comments were received on a wide range of topics including:

- Urban Sprawl and Development Concerns
- Erosion, Siltation, and Pollution
- Campsite Improvements
- Improving/Restoring Habitat
- Increasing Accessibility (Camping, Fishing, and Trails)
- Improving Restroom Facilities
- Controlling Invasive Species

Comments were received from concerned citizens, interest groups, partner agencies, government agencies, and businesses. All the received written comments were considered a proposal for review in making changes to the MP. Proposals were integrated into the master plan where feasible. Types of actions were grouped and added as Future Management Recommendations.

7.1.2. Agency Scoping Meetings. The Corps announced its intent to revise the master plan at the annual cooperators meeting on January 13, 2015, held with Federal, state, and local agencies involved in managing Corps lands at Coralville Lake. This meeting was held at the Iowa State University Extension and Outreach Office in Iowa City with members of the Iowa DNR (Fisheries, Lake Macbride State Park, and Coralville Wildlife Unit), Johnson County Conservation Board, University of Iowa (Macbride Raptor Center), National Park Service, and Kirkwood College.

A second agency/stakeholder at F.W. Kent Park meeting was held on January 13, 2016, during which the Corps met with representatives from the US Fish and Wildlife Service

(USFWS), Iowa DNR, Johnson County Conservation Board, University of Iowa, Iowa State Extension Services, and Kirkwood Community College in order to define and discuss preliminary classifications and locations of environmentally sensitive areas located on Corps lands.

A third agency/stakeholder at F.W. Kent Park meeting was held on January 11, 2017, during which the Corps met with representatives from the Iowa DNR, Johnson County Conservation Board, University of Iowa, Iowa State Extension Services, and Kirkwood Community College. The Corps presented draft classifications to the group for discussion. Agencies and partners were at a general consensus regarding proposed land classifications.

7.2. AGENCY AND TRIBAL COORDINATION

The Corps sought input during the planning process and initial coordination of the proposed Coralville Master Plan and corresponding Environmental Assessment with the Native American, Federal, state, and local governments listed in Table 7-1.

Table 7-1. Federal, State, Local Agencies, Tribal Governments and Outgrantees

Federal
• US Fish and Wildlife Service • US Environmental Protection Agency • US Federal Highway Administration • US Department of Agriculture Natural Resource Conservation Service
State
• Iowa Department of Natural Resources • Iowa Department of Transportation • Iowa State Historic Preservation Office (SHPO) • Iowa Office of the State Archaeologist (OSA)
Local
• Johnson County Conservation Boards • Johnson County Board of Supervisors • Johnson County Historical Society • Johnson County Preservation Commission • Kirkwood Community College • University of Iowa • Iowa State Extension Services • Cities of Iowa City, Coralville, North Liberty, and Solon
Tribal Governments
• Cheyenne River Sioux Tribe • Citizen Potawatomi Nation • Crow Creek Sioux Tribe • Flandreau Santee Sioux Tribe • Forest County Potawatomi Community

Table 7-1. Federal, State, Local Agencies, Tribal Governments and Outgrantees

• Fort Peck Assiniboine and Sioux Tribes • Ho-Chunk Nation • Iowa Tribe of Kansas and Nebraska • Iowa Tribe of Oklahoma • Lower Brule Sioux Tribe • Lower Sioux Indian Community • Meskwaki Nation (Sac and Fox Tribe of the Mississippi in Iowa) • Oglala Sioux Tribe • Omaha Tribe of Nebraska • Otoe-Missouria Tribe • Pokagon Band of Potawatomi Indians • Ponca Tribe of Nebraska • Ponca Tribe of Oklahoma • Prairie Band Potawatomi Nation • Prairie Island Indian Community • Rosebud Sioux Tribe • Sac and Fox Nation of Missouri in Kansas and Nebraska • Sac and Fox Nation of Oklahoma • Santee Sioux Tribe of Nebraska • Shakopee Mdewakanton Sioux Community of Minnesota • Sisseton-Wahpeton Oyate • Spirit Lake Tribe • Standing Rock Sioux Tribe • Upper Sioux Community, Minnesota • Winnebago Tribe of Nebraska • Yankton Sioux Tribe
Outgrants
• Coralville Lake Marina • Mid River Concession • Scales Points Marina • National Science Foundation

7.2.1. Agency Scoping Letter. On May 7, 2015, the Corps mailed an initial coordination letter requesting comments to assist in the development of the proposed Master Plan and preparation of an Environmental Assessment. On June 4, 2015, the Iowa SHPO indicated they looked forward to receiving copies of the draft plan. Agency comments were taken into account and included in the Master Plan where appropriate.

7.2.2. Tribal Scoping Letter. On November 20, 2015, the Corps initiated consultation via letter with 33 tribes, inviting them to provide comments or concerns in writing regarding the updating of the Master Plan and preparation of an Environmental Assessment. One tribe, the Meskwaki Nation, expressed an interest via a follow-up phone call.

7.3. FOCUS GROUP MEETING

On September 19, 2017, the Corps hosted a focus group meeting with stakeholders and partnering agencies, and a public focus group meeting on September 20, 2017, at the South Slope Community Center. During the meetings attendees had an opportunity to review the draft Master Plan and provide comments. Attendees were able to complete a questionnaire from the Friends of Coralville Lake during the meeting or their Facebook page. In total, 72 people attended the two meetings and 139 comments, 64 in person and 75 online.

7.4. VIRTUAL OPEN HOUSE ON MASTER PLAN

On September 7, 2022, the Corps held a virtual open house to offer a question-and-answer opportunity for the public and to gather feedback about the updated Master Plan. No public comments were received from this effort.

CORALVILLE LAKE RESERVOIR MASTER PLAN

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CHAPTER 8

ALTERNATIVES AND COMPARISON OF POTENTIAL ENVIRONMENTAL IMPACTS

Chapter 8 describes the Master Plan alternatives and compares the alternatives in terms of their environmental impact and their ability to achieve the objectives listed in Chapter 3 on Coralville Lake Corps Fee Title Lands. The alternatives analyzed include Alternative 1 (No Action), Alternative 2, and the Alternative 3 (preferred). The alternatives are described and the evaluation of potential effects of each alternative are presented later in this chapter.

When future management actions or projects associated with this Master Plan (MP) revision are recommended, the actions will undergo individual environmental coordination with appropriate Federal, State, and local agencies prior to execution. This will ensure actions undergo required compliance with the National Environmental Policy Act (NEPA) and other Federal laws and applicable policies.

The NEPA documentation and required coordination for this MP Revision are documented within this integrated Environmental Assessment (EA). Subsequent NEPA documentation and coordination on specific projects will be represented by individual, site-specific EAs or other appropriate NEPA documentation prior to implementation of actions.

8.1. DECISION TO BE MADE

There have been changes in policy which now require master plans to be reviewed every 5 years and master plans that are more than 20 years old require a full revision. It has been more than 40 years since any large-scale effort has been conducted for the lands at the Coralville Lake, hence this effort is considered a revision. The Corps must consider whether to accept this revision not only to comply with current regulations, but also to serve as a guide to the management of the natural, cultural, and man-made resources on the Coralville Lake. Ultimately the Corps must decide to implement one of the three alternatives explained in more detail below.

8.2. THE PLANNING TEAM

The Coralville Lake Project MP revision was developed through a collaborative team effort involving the Corps (including field offices and district personnel), the Iowa DNR, Johnson County Conservation Board, University of Iowa, Kirkwood Community College, surrounding cities, interested groups and the general public.

8.3. MASTER PLAN ALTERNATIVES DEVELOPMENT

The implementation guidelines (40 CFR 1500) developed by the Council on Environmental Quality (CEQ) require that an environmental analysis must "…rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons the alternatives are eliminated (Sec. 1502.14 (a))." This direction does not mean every conceivable alternative must be considered or analyzed in detail, but the selection and discussion of alternatives must permit a reasoned choice and foster informed public participation and decision-making. The range of alternatives is defined by the purpose and need for action since all alternatives must in some way meet the purpose and need. A range of alternatives includes all reasonable alternatives analyzed in detail as well as those analyzed briefly. (CEQ 1981, Forty Most Asked Questions, Question 1a).

The planning team applied their expertise to develop the details of the recommended MP revision for the Coralville Lake Project. Using resource managers' knowledge and public desires, a preferred alternative was created by considering current natural resource values and assessing the suitability for development (including facilities or amenities) then matching these features to the best location based upon recreational analysis. Additionally, it is the Corps' policy to be good stewards of the land and water resources in a manner that is consistent with best management practices and regulations.

To develop the alternatives, the Corps considered:

- Environmentally Sensitive Areas (ESAs);
- Need for natural resource protection;
- Development and improvement needs at existing recreation areas;
- Visitation trends;
- Public requests for development and/or improvements;
- Federal regulation changes;
- Changes to the natural environment;
- Changes in socioeconomic conditions

Potential land classifications for the Coralville Lake Project were reviewed from the perspectives of:

1) its land classification in the 1977 MP as revised by approved Supplements to the MP;
2) the land classification applicable to its existing use; and
3) another land classification or level of development that was considered more appropriate, based on problems and opportunities.

These were considered by the planning team members as they inventoried past and existing conditions and forecasted potential conditions and uses for the next 15 to 20 years into the future.

8.4. AGENCY/PUBLIC SCOPING AND FOCUS GROUPS

Scoping for the MP occurred from 2015 through 2017, which allowed agencies, tribes, state, city and county governments, interested groups, and the general public to express any concerns or request land classification changes. Concerns and requests were evaluated by the planning team using information on existing recreation and natural resources of the area and forecasted future conditions. Many of the public's suggested future management activities were already part of, or incorporated into, the design of the preferred alternative (e.g., Wi-Fi, updated campground amenities, etc.). Other comments were considered outside the project's purpose and need and/or would not comply with the MP scope and direction or applicable environmental regulations. No issues were raised for the MP from scoping that would necessitate the development of an alternative to analyze in detail.

Forty-eight percent of public scoping comments received were requests for improved recreational opportunities and infrastructure.[1] The majority of public comments in this category expressed concern and need for upgraded facilities specifically for improved campground and day-use area facilities at Coralville Lake. In addition, nearly 15 percent of comments were specific comments related to boating and boat ramps (Figure 8-1). Many boaters expressed the need for improvements at Coralville's boat ramps such as additional boat ramps and parking areas. Other recreational comments focused on construction of more amenities at campgrounds such as fish cleaning stations, modernized camp-pads, hiking trails, trail connections, improved picnic areas, interpretive programming, and Wi-Fi.

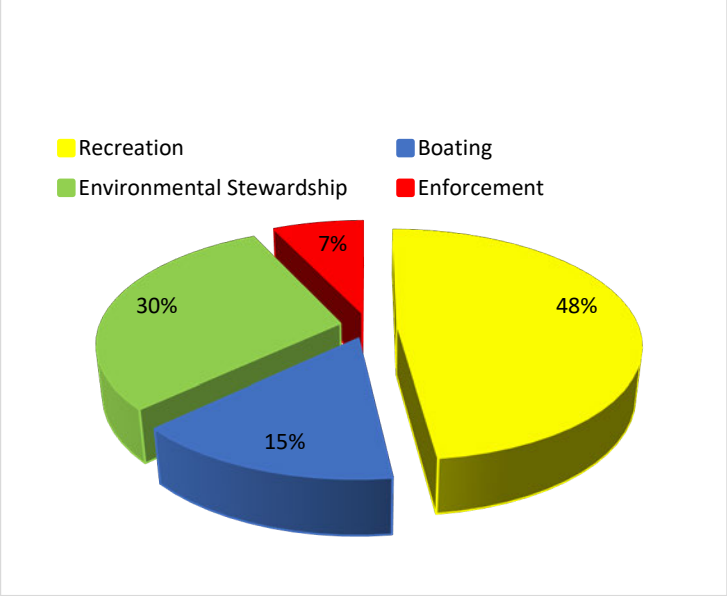


Figure 8-1. Percentage of Responses from Scoping Questions

Many comments were from people expressing their gratitude for the recreation opportunities at Coralville Lake. Commenters felt strongly about not losing any current recreational

[1] Section includes scoping comments from July what year?

features, areas, or amenities, and asked for land preservation and access to be a high priority for now and future generations.

Thirty percent of comments focused on environmental stewardship changes and opportunities. Concerns were expressed for the continued improvement of fish and wildlife habitat on the lake in order to support fishing, sightseeing, bird and wildlife watching. Other comments focused on preserving green space and forests for future generations. Also, there was concern expressed for the need to continue combatting invasive species and working with adjacent landowners to prevent the spread of these invasive species.

Although dredging is not an activity authorized or directed by the MP many commenters expressed concern regarding sedimentation and erosion rates, flood storage capacity, and potential dredging opportunities. In some areas recreational boating has become limited and dangerous due to lack of water depth. In addition, seven percent of comments focused on additional enforcement related to vehicles, boater safety, and encroachments on Corps-managed land.

Of the agencies involved in the MP Revision, the primary concern was updating land classifications. This allows them to meet their management goals, while still allowing future development as recreational needs evolve. Overall, the agencies support the Corps effort to update the MP and were actively involved during the planning process.

8.5. MASTER PLAN AND SUPPORTING DOCUMENTS

The MP establishes appropriate resource objectives for the Project and prescribes land classifications. The MP also identifies development opportunities, management needs, guidelines and establishes the locations of suitable levels of recreational development (Figure 8-2).

- The MP provides a framework for more detailed and in-depth plans such as the Operational Management Plans (OMPs).

- The MP provides a basis for reviewing out-grant and recreation development proposals.

- The MP is expected to be in effect for approximately 20 years.

- MP Supplements (requiring District Engineer approval) will be prepared as a request and moved forward, if considered appropriate and justified.

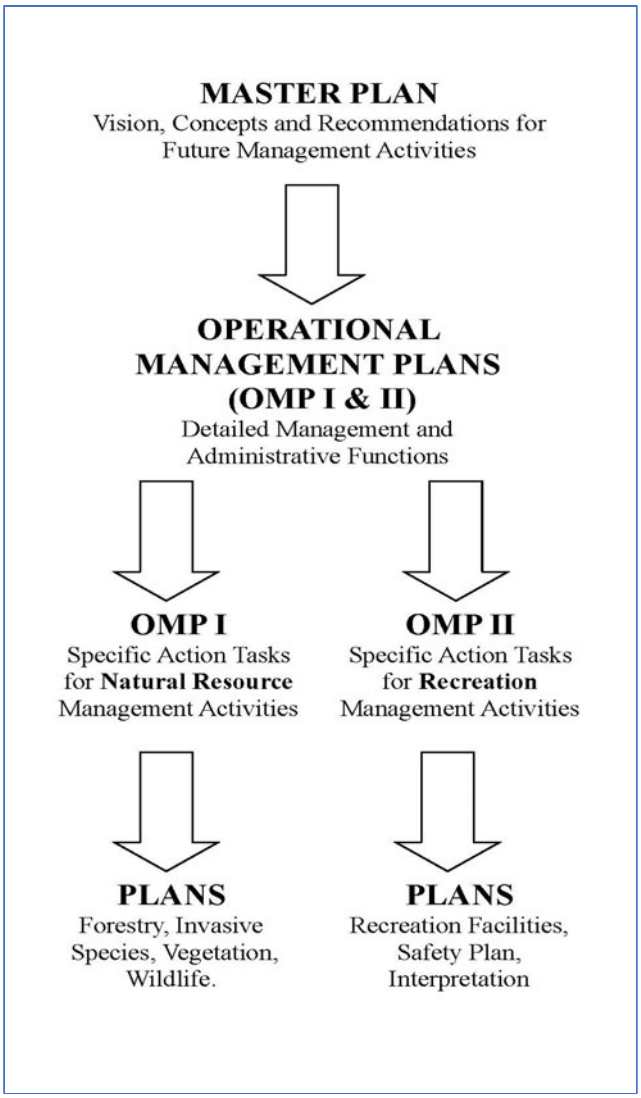


Figure 8-2. MP Flow Chart

Under all alternatives, the Corps would continue to implement its other management plans and comply with existing regulations that relate to management of project lands. These include:

- OMP for the Coralville Lake Project, (work plans updated annually);
- Coralville Lake Water Control Manual, which governs reservoir operations, approved in Feb 2022
- The Archaeology of Coralville Lake, Iowa: Final Cultural Resources Management Plan, May 1987; and

- Coralville Lake Shoreline Management Plan, October 2017.

8.6. ALTERNATIVES CONSIDERED FOR THE PROPOSED ACTION

This section describes the three alternatives considered as part of this update to the MP. The MP is a land use document so rather than look at specific management actions, the planning team focused on different land classifications and how lands can be utilized. During the planning process, the planning team analyzed data and reviewed comments from partnering agencies and the public. The PDT worked on varying options that will meet the purpose and need of the MP while addressing both agency and public suggestions. These alternatives focused on different plan implementations:

Alternative 1 is a "no action" plan. The "no action" plan must be considered in the planning effort to comply with CEQ guidelines. The purpose of the MP as outlined in Chapter 1 is to provide guidance in Corps decision making and provide a framework for development and implementation of the OMP and the Annual Management Plans. To be effective in achieving its intended purpose, the MP should be current and up to date with the latest policies and guidance. For instance, the no action alternative would keep acreages and terminology from 1977 that are 45 years old and outdated. Alternative 1 would not allow for new land classification nor would it allow any land acreages to be re-classified for different uses. For example, leased lands under the 1977 MP or the 479 acres of new lands that were acquired since 1977. The No Action Alternative. The No Action Alternative, as required by NEPA, is the baseline to compare the proposed alternatives. Under the No Action Alternative, environmental consequences will still occur because the existing environment is not static. The USACE evaluated the difference between the impacts of taking an action and no action to establish a benchmark and enable decision makers to compare the magnitude of the environmental effects of implementing an action alternative.

Alternative 2 updates the land classifications to the new terminology provided in current regulations. (Table 8-1). Alternative 2 incorporates 479 additional acreages aquired since the 1977 MP was implemented. However, Alternative 2 does not change the land designations (acreages) for the updated classifications based on usage, anticipated needs, or other environmental factors, nor does it reclassify leased lands.

Alternative 3 also updates the land classifications to the new terminology provided in current regulations and incorporates the 479 additional acreages acquired since 1977. Alternative 3 allows for flexibility in land designations (acreages) between land classifications. Land designations will be based on current usage, anticipated needs or other environmental factors.

Table 8-1 shows the conversion of land classifications due to changes in Corps master planning regulations. Tables 8-2, 8-3 and 8-4 provide a comparison of the different percentages of land classifications associated with each alternative.

Table 8-1. Conversion of Land Classifications

1977 MP	Proposed 2022 MP
Project Operations	Project Operations
Recreation Intensive Use	High Density Recreation
Recreation Low Density	Multiple Resource Management – Low Density
Reserve Forest Land	Multiple Resource Management – Wildlife
	Multiple Resource Management – Vegetation
	Environmentally Sensitive Areas
Lease Lands	n/a
n/a	Water Surface

Table 8-2. Percentages of Land Classification by Alternative 1, No Action

1977 Land Classifications	Acreage	Percentage of Land Use
Project Operations	60	0.25%
Recreation/ Intensive Use	3,865	16.02%
Recreation/ Low Density	554	2.30%
Reserve Forest Land	2,901	12.03%
Leased Land	15,104	62.63%
Leased Land Under Water	1,634	6.77%
Total Acreage	**24,118**	**100%**

Table 8-3. Percentages of Land Classification by Alternative 2,

2022 Land Classifications	Acreage	Percentage of Land Use	Designation/Classification Change
Project Operations	60	0.24%	No Change in Acreages or Classification
High Density Recreation	3,865	15.71%	No Change in Acreages Formerly Recreation Intensive Use
Multiple Use- Low Density Recreation	554	2.25%	No Change in Acreages Formerly Recreation/Low Density
Multiple Use- Wildlife Management	2,901	11.80%	No Change in Acreages Formerly Reserve Forest Land
Multiple Use- Vegetation Management	0		
Environmentally Sensitive Areas	0		
Leased Land Under Water	1,634	6.64%	No Change in Acreages Formerly Leased Land Under Water
Leased Lands	15,104	61.41%	Leased Lands cannot be reclassified or re-designated because they remain out-granted.
Acquired Land to be	479	1.95%	Acquired Acres (1982-1988)
Total Acreage	**24,597**	**100%**	

Table 8-4. Percentages of Land Classification by Alternative 3

2022 Land Classifications	Acreage	Percentage of Land Use	Designation/Classification Change
Project Operations	75	0.30%	No Change in Land Classification
High Density Recreation	1,208	4.91%	Formerly Recreation Intensive Use; some acreages were re-classified
Multiple Use- Low Density Recreation	252	1.02%	Formerly Recreation/Low Density Some acreages were re-classified
Multiple Use- Wildlife Management	13,483	54.82%	Formerly Leased Lands has been reclassified and includes approximately 1,450 surface acres
Multiple Use- Vegetation Management	5,438	16.70%	Formerly Reserve Forest Land
Environmentally Sensitive Areas	41	0.17%	Formerly Reserved Forest Land
Water Surface	2,650	22.08%	Unclassified water surface areas managed by the Corps
Total Acreage	**24,597**	**100%**	

8.6.1. Alternative 1 (No Action). Inclusion of the No Action Alternative is prescribed by CEQ regulations and serves as the benchmark against which Federal actions can be evaluated. Under the No Action Alternative, the District would not approve the adoption or implementation of the revised Coralville MP and would not meet current regulations or goals of regular updates to a master planning document. The 1977 MP is the only source of comprehensive management guidance and philosophy for Coralville Lake. The information provided in the 1977 plan is out of date and no longer adequately addresses the needs of the District and other management partners or users of Coralville Lake. In addition, the 1977 MP does not include the revised Land Classifications. The 1977 MP took a proactive approach to managing Coralville Lake and put a strong emphasis on future developments. Maintaining the current MP would require approval for any major future developments on a case-by-case basis. However, even if approved, any major future developments would still need to comply with current Federal laws, policies and/or regulations such as the National Environmental Policy Act (NEPA) or Cultural Resource protection Laws.

Under the 1977 MP, the Corps is responsible for approximately 24,118 acres of fee title emergent lands. Of those 24,118 acres, 63% or (15,104 acres) are categorized as leased lands. Leased lands consist of 13,048 acres leased to the Iowa DNR and comprise the Hawkeye Wildlife Management Area. The remaining 2,056 acres are leased to other agencies, and/or groups that may no longer exist, nor does it account for any new lease holders. The additional 37% of lands are managed by the Corps for the following land classifications: project operations, recreation/intensive use, recreation/low density use and reserve forest land. Table 8-5 shows the acreage of each land classification found in the 1977 MP.

Table 8-5. 1977 Master Plan Acreages

Land Classification	Acreage
Leased Lands	15,104
Project Operations	60
Recreation/ Intensive	3,865
Recreation/ Low Density	554
Reserve Forest Land	2901
Leased Land Under	1,634

Alternative 1 does not address changes made post 1977 to resource management laws, policies, and regulations. The Leased Lands classification, which is no longer used per regulation (EP 1130-2-550), has no alternative land classification in the 1977 MP. Alternative 1 also does not include the 479 acres of frequent flood lands that were acquired after 1977, between 1982-1988. Considering the significant changes since 1977 and missing or outdated information, Alternative 1 will no longer adequately address the needs of the District, other management partners or users of Coralville Lake.

8.6.2. Alternative 2. Alternative 2 adjusts the 1977 MP land classifications to the current classifications in accordance with current regulations. However, it proposes no change to those classifications with regard to current land uses or environmental and cultural conditions. Alternative 2, also does not incorporate comments from Corps partners and the public.

There are few differences between Alternative 1 and Alternative 2 with Corps-managed lands. As stated in the above section of Alternative 1, the Corps is responsible for approximately 24,118 acres of fee title emergent lands, where 15,104 of those acres are categorized as leased lands. In Alternative 2 the total lands are identified as 24,597 accounting for the 479 acres of land acquired between 1982-1988. The total land classifications and acreages are found in Table 8-3.

Table 8-3 shows each of the land classifications for Alternative 2 are updated from the 1977 MP to current classifications. Although the classifications changed, the designation of acreages remain the same for Alternative 2. As stated in Alternative 1, the current 1977 MP does allow for future developments throughout land classifications. However, even if major future developments are approved, they still must comply with current Federal laws, policies and/or regulations such as the National Environmental Policy Act (NEPA) or cultural resource protection laws.

Lands formerly known as leased lands in the 1977 MP would not be designated into other classifications under Alternative 2 because they remain outgranted to other agencies to manage in accordance with their lease agreements. The implementation of Alternative 2 would continue to follow the current guidance in the 1977 MP.

For Alternative 2, some of the Corps-managed lands were designated as high-density recreation but has had no development. Current policy states that all new recreational

development at projects like Coralville Lake will require at least 50 percent cost-sharing by a non-Federal public agency. The non-Federal sponsor is required to enter into a cost-sharing contract with the Corps prior to construction and must agree to assume operation and maintenance responsibilities for the completed recreation area. No cost-sharing partners have been identified at this time.

Alternative 2 would also incorporate out of date and missing information such as land acreages. Alternative 2 would fail to incorporate the changes in the surrounding properties and growth of the area, which will impact the land and recreational uses of the project. This alternative also does not take into consideration any environmental, cultural or historical information that has become available since 1977. Therefore, for all the reasons stated above, Alternative 2 will not adequately addresses the needs of the District, other management partners, or users of Coralville Lake and not carried forward for further evaluation.

8.6.3. Alternative 3 (Preferred). Under Alternative 3, the land classifications would be revised to reflect current management practices while responding to agency and public comments received during the scoping phase. Changes include reclassifying undeveloped High Density and Low Density land classifications to other land classifications such as Multiple Use – Wildlife or Vegetative Management; Project Operations, and/or environmentally sensitive areas. These changes are reflected in Table 8-4.

Under Alternative 3, the Corps is responsible for managing 24,597 acres of fee title land. This includes an increase of 479 acres from land that was acquired between 1982-1988 for higher than projected flood frequency.

Under the 1977 MP, 15,104 acres of the total 24,118 acres are categorized as leased lands. As stated in Alternative 2, although there is no classification for leased lands, these lands are still out-granted to other agencies to manage in accordance with their lease agreements. In cooperation with partnering agencies, Alternative 3 proposes the 15,104 acres be reclassified throughout the classifications of High Density Recreation, Multiple Use – Low Density Recreation, Wildlife Management, Vegetation Management or Environmentally Sensitive Areas.

Leased lands under the 1977 MP consisted of 13,048 acres leased to the Iowa DNR now comprising the Hawkeye Wildlife Management Area. The 479 acres of land acquired between 1982-1988 to address frequent flooding was adjacent to this area and is now encompassed into those lands known as the Hawkeye WMA. The total acres are now 13,507. The remaining acres are leased to other agencies, educational institutions, or other groups. The majority of land classifications, approximately 60% will continue to be managed by the State of Iowa, while the remaining 40% will be managed by the Corps or through other agencies and institutions.

Alternative 3 seeks to replace the 1977 MP and provide a balanced, up-to-date management plan that follows current Federal laws and regulations while sustaining Coralville Lake's

natural resources and providing outdoor recreational experiences. Under Alternative 3, the District would adopt and implement this revised version of Coralville Lake's MP. With some of the highest property values in Iowa, large family farms are being subdivided at an increasing rate. This rapid development and population growth have resulted in changes to land use in the region and around Coralville Lake. The public and wildlife are directly impacted by fragmentation and increasing recreational use. To circumvent these potential negative impacts, the MP focuses on protecting the resource by maintaining the current land usage and recommended upgrades to existing recreation facilities. Again, current policy states that all new recreational development at projects like Coralville Lake will require at least 50 percent cost-sharing by a non-Federal public agency. The non-Federal sponsor is required to enter into a cost-sharing contract with the Corps prior to construction and must agree to assume operation and maintenance responsibilities for the completed recreation area. In the event that new recreational development is considered, a non-Federal cost share partner would be required and the MP would require a revision to designated land classifications.

Table 8-4 reflects the proposed changes with Alternative 3. There are 75 acres identified for Project Operations. This is an overall increase of 15 acres. There are 1,208 acres identified for High Density Recreation. This represents a decrease of 2,657 acres from Alternative 1. Multiple Use for Low Density Recreation identifies 253 acres under Alternative 3. This represents a decrease of 301 acres that were reclassified. There were also 41 Low Density Recreation acres reclassified under Environmentally Sensitive Areas. There was a re-allocation of 15,992 acres that were formally classified under leased lands. The 1977 MP did not designate any Natural Area, renamed "Environmentally Sensitive Areas (ESA)". The proposed MP increases ESA from 0 acres to 41 acres. The increase in ESAs is due to a change in how Corps regulations define differences in sensitive areas which may include scientific (study), ecological (high diversity), designations, cultural and/or aesthetic features requiring added protection and care in management. Finally, there are 4,100 acres identified for the classification of Water Surface in which 1,450 were reclassified under wildlife management. These acres include both USACE managed and leased lands that are under water.

8.7. ALTERNATIVES NOT CARRIED FORWARD FOR FURTHER ANALYSIS

Alternative 1 and Alternative 2 will not be carried forward for further analysis. Both Alternatives would incorporate extremely out of date and missing information into the MP revision. Alternative 2 would be able to meet compliance with updated land classifications but does not incorporate any changes to land designations (acreages). Both Alternative 1 and 2 fail to have the ability to incorporate the changes in the surrounding properties and overall growth of the area even though both Alternatives would allow for major future development on a case-by-case basis. Such developments would still be required to comply with current Federal laws, policies and/or regulations such as the NEPA or cultural resource protection laws. Finally, agencies and out-grantees made specific comments on land use changes and requested that the MP incorporate new land classifications to update mapping and better reflect of land use and management responsibility.

8.8. RECOMMENDED PLAN FOR MASTER PLAN REVISION

Alternative 3 (Preferred Alternative) represents the best combination of land classification types and levels of resource development, management, and conservation activities for the various areas on Coralville Lake that would: 1) meet Project purposes and agency/public needs and desires; 2) be consistent with minimizing adverse environmental impacts and ensuring environmental sustainability; and 3) be compatible with all applicable laws and regulations as well as regional plans. Under this Alternative management of the Project would be accomplished in accordance with the resource objectives outlined in Chapter 3 of the MP. Implementation of Alternative 3 is the Corps' Recommended Plan for the MP Revision.

8.9. FUTURE RECOMMENDED MANAGEMENT ACTION

The MP Revision proposes several actions for the combined purposes of improving recreation opportunities while protecting and enhancing the natural resources found in the Project area. Table 8-6 shows a listing of future recommendations and types of management actions by Land Classification. Improvements are dependent on funding and efforts are made so that public access is maximized, but within the constraints of budgets, staffing, safety considerations and other management concerns. The District compiled these recommendations from comments they received at scoping meetings and public input. (See MP Chapters 5 and 7)

8.10. FUTURE ACTIONS AND NEPA REQUIREMENTS

Use 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 regulations (USACE, 2009).

It is important to note that the integrated EA assesses the impacts of adopting the Land Classifications included in the proposed MP but not the specific recommended future management actions and opportunities mentioned in Table 8-6. These recommendations are the result of public comments captured during the scoping phase. The recommendations will be part of the OMP and identified as tasks which will be reviewed, coordinated, and completed at a later date. Because of the wide variety of possible future management recommendations or tasks that could be proposed, an additional evaluation to determine consistency with the stated site objectives and further NEPA consideration would be required as these tasks are undertaken.

Table 8-6. Future Recommendations of Management Actions by Land Classification

Land Classification	Issue	Recommendations
Project Operations		Improve/Maintain **current amenities**.
High Density Recreation	There is an increasing demand and desire for upgraded camping facilities and amenities. There is substantial congestion at boat ramps during the summer season. The ramps accommodate a high volume of boat launch activity and substantial day-use activity, which results in some conflict of use. The challenge is balancing the carrying capacity on the water and public safety.	Recommend **upgrades** for: campground facilities, playgrounds; aging electrical system, shower buildings and boat ramps; add more full hookup campsites; pave campground sites; **install** Wi-Fi; **improve** parking areas; construction of walking/biking paths where acceptable; **encourage education** by renovating the Visitor Center and place interpretive signage about Corps Missions. **Improve**/M**aintain** all recreation areas and amenities. **Addition** of automated fee collection station, courtesy docks, removable vault toilets, fish cleaning station, trail connection, and energy efficient LED lighting at parking lots. **Improve/maintain** all current areas, parking lots and modernize waterborne restrooms. Continue to educate public on water safety.
Environmentally Sensitive Areas	Increased need for protection against encroachment, fragmentation, and other urban pressures.	**Addition** of the ESA land classification to the master plan. Sensitive areas as part of the master plan will ensure the protection of valuable resources. Many factors contribute to identifying sensitive areas, and often times an area many have multiple contributors from the following: cultural resources, historic value, unique flora and fauna, rare geologic formations, steep slope, aesthetic quality or aesthetic views (scenic)
Multiple Resource Management Lands - Low Density Recreation	More interest in water and land-based activities will increase need for access to the lake and surrounding land.	**Improve** trails and water access areas by partnering with agencies and interest groups. Make handicap accessible areas to provide additional recreation opportunities. **Develop** outreach programs for water safety, water quality, and environmental stewardship.

Land Classification	Issue	Recommendations
Multiple Resource Management Lands – Wildlife Management	Fragmentation threatens large block habitats and species, some of which are state or federally Listed. Introduction of invasive species threaten ecological diversity and requires ongoing management.	Large forests and wetlands found Coralville Lake are rare on the overall Midwest landscape. The Corps will **continue** to manage lands designated for stewardship of wildlife resources. The Iowa DNR manages the majority of designated wildlife management land i through real estate agreements. The primary strategy is to manage areas to benefit both game and non-game species. Fall pool elevations are manipulated to maximize migrating waterfowl habitat.
Multiple Resource Management Lands – Vegetative Management	Habitat fragmentation and degradation threatens large block habitats and the species utilizing these areas.	**Update** the forestry management plan for Coralville Lake and actively manage to meet goals and objectives, laid out in the Plan. Management could include a combination of tree plantings, timber stand improvements, prescribed burns, invasive species management and timber harvest. Involves converting agricultural lands to native prairie, and protection of resources for T&E species such as Rusty Patch Bumblebee, Indiana Bat, etc.
Water Surface-	Public safety at critical infrastructure.	**Addition** of the Water Surface addresses lands that lie under water and not available for active management. Under the Shoreline Management Plan there is a Prohibited/Restricted classification that is proposed for small areas both the downstream and upstream side of the dam to be in accordance with ER 1130-2-520. The purpose of these restrictions is to ensure security of the structures and public safety

8.11. MAJOR CHANGES OF ALTERNATIVE 3 (RECOMMENDED PLAN) – MASTER PLAN REVISION

Alternative 3 is the Recommended Plan for MP revision. Later updates, also referred to as supplements, could document completed actions and refocus the management of any given site. These updates could be made by the Coralville Lake staff, as they are most involved in the day-to-day management of the project. Updates or supplements could also include changes in Land Classifications; however, this level of update would involve further NEPA consideration and coordination with the Corps Rock Island District Office. The following are the District's proposed features (changes) to the Recommended Plan:

- **Addition of Environmental Sensitive Area Classification.** Since 1977, the Corps was asked to designate a couple of areas as environmentally sensitive due to the historic and cultural significance of these pieces of property. Two ESAs have been identified and the acreages reflected in Table 8-4. These lands were originally under a different classification in the 1977 MP.

- **Addition of Water Surface Classification**. The Water Surface acreage has been added to account for all fee lands, as these lands that lie beneath the water surface and are not available for active management or development.

- **Change of Leased Land.** Leased Land is not a Land Classification and no longer used per regulation (EP 1130-2-550). Therefore, these lands are being reclassified under Alternative 3. This also addresses a primary request from our partners who manage these leased lands.

- **Change of Project Operations.** There was a slight increase to acreages classified under project operations. Currently there are 75 acres allocated to project operations.

- **High Density Recreation.** It is proposed that 1,208 acres of land will be classified as High Density Recreation. There was a decrease from the Corps management areas while re-allocating acreages from leased land on Lake Macbride State Park, the OHV Park and Coralville Lake's 3 Marinas. The change will reflect existing use and ongoing management.

- **Multiple Use - Low Density Recreation.** There are 252 acres of land designated as low density recreation. It is proposed that approximately 24 acres of land currently classified as Leased Land be reclassified as Low Density Recreation. This change is located at the Archery and Shooting Ranges on the west side of the lake, known as Hawkeye Wildlife Management Area, managed by the Iowa DNR. There were also 302 acres of Corps-managed lands under the 1977 MP that have been re-classified into vegetation management. The change will reflect existing use and ongoing management.

- **Multiple Use - Wildlife Management.** It is proposed that 13,483 of the 15,104 acres of land currently classified as Leased Land will be reclassified to Wildlife Management. This

change is located on the west side of the lake, known as Hawkeye Wildlife Management Area, managed by the Iowa DNR. The change will reflect existing use and ongoing management.

- **Multiple Use - Vegetation Management.** It is proposed that 4,108 acres of land be re-classified under vegetation management. Under the 1977 MP, there were 2,901 acres classified as Reserved Forest Land which were re-classified to Vegetation Management that were managed by the Corps and other leased agencies.

- **Proposed Utility Corridors. Although not a land classification,** the use of existing utility corridors will be evaluated to determine whether the proposed utilities can be placed along existing corridors. Using an existing corridor would cause less disruption to Federal lands than constructing a new corridor. Grouping utilities into an existing utility corridor could reduce the recreational and environmental impacts. There are five existing utility corridors for transmission lines and pipelines traversing District-managed lands. (Chapter 6.5.4.3; Appendix H Map 24)

8.12. EVALUATION AND COMPARISON OF POTENTIAL ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

This purpose of this section is to provide an environmental impact evaluation for the selected alternative. The intent is to provide a full and fair discussion of any environmental impacts with the MP revision and shall inform all decision makers as well as the public the potential effects of the selected alternative above. More information on environmental resources are highlighted in Chapter 2.

Table 8-7 highlights and compares any environmental impacts between the No Action and Recommended Plan (Alternative 3) for the Coralville Lake MP Revision. It is important to point out that when future recommendations are ready for implementation, additional site-specific analysis and review for NEPA compliance will be undertaken by District Staff. Only resources that have either a beneficial or possible adverse impact will be discussed further in this section.

The greatest drivers of impacts on environmental resources in the Coralville Lake area is flooding, invasive species, population/visitation increases, residential and commercial development. Over the past decade, the Coralville/Iowa City metro areas have seen considerable growth. As discussed in Chapter 2, Demographics, the Iowa City metro area is one of the fastest growing in Iowa and is expected to continue to increase in population through 2030. The rapid growth has resulted in conversion of agricultural lands and woodlands into residential and commercial developments, with associated impacts on a range of environmental amenities including loss of wetlands and terrestrial habitat for wildlife, increased traffic congestion, reduction in air quality, and higher ambient noise levels. These development trends are expected to continue into the foreseeable future and will be the principal driver of adverse impacts on the environmental attributes for this area. The

implementation of the Recommended Plan (Alternative 3) will reclassify current undeveloped High Density and Low Density land classifications to other land classifications such as Multiple Use – Wildlife or Vegetative Management; Project Operations, and/or environmentally sensitive areas. All which will have a positive impact on the environment because the updated land classifications significantly limits any disturbance to land throughout Coralville Lake. Unfortunately, there is always the potential for negative environmental impacts. In this instance, although very minor, there are still the potential impact to recreational areas and vegetation due to flooding. Invasive species is also a concern as well as impacts to fish and wildlife.

Table 8-7. Comparison of Impacts and Effects of Alternative 1 and Alternative 3

Resource	No Significant Impact		Possible Beneficial Effects		Possible Adverse Effects	
Physical Environment	**Alt. 1 No Action**	**Alt. 3 Preferred**	**Alt. 1 No Action**	**Alt. 3 Preferred**	**Alt. 1 No Action**	**Alt. 3 Preferred**
Geology, Topography, Soils	X	X				
Floodplains	X	X				
Water Resources	X	X				
Air Quality	X	X				
Climate	X	X				
Noise	X	X				
Hazardous Materials	X	X				
Recreation and Aesthetics	X	X		X		
Natural Resources						
Vegetation	X	X		X	X	
Fish and Wildlife	X	X		X	X	
Threatened and Endangered	X	X		X		
Wetlands	X	X				
Invasive Species	X	X				
Socioeconomics						
Community Growth	X	X				
Community Cohesion	X	X				
Displacement of People	X	X				
Environmental Justice	X	X				
Property Value/Tax Base	X	X				
Public Facilities & Services	X	X				
Employment	X	X				
Business Growth	X	X				
Farm Displacement	X	X				
Transportation	X	X			X	
Utilities	X	X			X	
Safety	X	X				
Cultural Resources	X	X				

8.12.1. Effects on Floodplains and Flooding. In order to meet the missions of the Corps and the other management partners on Coralville Lake, 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. Although the dam and shoreline stabilization features can alter the wave action along selected portions of the project shoreline, they do not alter the conveyance of floodwaters through the project. All actions occurring within floodplains must be consistent with EO 11988, *Floodplain Management*, and related Corps policy. There will be no change of effects on Floodplains and Flooding as a result of either of the alternatives.

8.12.2. Effects on Water Resources. There are no significant environmental impacts to water resources from implementation of any of the Alternatives. Operations at Corps facilities and projects are monitored through annual assessments performed as part of the Environmental Review Guide for Operations (ERGO) system. The assessments provide an evaluation of compliance with all applicable Federal, State, and local environmental laws and regulations by identifying environmental problems and rating these problems as minor, major, or significant, with associated levels of corrective action. Issues related to solid waste handling, erosion control, toxic and hazardous waste handling and management, and other considerations affecting water resources and quality are evaluated. Regardless of which alternative is chosen the ERGO system would continue to insure that impacts of Project operations on water resources and quality would be identified early and corrected.

8.12.3. Effects on Air Quality. Air quality within the Coralville Lake can be influenced by exhaust from motor vehicles and boats, the use of grills and fire pits, and other regional activities (such as large-scale farming operations and construction projects). Lands currently classified for Recreation or Project Operations have the greatest potential to produce actions that may negatively influence air quality. More specifically, the developed lands within these classifications include the heaviest concentrations of motor vehicle exhaust and building emissions within the Project area. The undeveloped and Multiple Resource Management areas have limited impacts to air quality. Impacts in these areas are confined to short-term effects from forestry or construction actions. There will be no effect on Air Quality as a result of implementing either of the alternatives.

8.12.4. Effects on Climate. Implementation of the MP Revision will not have a negative effect on climate, ongoing research by the Corps Institute for Water Resources on carbon sequestration potential of Corps fee title land and jurisdictional water demonstrates a potential to capture and store greenhouse gases in vegetation and in reservoir sinks which provides a considerable beneficial impact. There will be no effect on Climate as a result of implementing either of the alternatives.

8.12.5. Effects on Noise. The implementation of the no action or preferred alternative for MP Revision will have no effect on noise levels on the Coralville Lake; conversely, the continued protection of Federal lands will provide a sanctuary for those seeking to reconnect

with nature. Noise levels are further decreased in the winter when boating is minimal. Areas within the project have limited outside noise sources with most noise coming from traffic from the surrounding communities and highways. Lands currently classified for intensive use or operations have the greatest potential to create noise within the Project area with such minimal changes to these classifications there will be no effect on noise levels as a result of implementing either of the alternatives.

8.12.6. Effects on Recreation and Aesthetic Resources. Although maintenance of current recreational facilities would continue under the No Action Alternative 1, the1977 MP classifications would not accurately reflect the current status of facilities or the higher use patterns. The recreational needs of the public would be better accommodated through the implementation of the MP Revision. Future recommendations (Table 8-4) are based on review of the existing facilities, resource suitability, trends and forecasts of future demand. As Table 8-7 above indicates, there would be beneficial impacts on recreation, not only from modernizing and upgrading existing facilities but also from increasing the management of natural resources through some of the Resource Plan recommendations in Chapter 3. Such recommendations could improve the health of local habitats and encourage wildlife diversity. Enhancing the camping experience with modern, upgraded facilities would also complement the existing campsites presently available.

Increased recreational use in an area may reduce the aesthetic qualities at varying scales. Although a small amount of development is needed for health and safety reasons, it is critical to make determinations on the types of amenities that will result in the lowest impact to the resource. Overall, the implementation of either of the alternatives would not significantly impact the aesthetic values; the area would remain similar to the existing conditions with minimal or no negative impacts to aesthetics on public lands. Protection of Federal lands under the sensitive area categories will ultimately benefit recreational and aesthetic resources located at Coralville Lake.

8.12.7. Effects on Vegetation. Management of habitat for wildlife follows the existing OMP which uses best management practices, coordination between agencies, and guidance to ensure Environmental Stewardship. Under the No Action Alternative 1, the 1977 MP no longer accurately reflects the current status of vegetative resources at Coralville Lake which could potentially have an adverse effect on the environment. Under the current 1977 MP, vegetation areas could be impacted with future recreation projects. However, with the implementation of the MP Revision, vegetative resources would be better accommodated and protected through analyzing natural resources based on current conditions, resource suitability, and trends occurring on the landscape. Following goals and objectives found in Chapter 3 of the MP Revision would benefit natural resources by improving the health of local habitats which in turn encourages wildlife diversity. Effects on vegetation would be beneficial under the preferred alternative #3, as highlighted in Table 8-7.

8.12.8. Effects on Fish and Wildlife. Although fish and wildlife management would continue under the No Action Alternative 1, the 1977 MP no longer accurately reflects the

current status of fish and wildlife resources at Coralville Lake which could potentially have an adverse effect on fish and wildlife in the area. With implementation of the MP Revision, fish and wildlife resources would be better accommodated by analyzing current conditions, resource suitability, and fish and wildlife trends. Coralville Lake fish and wildlife have been affected by water quality and habitat fragmentation. It is of benefit to fish and wildlife populations to protect the relatively undeveloped public lands at Coralville Lake, which have become increasingly valuable to native species as habitat. Following the goals and objectives found in Chapter 3 of the MP Revision would benefit fish and wildlife by improving the health of local habitats and, in turn, would encourage wildlife diversity. Effects on fish and wildlife populations would likely benefit under the preferred alternative.

8.12.9. Effects on Threatened and Endangered Species. The Corps determined the MP Revision will have "no effect" on any listed or proposed endangered species listed in Chapter 2 of this Integrated EA. The Corps based this statement on the fact that the adoption and implementation of the MP Revision will have beneficial effects for threatened and/or endangered species. The no action Alternative 1 does not have a current list of threatened and endangered species. The Coralville Lake project will continue to provide a corridor of habitat that is becoming increasingly scarce in the Midwest.

The No Action Alternative 1 does not include the revised land classifications and management actions affecting Federal lands would analyze on a case-by-case basis without the benefit of evaluation in the context of an overall plan. Additional protection is provided by specific legislation, such as the Bald Eagle Protection Act and the Migratory Bird Treaty Act. The Corps will take actions, in compliance with Federal and State regulations, to ensure that any future management recommendations will not adversely affect any threatened and endangered species or any critical habitat that may have been established in or near areas potentially affected by proposed undertakings. These actions would be reviewed and will determine the type of NEPA and Endangered Species Act documentation needed at that time.

8.12.10. Effects on Wetlands. The effects to wetlands in regard to the No Action Alternative 1 and Alternative 3 MP revision are the same. Wetlands are regulated under Section 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 the Coralville Lake and its surrounding tributaries. Further direction is provided by EO 11990: Protection of Wetlands and related Corps regulations. The Corps and the Iowa Departments of Natural Resources are responsible for implementing these regulations through a permitting process. There will be no effect on Wetlands as a result of implementing the preferred alternative.

8.12.11. Effects on Invasive Species. Implementation of either the No Action or Preferred Alternative will not have a negative effect on invasive species management. The 1977 MP has no language pertaining to invasive species and is out of date and non-compliant with current laws and regulations. The Corps will continue to implement best management practices with regards to invasive species management within the Coralville Lake Project

regardless of which alternative moves forward. Following Corps policy and using adaptive and best management practices in prevention, education, early detection, rapid response, and containment in trying to control invasive will aid in cost effective and environmentally sound invasive species management. There will be no effect on Invasive Species as a result of implementing either alternative.

8.12.12. Effects on Socioeconomic Characteristics

Community Cohesion and Regional Growth. The Coralville Lake Project provides a benefit to a large number of recreation opportunities for the surrounding communities and for the region at large. Implementation of the proposed MP Revision would not be expected to significantly impact these areas of growth. The Coralville Lake Project provides nearby and surrounding communities with vast opportunities for boating, waterfowl hunting, fishing, swimming, wildlife observation, photography, plus activities enhanced by proximity to water such as hiking, picnicking, bird watching, camping, and water sports.

Property Values and Tax Revenues. The implementation of the proposed MP Revision should not bring forth any change in property values or tax revenues. Any increase in recreational visitors to the area would likely mean more dollars spent in local retail establishments, resulting in an increase in tax revenues for the surrounding communities.

Public Facilities and Services. Overall, the implementation of the proposed MP Revision seeks to positively enhance public facilities and services by enhancing outdoor recreational opportunities, while protecting the current habitats, cultural and environmental resources.

8.12.13. Effects on Transportation. Under the No Action alternative planning for recommended future actions would be limited. Neither alternative would provide any significant benefits or adverse impacts on transportation. Due to regional population growth, many areas are experiencing congestion especially during peak recreational periods and holidays. The preferred alternative would include upgrades to boat ramps, parking lots and other areas of congestion. Increased traffic from construction could result in minor temporary impacts on traffic and transportation, but impacts would likely be negligible but are still noted in Table 8-7 above for potentially adverse effects. The expansion and reconfiguration of, entrance station areas, parking areas and boat ramps is proposed at various recreation areas and would have long-term beneficial impacts on vehicular traffic flow, likely reducing congestion. Pedestrian/bikeway improvements and enhanced connectivity to surrounding neighborhoods may also result in some reduction in vehicular use and demand for parking, providing beneficial impacts to the transportation network.

8.12.14. Effects on Utilities. Alternative 3 provides no provision for utilities and provides no protection to the resources. Potentially the addition of Utility Corridors would require more stringent process for allowing non-recreational outgrants (Chapter 6.5.4). Utility projects should use current utility corridors whenever possible to minimize adverse

environmental impacts by avoiding sensitive resources such as wetlands and known historic and archaeological sites, as well as popular and heavily-utilized recreational areas. Showing designated utility corridor areas may be beneficial to Utility Companies in the initial planning stages. Although there may be negative effects on utilities, the significance of those effects is low. Under any of the alternatives the non-recreational outgrant policy would be in effect, which would require utilities to avoid and minimize impacts to Federal lands and only use designated utility corridors.

8.12.15. Effects on Safety. Implementation of the MP Revision will have no effect on the current Coralville Lake Safety Plan which identifies safety concerns, responsibilities, and management techniques for different environments at the Project. The District will continue to actively promote general visitor safety including a strong focus on water safety. There will be no changes on safety as a result of implementation of any of the alternatives.

8.12.16. Effects on Cultural 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 properties if that Project is under the direct or indirect jurisdiction of the agency or has been licensed or assisted by that agency. The Corps determined the implementation of the preferred alternative, MP Revision, would have "No Effect" on historic properties. Likewise, the MP Revision reclassifications including sensitive area designations would further protect historic properties and sites. The Corps will continue to manage public lands within the Project through coordinating with interested parties should any future management practices result in separate undertakings in accordance with the Section 106 process. While the Corps is assured that no historic properties would be affected by the preferred alternative, if any undocumented cultural resources are identified or encountered the Corps would discontinue activities and resume coordination with the consulting parties to identify the significance of the historic property and determine any potential effects. The effects of any future undertaking/development are always evaluated for possible impacts to any historical or cultural sites prior to any construction. This usually involves coordination with Iowa SHPO and Native American tribes.

8.12.17. Probable Adverse Effects Which Cannot Be Avoided. Implementation of the preferred alternative, revision of the MP should not result in unavoidable adverse impacts to any of the resources analyzed in this integrated EA. The resource objectives, direction on agency coordination, and adaptive management strategies would help the Corps avoid, offset, and/or mitigate for any unforeseen impacts. Any effects on resources unforeseen in this analysis would likely be minor as changes in land classification are changes in planning and specific management actions occurring on the ground are required to undergo NEPA evaluation as projects are planned and funding is in place. This would ensure significant long-term adverse impacts to Project resources would be avoided.

8.12.18. Relationship Between Short-Term Use and Long-Term Productivity. The MP Revision is a land use planning document which will benefit Coralville Lake Project

lands and waters in the long term. While any future maintenance and construction activities may temporarily disrupt wildlife and human use in project areas, negative long-term impacts are expected to be minimal or non-existent on all ecosystems associated with this MP Revision.

8.12.19. Irreversible or Irretrievable Commitment of Resources. The commitment of man-hours required to write, coordinate and review the proposed MP Revision are irretrievable. Other than the aforementioned, none of the proposed actions are considered irreversible.

8.12.20. Relationship of the Proposed Project to Land-Use Plans. Implementation of the MP Revision is a proposed land-use planning change. The Land-Use changes, which the Corps refers to as Land Classifications, are being changed to reflect current conditions and meet current regulations. The MP Revision is consistent with other State and regional goals and programs and allows the Corps and its partners to work in parallel to one another in a coordinated effort. If implemented, the Corps does not expect the proposed action to alter or conflict with other authorized civil works projects.

8.12.21. Indirect and Direct impacts of the Preferred Alternative. 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). The cumulative impacts associated with the Preferred Alternative 3 and the No Action Alternative 1 are described in Section 8.11.

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts of activities in and around Coralville Lake Project lands and waters. Past actions include the construction and operation of the flood risk management (FRM) system, the recreation sites along the lake, as well as 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 Corps, Iowa DNR, and other management partners.

Existing and future actions also contribute to the cumulative impacts in and around the Coralville Lake Project. 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. Continued project operations would result in the sustained maintenance and development of recreational facilities. These facilities would enhance the recreational offerings made by the Corps and other management partners. Such improvements would result in varying levels of impacts to the surrounding resources.

Similarly, surrounding residential, commercial, and industrial development could result in varying levels of adverse impacts to many resources. Within the Project area, adverse impacts would be offset through resource stewardship efforts. The programmatic approach to project management, included in this Coralville Lake MP Revision with Integrated EA, would allow for future development plans and mitigation responses to be adapted to address any adverse actions. This would allow the Corps and other management partners to work together on the Coralville Lake Project to continue to reduce the contribution of its activities to regional cumulative impacts through proactive actions and adaptive resource management strategies.

The Preferred Alternative would contribute minor increments to the overall impacts that past, present, and future projects have on the region, mainly through the implementation of the Land Classifications and Resource Objectives outlined in the proposed MP Revision.

8.13. POTENTIAL CUMULATIVE EFFECTS

Cumulative effects, as defined by the Council on Environmental Quality for NEPA, are those impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of the agency of persons undertaking these actions.

Numerous cumulative effects from previous actions have occurred at Coralville Lake. Construction of the flood risk management system has spurred development from various private and public entities. Levee systems along the flood plain for agricultural and urban protections have caused dramatic changes to the Coralville Lake system. These anthropogenic changes have caused cumulative effects to resources, ecosystems and human communities.

Implementation of future recommended management actions in the MP Revision would incrementally reduce the cumulative effects that have occurred in the Project area and would also compensate for increased visitor use in the future. These include more stringent and comprehensive guidelines for development on Project lands, recreation areas designed with high carrying capacities so intensive visitor use can be concentrated away from resource-oriented areas, greater environmental protection and improvement of wildlife habitat, and greater maintenance of sustainable resources.

8.14. COMPLIANCE WITH ENVIRONMENTAL QUALITY STATUTES

Table 8-8. Compliance with Environmental Protection Statutes and Other Environmental Requirements

Federal Policies	Compliance[1]
Archaeological and Historic Preservation Act, 16 U.S.C. 469, et seq.	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
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.	Not applicable
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.	Not applicable
Flood Plain Management (EO 11988)	Full compliance
Protection of Wetlands (EO 11990)	Full compliance
Farmland Protection Act	Full compliance
Corps of Engineers Planning Guidance Handbook (ER 1105-2-100)	Full compliance
EO 13112 Invasive Species	Full compliance
Migratory Bird Treaty Act of 1918	Full Compliance
Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.	Full Compliance
The Comprehensive Environmental Response, Compensation, and Liability Act 42 U.S.C. 9601, et seq.	Not applicable
EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations	Full Compliance

[1]Full compliance - Having met all requirements of the statute for the current stage of planning.
Partial compliance – requirements will be met before actions are taken.
Not applicable - No requirements for the statute required.
Implementation and adoption of the MP does not authorize or carry out any actions that are likely to promote invasive species proliferation. Any subsequent occurrence of any invasive species at Coralville Lake will not solely be the result of the implementation and adoption of the MP, which is in full compliance.

CORALVILLE LAKE RESERVOIR MASTER PLAN

IOWA RIVER WATERSHED
CORALVILLE, IOWA

CHAPTER 9

SUMMARY AND RECOMMENDATIONS

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

Throughout this Master Plan process, the Corps focused on the modernization of current recreation areas and facilities within their existing footprints. Given existing budget constraints the Corps does not propose new recreation areas at this time. However, predicted population growth will likely increase demand at existing facilities. The concern with the long-term maintenance costs, and the addition of more facilities would further stress an already limited budget. Therefore, the Corps focused on resource protection in accordance with Engineering Regulation 1130-2-540 and Engineering Pamphlet 550. Urbanization and population growth are greatly affecting the resources, management decisions and land use around Coralville Lake. The following are focal points within this document that will assist Corps management in facing contemporary challenges well into the future.

9.1. FACILITY MODERNIZATION

It is the goal of the Corps at Coralville Lake to continue to modernize current facilities within existing footprints of recreation areas. Hardening campsites, upgrading electrical and plumbing infrastructure, restrooms and shower buildings, boat ramps, trails, roads, and parking lots will be the focus of management in the future. Capital improvements adopted from public input process includes facility modernization to include improved electrical, sewer, shower building, boat ramps, and parking.

9.2. LAND CLASSIFICATION CHANGES

This Master Plan Revision includes minor changes to land classifications. The majority of the acreage changes occurred due to updates in classification categories as required to be in compliance with the current Engineering Regulations and Engineering Pamphlets, and changes to align classifications with current and future management. Most notable changes include

classifying Hawkeye Wildlife Management Area as Wildlife Management and Lake Macbride State Park as High-Density Recreation, both of which were previously classified as Leased Lands. The 1977 Master Plan identified several Recreation- Intensive Use areas that were not developed, these areas were changed to Low Density Recreation and Vegetative Management. Many public comments requested safeguards for protection of natural resources and green space at Coralville Lake.

Environmentally Sensitive Area land classification was added to the Master Plan revision. Sensitive areas as part of the Master Plan will ensure the protection of valuable resources. Many factors contribute to identifying sensitive areas, and oftentimes an area have multiple contributors from the following: large tract woodlands, cultural resources, savanna remnants, mature oak woodlands, reforestations, remnant prairies, wetlands, lands possessing unique wildlife value by diversity or conservative species, steep slope, aesthetic quality or aesthetic views (scenic). The Old State Quarry Preserve and Stainbrook Preserve, approximately 29 acres, were identified in this process because of their status as Iowa State Preserves.

9.3. MULTI-SPECIES INVENTORY AND MONITORING PROGRAM

As funding allows, a multispecies inventory and monitoring inventory is recommended at Coralville Lake. The inventory would be conducted on critical habitat types throughout Coralville Lake. The inventory would assist the Corps in identifying and/or confirming environmentally sensitive areas throughout the 24,689 acres. Data collected from the inventory would become part of the extensive statewide inventory that supports the Iowa DNR Wildlife Action Plan. This inventory would serve as a baseline and can be compared against future data, as well as serve as a management tool for future environmental stewardship activities.

9.4. UTILITY CORRIDORS

Increased urbanization, population, and development surrounding Coralville Lake results in numerous requests for utility easements on Corps-owned land. This document designates already disturbed corridors, such as existing highways and utility corridors for initial consideration, if there are no reasonable and feasible alternatives to avoid Corps lands. By designating these utility corridors, Corps lands will be protected from negative impacts of fragmentation, erosion, wildlife value and aesthetic quality decline.

9.5. NON-RECREATION OUTGRANT POLICY

This policy reflects nationwide guidance developed in 2005 to evaluate requests for use of Corps-managed lands and waters. The purpose of this policy is to provide guidance to evaluate non-recreational real estate outgrant requests. The primary rationale for authorizing any future non-recreational outgrants request will be for one of two stated reasons; there is no viable alternative to the activity or structure being placed on Corps-managed lands; or there is a direct benefit to Coralville Lake authorized missions.

9.6. SUMMARY

Over the past decade, the Iowa City Metro area has seen tremendous growth. The rapid growth has resulted in conversion of agricultural lands and woodlands into residential and commercial developments, with associated impacts on a range of environmental amenities including loss of wetlands and terrestrial habitat for wildlife, increased traffic congestion, reduction in air and water quality, and higher ambient noise levels. These development trends are expected to continue into the foreseeable future and will be the principal driver of adverse impacts on the environmental attributes for this area.

Public participation was critical in the Master Plan revision process. Through outreach, surveys, focus groups, stakeholder meetings and public meetings. Significant public comment was received and provided guidance in the development of this document.

This Master Plan will provide direction in a changing and challenging environment to preserve and protect the natural resources and the quality of outdoor recreation experience at Coralville Lake.

CORALVILLE LAKE RESERVOIR MASTER PLAN

IOWA RIVER WATERSHED
CORALVILLE, IOWA

FINDING OF NO SIGNIFICANT IMPACT

The U.S. Army Corps of Engineers, Rock Island District (Corps) conducted an environmental analysis in accordance with the National Environmental Policy Act of 1969, as amended. The Master Plan Revision and integrated Environmental Assessment (EA), for the Coralville Lake Reservoir addresses proposed modifications to the current Master Plan. The Master Plan is a land use document that describes land classifications, the manner in which lands can be utilized, and provides guidance in Corps decision making that provides a framework for development and implementation of the Operational Management Plan (OMP) and the Annual Management Plans. To be effective in achieving its intended purpose, the Master Plan should be current and up to date with the latest policies and guidance.

There have been changes in policy which now require master plans to be reviewed every 5 years and master plans that are more than 20 years old require a full revision. It has been more than 40 years since any large-scale effort has been conducted for the lands at the Coralville Lake, hence this effort is considered a revision. The Corps must consider whether to accept this revision not only to comply with current regulations, but also to serve as a guide to the management of the natural, cultural, and man-made resources on the Coralville Lake. Ultimately, the Corps must decide to implement one of the three following alternatives:

Alternative 1. No Action: Under the No Action Alternative, the Corps would not approve the adoption or implementation of the revised Coralville Master Plan and would not meet current regulations or goals of regular updates to a master planning document. The 1977 Master Plan is the only source of comprehensive management guidance and philosophy for Coralville Lake. The information provided in the 1977 plan is out of date and no longer adequately addresses the needs of the Corps and other management partners or users of Coralville Lake.

Alternative 1 does not address changes made post 1977 to resource management laws, policies, and regulations. The Leased Lands classification, which is no longer used per regulation (EP 1130-2-550), has no alternative land classification in the 1977 Master Plan. Alternative 1 also does not include the additional 479 acres of frequent flood lands that were acquired after 1977, between 1982-1988. Considering the significant changes since 1977, and missing or outdated information, Alternative 1 will no longer adequately address the needs of the Corps, other management partners or users of Coralville Lake.

Alternative 2: Alternative 2 adjusts the 1977 Master Plan land classifications to the current classifications in accordance with current regulations. However, it proposes no change to those classifications with regard to current land uses or environmental and cultural conditions. Alternative 2, also does not incorporate comments from Corps partners and the public.

Alternative 2 would also incorporate out of date and missing information such as land acreages and would fail to incorporate the changes in the surrounding properties and growth of the area, which will impact the land and recreational uses of the project. This alternative also does not take into consideration any environmental, cultural or historical information that has become available since 1977. Therefore, Alternative 2 will not adequately addresses the needs of the Corps, other management partners, or users of Coralville Lake and was not carried forward for further evaluation.

Alternative 3 - Recommended Plan: Under Alternative 3, the land classifications would be revised to reflect current management practices while responding to agency and public comments received during the scoping phase. Changes include reclassifying undeveloped High Density and Low Density land classifications to other land classifications such as Multiple Use – Wildlife or Vegetative Management; Project Operations, and/or environmentally sensitive areas.

Under Alternative 3, the Corps is responsible for the management of 24,597 acres of fee title land. This includes an increase of 479 acres from land that was acquired between 1982-1988 for higher than projected flood frequency.

Alternative 3 seeks to replace the 1977 Master Plan and provide a balanced, up-to-date management plan that follows current Federal laws and regulations while sustaining Coralville Lake's natural resources and providing outdoor recreational experiences. Under Alternative 3, the Corps would adopt and implement this revised version of Coralville Lake's Master Plan. With some of the highest property values in Iowa, large family farms are being subdivided at an increasing rate. This rapid development and population growth have resulted in changes to land use in the region and around Coralville Lake. The public and wildlife are directly impacted by fragmentation and increasing recreational use. To circumvent these potential negative impacts, the Master Plan focuses on protecting the resource by maintaining the current land usage and recommended upgrades to existing recreation facilities. Again, current policy states that all new recreational development at projects like Coralville Lake will require at least 50 percent cost-sharing by a non-Federal public agency. The non-Federal sponsor is required to enter into a cost-sharing contract with the Corps prior to construction and must agree to assume operation and maintenance responsibilities for the completed recreation area. In the event that new recreational development is considered, a non-federal cost share partner would be required, and the Master Plan would require a revision to designated land classifications.

SUMMARY OF POTENTIAL EFFECTS:

For all alternatives, the potential effects were evaluated, as appropriate. Table 1 summarizes

the potential effects of the Recommended Plan (Alternative 3).

The Recommended Plan (Alternative 3) does not require compensatory mitigation. All practicable and appropriate means to avoid or minimize adverse environmental effects were analyzed and incorporated into the Recommended Plan (Alternative 3).

Public review of the draft IFR/EA and FONSI was completed on 19 March 2021. All comments submitted during the public review period were responded to in the Final IFR/EA and FONSI

Table 1: Summary of Potential Effects of the Recommended Plan (Alternative 3)

	Insignificant Effects	**Insignificant Effects as a Result of Mitigation**	**Resource Unaffected by Action**
Aesthetics	☐	☐	☒
Air Quality	☐	☐	☒
Aquatic Resources/Wetlands	☒	☐	☐
Invasive Species	☐	☐	☒
Fish and Wildlife Habitat	☒	☐	☐
Threatened/Endangered Species/Critical Habitat	☐	☐	☒
Historic Properties	☐	☐	☒
Other Cultural Resources	☐	☐	☒
Floodplains	☐	☐	☒
Hazardous, Toxic & Radioactive Waste	☐	☐	☒
Hydrology	☒	☐	☐
Land Use	☒	☐	☐
Navigation	☐	☐	☒
Noise Levels	☐	☐	☒
Public Infrastructure	☒	☐	☐
Socioeconomics	☒	☐	☐
Environmental Justice	☒	☐	☐
Soils	☒	☐	☐
Tribal Trust Resources	☐	☐	☒
Water Quality	☒	☐	☐
Climate Change	☐	☐	☒

OTHER ENVIRONMENTAL AND CULTURAL COMPLIANCE REQUIREMENTS:

ENDANGERED SPECIES ACT: Pursuant to Section 7 of the Endangered Species Act of 1973, as amended, the U.S. Army Corps of Engineers determined the Recommended Plan (Alternative 3) would have no effect on federally-listed species or their designated critical habitat.

NATIONAL HISTORIC PRESERVATION ACT: Pursuant to 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 properties if that Project is under the direct or indirect jurisdiction of the agency or has been licensed or assisted by that agency. The Corps has determined the implementation of the Recommended Plan (Alternative 3), Master Plan Revision, would have "No Effect" on historic properties. Likewise, the Master Plan Revision reclassifications including sensitive area designations would further protect historic properties and sites.

CLEAN WATER ACT SECTION 404(B)(1) COMPLIANCE: Pursuant to the Clean Water Act of 1972, as amended, the Recommended Plan (Alternative 3) does not require section 404(b)(1) analysis.

CLEAN WATER ACT SECTION 401 COMPLIANCE: Since the Corps proposes no construction or discharge into the Waters of the United States, a Clean Water Act, Section 401 Water Quality Certification is not required.

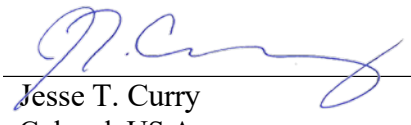
FINDING

Technical, environmental, and economic criteria used in the formulation of alternative plans were those specified in the Water Resources Council's 1983 *Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies.* All applicable laws, executive orders, regulations, and local government plans were considered in evaluation of alternatives.

The Corps has determined the Recommended Plan (Alternative 3) meets the objectives of providing sound flood risk management and natural resources management at Coralville Lake, Johnson County, Iowa. The other alternatives do not meet the Corps' objectives or do not reduce flood damages to extent of the Recommended Plan (Alternative 3).

I have reviewed the information provided in the accompanying IFR/EA, along with data obtained from cooperating Federal, state, and local agencies, and from the interested public. Based on this review, I find the Recommended Plan (Alternative 3) would not significantly affect the quality of the human environment. Therefore, it is my determination an Environmental Impact Statement is not required. The Corps would re-evaluate this determination if warranted by later developments.

21 March 2023
Date



Jesse T. Curry
Colonel, US Army
Commander & District Engineer

CORALVILLE LAKE RESERVOIR MASTER PLAN

IOWA RIVER WATERSHED
CORALVILLE, IOWA

APPENDIX A

APPROVAL DOCUMENTATION

US Army Corps
of Engineers®
Rock Island District

CEMVR-PD-C (1130-2-550h)

MEMORANDUM FOR RECORD

SUBJECT: Coralville Lake Reservoir Master Plan Design Memorandum No. 6C, Master Plan Revision. Adopt and implement Coralville Lake Master Plan Design Memorandum 6C which includes reclassification of U.S. Army Corps of Engineers managed lands.

The subject Design Memorandum No. 6C, Coralville Lake Master Plan Revision is

X Approved

_____ Approved with Comment

_____ Disapproved

21 March 2023

JESSE T. CURRY
COL, EN
Commanding

Date

CORALVILLE LAKE RESERVOIR MASTER PLAN

IOWA RIVER WATERSHED
CORALVILLE, IOWA

APPENDIX B
AGENCY AND PUBLIC COORDINATION

US Army Corps
of Engineers®
Rock Island District

APPENDIX B

AGENCY AND PUBLIC COORDINATION

Public involvement is critically important to the success of the overall master planning effort. The Corps has involved the public, affected tribes, Federal, state, and local agencies in the revision process. The Coralville Lake master planning effort began in January 2015. Public involvement effort related to developing this Master Plan occurred from July 8, 2015, to July 8, 2017. Beginning when Coralville Lake announced its plan to revise the Master Plan through press release, website, and postcard mailing. During this time the public, stakeholders, and public agencies were given the opportunity to comment and participate in defining the project issues and formulating resource use objectives. Additionally, focus group meeting were held September 19 and 20, 2017

Comments were received from a number of agencies, groups, and private citizens. These comments are provided in the following sections:

1. PRESS AND MEDIA - MASTER PLANNING PROCESS

2. AGENCY AND PUBLIC COORDINATION

3. AGENCY RESPONSE

4. PUBLIC INVOLVEMENT

5. FOCUS GROUP MEETING

SECTION 1. PRESS AND MEDIA – MASTER PLANNING PROCESS

Public input sought for Coralville Lake master plan revisions

Process will analyze the use of land, identify sensitive areas and endangered species

The shoreline of the Coralville Lake sits exposed near the Mehaffey Bridge boat ramp Wednesday, Feb. 20, 2013 between North Liberty and Solon. (Brian Ray/The Gazette-KCRG)

Mitchell Schmidt
The Gazette

More stories from Mitchell >

May 8, 2015 at 2:46 pm | Print View

CORALVILLE — Officials with the Army Corps of Engineers are seeking public comment on the first revisions to Coralville Lake's Master Plan in almost 40 years.

The lake's comprehensive master plan was created in 1977 and provides guidelines for public use of the roughly 25,000 acres of federal land and water that makes up the Coralville Lake area.

The master plan does not address water control, lake levels or flood risk management, which follow guidelines established in separate documents such as the reservoir regulation plan.

Dee Goldman, Coralville Lake project manager, said the revision process will analyze the use of land surrounding the lake and identify any sensitive areas or endangered species that might be present.

Ultimately, Goldman said he doesn't anticipate any drastic changes.

"I don't think there's any hidden secrets out there and I don't think it would be a huge change. It's just time we look at this," he said. "We know some things have changed and we just need to take a step back and see where we're at and where we're going."

Corps officials are also reviewing the lake's 1981 Shoreline Management Plan and will enact a moratorium on accepting and processing any new shoreline permits or licenses dealing with private use for boat docks, mowing permits or pathways through the rest of the year.

The number of new permits for such uses is minimal, Goldman said.

"We don't get very many of them, the ones that are out there will be allowed to remain," he said.

Members of the public interested in weighing in on either the master plan or shoreline management plan can fill out online input forms at the lake website, email or mail recommendations to the Corps or participate in upcoming focus group meetings.

The updated master plan is expected to be completed by the fall of 2016.

2017 (30)
2016 (38)
2015 (64)
2014 (56)
2013 (120)
2012 (31)
2011 (31)
2010 (35)
2009 (9)
All Entries

Corps Hosts Open House for Coralville Lake Master Plan Revision

Posted 6/25/2015

Release no. 15-044

Contact
Dee Goldman
[redacted]

ROCK ISLAND, Ill. – The U.S. Army Corps of Engineers, Rock Island District, is revising the Coralville Lake Master Plan and will be hosting a public scoping open house on Wednesday, July 8, from 2 – 7 p.m. at the South Slope Community Center located at 980 North Front Street, North Liberty, Iowa. The purpose of the open house is to informally meet with individuals and groups to discuss the Coralville Lake Master Plan revision. This will provide the public an opportunity to learn about the status of natural resource and recreation activities, provide comments on land management issues and resource objectives, and give feedback on their interests as it relates to Coralville Lake.

During the open house, an overview presentation on the master planning process and facts about Coralville Lake will be repeated every hour on the hour. The community center will be set-up with exhibit areas featuring an informational poster on recreation, environmental stewardship, cultural aspects, shoreline management, land classification maps and recreational boating. Corps staff will be available throughout the event to answer questions and discuss the various topics.

The Master Plan revision is anticipated to be drafted in 2016 and will be available for public review and comment through public notice, web posting, and open houses. The final Master Plan is anticipated to be completed in the spring of 2017. The Corps is reviewing the separate but related Shoreline Management Plan for potential revision in 2016. Public input on shoreline management and the current Shoreline Management Plan will be sought throughout 2015.

The Master Plan is not a plan for flood risk management nor is it a plan for water level management associated with prime facilities such as a dam, gates, a spillway or outlet works. These items are addressed in other documents.

For the latest information on the plan, upcoming focus groups or to submit comments visit www.coralvillelake.org. Interested parties may also contact the Coralville Lake Project Office by mail at: Coralville Lake, 2850 Prairie Du Chien Road NE, Iowa City, IA 52240-7820; by email: coralville.lake@usace.army.mil; or telephone: (319) 338-3543, ext. 6300.

Coralville Lake Master Plan Revision

Coralville Lake is in the process of revising its Master Plan. The current plan has not been revised since 1977 and since that time many changes have occurred warranting the revision. These changes include things like federal policies, Corps regulations and guidance, and recreational use trends.

The revision process began in March 2015 and completion is anticipated by the end of 2016. Public input is important to the revision process and will be sought in a variety of ways including an online input form; written input via mail or email; public scoping open houses; and comments to draft or proposed plans. We want to know your vision for the future of Coralville Lake's recreation and natural resources. To provide input and/or be added to an email list to receive updates and notifications please visit the website link at the right of this screen or contact the Coralville Lake Project Office.

What is a Master Plan?

A Master Plan (MP) is a recreation, natural resource, and land-use management document. Per Chapter 3 of Engineering Regulation1130-2-550 and Engineering Pamphlet 1130-2-550 Corps policy, it is the "...document that conceptually establishes and guides the orderly development, administration, maintenance, preservation, enhancement, and management of natural, cultural, and recreational resources of a Corps' water resource project." Despite what the name might suggest, it is not a plan for navigation (locks, dams and associated infrastructure for commercial barge traffic), flood risk management (such as levees in the PL84-99 Program), or water level management which are addressed in other guidance documents.

Additional information on the current approved plans, master planning process, Coralville Lake, or the recreation, environmental stewardship, or shoreline management sections can be found in the Additional Information links on the right side of this page.

Master Plan Public Input

PUBLIC FOCUS GROUP MEETINGS

We value input from the public and invite everyone to participate in the Master Plan revision process. We are hosting two focus group meetings on **Wednesday, Sept. 20 at 5 p.m. and 6 p.m. at the South Slope Community Center** (980 North Front Street, North Liberty, Iowa) to facilitate discussions on balancing Coralville Lake's recreational opportunities and management of natural resources.

The initial comment period has ended. Additional comments or questions can be directed to: coralville.lake@usace.army.mil.

Additional Information

1977 Master Plan

1981 Lakeshore Management Plan

2016 Shoreline Management Plan

2016 SMP Zone Map

Coralville Lake Project Fact Sheet

Master Planning Process Fact Sheet

Recreation Fact Sheet

Environmental Stewardship Fact Sheet

Shoreline Management Fact Sheet

2017 (30)
2016 (38)
2015 (64)
2014 (56)
2013 (120)
2012 (31)
2011 (31)
2010 (35)
2009 (9)
All Entries

Public Input Sought on Coralville Lake Master Plan

SHARE Email Print

Posted 5/6/2015

Release no. 15-031

Contact
Dee Goldman
[redacted]

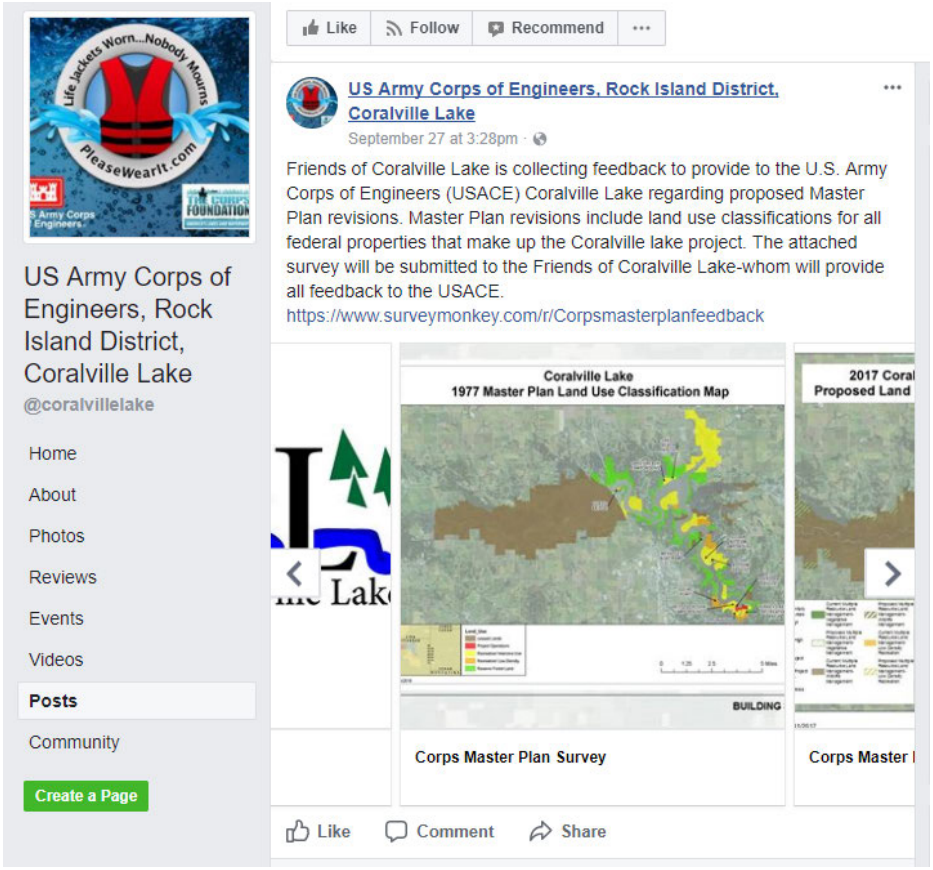
ROCK ISLAND, Ill. - The U.S. Army Corps of Engineers, Rock Island District, is proposing to revise Coralville Lake's Master Plan and is seeking public input. The plan guides public use and management of approximately 25,000 acres of federal lands and waters for environmental stewardship and recreational purposes.

Public input to help develop a draft Master Plan is critical throughout the revision process. Input can be provided through online input forms, by email or mail, and at upcoming focus group meetings. This effort includes coordination with federal and state agencies, and non-governmental organizations. The draft Master Plan is anticipated to be completed in 2016. Its content will then be available for public review and comment through public notice, web posting, and open houses. The final Master Plan is anticipated to be completed in the fall of 2016.

The Corps is reviewing the 1981 Shoreline Management Plan concurrently with, but separate to, the Master Plan revision. During this review process there will be a moratorium on accepting or processing any new shoreline use permits or licenses dealing with private use for facilities or activities such as: boat docks, mowing, pathways, etc. The public is invited to provide input on shoreline management throughout 2015.

It is important to note and that people understand that neither of these plans are to address water control, lake levels, or flood risk management. These topics and guidelines are covered in separate documents.

For the latest information on the plans, to submit input, or be added to an email list to receive updates and notifications, please visit www.coralvillelake.org. The public can contact the Coralville Lake Project Office by mail at: Coralville Lake Project Office, 2850 Prairie Du Chien Road NE, Iowa City, IA 52240-7820 by email: coralville.lake@usace.army.mil, or telephone: [redacted]


Like
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US Army Corps of Engineers, Rock Island District, Coralville Lake
September 27 at 3:28pm
Friends of Coralville Lake is collecting feedback to provide to the U.S. Army Corps of Engineers (USACE) Coralville Lake regarding proposed Master Plan revisions. Master Plan revisions include land use classifications for all federal properties that make up the Coralville lake project. The attached survey will be submitted to the Friends of Coralville Lake-whom will provide all feedback to the USACE.
https://www.surveymonkey.com/r/Corpsmasterplanfeedback
US Army Corps of Engineers, Rock Island District, Coralville Lake
@coralvillelake
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1977 Master Plan Land Use Classification Map
BUILDING
Corps Master Plan Survey
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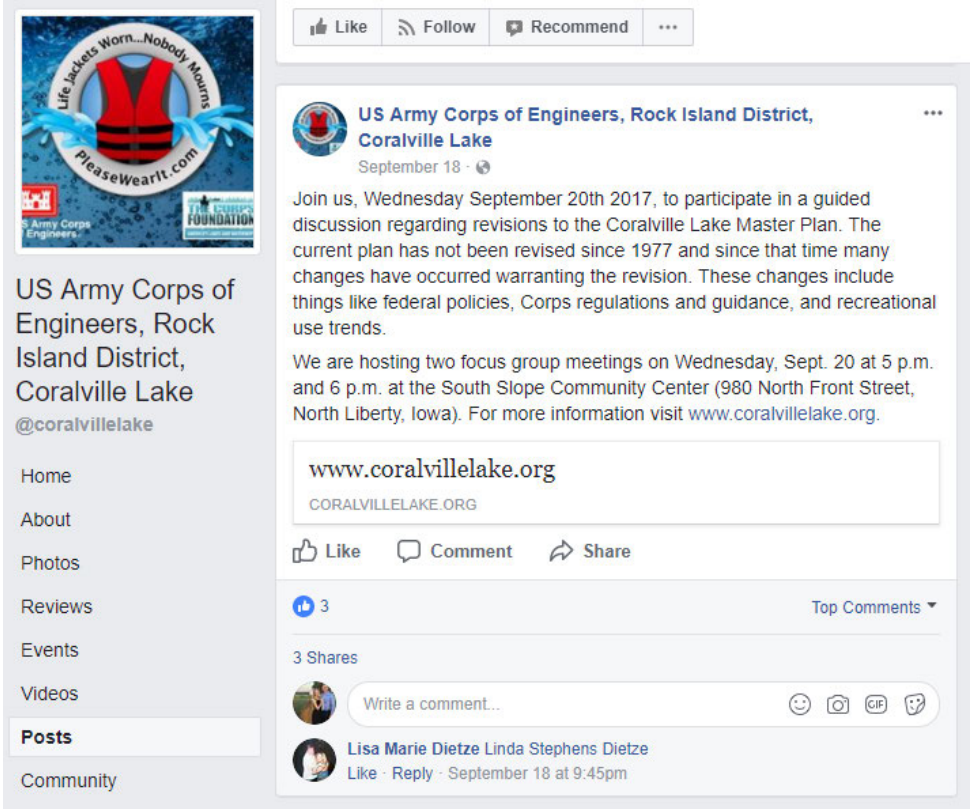
Like
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Recommend
US Army Corps of Engineers, Rock Island District, Coralville Lake
September 18
Join us, Wednesday September 20th 2017, to participate in a guided discussion regarding revisions to the Coralville Lake Master Plan. The current plan has not been revised since 1977 and since that time many changes have occurred warranting the revision. These changes include things like federal policies, Corps regulations and guidance, and recreational use trends.
We are hosting two focus group meetings on Wednesday, Sept. 20 at 5 p.m. and 6 p.m. at the South Slope Community Center (980 North Front Street, North Liberty, Iowa). For more information visit www.coralvillelake.org.
www.coralvillelake.org
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Lisa Marie Dietze Linda Stephens Dietze
Like · Reply · September 18 at 9:45pm
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SECTION 2. AGENCY AND PUBLIC COORDINATION

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Illinois-Iowa Ecological Services
Field Office Illinois & Iowa
Ecological Services Field Office
1511 47th Ave

Moline, IL 61265-7022

Phone: (309) 757-5800 Fax: (309) 757-5807

In Reply Refer To: June 02, 2022
Project Code: 2022-0049254 Project Name: Coralville Lake MP

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/ executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages

Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

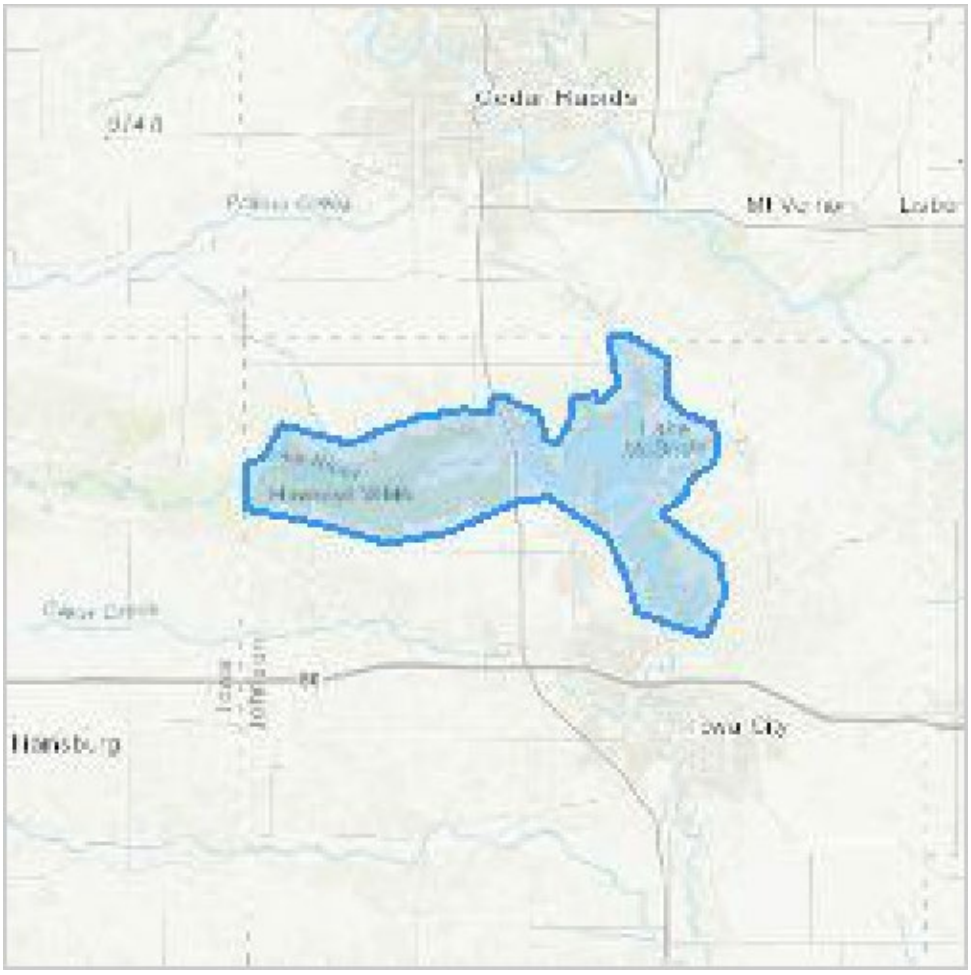
Illinois-Iowa Ecological Services Field Office Illinois & Iowa Ecological Services
Field Office 1511 47th Ave

Moline, IL 61265-7022
(309) 757-5800

Project Summary

Project Code: 2022-0049254
Event Code: None
Project Name: Coralville Lake MP
Project Type: Recreation - Maintenance / Modification
Project Description: Master Plan documentation for USACE Coralville Lake. Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@41.7862438,-91.67835569751034,14z



Counties: Johnson and Linn Counties, Iowa

Endangered Species Act Species

There are seven threatened, endangered, or candidate species on this species list.
Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

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

---

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

MAMMALS	
NAME	STATUS
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5949	**Endangered**
Northern Long-earned Bat Myotis septenrionalis No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	**Endangered**
CLAMS	
NAME	STATUS
Higgins Eye (pearlymussel) *Lampsilis higginsii* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5428	
INSECTS	
NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Rusty Patched Bumble Bee *Bombus affinis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9383	**Endangered**
FLOWERING PLANTS	
NAME	STATUS
Eastern Prairie Fringed Orchid *Platanthera leucophaea* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/601	Threatened
Western Prairie Fringed Orchid *Platanthera praeclara* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1669	Threatened
CRITICAL HABITATS	
THERE ARE NO CRITICAL HABITATS WITHIN THE PROJECT AREA	

USFWS National Wildlife Refuge Lands and Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a "Compatibility Determination" conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

Due to your project's size, the list below may be incomplete, or the acreages reported may be inaccurate. For a full list, please contact the local U.S. Fish and Wildlife office or visit https:// www.fws.gov/wetlands/data/mapper.HTML

Freshwater Emergent Wetland: Palustrine

Lake: Lacustrine

IPaC User Contact Information

US Army Corps of Engineers, St. Louis District
Attn: Justin Garrett
1222 Spruce Street
Environmental Planning Section
St. Louis, MO 63103

DEPARTMENT OF THE ARMY
ROCK ISLAND DISTRICT, CORPS OF ENGINEERS
CORALVILLE LAKE PROJECT
2850 PRAIRIE DU CHIEN RD NE
IOWA CITY, IOWA 52240-7820

May 7, 2015

Address from Distribution List

The U.S. Army Corps of Engineers, Rock Island District, and Coralville Lake intend to revise its 1977 Master Plan (MP). We will also be reviewing the 1981 Shoreline Management Plan (SMP) concurrent, but separate, to the MP revision. The revision planning process began in March and we anticipate this will take approximately two years to complete. We look forward to working with your agency and staff during this process.

The MP is a required U.S. Army Corps of Engineers (Corps) document that conceptually establishes and guides the orderly development, administration, maintenance, preservation, enhancement, and management of all natural, cultural, and recreational resources on the Project's approximately 25,000 acres of federal public lands and associated waters at Coralville Lake.

The Shoreline Management Plan (SMP) provides guidance for the management, protection and preservation of Coralville Lake's environment, while allowing a balanced use of the shoreline. This plan is being reviewed concurrently with, but separate to, the MP. Private uses involve placing private recreational structures such as boat docks, pathways or pursuing certain activities on Corps lands (i.e. mowing) that are limited to adjacent landowner(s) or groups of individuals that are usually not available to the general public. A moratorium on the acceptance of applications for these activities will be enacted until the review process is complete.

We feel it is important to know and understand that neither the Master Plan nor the Shoreline Management Plan addresses water control, lake levels, or flood risk management. These topics are covered in other documents.

General information about master planning, fact sheets, and public input forms for the MP revision along with the currently approved plans are available at www.coralvillelake.org . This website will be updated periodically with additional information on public involvement and posting of plans for review when drafted.

We feel it's important to receive direct involvement from your agency to ensure that any interests you may have in the Coralville Lake area are considered during this process. We will keep you informed on the status of this planning effort as it progresses. Should you have any questions or concerns, my point of contact for this effort is Janet Lewis. She can be reached at [redacted] or [redacted] Please advise if you would like us to use a particular point of contact with your agency. Feel free to contact me if there is anything I can assist with at [redacted]

Sincerely,

Howard "Dee" Goldman
Coralville Lake
Operations Project Manager

SECTION 3. AGENCY RESPONSE

-----Original Message-----
From: Higginbottom, Daniel [DCA] [mailto[redacted]
Sent: Thursday, June 04, 2015 9:41 AM
To: Lewis, Janet M MVR
Cc: Ross, James S MVR; Vollman, Brant J MVR
Subject: [EXTERNAL] 150500047-COE-Multiple Counties-Coralville Lake-Revised Lake Master Plan and Shoreline Management Plan

June 4, 2015
150500047-COE-Multiple Counties-Coralville Lake-Revised Lake Master Plan and Shoreline Management Plan

Ms. Lewis:
The Iowa State Historic Preservation Office (SHPO) has received a copy of the May 7, 2015 letter sent by Mr. Howard Goldman, Operations Manager at Coralville Lake notifying us of the intended revision of the Corps' Master and Shoreline Management Plans for Coralville Lake.
We look forward to receiving and reviewing copies of both drafts.

Sincerely,
Dan Higginbottom, Archaeologist
State Historic Preservation Office
600 East Locust Street | Des Moines, Iowa 50319

SECTION 4. PUBLIC INVOLVEMENT

4.1. Representative Comments Received from the Public During Initial Scoping

Comments were submitted in writing or by email to the Coralville Lake Project Office. The Corps received 31 comment forms. The planning team considered all written and verbal comments received. Table B-1 shows the range of topics covered in the comments received.

Table B-1. Public Comments

Comment or Concern	Number of Responses
Continue maintaining horse trails	3
Additional multiuse trails	6
Desire campsites	4
Bathroom facilities	2
Additional general recreation facilities or space	6
Increase volunteer involvement	4
Alter creek flow	2
Extended hours	2
Concerns about pollution and/or littering	2
Concerns about motorized vehicles	4
Concerns about animals	1

4.2. Representative Comments Received on Comment Forms

Recreation:

- Please do not eliminate drop in/no reservation camping. Part of the spirit of RV-ing is the spontaneity. Oh! A surprise free weekend! Let's go camping! Life is so full of plan-plan-plan. Don't force that limitation on all camping sites, especially at Sandy Beach.

- There needs to be more camp sites with full hook-ups. Some of the camp sights need to be re-done with either cement or at least new gravel. Most of the gravel sites have not had any new gravel for years. You need to take more sights off the reserved list. A lot of people reserve only come for the week-end + the sights stay empty all week. Several years ago when it was first come first serve the campground was always full.

- We enjoy camping, cycling, fishing, if it is outdoors we do it. Sugar Bottom is well kept for the most part and is a safe place for families to use.

- Pro: Disc golf, hiking, camping, biking

- We are very unhappy with the change of all camping sites going to reservation only at Sugar Bottom + Coralville Dam Complex. This really restricts first come, first serve so please reconsider!

- The beach area needs to be managed better. By the time we camp for 10 days in July there is no beach – has been this way for 4 to 5 years and prior to that it was only a clay beach- there was no Sandy beach. Very disappointing.

- The Frisbee course is always in use. I feel lit should continue- children's playgrounds are essential to families who are camping. Fishing is essential and the fish cleaning station is a good idea.

- Would LOVE to see all campsites reserve-able!!

Environmental Stewardship

- A lot of the dead trees need to be removed + new plantings added.

- Keep up a robust and active invasive species monitoring and management program. Include aquatic and terrestrial species. Keep aquatic craft from spreading aquatic invasives. More wetland and prairie restoration to improve water quality and flood mitigation. Utilize natural features when possible to protect shoreline erosion and provide habitat.

- A plan to control invasive plant species – I have been trying to control especially honeysuckle on my land which is connect to Corps land but since we aren't allowed to do anything to Corps land, it makes it difficult to avoid spread of these invasive plant species. Perhaps allow landowners to help control these species? Or offer groups of volunteers.

- Love the pelicans coming through in spring and fall. Love bird watching. What about teaching classes or lectures on medicinal plants? Or trees? Or fish?

Boating:

- We need better lake boat ramp access. The private marinas do not allow public ramp use even for a fee. This policy should be changed. Upgrade of Curtis Bridge Ramp site with cement ramp would help fisherman even though lake is shallow.

- Boats and personal watercraft should not be parked around the bath houses this makes it harder for older campers to use the bath houses.

- It would be nice to have a more accessible boat ramp on the north/northeast side of the res (Sandy Beach area). It is a ramp that could be improved by making it steeper and longer; as it is now, it's limited if that water is too high or if it's too low.

- Development is beginning to surround the lake area. I want to make sure the forests and green space are preserved. I would never want to see developers able to purchase Corps land. Clean water is also a concern.

Other:

- Need to improve update re-do increase # of Bathroom/Shower facilities all over the park and keep them better maintained.

- Maybe add an ice machine next to the firewood rack. This would add safety to the park and decrease traffic in and out of the park.

SECTION 5. FOCUS GROUP MEETING

Comments were submitted in writing or by email to the Coralville Lake Project Office. The Corps received 139, 64 in person and 75 online, Focus Group comment forms. The planning team considered all written and verbal comments received. The comments received covered a range of topics as shown in Table B-2.

Table B-2. Public Comments

Comment or Concern	Number of Responses
Continue maintaining horse trails	3
Additional multiuse trails	6
Desire campsites	4
Bathroom facilities	2
Additional general recreation facilities or space	6
Increase volunteer involvement	4
Alter creek flow	2
Extended hours	2
Concerns about pollution and/or littering	2
Concerns about motorized vehicles	4
Concerns about animals	1

Recreation:

- Bike trails, particularly paved- expand, but don't destroy the natural areas to do it. Put trails through wooded, pretty places, not just along roads. More opportunities for families to explore nature and learn about it.
- Generally, I feel the land is being used well. A restaurant on the south end would be nice, but I understand and appreciate wildlife/environment preservation.

Environmental Stewardship

- Keep land/water open to hunting and fishing. Keep well maintained trails, prairies, and swimming areas. I love the well-maintained prairies. There is already a lot of forest, so having prairie is a good balance.
- Invasives- Hire KW students to remove invasive plant species on public lands and educate private landowners on the importance of tending to invasives. Subsidize removal on private land.

Other:

- I love all the open land that you maintain.
- I have long-term concerns regarding the lake being around. Silting in/low levels on the north end especially. Possibly running the level low enough to get bulldozers in. Even if it's just west of 380. Just an idea.

CORALVILLE LAKE RESERVOIR MASTER PLAN

IOWA RIVER WATERSHED
CORALVILLE, IOWA

APPENDIX C

APPLICABLE FEDERAL STATUTES

US Army Corps
of Engineers®
Rock Island District

CORALVILLE LAKE RESERVOIR MASTER PLAN

IOWA RIVER WATERSHED
CORALVILLE, IOWA

APPENDIX C

APPLICABLE FEDERAL STATUTES

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

C.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.

C.2 PL75-761, Flood Control Act of 1938. Signed into law by President Franklin D. Roosevelt and authorized the construction of certain public works engineering projects on rivers and harbors for flood control. Projects include dams, levees, dikes and other flood control measures through the United States Army Corps of Engineers and other federal agencies.

C.3 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".

C.4 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.

C.5 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.

C.6 PL85-624, Fish and Wildlife Coordination Act 1958. This act as amended in 1965 sets down the general policy that fish and wildlife conservation shall receive equal consideration with other project purposes and be coordinated with other features of water

C.7 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.

C.8 PL86-717, Forest Cover Act 1960. 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.

C.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.

C.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.

C.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.

C.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.

C.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.

C.14 PL89-665, 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.

C.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.

C.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.

C.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.

C.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.

C.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."

C.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.

C.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.

C.22 PL 93-205, Endangered Species Act of 1973. This act provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. This law requires federal agencies, in consultation with the U.S. Fish and Wildlife Service and/or the NOAA Fisheries Service, to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in

the destruction or adverse modification of designated critical habitat of such species. The law also prohibits any action that causes a "taking" of any listed species of endangered fish or wildlife.

C.23 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.

C.24 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 1percent of project funds to the Secretary with such transferred funds considered non-reimbursable project costs.

C.25 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.

C.26 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.

C.27 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.

C.28 PL96-95, Archaeological Resources Protection Act of 1979, as amended: Protects archeological resources on public and tribal lands by regulating the types of allowable archeological activities, providing for penalties against violators, and requiring archeological surveys of lands under federal control.

C.29 PL98-63, Supplemental Appropriations Act of 1983. The act authorized the Corps of Engineer 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.

C.30 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.

C.31 PL99-88, Supplemental Appropriations Act of 1985. The 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.

C.32 PL101-601, Native American Graves and Repatriation Act of 1990: Provides for the treatment, repatriation, and disposition of Native American human remains, funerary objects, sacred objects and objects of cultural patrimony excavated or discovered on Federal or tribal lands. Also provides greater protection for Native American burial sites on those lands.

C.33 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.

C.34 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.

C.35 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.

C.36 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.

C.37 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.

C.38 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.

C.39 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.

C.40 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.

C.41 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.

C.42 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.

C.43 PL113-121, The Water Resources and Development Act of 2018. Provides for the conservation and development of water and related resources and the improvement and rehabilitation of the Nation’s water resources infrastructure.

CORALVILLE LAKE RESERVOIR MASTER PLAN

IOWA RIVER WATERSHED
CORALVILLE, IOWA

APPENDIX D

ENGINEER REGULATIONS, PAMPHLETS, AND MANUALS

US Army Corps
of Engineers®
Rock Island District

CORALVILLE LAKE RESERVOIR MASTER PLAN

IOWA RIVER WATERSHED
CORALVILLE, IOWA

APPENDIX D

ENGINEER REGULATIONS, PAMPHLETS, AND MANUALS

D.1 Engineer Regulation (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

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

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

D.4 ER 1130-2-406, Shoreline Management at Civil Works Projects, 31 Oct 1990

D.5 ER 1130-2-520, Navigation and Dredging Operations and Maintenance Policies, 29 Nov 1996

D.6 ER 1130-2-550, Project Operations – Recreation Operations and Maintenance Guidance and Procedures, 15 Nov 1996 (with changes 1 Oct 1999, 1 Mar 2002, 15 Aug 2002, 30 Aug 2008, 30 Mar 2009, 30 Jan 2013, and 30 Sep 2013)

D.7 ER 1130-2-540, Environmental Stewardship Operations and Maintenance Policies, 4 Nov 2002

D.8 Engineer Pamphlet (EP) 1130-2-540, Project Operations – Environmental Stewardship and Maintenance Guidance and Procedures, 15 Nov 1996

D.9 EP 1130-2-550, Project Operations – Recreation Operations and Maintenance Guidance and Procedures, 15 Nov 1996

D.10 EP 1165-2-316, Rules and Regulations Governing Public Use of Corps of Engineers Water Resource Development Projects, 1 May 2000

D.11 Engineer Manual 1110-1-400, Engineering and Design – Recreation Facility and Customer Service Standards, 1 Nov 2004

D.12 ER 1165-2-217, Water Resource Policies and Authorities – Civil Works Review Policy, 1 May 2021.

CORALVILLE LAKE RESERVOIR MASTER PLAN

IOWA RIVER WATERSHED
CORALVILLE, IOWA

APPENDIX E

DESIGN MEMORANDUMS

US Army Corps
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Rock Island District

DESIGN MEMORANDUMS

NO.	SUBJECT	DATE
1.	Spillway – Hydraulic Design	17 September 1954
2.	Supplement No. 1 - Additional Data on Local Cooperation to DM No. 1 Mehaffey Bridge	7 December 1962
3.	Spillway – Structural Design (revised Aug 1955)	1 October 1954
4.	Service Bridge	5 October 1954
5.	Relocations – Johnson County Routes E and O	31 March 1955
6.	Relocations – Chicago, Rock Island and Pacific Railroad	5 May 1955
7.	Relocations – Utilities – Natural Gas Pipe Line	1 April 1955
8.	Relocations – Underground Telephone Cable	5 May 1955
9.	Electric Transmission Lines (Iowa Electric Light and Power Company)	24 April 1956
10.	Electric Transmission Lines (Linn County Rural Electric Cooperative Assoc.	20 July 1956
11.	Telephone Line	29 May 1957
12.	Diversion	11 May 1955
13.	General Design Memo – Lake Macbride State Park and Cottage Reserve	27 July 1955
14.	Lake Macbride State Park – Dam	23 August 1955
15.	Lake Macbride State Park – Remedial Works	19 September 1955
16.	Lake Macbride State Park – Utilities	6 January 1956
17.	Lake Macbride State Park – Roads	18 October 1955
18.	Protection for Amana, Iowa	16 December 1955
19.	Remedial Works for Chicago, Milwaukee, St. Paul and Pacific Railroad	17 January 1956
20.	Johnson County Route E at Swisher Creek	16 March 1956
21.	Reservoir Clearing	14 December 1955

22. Reservoir Clearing Supplement ..... 12 September 1957

23. Housing for Dam Tenders ..... 11 August 1955

24. Soil Erosion Control ..... 31 January 1957

25. Recreational Development ..... 2 August 1957

26. Recreational Development Supplement ..... 6 October 1958

27. Recreational Development Supplement No. 1 to Updated Master Plan – Shoreline Zoning ..... 26 February 1963

28. Master Plan (Revision 1) ..... 31 January 1964

29. Resources Master Plan (Revision 2) Vols. I & II ..... April 1977

30. Administration Building ..... 7 June 1957

31. Conservation Storage 1958

32. Real Estate Memorandum – Real Estate Requirements for Automatic Reporting Gages and Radio Telemetering Equipment ..... 17 May 1957

33. Mehaffey Bridge ..... 7 December 1962

34. Authority to Acquire Additional Land 1977

OTHER PROJECT DOCUMENTS

1. Definite Project Report Coralville Reservoir (Revised 1945, 1948)..... December 1939
2. Master Recreation Plan..... March 1950
3. Preliminary Regulation Manual ..... 30 April 1951
4. Coralville Reservoir Stage II Construction Completion Report.....1958
5. Water Control Manual.....1959
6. A Study of Flood Control Benefits and Related Recreation Benefits .....7 November 1965
   With Seasonal Changes in Seasonal Water Level Elevations
7. Johnson County Roads .....July 1975
8. Final Environmental Impact Statement for Coralville Lake ..... April 1977
   and the Downstream Area of Influence to Columbus Junction, Iowa.....
9. Real Estate Design Study 1976
10. Master Plan Study – Lake Macbride by Iowa Conservation Commission..... Rev. 1977
11. Water Control Plan.....July 1990
12. Water Control Manual..... Rev. 2001
13. Water Control Update Report with Integrated Environmental Assessment.....2021
14. Coralville Water Control Plan Update 2022

CORALVILLE LAKE RESERVOIR MASTER PLAN

IOWA RIVER WATERSHED
CORALVILLE, IOWA

APPENDIX F

MAPS

US Army Corps
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Rock Island District

CORALVILLE LAKE RESERVOIR MASTER PLAN

IOWA RIVER WATERSHED
CORALVILLE, IOWA

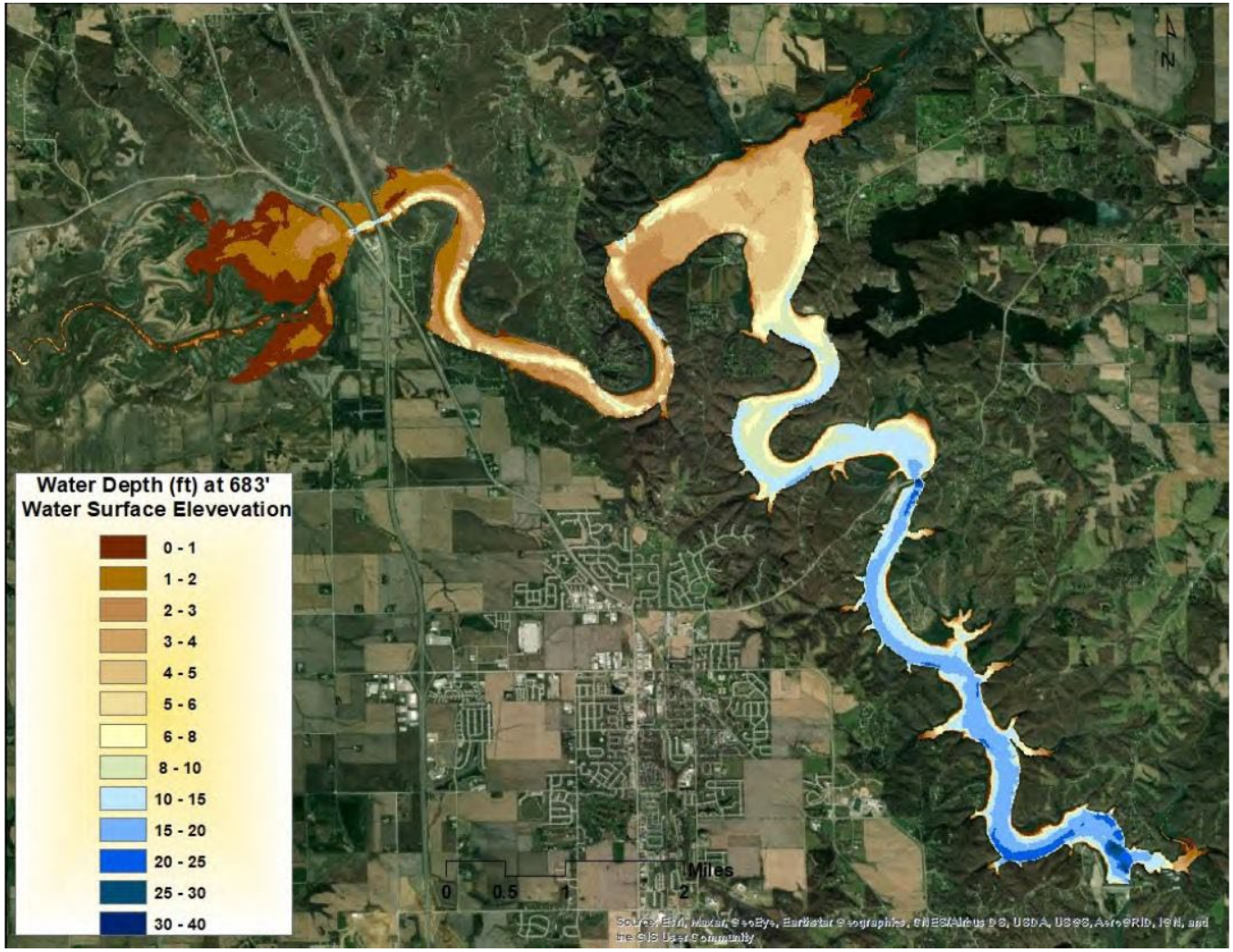
APPENDIX F

MAPS

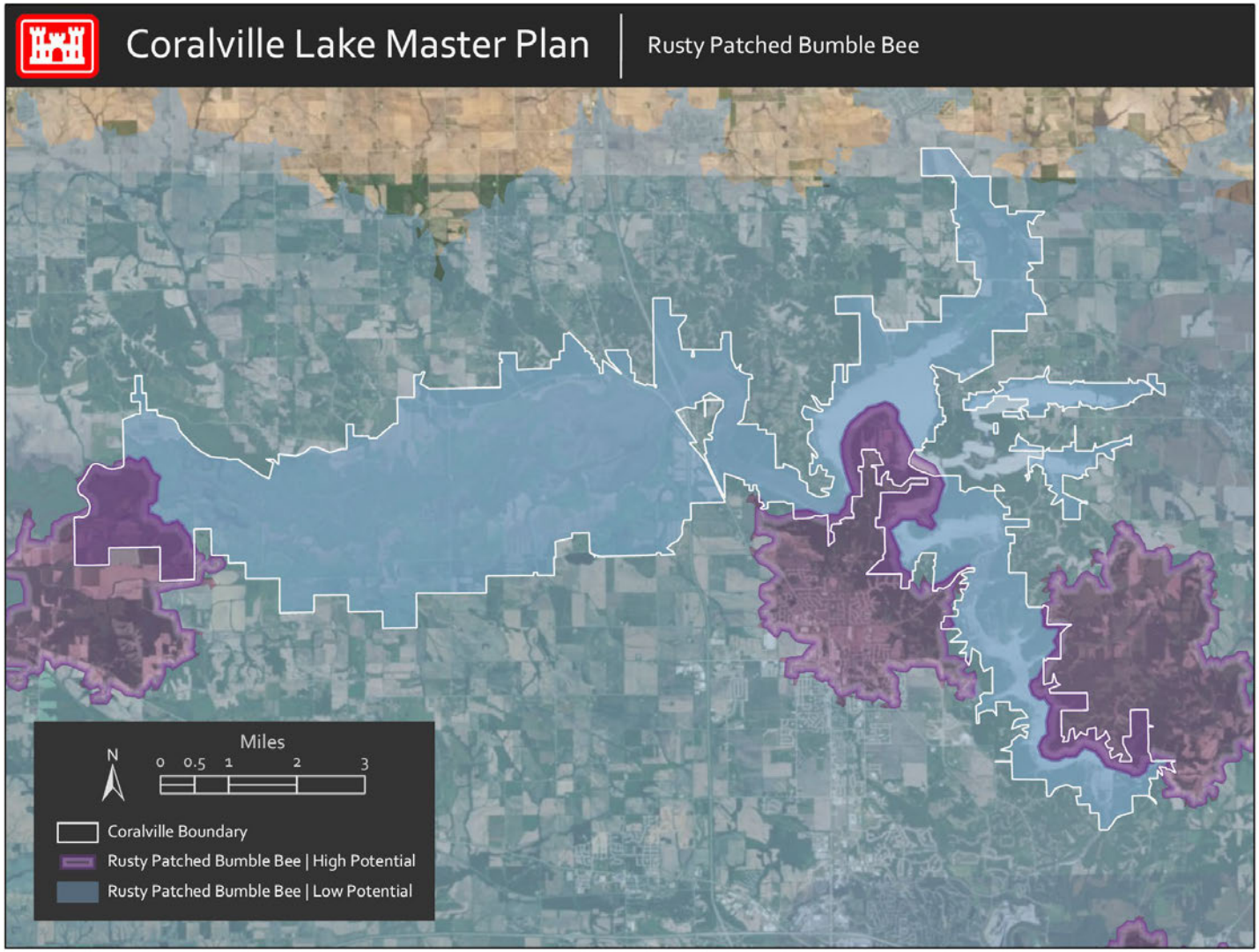
F.1. Coralville Lake Project Area

F.2 Coralville Lake Watershed

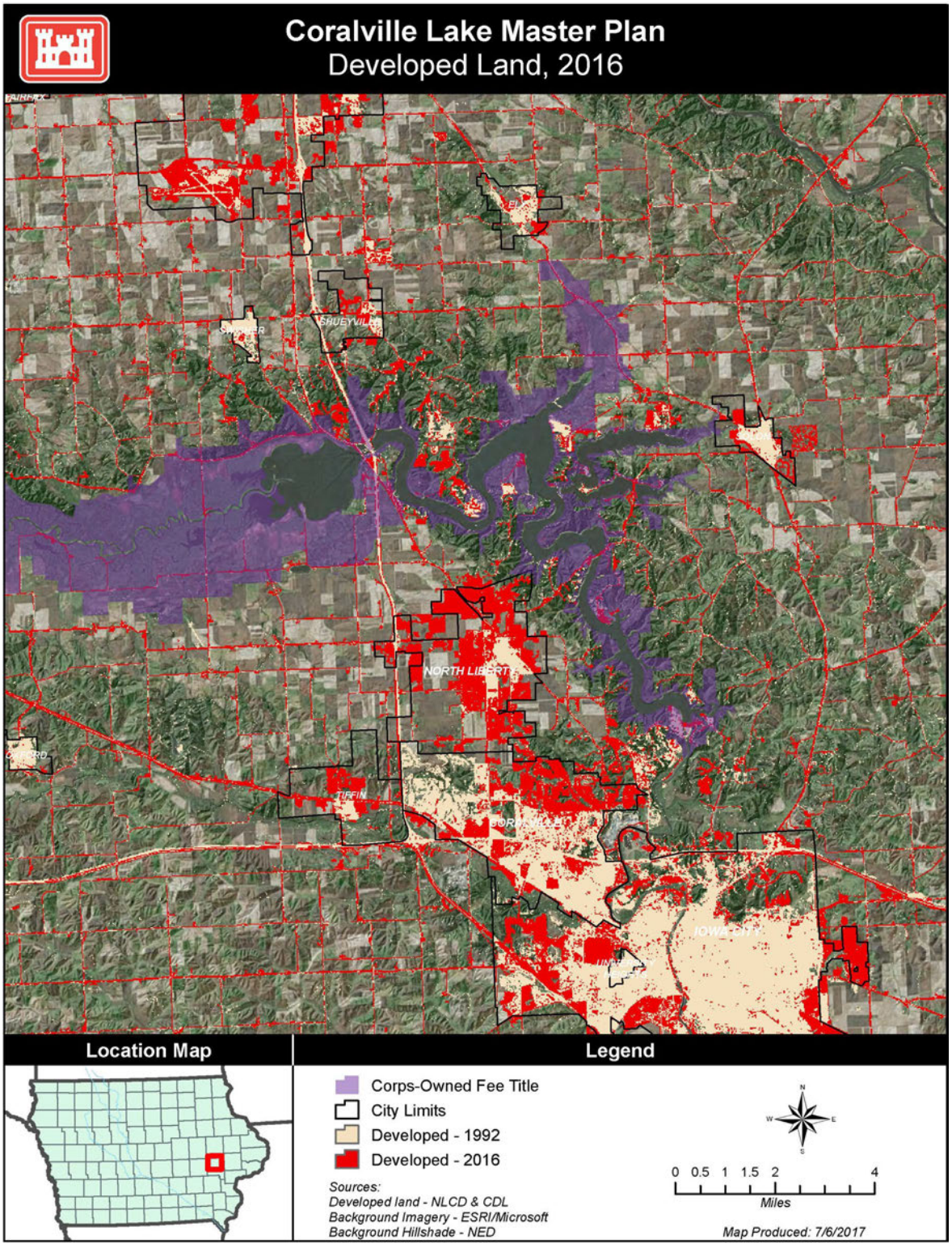
F.3 2019 Report of Sedimentation Resurvey Map (Coralville Reservoir Water Depth at Reservoir Surface Elevation 683 feet NGVD)



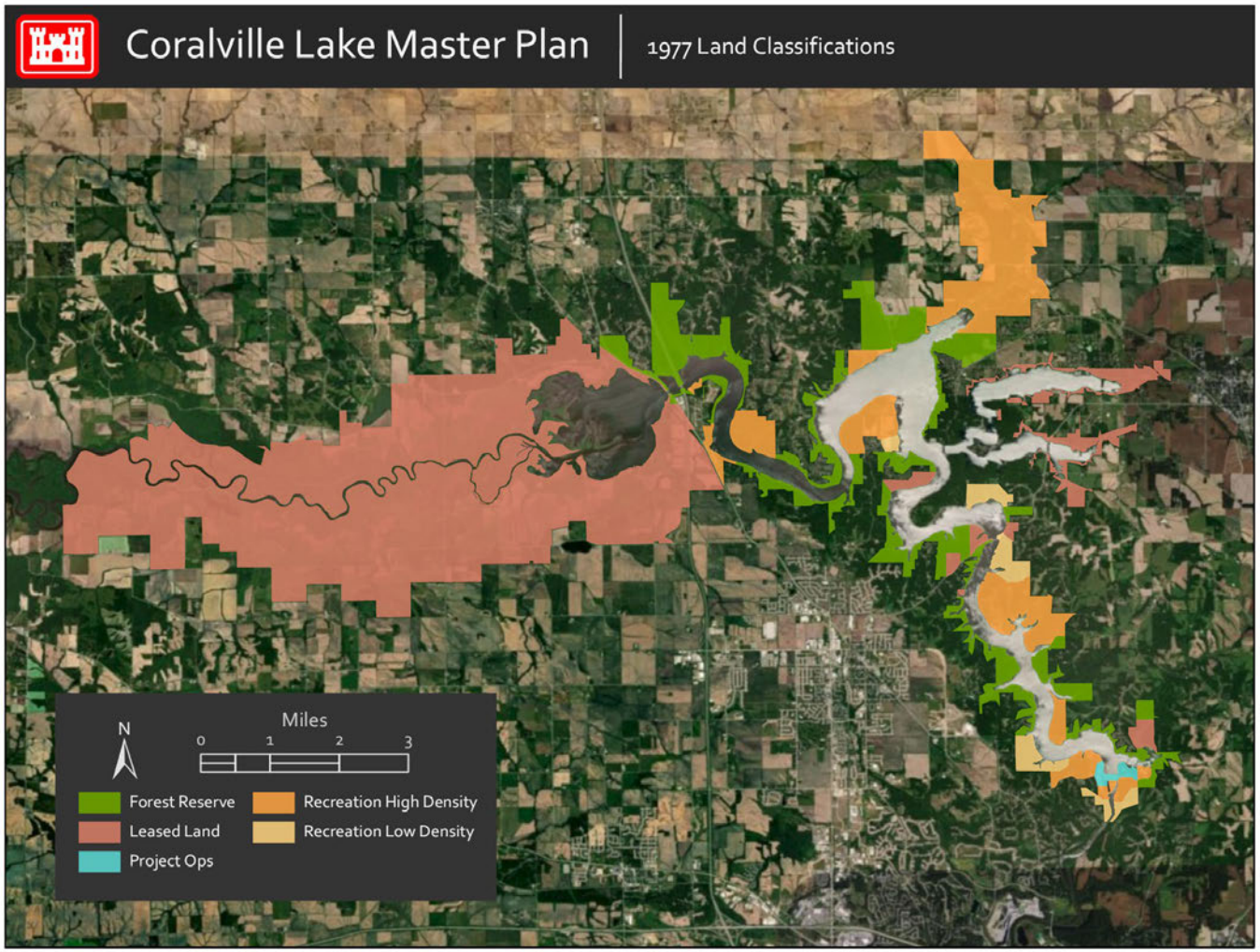
F.4 Rusty Patched Bumblebee Zones



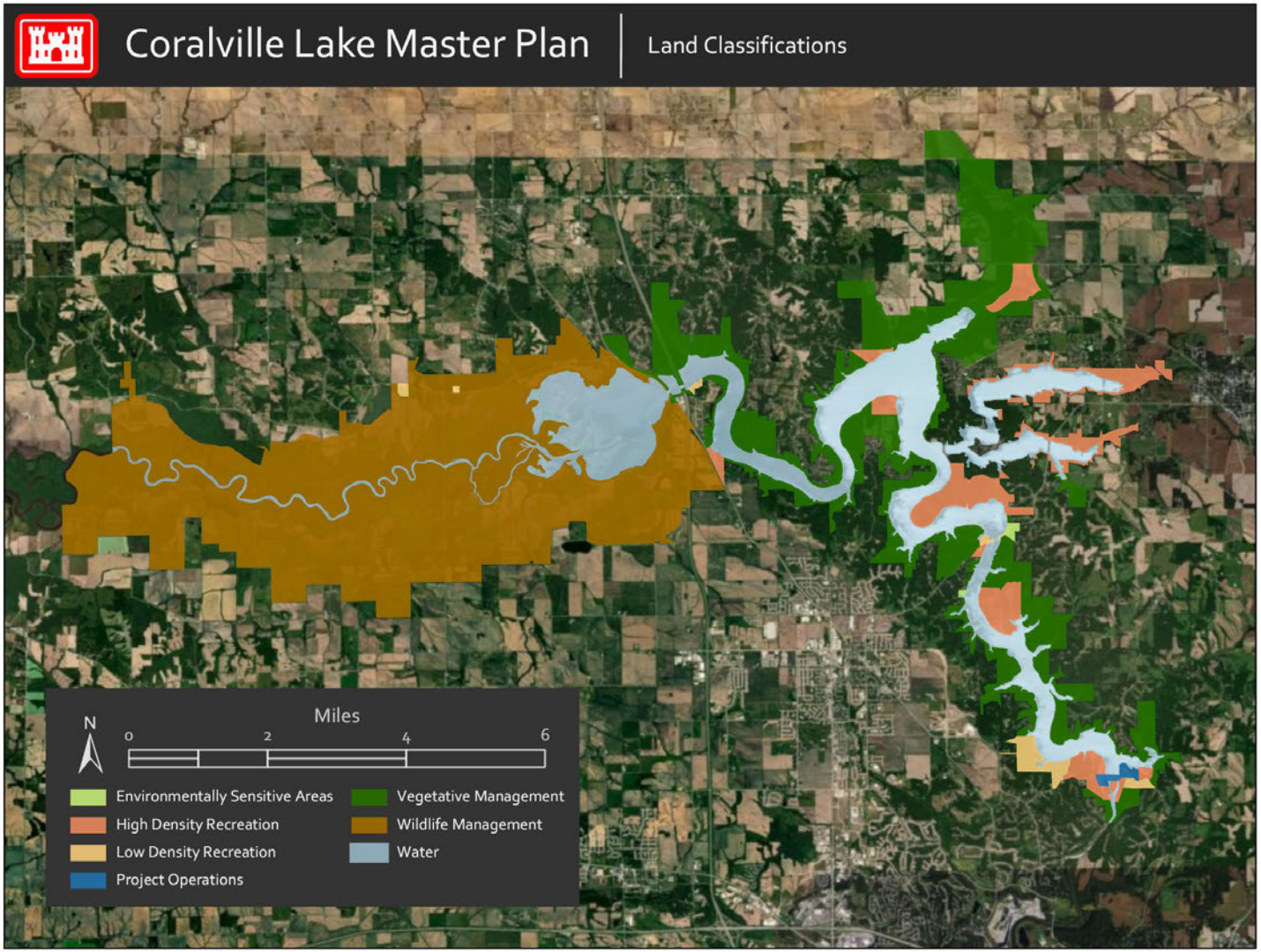
F.5 Coralville Lake Developed Land Map



F.6 Coralville Lake 1977 Land Use Classification

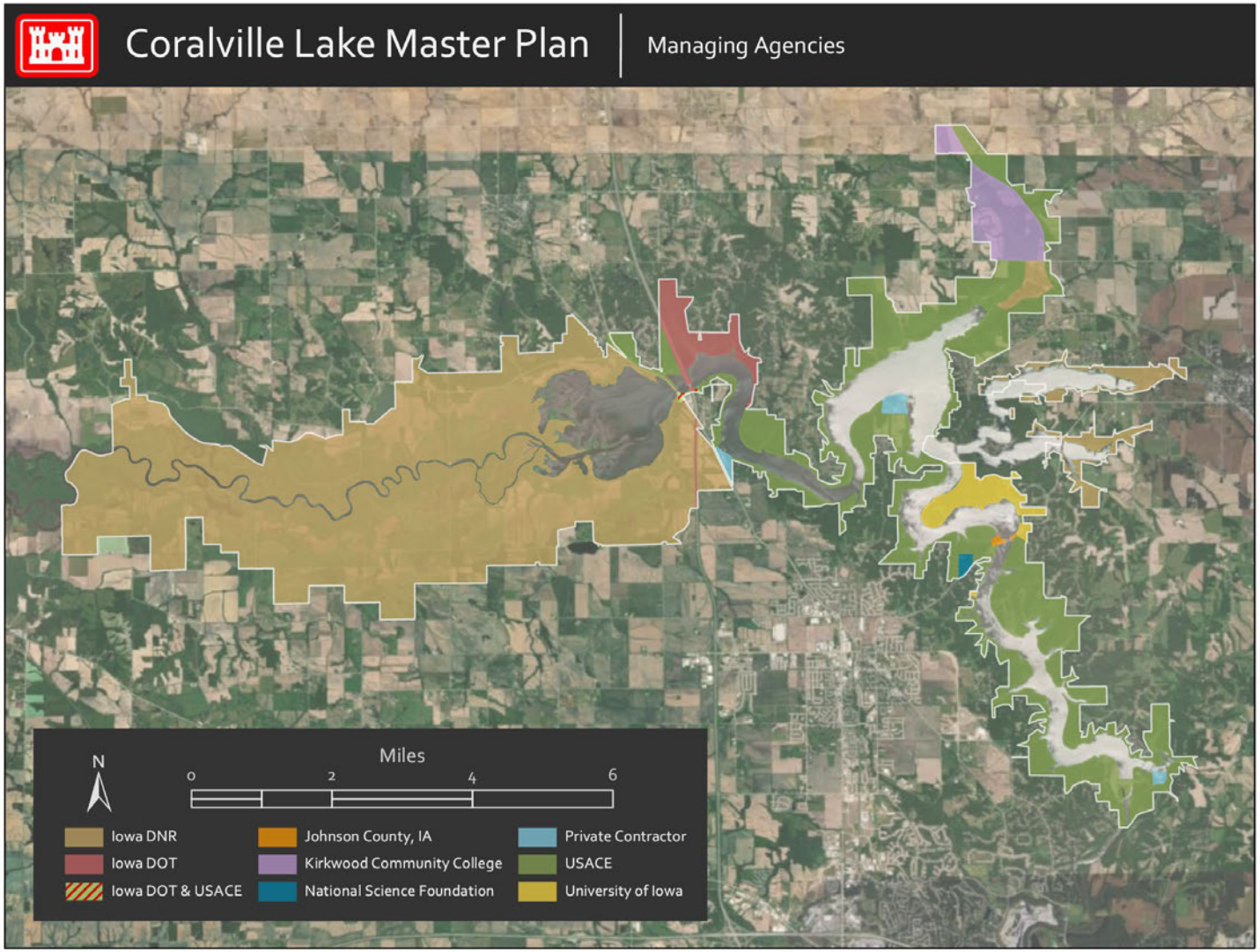


F.7 Coralville Lake Land Classification Map (2022)

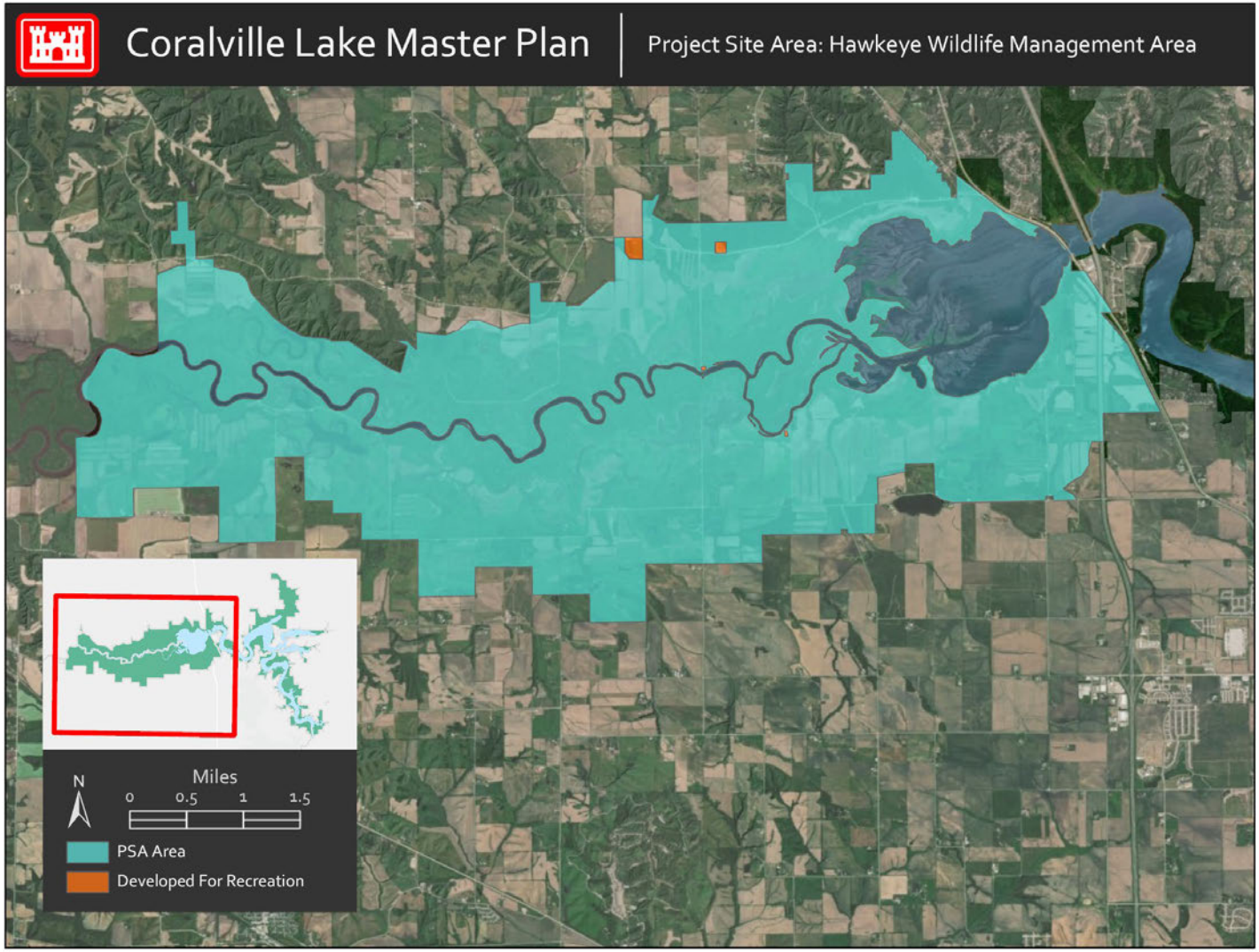


F.8 Old State Quarry and Merrill A. Stainbrook Preserve Environmentally Sensitive Areas

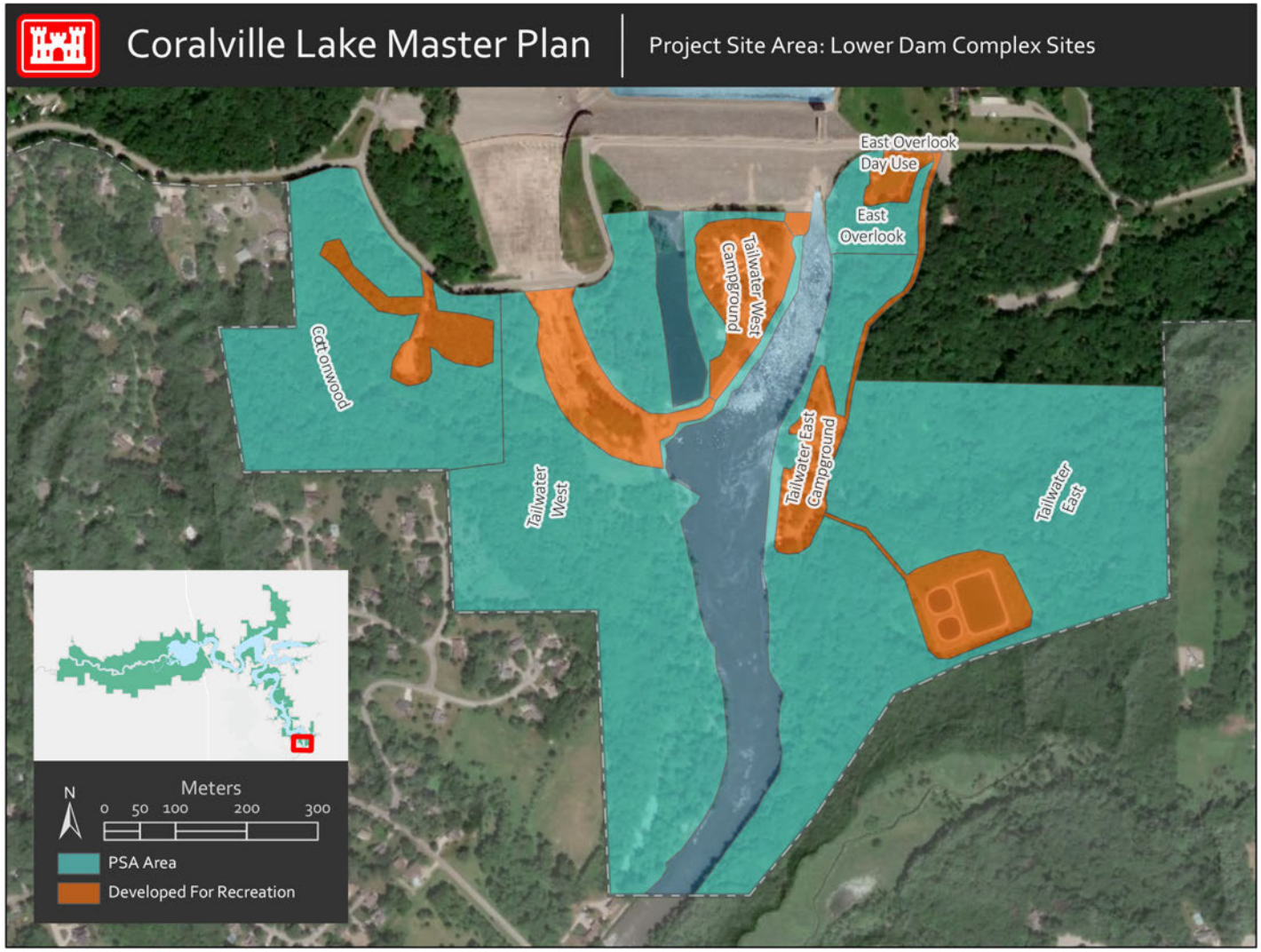
F.9 Coralville Lake Managing Agencies Maps



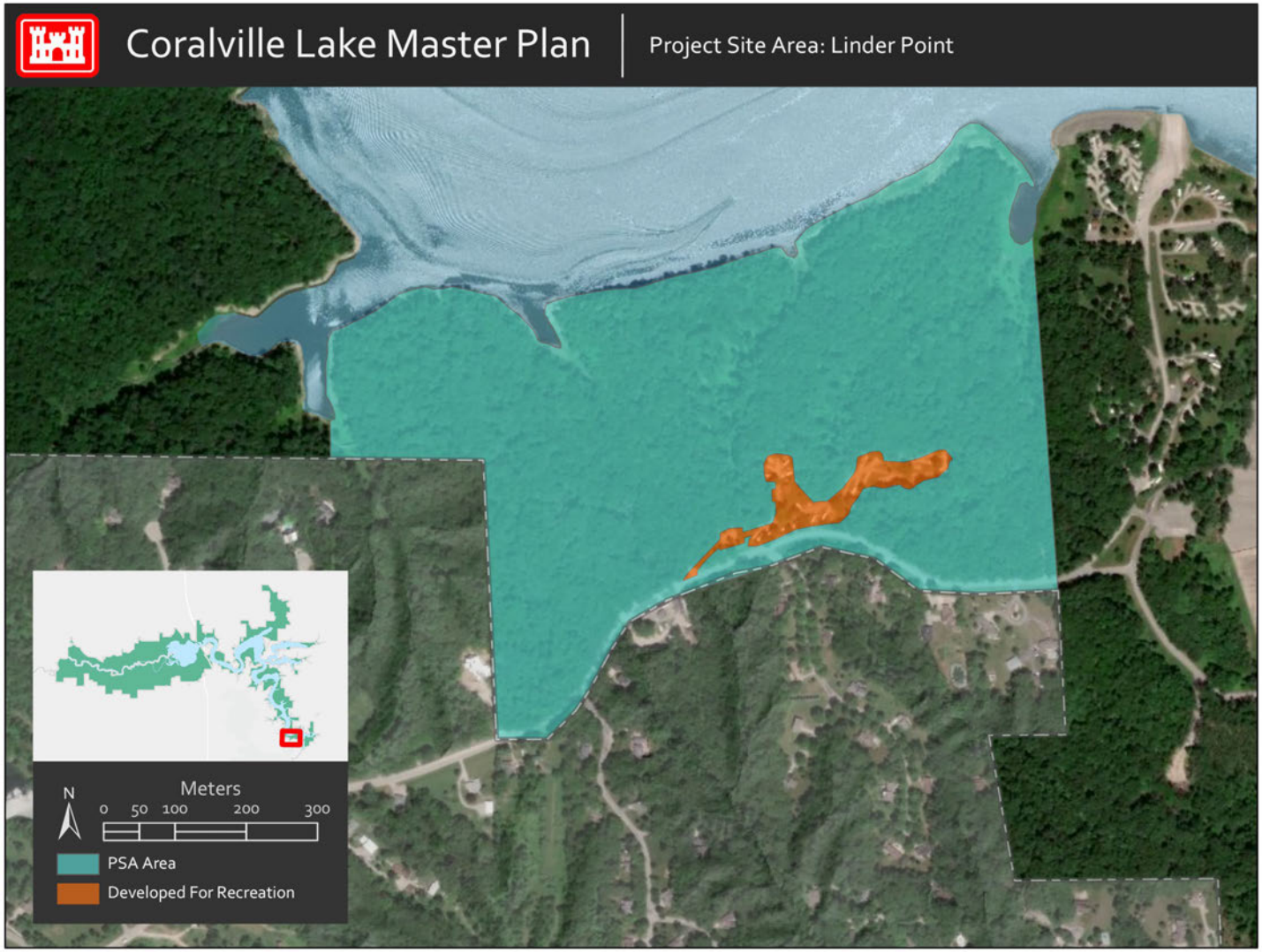
F.10 Hawkeye Wildlife Management Area



F.11 Lower Dam Complex

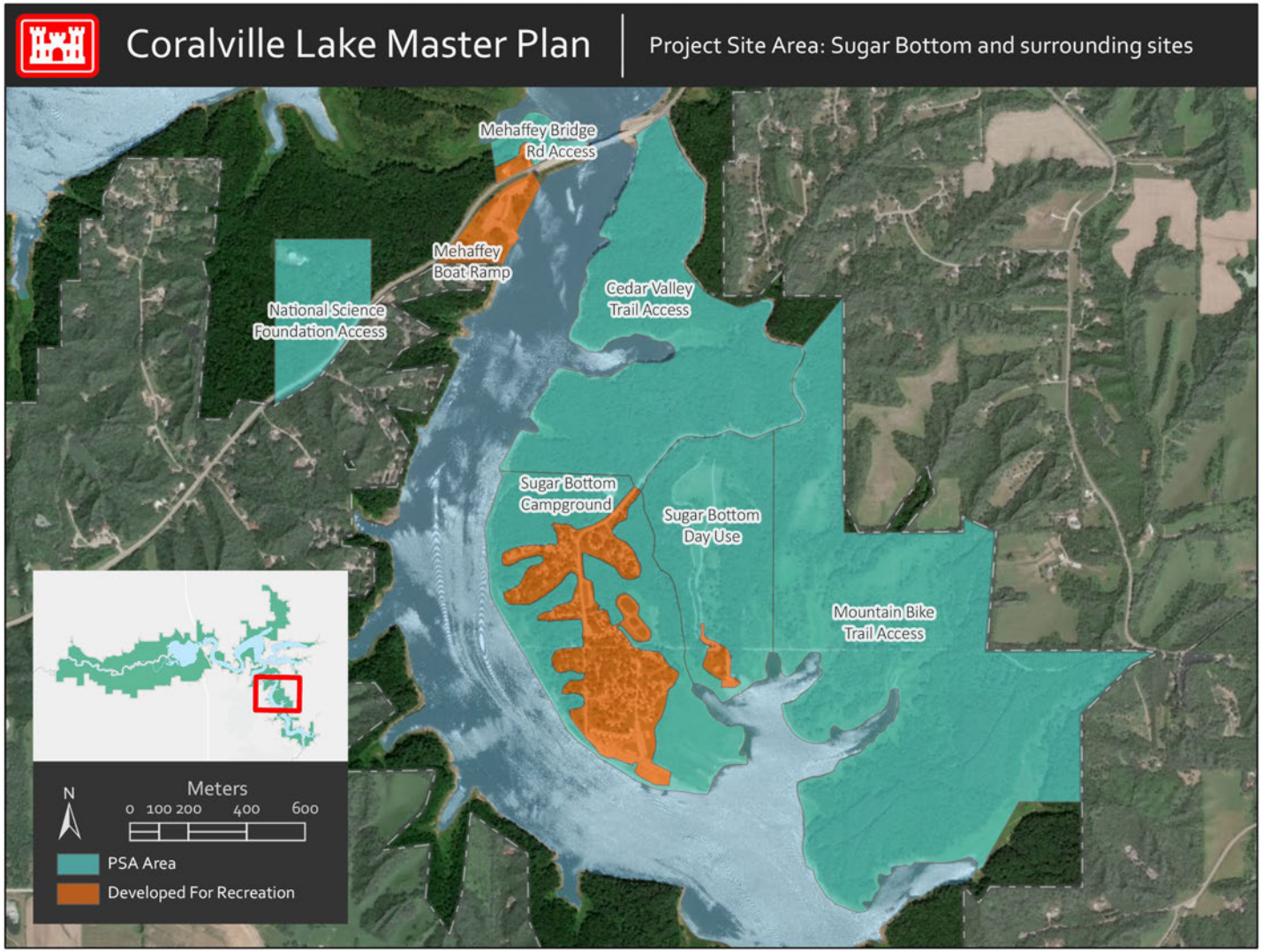


F.12 Linder Point Recreation Area



F.13 Sandy Beach Area

F.14 Sugar Bottom and Surrounding Areas



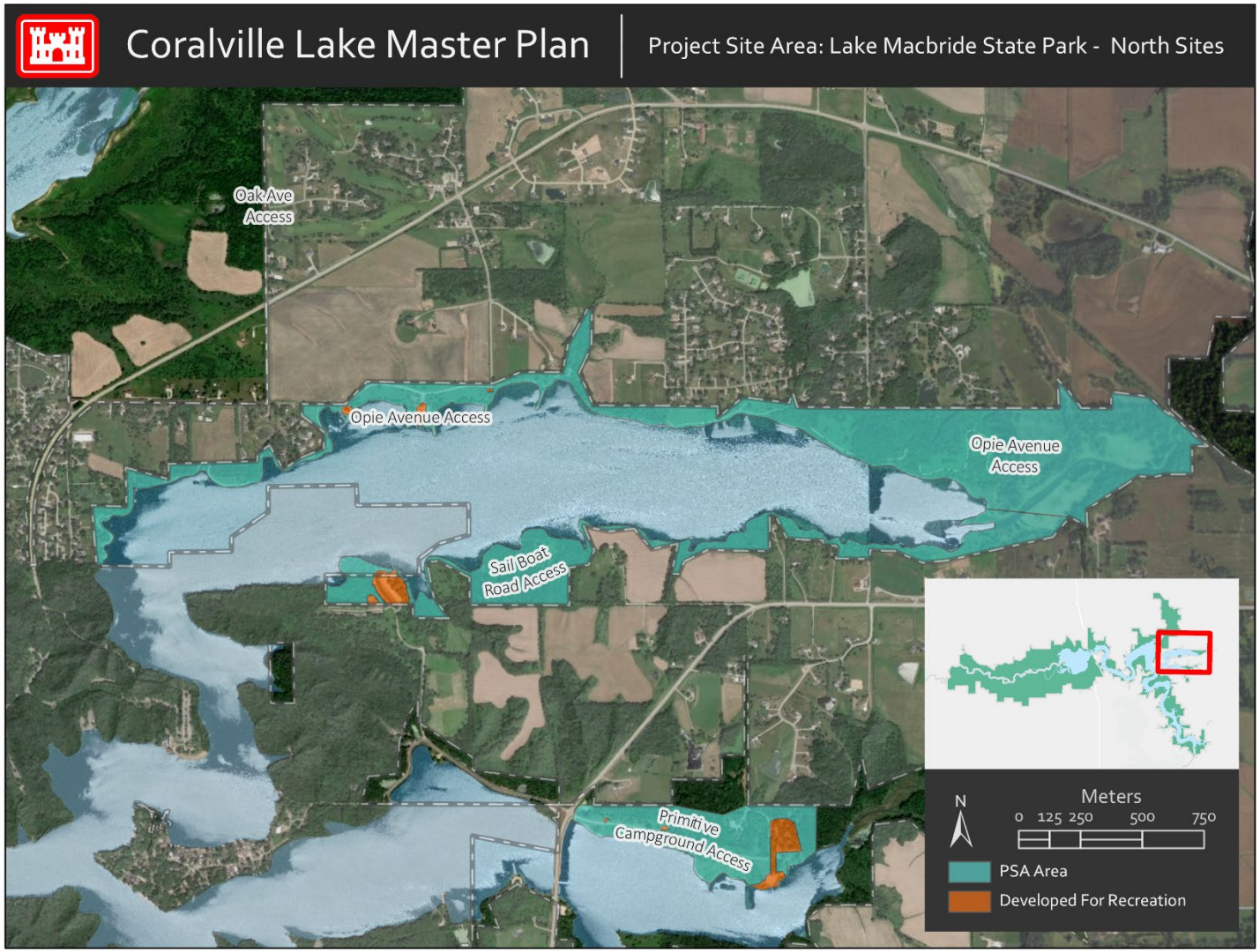
F.15 West Dam Complex

F.16 East Dam Complex

F.17 Hwy 965 Locality

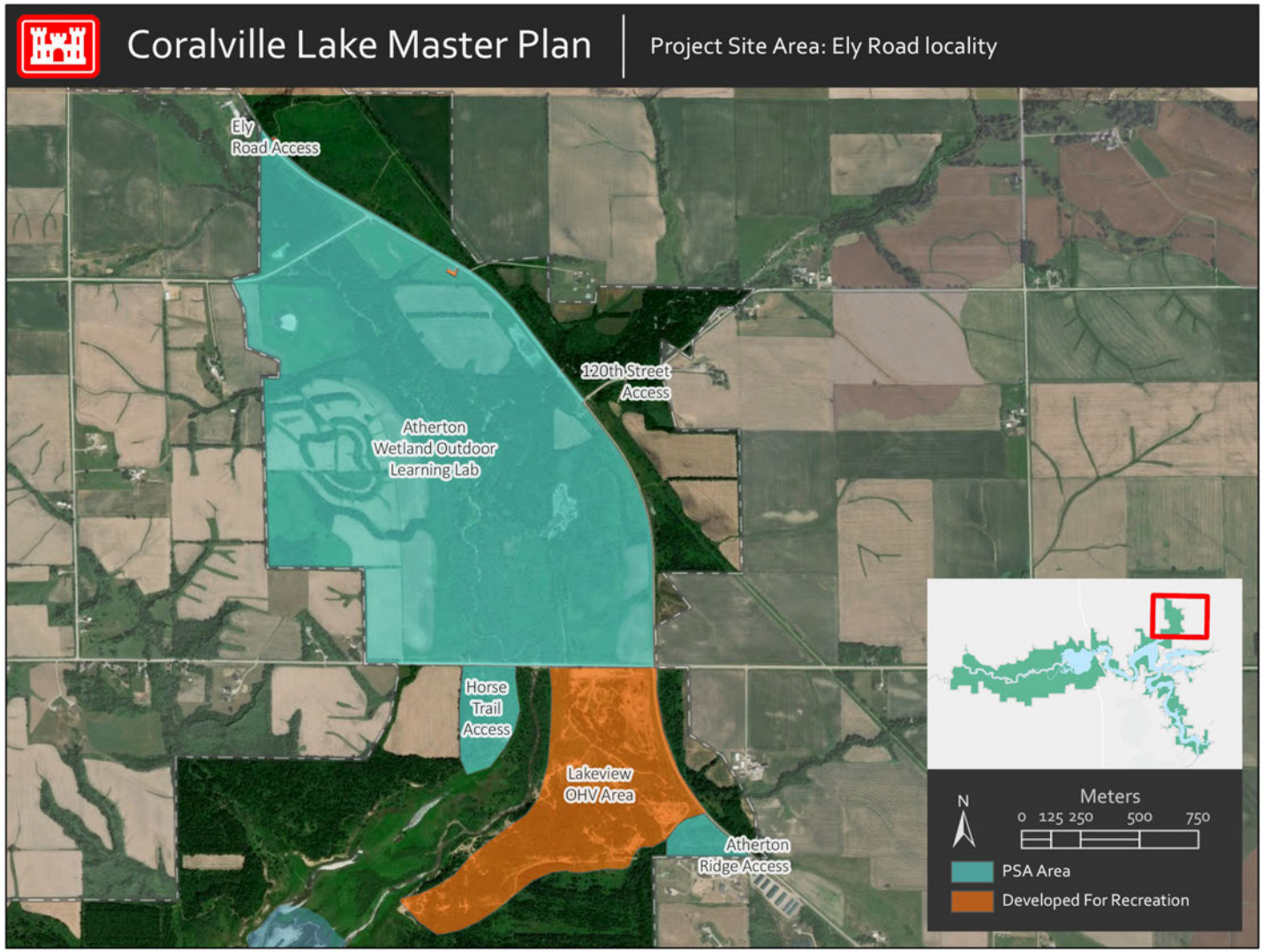
F.18 Scales Pointe

F.19 Lake Macbride State Park - North Sites

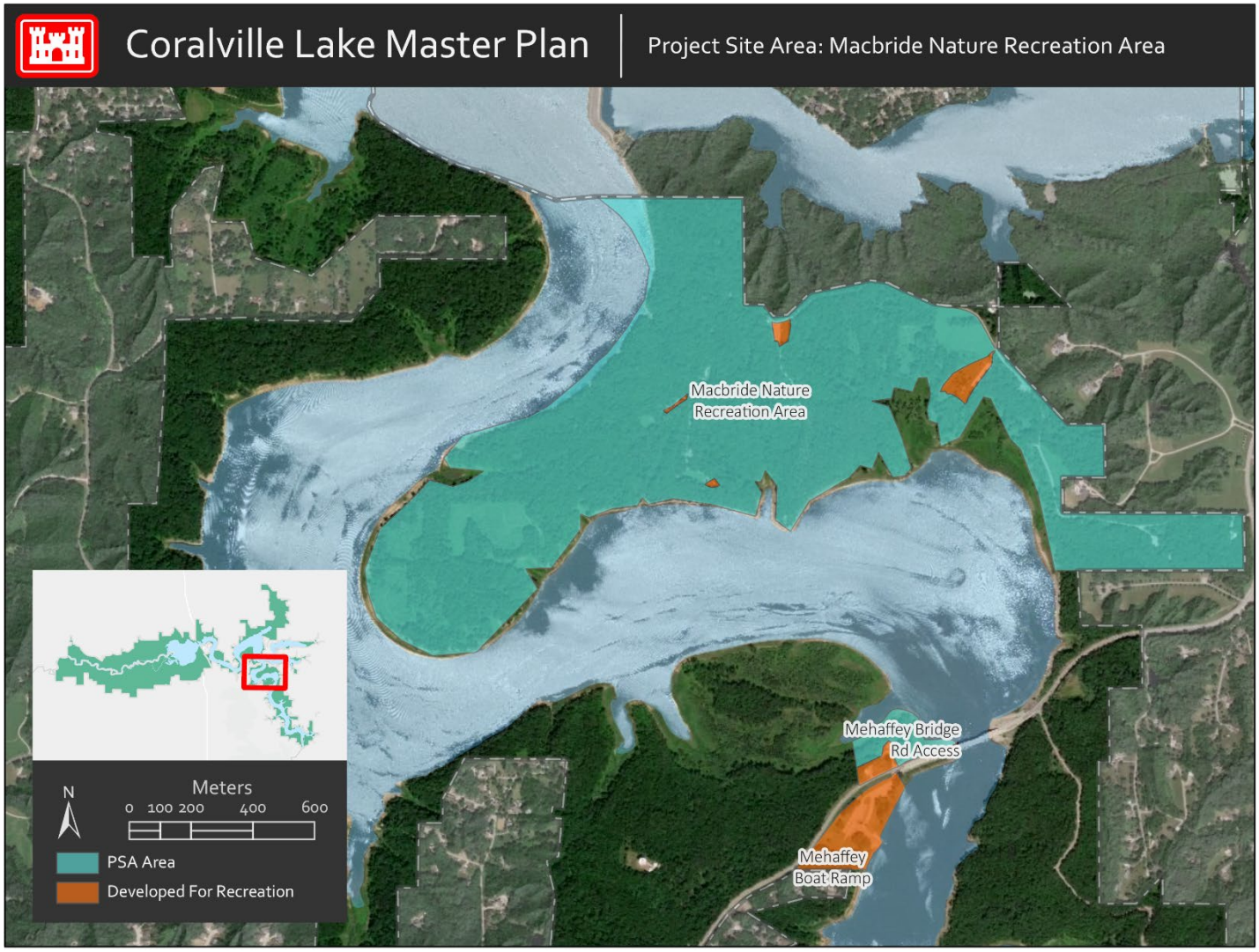


F.20 Lake Macbride State Park - South Sites

F.21 Ely Road Locality

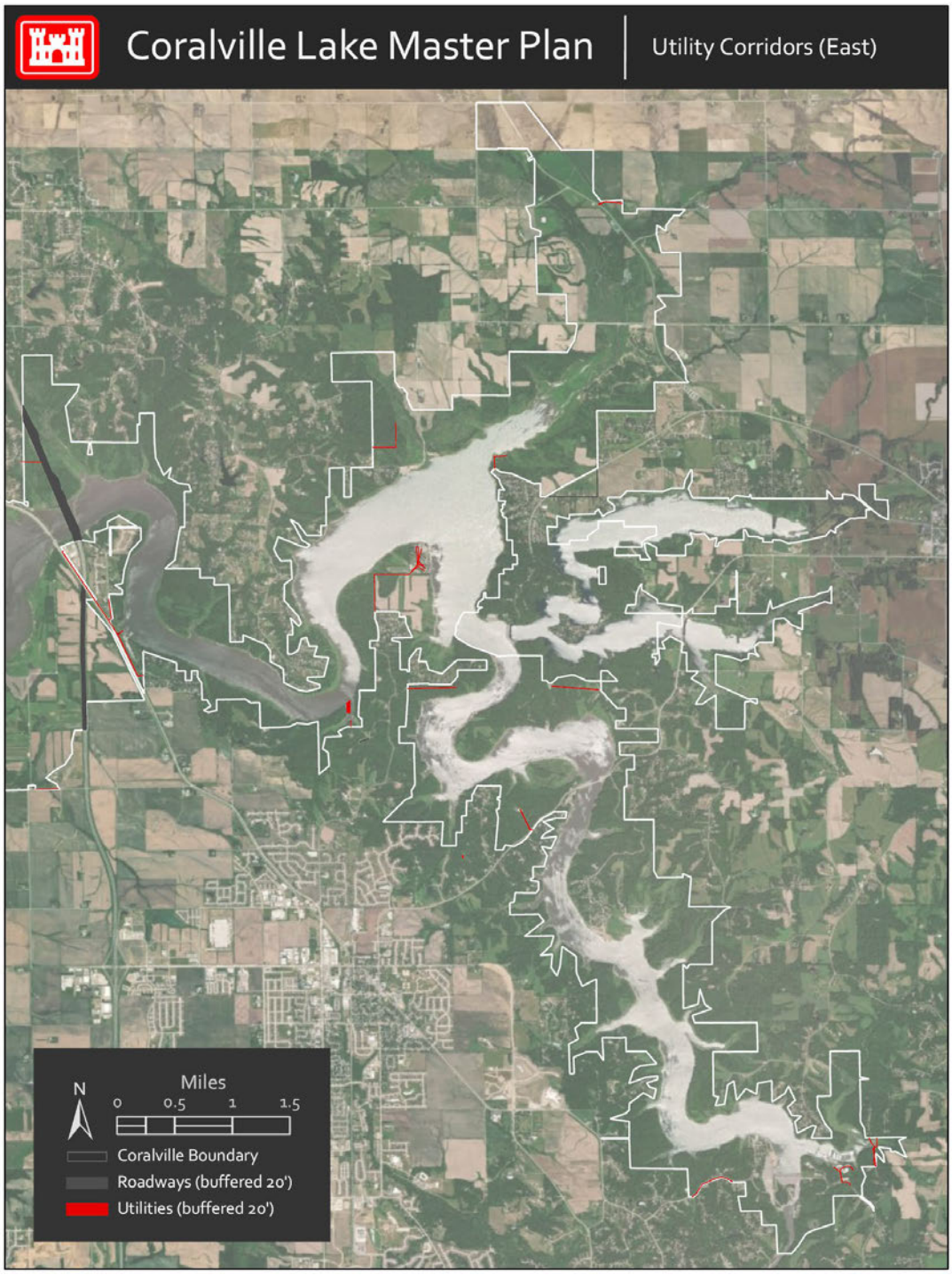


F.22 Macbride Nature Recreation Area



F.23 Coralville Lake Restricted Water Areas

F.24 Coralville Lake Utility Corridors (East)



F.25 Coralville Lake Utility Corridors (West)

CORALVILLE LAKE RESERVOIR MASTER PLAN

IOWA RIVER WATERSHED
CORALVILLE, IOWA

APPENDIX G

LISTED SPECIES IN THE STATE OF IOWA

US Army Corps
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Rock Island District

Common Name	Scientific Name	Class	State Status	Federal Status
Central Newt	*Notophthalmus viridescens*	AMPHIBIANS	T	
Bald Eagle	*Haliaeetus leucocephalus*	BIRDS	S	
Barn Owl	*Tyto alba*	BIRDS	E	
King Rail	*Rallus elegans*	BIRDS	E	
Northern Harrier	*Circus cyaneus*	BIRDS	E	
Freckled Madtom	*Noturus nocturnus*	FISH	E	
Orangethroat Darter	*Etheostoma spectabile*	FISH	T	
Butterfly	*Ellipsaria lineolata*	FRESHWATER MUSSELS	T	
Creeper	*Strophitus undulatus*	FRESHWATER MUSSELS	T	
Fat Pocketbook	*Potamilus capax*	FRESHWATER MUSSELS		E
Higgin's-eye Pearly Mussel	*Lampsilis higginsii*	FRESHWATER MUSSELS	E	E
Pistolgrip	*Tritogonia verrucosa*	FRESHWATER MUSSELS	E	
Purple Wartyback	*Cyclonaias tuberculata*	FRESHWATER MUSSELS	T	
Round Pigtoe	*Pleurobema sintoxia*	FRESHWATER MUSSELS	E	
Sheepnose	*Plethobasus cyphyus*	FRESHWATER MUSSELS	E	E
Yellow Sandshell	*Lampsilis teres*	FRESHWATER MUSSELS	E	
Byssus Skipper	*Problema byssus*	INSECTS	T	
Dion Skipper	*Euphyes dion*	INSECTS	S	
Pipevine Swallowtail	*Battus philenor*	INSECTS	S	
Purplish Copper	*Lycaena helloides*	INSECTS	S	
Rusty Patch Bumble Bee	*Bombus Affinis*	INSECTS	E	E
Northern Long-eared Bat	*Myotis septentrionalis*	MAMMALS		T
Spotted Skunk	*Spilogale putorius*	MAMMALS	E	
Cleft Phlox	*Phlox bifida*	PLANTS (DICOTS)	S	
Cream Violet	*Viola striata*	PLANTS (DICOTS)	S	
Earleaf Foxglove	*Tomanthera auriculata*	PLANTS (DICOTS)	S	
Fineberry Hawthorn	*Crataegus chrysocarpa*	PLANTS (DICOTS)	S	
Frost Grape	*Vitis vulpina*	PLANTS (DICOTS)	S	
Hedge Nettle	*Stachys aspera*	PLANTS (DICOTS)	S	

Common Name	Scientific Name	Class	State Status	Federal Status
Hill's Thistle	*Cirsium hillii*	PLANTS (DICOTS)	S	
Hortulan Plum	*Prunus hortulana*	PLANTS (DICOTS)	S	
Humped Bladderwort	*Utricularia gibba*	PLANTS (DICOTS)	S	
Lance-leaved Violet	*Viola lanceolata*	PLANTS (DICOTS)	S	
Limestone Rockcress	*Arabis divaricarpa*	PLANTS (DICOTS)	S	
Low Hairy Ground-cherry	*Physalis pubescens*	PLANTS (DICOTS)	S	
Muskroot	*Adoxa moschatellina*	PLANTS (DICOTS)	S	
Pearly Everlasting	*Anaphalis margaritacea*	PLANTS (DICOTS)	S	
Pinesap	*Monotropa hypopithys*	PLANTS (DICOTS)	T	
Pink Milkwort	*Polygala incarnata*	PLANTS (DICOTS)	T	
Purple Cress	*Cardamine douglassii*	PLANTS (DICOTS)	S	
Ricebutton Aster	*Aster dumosus*	PLANTS (DICOTS)	E	
Sage Willow	*Salix candida*	PLANTS (DICOTS)	S	
Saskatoon Service-berry	*Amelanchier alnifolia*	PLANTS (DICOTS)	S	
Slender Copperleaf	*Acalypha gracilens*	PLANTS (DICOTS)	S	
Smooth Black-haw	*Viburnum prunifolium*	PLANTS (DICOTS)	S	
Spring Avens	*Geum vernum*	PLANTS (DICOTS)	S	
St. John's Wort	*Hypericum canadense*	PLANTS (DICOTS)	S	
Toothcup	*Rotala ramosior*	PLANTS (DICOTS)	S	
Water Shield	*Brasenia schreberi*	PLANTS (DICOTS)	S	
Water Starwort	*Callitriche heterophylla*	PLANTS (DICOTS)	S	
Waxleaf Meadowrue	*Thalictrum revolutum*	PLANTS (DICOTS)	E	
Winged Monkey Flower	*Mimulus alatus*	PLANTS (DICOTS)	T	
Wooly Milkweed	*Asclepias lanuginosa*	PLANTS (DICOTS)	T	
Bur-reed	*Sparganium androcladum*	PLANTS (MONOCOTS)	S	
Bush's Sedge	*Carex bushii*	PLANTS (MONOCOTS)	S	
Capitate Spikerush	*Eleocharis olivacea*	PLANTS (MONOCOTS)	S	
Chapman Bluegrass	*Poa chapmaniana*	PLANTS (MONOCOTS)	S	
Crawe Sedge	*Carex crawei*	PLANTS (MONOCOTS)	S	

Common Name	Scientific Name	Class	State Status	Federal Status
Eastern Prairie Fringed Orchid	*Platanthera leucophaea*	PLANTS (MONOCOTS)	E	T
Field Sedge	*Carex conoidea*	PLANTS (MONOCOTS)	S	
Glomerate Sedge	*Carex aggregata*	PLANTS (MONOCOTS)	S	
Grass Pink	*Calopogon oklahomensis*	PLANTS (MONOCOTS)	S	
Grassleaf Rush	*Juncus marginatus*	PLANTS (MONOCOTS)	S	
Great Plains Ladies'-tresses	*Spiranthes magnicamporum*	PLANTS (MONOCOTS)	S	
Green Adder's Mouth	*Malaxis unifolia*	PLANTS (MONOCOTS)	S	
Minute Duckweed	*Lemna perpusilla*	PLANTS (MONOCOTS)	S	
Oval Ladies'-tresses	*Spiranthes ovalis*	PLANTS (MONOCOTS)	T	
Pale Green Orchid	*Platanthera flava*	PLANTS (MONOCOTS)	E	
Shallow Sedge	*Carex lurida*	PLANTS (MONOCOTS)	S	
Showy Lady's Slipper	*Cypripedium reginae*	PLANTS (MONOCOTS)	T	
Slender Fimbry	*Fimbristylis autumnalis*	PLANTS (MONOCOTS)	S	
Slender Ladies'-tresses	*Spiranthes lacera*	PLANTS (MONOCOTS)	T	
Slim-leaved Panic Grass	*Dichanthelium linearifolium*	PLANTS (MONOCOTS)	T	
Tall Cotton Grass	*Eriophorum angustifolium*	PLANTS (MONOCOTS)	S	
Wolf Spike-rush	*Eleocharis wolfii*	PLANTS (MONOCOTS)	S	
Crowfoot Clubmoss	*Lycopodium digitatum*	PLANTS	S	
Ground Pine	*Lycopodium clavatum*	PLANTS	E	
Ledge Spikemoss	*Selaginella rupestris*	PLANTS	S	
Limestone Oak Fern	*Gymnocarpium robertianum*	PLANTS	S	
Northern Adder's-tongue	*Ophioglossum pusillum*	PLANTS	S	
Oak Fern	*Gymnocarpium dryopteris*	PLANTS	T	
Blanding's Turtle	*Emydoidea blandingii*	REPTILES	T	
Bullsnake	*Pituophis catenifer sayi*	REPTILES	S	
Common Musk Turtle	*Sternotherus odoratus*	REPTILES	T	
Eastern Massasauga	*Sistrurus catenatus*	REPTILES	E	T
Ornate Box Turtle	*Terrapene ornata*	REPTILES	T	
Smooth Green Snake	*Liochlorophis vernalis*	REPTILES	S	

CORALVILLE LAKE RESERVOIR MASTER PLAN

IOWA RIVER WATERSHED
CORALVILLE, IOWA

APPENDIX H

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