SAYLORVILLE LAKE MASTER PLAN

DES MOINES RIVER WATERSHED
JOHNSTON, IOWA

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APPENDIX A

ENVIRONMENTAL ASSESSMENT

1.0. PURPOSE OF AND NEED FOR ACTION

1.1. Proposal for Federal Action. The District proposes to adopt and implement a revision of the Saylorville Lake Master Plan. The Master Plan applies changes to the land and water classifications, most notably the addition of sensitive area and water surface classifications. The Master Plan also lays out future recommendations for management of both recreation and natural resources. Saylorville Lake is located in central Iowa, with managed lands and waters spreading across three counties, Polk, Dallas, and Boone. Saylorville Lake is a reservoir on the Des Moines River, 11 miles north and upriver from Des Moines (figure EA-1).

1.2. Need for Proposed Action. The Master Plan is a vital tool for the responsible stewardship of resources at Saylorville Lake to benefit present and future generations. The Plan provides guidance and includes direction for appropriate management, use, development, enhancement, protection, and conservation of the natural, cultural, and man-made resources at Saylorville Lake.

Rapid urbanization and population growth have resulted in changes to land use in the region and around Saylorville Lake (figure EA-2). 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 use of the sensitive area classification, water surface zoning and recommended upgrades to recreation facilities. The Master Plan seeks to replace the 1984 Master Plan and provide a balanced, up-to-date management plan that follows current Federal laws and regulations while sustaining Saylorville Lake's natural resources and providing outdoor recreational experiences.

1.3. Background. The Corps is responsible for the maintenance, restoration, and stewardship of natural resources on the flood control projects it manages. To facilitate the management and use of these lands the District maintains a Master Plan for the reservoir project. The original Master Plan for Saylorville Lake was approved in February of 1974, with a revision completed in September of 1984, and was intended to serve as a guide for the orderly and coordinated development and management of all land and water resources of Saylorville Lake. The Master Plan provides a programmatic approach to the management of all of the lands included within the Saylorville Lake boundary. Therefore, for the purposes of this Environmental Assessment, the project area includes all of the area within the reservoir boundary. The Saylorville Lake project has 25,515 acres of land and water, including 14,015 acres managed by Iowa DNR and 1,769 acres managed by Boone and Polk County Conservation Boards. These lands are managed under a lease agreement from the District to facilitate stewardship and expand outdoor recreation opportunities.

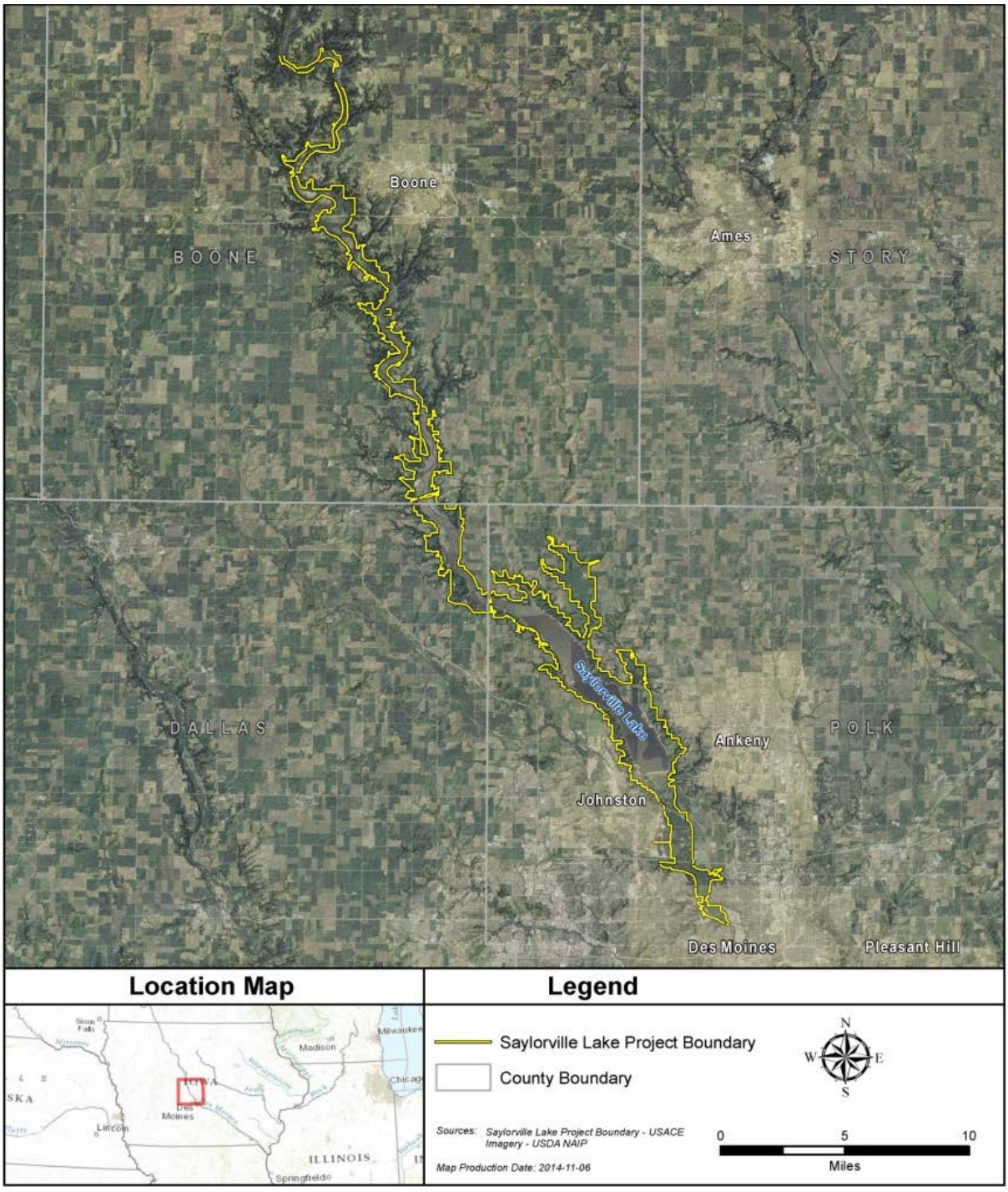

Figure EA-1. Saylorville Master Plan Project Area Map

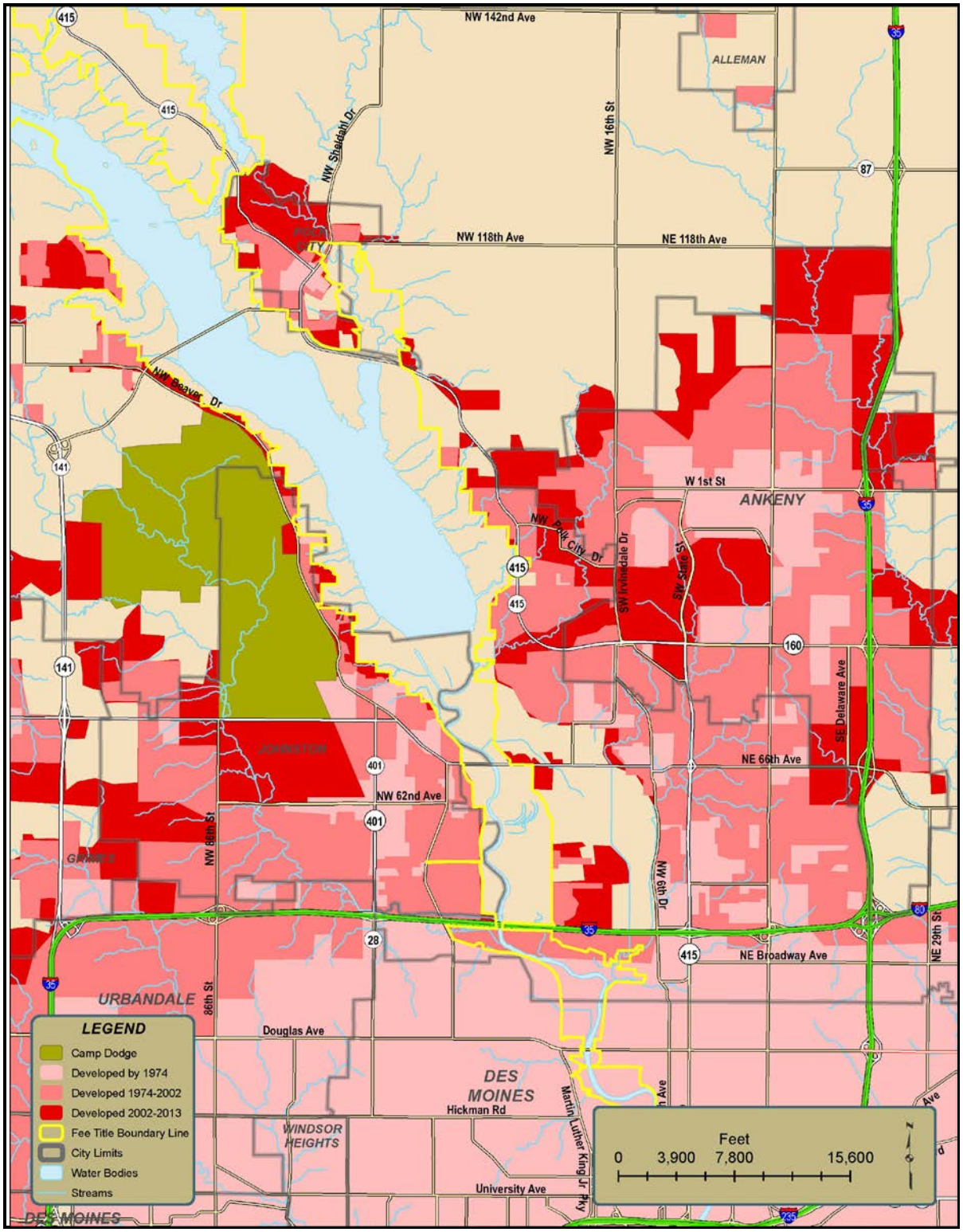

Figure EA-2. Changes in Land Use in the Saylorville Region

The 1984 Master Plan focused on construction and development of recreation areas and is now over 30 years old. This Master Plan will present current data on existing conditions, anticipated recreational use, type of facilities needed to service the anticipated use, and an estimate of future needs. Over the last 30 years, many of the construction projects have either been completed or have been found to not be the best use of project resources. Over that time, the Corps has also updated its policies directing the development and implementation of Master Plans. **This includes updating the categories of Land Classifications** used to define project lands. In order to meet these new directives and comply with Corps policy requiring regular updates to a Master Plan, the District proposes to adopt the Master Plan at Saylorville Lake.

This EA addresses the proposed adoption and implementation of the Master Plan for Saylorville Lake. This EA further analyzes the potential impact that implementing the Master Plan would have on the natural, cultural, and human environment. This document has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended; regulations of the Council on Environmental Quality (CEQ, 2005); and Corps regulations, including Engineer Regulation 200-2-2 (USACE, 1988), *Procedures for Implementing NEPA*. This EA relies on the attached Saylorville Lake Master Plan for cross reference.

The typical focus of NEPA compliance consists of environmental impact assessments for individual projects, rather than for long-range plans. However, application of NEPA to earlier and more strategic decisions not only meets the CEQ implementing regulations (CEQ, 2005) and Corps regulations for implementing NEPA (USACE, 1988), but also allows the Corps to begin considering the environmental consequences of their actions long before any physical activity is planned. Multiple benefits can be derived from such early consideration. Effective and early NEPA integration with the master planning process can significantly increase the usefulness of the Master Plan to the decision maker, if environmental information can be provided to the correct individuals at the right time and in the right form. If such utility can be realized, organizational outcomes, such as support for the project mission and NEPA compliance can be improved.

Environmental documents prepared concurrently with the Master Plan can influence and modify strategic land use decisions, whereas environmental documents prepared after the Master Plan would have little influence on strategic decisions already made. The intention of the Master Plan is to develop land classifications that will guide the sustainable development of resources within the Saylorville Lake Project. It is not feasible to define the exact nature of potential impacts for all potential actions prior to receiving specific project proposals. Therefore, environmental consequences may be less than or may, in fact, exceed what is described in this EA. To ensure future environmental consequences are identified and documented as accurately as possible, additional NEPA coordination will be conducted, as appropriate, for future projects that are the result of this proposed Master Plan.

1.4. Proposed Action Objectives. The goals of the proposed Master Plan are to provide for the responsible stewardship of resources at Saylorville Lake to benefit present and future generations. The Master Plan provides guidance and includes direction for appropriate management, use, development, enhancement, protection, and conservation of the natural, cultural, and man-made resources at Saylorville Lake based on regional and local needs, resource capability and suitability, and expressed public interests consistent with authorized project purposes and pertinent legislation and regulations.

To meet these goals, the Corps objectives for the proposed Master Plan are to:

- Comply with Engineer Regulation (USACE, 2013) 1130-2-550 Project Operations-Recreation Operations and Maintenance Guidance and Procedures which was last updated on January 30, 2013;
- Provide District-level policy consistent with national objectives and other state and regional goals and programs;
- Use the Master Plan to complete and keep current the Operational Management Plan (OMP), which provides detailed management and administrative functions;
- Identify conceptual types and levels of activities for future recommended use and management;
- Provide consistency to all actions proposed on Federal lands by the Corps, agencies, and individuals granted leases to Corps managed lands (out-grantees); and
- Ensure the Corps' Environmental Operating Principles (USACE, 2003) to manage, conserve, and improve environmental, cultural, and archeological resources at Corps' reservoir projects are achieved.

The objectives above are specific to master planning. Refer to Chapter 3 of the Master Plan for management goals pertaining to environmental stewardship and recreation resources.

1.5. Related National Environmental Policy Act (NEPA) Documentation. The Environmental Assessment titled *Revised Saylorville Lake Master Plan Including Preliminary Section 404(b)(1) Evaluation, Polk, Dallas, and Boone Counties, Iowa, October 1983*, addressed impacts of the District's 1984 Master Plan revision, which recommended construction of new recreation facilities and upgrading existing facilities.

The Environmental Impact Statement (EIS) titled *Saylorville Lake Flood Control Project, Des Moines River, Iowa, July 1973*. The EIS proposed to continue construction of the Saylorville Lake multi-purpose project for flood control (now termed flood risk management), low-flow augmentation, fish and wildlife management, and recreation.

1.6. Decision. The District must consider and decide whether to accept the Master Plan not only to comply with current regulation but also guide appropriate management of the natural, cultural, and man-made resources at Saylorville Lake. Ultimately the District must decide to implement one of the following alternatives:

- Not approve the Master Plan, allowing the 1984 Master Plan to continue to provide the only source of comprehensive management guidance and philosophy. This development based document would prevent a proactive approach to guide management. **(No Federal Action)**
- Approve the Master Plan, replacing the 1984 Master Plan. This would provide management an up to date document which is based on current regional and local needs, resource capability and suitability, public interests consistent with authorized project purposes, and regulations. **(Preferred Alternative)**

1.7. Scoping and Significant Issues. Public involvement began June of 2012 when the District announced its plan to revise the Master Plan. The District has involved the public, coordinated with Tribes, Federal, State, local agencies and communities in the revision process. The District held public and agency scoping meetings in the summer, fall, and winter of 2012, 2013 and spring of 2014. Many different means were used in order to obtain public and agency input into the master planning process, these included: a web page, focus groups, news releases, local media, comment boxes, and one-on-one communication.

A public meeting was held in May 2014. The announcement was mailed and e-mailed directly to over 562 addresses including congressional interests; adjacent landowners; Federal, State and local governmental agencies; businesses; environmental organizations, media and the general public inviting them to attend an open house. It was also advertised through press releases, published in newspapers, and aired on local news stations. Results and specifics regarding Agency and Public Scoping can be found in both Chapter 7 and Appendix B of the Master Plan.

1.7.1. Issues/Concerns That Arose During Agency and Public Scoping[1]

- Concern that Saylorville Lake will continue to see fragmentation and development pressures, which will impact the quality of the environment for both wildlife and also people seeking outdoor experiences, i.e. specifically the need for green space and a place to "get away".
- Concern regarding the impacts of activities both on and off Corps-managed lands that impact natural resources (both negative/positive). For example, siltation, pollution from runoff, invasive species, and urban sprawl.
- Need for improvements and continued maintenance of Saylorville Lake recreation facilities.
- Need for additional trails throughout the project, most noted was request to rehab a trail that used to exist on the west side of Saylorville Lake.
- Improve wildlife/bird watching opportunities. Includes addition of observation areas, providing access throughout the year, and continuing to manage wildlife habitat.
- Issues with real or perceived overuse of lake by boaters and/or lack of boat ramp parking space, which is at a premium during holiday and peak usage times.
- Need for improved fishing opportunities at Saylorville Lake to include habitat and access.
- Concern over the proposed water surface area zoning which would restrict access to the area on the upper end of Saylorville Lake that becomes extremely shallow, referred to as the "mudflats", at conservation pool. Airboats are used by some locals that allow them to navigate across the shallow water and engage in the sport of bow fishing. The area is also known to offer good catfishing opportunities when conditions are favorable.

[1] The list is not in order of importance. The list is also not exhaustive, but focuses on the issues that were mentioned the most during scoping and/or were specifically addressed in the Master Plan and this EA.

1.7.2. Proposed Solutions to Issues and Concerns. The master planning team used its experience and expertise to work through the issues that arose during public scoping. Responses from the public were received and taken into consideration when considering management options. The District invited comments on this decision-making process from several Federal and State agencies as well. Below are some of the proposed solutions to the issues and concerns expressed by the public. The District will endeavor to balance the needs of all user groups to the greatest extent possible within the constraints of the primary missions of flood risk management, low flow augmentation, and contractual agreements for water supply. The proposed solutions to issues and concerns are covered more extensively in the Master Plan. Refer to the chapter and section referenced for detailed information.

- The District will use changes in land classifications to guide management decisions in order to strengthen resource protection in a rapidly changing urban environment. Many of the land classification designations aim to protect and improve land and water resources. Sensitive area classifications, utility corridor recommendations, green corridor protections, multiple habitat management, and continued coordination with Federal, State, and local agencies and municipalities will have positive impacts on natural resources on and around Saylorville Lake. (For more in-depth information, go to Saylorville Lake Master Plan: Chapter 6, Sections 6.05, *Urban Sprawl/Adjacent Development*; 6.06, *Water Quality Impacts*; 6.07, *Ding Darling Greenway Designation/DSM Greenbelt Designation*; 6.09, *Major Utility Corridor Considerations*; 6.12, *Energy Conservation/Sustainability*; 6.15, *Emerald Ash Borer*; 6.16, *Saylorville Corridor*; and 6.21, *Significant Environmental Challenges on the Horizon*.)

- Saylorville Lake has gained in popularity with the outdoor recreation community over the last 35 years and has become a popular recreation destination for the public within Greater Des Moines. The increase in population and use indicate a need to continue to improve and modify District-managed recreation areas. (For a list of recommended improvements, see Table EA-3, *Future Recommendations of Management Actions by Land Classification* in this EA, or Chapter 5 in the Master Plan.)

- Saylorville Lake has recently seen an increase in trail advocates seeking multi-use trails that offer a sense of solitude. There has been renewed interest in the revitalization of a 3.5 mile abandoned hiking trail along the rugged west side of Saylorville Lake, historically known as the West Side Trail. The District will review the feasibility of reconstructing this trail. (Chapter 6, Section 6.02, *West Side Trail*.)

- Rapid population growth has impacted Saylorville Lake with very high levels of boating traffic on the lake and at boat ramps. With the expected growth rate of the Des Moines metro area, the District believes a Recreational Boating Study (RBS) is necessary to make future operational decisions regarding boating access and boating use at Saylorville Lake. (Chapter 6; Section 6.03, *Carrying Capacity Study*.)

- Due to the high number of bird species recorded at Saylorville, bird watchers also flock to the area. Management has reviewed the standard operating procedure in regards to being able to keep access open during the off season. The District will attempt to keep these areas open as long as weather allows safe travel. The District will also take into consideration possible partnership opportunities to continue to work

with wildlife and bird watchers to improve access and provide up-to-date birding information.

- The Saylorville Lake "mudflats" (photograph EA-1), when water conditions allow, are well recognized for their value. Saylorville has been designated by the National Audubon Society as an Important Bird Area and by the American Bird Conservancy as a Globally Important Bird Area. High numbers of waterbirds use the area for foraging and resting during annual spring and fall migration. In order to protect this environmentally sensitive area, the District proposes to use the new water surface categorization, *Water Surface – Fish and Wildlife Sanctuary*(figure EA-3). This "zoning" is a sub classification in which annual or seasonal restrictions are placed in order to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning.

  The planning team has proposed the seasonal water surface classification would exclude motorized vessels from the buoy line south of the mudflats to the Hwy 17 Bridge from April 1st to August 31st to allow for non disturbance of migrating birds. This seasonal restriction will impact approximately 1,433 acres of shallow waters and islands, see Master Plan Appendix H.25. (Chapter 6, Section 6.17 Surface Water Zoning; Chapter 4, Section 4.02)

Photograph EA-1. Saylorville Lake Mudflats

Figure EA-3. Fish and Wildlife Sanctuary

- In regards to fishing, there are a variety of improvements (access, fish cleaning stations, and habitat) planned at Big Creek Spillway, NW Jester Park Drive, Bob Shetler, and other locations around the lake. 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. In an effort to maximize public access, day use areas will remain open for lake access until weather (snow/ice) requires the area be closed to ensure public safety throughout the winter months.

1.8. Authority and Environmental Compliance. Saylorville Lake was authorized by the 85th Congress through the Flood Control Act of 3 July 1958 (Public Law 85-500, 1st Session) to furnish additional storage to supplement the flood control capacity of the downstream Red Rock Dam and to provide flood protection to the City of Des Moines on the Des Moines River. Additional authorization for the development of public recreational facilities at power, flood control, and navigation projects comes from Section 4 of the Flood Control Act of 22 December 1944.

The Flood Control Act of 3 July 1958 (Public Law 85-500, 85th Congress, 1st Session) authorized construction of the Saylorville Lake Dam and Saylorville Lake on the Des Moines River for flood control and related purposes.

The Saylorville Lake Project is a unit of the comprehensive plan for flood control in the Upper Mississippi River Basin. The principal purpose of the Saylorville Lake Project is to furnish needed additional storage to supplement the flood control capacity of the downstream Red Rock Dam and to provide flood protection to the City of Des Moines. The Project is considered to fulfill a multi-purpose role with benefits to recreation and fish and wildlife management as well.

Design Memorandum No. 6B, Master Plan for Saylorville Lake was approved by the Corps in September, 1984. The document and subsequent supplements provided the basis for management and development of lands and waters within the Saylorville Lake Project.

Title 16 of United States Code, Section 460d (16 USC 460d), authorizes the Chief of Engineers, under the supervision of the Secretary of the Army, to construct, maintain, and operate public park and recreational facilities at water resource development projects under the control of the Department of the Army, to permit the construction of such facilities by local interests (particularly those to be operated and maintained by such interests), and to permit the maintenance and operation of such facilities by local interests.

If the District determines it is in the best interest of the public to accept the Master Plan and reclassify Corps-managed lands, the District would have to comply with several Federal environmental statutes and obtain any required permits for specific future projects/actions. For the following legal requirements, the District is the responsible party who must comply with all legal compliance and meet the requirements to obtain any permits or certifications from other governing bodies. If the District decides to adopt and implement the Master Plan, it will comply or obtain all the necessary requirements listed below prior to initiating implementation of the Master Plan:

- This EA, ultimately concluding with a signed Finding of No Significant Impact, serves as a means to fulfill environmental compliance coordination for several statutes, such as the Endangered Species Act and National Historic Preservation Act. See also Section 4.0, *Environmental Consequence*s.
- This EA addresses any impacts to federally-listed endangered or threatened species protected by the Endangered Species Act, in particular, the Indiana bat (*Myotis sodalis);* Northern long-eared bat (*Myotis septentrionalis*); Least tern (*Sterna antillarum)*; Topeka shiner (*Notropis Topeka*); Western prairie fringed orchid *(Platanthera praeclara*); and Prairie bush clover *(Lespedeza leptostachya).*

2.0. ALTERNATIVES INCLUDING THE PROPOSED ACTION

This section of the EA describes alternatives for updating the Master Plan. This EA examines two alternatives: the Preferred Alternative of adopting the proposed Master Plan and a No Action Alternative in which the 1984 Master Plan would remain the management guidance document. The Preferred Alternative was designed to update existing inventories and plans, while providing a programmatic approach to the future management of the reservoir.

Development of the alternatives to revise the Saylorville Lake Master Plan began in 2012. The District and its partners embarked upon an extensive data collection effort that included coordination with Federal, state, and local agencies, as well as institutions and groups with knowledge of the project resources. In May 2013, the District hosted a meeting with representatives from State, and local agencies with leases or interest in the resources at Saylorville Lake. The public open house was held in May 2014, to solicit public input on the planning process.

During the past year, the District and other management partners have worked to develop options for classifying project lands and identifying Resource Objectives (Master Plan, Chapter 3) for these lands. The data collection, public comments, and findings of the planning team revealed that there was only one action alternative that would meet the purpose, need, and objectives of the master planning process. This alternative is the Preferred Alternative and is discussed in detail in Section 2.2 of this EA. The Preferred Alternative was selected as it would meet the need for sustainable management and conservation of natural resources within the project, while also providing for current and future quality outdoor recreational needs of the public.

2.1. No Federal 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 Federal Action Alternative, the District would not approve the adoption or implementation of the revised Saylorville Master Plan and would not meet current regulations or goals of regular update to a master planning document. The 1984 Master Plan would continue to provide the only source of comprehensive management guidance and philosophy. Information provided in the 1984 plan is out of date and no longer adequately addresses the needs of the District, other management partners, or users of Saylorville Lake. Furthermore, the 1984 Master Plan does not include the revised Land Classifications. The original development-focused document would prevent a proactive approach to managing Saylorville Lake. Future major developments or resource management policies would require approval on a case-by-case basis without the benefit of evaluation in the context of an overall plan.

2.2. Accept the Saylorville Lake Master Plan (Preferred Alternative). The proposed Master Plan is the District's Preferred Alternative. Under the Preferred Alternative, the District would adopt and implement the Saylorville Lake Master Plan. Rapid urbanization and population growth have resulted in changes to land use in the region and around Saylorville 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 use of the sensitive area classification, water surface zoning and recommended upgrades to recreation facilities. The Master Plan seeks to replace the 1984 Master Plan and provide a balanced, up-to-date management plan that follows current Federal laws and regulations while sustaining Saylorville Lake's natural resources and providing outdoor recreational experiences.

The Master Plan applies changes to land and water classifications, most notably **the addition of sensitive area and water surface classifications** (figure EA-4). The revised plan also lays out future recommendations for management of both recreation and natural resources.

What is the difference between Land Allocation and Land Classification? [1]
Essentially the Master Plan divides Saylorville Lake lands and waters into individual management areas based on resource capabilities. The boundaries of management are based on physical, administrative, and operational characteristics.

Land Allocation is the original authorized purpose for which the lands and waters at Saylorville Lake were acquired. There are only four possible allocations: Operations, Recreation, Fish and Wildlife and Mitigation.

Land Classifications provide for a more specific breakdown of the type of development and resource management to occur on Saylorville Lake lands and waters. There are six categories of land classification: Project Operations, High Density Recreation, Mitigation, Environmentally Sensitive Areas, Multiple Resource Managed Lands, and Water Surface.

Multiple Resource Managed Lands and **Water Surface** Classifications can be broken down into further sub-categories: Low Density Recreation, Wildlife Management General, Vegetation Management, and Future/Inactive Recreation Areas and Restricted, and Designated No-Wake, Fish and Wildlife Sanctuary, and Open Recreation respectively.

[1]For full definitions, see Chapter 4 of the Saylorville Lake Master Plan

Figure EA-4. Land Allocation vs Land Classification

The primary element of the Preferred Alternative is the new Land Classifications that would be applied to all project lands. The proposed Land Classifications would be accompanied by Resource Objectives which recommend future management actions on Saylorville Lake lands. Most of the current Land Classifications will be carried forward, such as an existing recreation or operations site. Resource Objectives (Master Plan, Chapter 3) identify how the District would like to see project lands managed including goals for future uses of these lands. Both existing and proposed Land Classification acreages are presented in table EA-1.

The primary change in the Land Classifications is the way low intensity/undeveloped lands are addressed. Previously, in the 1984 Master Plan, there were five Land Classifications used to describe different lands that are now consolidated under the Multiple Resource Management Land Classification in the proposed 2014 Master Plan. In addition, the Land Classifications included in the proposed 2014 Master Plan no longer reference the Land Allocations as was done in the 1984 Master Plan. Instead, Land Allocations are discussed independently of the Land Classifications. As a result, more of the project lands are classified as Recreation or Multiple Resource Management than would have been under the 1984 Master Plan. Land Classification definitions can be found in Chapter 4 of the Master Plan. Table EA-2 shows how the 1984 Land Classifications have been converted into the revised land classifications. The reason for revising the land classification categories was the old classifications were too broad, the new revised classifications help breakdown and clarify the types of management best suited to each land classification.

Table EA-1. Current and Proposed Land Classification Acreages

Land Classification	Acreage [1] 1984 Master Plan	Acreage [1] Proposed 2014 Master Plan
Project Operations	359	347
High Density Recreation	1,797	1,896
Recreation Low Density	3,169	3,195
Mitigation	N/A[3]	2,785
Wildlife/Vegetation Management	14,124	14,836
Sensitive Areas [2]	N/A[3]	11,124
Water Surface		5,361
-Open Recreation		*3,758*
-Fish/Wildlife Sanctuary		*1,433*
-No Wake		*152*
-Restricted	N/A[3]	*18*

[1] The inconsistency in total acreage listed is based on the technology used for each plan. In either case, acreages presented in a Master Plan are for planning purposes only (official acreages are maintained by USACE Real Estate Division). 2014 Master Plan Acreages based on present day GIS measurements of management areas, which is why they are slightly different than the 1984 acreages.

[2] Sensitive Areas can be found within other land classifications.

[3] Land classification did not exist in the 1984 Master Plan.

Table EA-2. Conversion of Land Classifications Between 1984 Master Plan and 2014 Master Plan

1984 Master Plan	Proposed 2014 Master Plan
Project Operations	Project Operations
Operations-Recreation Intensive Use	High Density Recreation
Operations – Recreation Low Density	Multiple Resource Management – Low Density Recreation
Operations – Wildlife Management/Reserve Forest Land	Multiple Resource Management – Wildlife Management
	Multiple Resource Management – Vegetative Management
N/A[1]	Environmentally Sensitive Areas
N/A [1]	Water Surface

[1] Environmentally Sensitive Area and Water Surface Classifications were not available in 1984 Master Plan.

The Preferred Alternative would allow the District to revise the Master Plan. 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 Saylorville 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) of the Preferred Alternative:

Addition of Sensitive Area Classification. In accordance with regulation changes, this classification has added to the proposed Master Plan and consists of areas where scientific, ecological, cultural, or aesthetic features have been identified. Development of public use on

lands within this classification is normally prohibited to ensure that the sensitive areas are not adversely impacted. (Chapter 6.09.5; Appendix H Maps 23 and 24)

Addition of Water Surface Classification. A Fish and Wildlife Sanctuary classification is proposed in the Master Plan which will place a seasonal restriction an area known as the "mud flats" in order to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning. The mudflats, when water conditions allow, are well recognized for their ecological value. They have been designated by the National Audubon Society as an Important Bird Area and by the American Bird Conservancy as a Globally Important Bird Area. Additional benefits include not only providing a place for non motorized boat use but also protection of shallow water fish spawning areas. (Chapter 6.17; Appendix H Map 3)

Proposed Utility Corridors. 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 from an east-west perspective, generally located in the southern portion Saylorville Lake. (Chapter 6.09.3; Appendix H Map 31)

Change of Low Density Recreation to Wildlife Management. It is proposed that 900 acres of land currently classified as Low Density Recreation be changed to Multiple Resource Management Wildlife Management. This change is located on the east side of the lake near Big Creek Spillway, and is due to the Neal Smith bike trail taking a different route. The trail was not built and area has been and is currently managed for wildlife.

Future Recommendations for Management Actions (Improvements). 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. Table EA-3 shows a listing of future recommendations and types of management actions by Land Classification. The District compiled these recommendations from comments they received at scoping meetings and public input. (See Master Plan Chapter 5, 6, and 8 and Appendix H, Maps H4-H20).

Table EA-3. Future Recommendations of Management Actions by Land Classification

Land Classification	Issue	Recommendations
High Density Recreation	There is an increasing demand and desire for upgraded camping facilities and amenities.	**Additions** of dump stations, RV campsites, cabins, playgrounds, municipal sewer connections, concrete campsites, fish cleaning stations, fishing access, fishing pier, vault toilets, group tent sites (not limited to youth groups), amphitheaters, small family picnic shelters, a natural playscape area, educational learning center, automated fee collection systems, archery range, parking lots, trails, trail connections, efficient LED lighting, Wi-Fi, wildlife viewing areas and electrical to 50 amp service. **Removal** of underutilized tent sites and poor concrete pads. **Improve**/M**aintain** all recreation areas and amenities.
	The existing beach facilities are outdated.	**Addition** of removable vault restrooms and shade shelters, automated fee collection station, picnic tables, grills, volleyball courts, fishing access, wind surfer access, water fountains, rinse stations, and paved access to rinse stations. **Remove** changing station at Sandpiper Beach. **Improve/Maintain** current amenities.
	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.	**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	Rapid urbanization and habitat fragmentation continues to occur in the region.	**Addition** of the Environmentally Sensitive Area 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: 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), green corridors that protect connectivity.

Table EA-3. Future Recommendations of Management Actions by Land Classification

Land Classification	Issue	Recommendations
Multiple Resource Management Lands - Low Density Recreation	The Neal Smith Trail (NST) has many sections that have become increasingly deteriorated. Rapid urbanization of the region means more people trying access the trails and natural areas.	The trail is managed by the District and other stakeholders. There are **planned/proposed** trail connections which include: NST to Sycamore Access area, High Trestle Trail to NST in Big Creek State Park, and possibly a trail across the Saylorville Lake Dam connecting the NST and Beaver Drive Trail. Possible **improvements** are eliminating shared roadway, trail spurs, and group campsite for bicyclists.
	The West Side Trail is an abandoned trail, it presented several maintenance related challenges such as rugged terrain, erosion, increased urban development, manpower, and cost.	The trial is managed by the District. In order for this trail to be resurrected the District would need to **develop** a trail reconstruction proposal and extensive current conditions assessment. The review would need to look at: background and perceived need for the trail; overall trail purpose, intended users, scope of the reconstruction; timing of the development of the trail; and any possible partnership support. A conceptual design, funding plan, and management plan would also need to be prepared.
	Rapid urbanization of the region means more people trying access the trails in, around, and to Saylorville Lake. There are many proposed trail connections on the horizon.	**Improvements** include new trail alignments through recreation areas, additional trail connections, additional trail spurs, health fitness stations, and a cyclo-camping site. The District will **continue** to be actively involved with stakeholders in regards to regional planning.
	Increasing interest in water related activities.	**Develop** water trail access areas, partnerships with agencies and paddling interest groups, and outreach programs for water safety, water quality, and environmental stewardship. Promote and improve the Des Moines River Water Trail.
	The Des Moines River Greenbelt is experiencing the effects of rapid urbanization and high density development, which threatens scarce river bottom timberlands and increases habitat fragmentation.	If Federal funding becomes available in the future, four **additional** projects have local sponsors and they consist of: The Fort Dodge Riverfront Development, Des Moines Riverwalk (Stage II), Marion County Cordova Center on the Rock, and the Red Rock Volksweg Trail (Segment 4B).

Table EA-3. Future Recommendations of Management Actions by Land Classification

Land Classification	Issue	Recommendations
Multiple Resource Management Lands – Wildlife Management	Fragmentation threatens large block habitats and species, some of which are listed as species of greatest concern in Iowa	Forests, grasslands and wetlands are found at Saylorville Lake in large, mostly un-fragmented tracts. The District will **continue** to manage lands designated for stewardship of fish and wildlife resources. The majority of designated wildlife management land is located at the north end of the reservoir and extending north along the Des Moines River corridor. 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. Also, the District will **designate** areas for utilities in order to protect public land from negative impacts of fragmentation, erosion, wildlife value and aesthetic quality decline.
	The Des Moines River Greenbelt is experiencing the effects of rapid urbanization and high density development which threatens scarce river bottom timberlands and increases fragmentation.	**Develop** an opportunity to seek designation as a USFWS Urban Wildlife Refuge. District-managed lands downstream of the main dam represent a significantly sized riparian corridor of high value wildlife lands.
Multiple Resource Management Lands – Vegetation Management	Habitat fragmentation and degradation threatens large block habitats and the species utilizing these areas.	**Continue** a management focus on restoration efforts. Particularly for Oak Savanna and Tallgrass Prairie which are among the rarest of all ecosystems in North America.
Water Surface	Urbanization and population increases in the region have contributed to a high volume of boating activity which results in disturbance to wildlife and some conflict of use by different user groups (motorized vs. non-motorized water recreation).	**Addition** of the Water Surface – Fish and Wildlife Sanctuary classification is proposed which will place a seasonal restriction on an area known as the "mud flats" in order to protect fish and wildlife species during periods of migration, resting, feeding, nesting, and/or spawning. Added benefits to adding this classification are not only providing habitat protection for fish and wildlife but also a place for non motorized boat use.

3.0. AFFECTED ENVIRONMENT

This section describes the baseline environmental conditions potentially affected. The District considered all possible environmental factors potentially influenced by the proposed Master Plan prior to writing this EA. From this analysis, the District was able to focus its environmental review on specific resources and eliminate others from further evaluation.

3.1. Physical Environment

3.1.1. Geology, Topography, and Soils (see Master Plan Chapter 2). The geology of the Saylorville Reservoir area is primarily defined by a number of glacial events involving the erosion and deposition of material. The bedrock of the entire reservoir area is sedimentary rock and several different events have exposed shale. When these shales are exposed to weathering, it contributes to high erosion and wave-action degradation and may create unstable slopes wherever it occurs. This along with soil type and watershed characteristics determines resource protection needs, historic biotic occurrence, stability, fertility and drainage characteristics for various uses.

Saylorville Lake is located within Polk, Dallas, and Boone Counties on the Des Moines River, approximately 214 miles upstream from the Mississippi River, and is one of largest lakes in Iowa with 5,520 surface acres of water at conservation pool. The Des Moines River watershed (Appendix H, Map 2) originates in southwest Minnesota and traverses Iowa north to south, terminating in Lee County at the confluence of the Mississippi River. The watershed measured above the dam is approximately 5,823 square miles. The Des Moines River Watershed is located in the Des Moines Lobe ecoregion, a distinctive landform created during Wisconsin glaciations, which makes this area one of the youngest and flattest regions in Iowa. In general, the land is level to gently rolling with some areas of the moraines having the most relief. The stream network is poorly developed and widely spaced. The major rivers have carved valleys that are relatively deep and steep-sided. Most of the region has been converted from wet prairie to agricultural use with substantial surface water drainage (Iowa DNR, 2014).

3.1.2. Floodplains. The primary authorized purpose of Saylorville Lake is flood risk management. The reservoir is designed to store floodwaters to reduce flood risk downstream. Features located in the floodplain include the dam and shoreline stabilization structures. The dam was designed to impede floodwaters. The shoreline stabilization structures were installed to protect the shoreline from erosion. Recreation areas can be impacted within the Saylorville Lake boundary at various elevations. For example, normal pool elevation is 836', but boat ramps and beaches begin to be affected/closed when the water rises to 840'+ and a drought operation plan is implemented when water falls below 836'.

3.1.3. Water Resources. Located in the Upper Mississippi River Basin, Saylorville Lake is designed to maintain a normal pool elevation of approximately 836 feet (National Geodetic Vertical Datum). At this elevation, the Saylorville Reservoir is approximately 24 miles long including approximately 43 miles of shoreline and 5,520 acres of open water surface area.

The Iowa Department of Natural Resources publishes data on water quality throughout Iowa in its 303(d) Impaired Waters Assessment. The most current 303(d) list available for Iowa was completed in 2012. The report identifies portions of the Des Moines River, Bushy Creek Lake, Lizard Creek,

Lizard Lake, and Skillet Creek, as well as the reservoir itself, as being impaired. The cause of this 303(d) listing is the presence of *E. Coli*, with the reservoir also testing positive for an indicator bacteria. This means that these bodies of water do not meet the national water quality criteria established in the Clean Water Act (EPA, 2012).

The Des Moines River Water Quality Network was initiated in July, 1967 as a pre-impoundment study. Over 500,000 individual data points have been collected over the course of this 46-year study. This extensive water quality testing program examines dissolved oxygen, pH, alkalinity, hardness, ammonia, nitrite plus nitrate, BOD, suspended solids, chlorophyll pigments, coli-form bacteria and trace metals. Beach closures and swimming advisories are issued in response to unsatisfactory findings. Saylorville is categorized under EPA guidelines as a Class A1 primary contact water body, meaning that humans routinely swim, boat or use public beaches. Results of testing measure water conditions as fully supporting such use. A second classification identified as B (WW-1), measures water quality impacts to aquatic life. Fish are primarily studied for pesticide content. Results confirm consuming fish from the reservoir as fully supporting such use. All tests results show pesticide levels well below EPA standards. Bacteria monitoring occurs at several lake locations including swimming beaches. Some Iowa water bodies have had issues with high levels of coli-form bacteria. Our beaches have had rare instances of exceeding E-coli counts requiring short-term posting of warning without closure. EPA recognizes the results of Corps beach monitoring to be "fully supportive" of beach use under the Class A1 lake designation.

Use of the reservoir by people for recreational pursuits continues to be safe. Other sampling in regards to ammonia content, dissolved oxygen and pH all proved to be safe. Scientific measurements of Secchi depth (water clarity), chlorophyll, suspended algae and phosphorus levels rank the lake as eutrophic for water clarity and chlorophyll content and hypereutrophic for phosphorus. Cyanobacteria (blue green algae) can cause health issues for lake users however Saylorville ranked 47th out of 134 lakes sampled suggesting relatively small populations of Cyanobacteria. Blue-green algae blooms tend to occur in late summer under higher than normal pool elevations but are not severe in nature. In synopsis, the reservoir remains safe for human usage while being impaired by high levels of phosphorus, silt and non-organic suspended solids while having low levels of chlorophyll and algae. Fish are safe to consume and our waters continue to be safe for swimming and other water usage.

Iowa is broken up into three groundwater provinces. Saylorville Lake is located in the Southern Province and is underlain entirely by Pennsylvanian-era bedrock. This province is generally considered as a poor or difficult area in terms of finding water of sufficient quantity and quality. The Pennsylvanian strata creates a barrier to obtaining water in the lower aquifer, which has relatively good water quality but is difficult to obtain due to depth wells need to be drilled. The upper aquifers rely on surface water for recharge; however, this water is vulnerable to contamination from point and non-point pollution.

The Saylorville reservoir provides some water supply to the surrounding communities. A contract with the State of Iowa has been in place since 1982. This contract allows the State to utilize 18.86 percent of the usable storage space, estimated to be 14,900-acre feet. There are no direct water intake structures in the lake but water is withdrawn from releases made through the dam.

3.1.4. Air Quality. Saylorville Lake is located in central Iowa which includes the city of Des Moines and surrounding suburbs in Polk, Dallas, and Boone counties. The National Ambient Air

Quality Standards (NAAQS) are health standards for Carbon Monoxide, Lead, Nitrogen Dioxide, 8-hour Ozone, Particulate Matter, and Sulfur Dioxide. Areas of the country where air pollution levels persistently exceed the national ambient air quality standards may be designated "nonattainment." There are no nonattainment areas in the Saylorville Lake project area. Air quality is regulated by Clean Air Act and implemented by the EPA, Iowa Department of Natural Resources, and the Polk County Air Quality Division. Future actions that result in increased emissions may have permitting requirements.

3.1.5. Climate. Central Iowa is located in the Upper Midwest climate region, far from the moderating effects of the oceans. The region experiences wide extremes in temperature and precipitation with hot, humid summers drawing in air masses from the Gulf of Mexico and cold, snowy winters with incursions of bitterly cold air from Arctic air masses. Summer temperatures can often climb into the 90 °F (32°C) range, occasionally reaching 100 °F (38 °C). Humidity can be high in spring and summer, with frequent afternoon thunderstorms. Fall brings pleasant temperatures and colorful fall foliage. Winters vary from moderately cold to bitterly cold, with low temperatures venturing below 0 °F (−18 °C) quite often. Annual snowfall averages 35.3 inches, and annual precipitation averages 36.02 inches, with a peak in the warmer months (DOC, 2013). Average wind speed is 10.0 mph with winds generally out of the northwest during the fall and winter and out of the south/southeast in the spring and summer. (ISU, 2014).

"Ongoing research of trends and variability in a number of climate factors suggests that there are changes in statewide climate patterns. 1) Precipitation is increasing, for the past 100 years, there has been a gradual upward trend in precipitation. Much of this increase has come in the first half of the year, leading to wetter springs and drier autumns.2) The number of large storms (>1.25 inches) is increasing, more intense rain events impact runoff. 3) Night-time low temperatures are increasing, Iowa now has more frost-free days than in the past; winter temperatures have increased more than summer temperatures. 4) The number of days of below-freezing daytime temperatures is dropping, the downward trend in heating degree days influences demand for heat during cold weather periods. Beyond precipitation and temperature, climate change may be linked to wind speed, cloud cover, atmospheric carbon dioxide levels, and more. While climate change presents any number of challenges, it also provides the opportunity to adjust agricultural practices, and to develop creative building and development practices that allow for maximum flexibility in an ever-changing environment." (Iowa DNR, 2010.)

3.1.6. Noise. The Des Moines region of Iowa is highly developed with continual growth occurring throughout the area. As such, obtrusive noise sources are common. Within the Saylorville Lake boundary, there are a few obtrusive sources of noise. Primarily, noise sources are vehicles traveling local or project roads and boat engines on the water. Occasional public events that may include amplified voices or music also occur. Sensitive noise receptors adjacent to and within the proposed project area include camping areas, park visitors, and the wildlife communities throughout the project. Some private residences are located just beyond the project boundary, as well.

3.1.7. Hazardous Materials. The EPA's Envirofacts Web site lists 52 EPA-regulated facilities within close proximity to Saylorville Lake (EPA, 2014). Given the level of ongoing development in the region surrounding Saylorville Lake, it is difficult to accurately identify all of the potential hazardous materials that may exist within or adjacent to the project boundary. Federal law requires site-specific due diligence on a case-by-case basis before development can take place. If the District

identifies any recognized environmental condition during the planning or construction of future project features, the work would cease and the District's Environmental Engineering Branch must be notified immediately to assess the project area.

3.1.8. Recreation and Aesthetic Resources. In addition to the lands associated with operation of the dam, the District also provides and manages recreation facilities, including the Visitor Center which overlooks the lake in front of the dam. Additional lands are directly leased to the Iowa Department of Natural Resources, Polk County Conservation Board, Boone County Conservation Board, and other local entities. These leases (outgranted lands) specify what types of activities are allowed on Federal lands and all Federal regulations still apply. See appendix H maps 26 and 27 - Saylorville Lake Managing Agencies. The District operates the majority of developed recreation facilities at Saylorville Lake. For more information on these recreation areas go to Chapter 5 of the Saylorville Lake Master Plan.

The aesthetic value of the lake area is a function of the lake itself, the shoreline, and the adjacent uplands. The area offers a wide variety of natural habitats ranging from forested areas to open prairies. Due to normal lake level fluctuation it is difficult to grow vegetation along areas of shoreline which at times may be less aesthetically pleasing.

3.2. Natural Resources. As part of the master plan process, an extensive Multi-Species Inventory and Monitoring Program (ISU, 2013) inventory was done on 18 different habitat types identified throughout the project. (See Appendix G.8). Originally produced by the U.S. Forest Service and modified for Iowa, this extensive inventory system was initiated to help identify significant resources at Saylorville Lake. The data collected applied all available protocols and represents the most intensive area study done on a single Iowa watershed. This data will provide a valuable resource to the existing MSIM statewide database due to the extensiveness of the inventory protocols.

3.2.1 Vegetation. Since the publication of the 1984 Master Plan, the District has updated its inventory of resources on project lands. Table EA-4 summarizes the distribution of vegetation and land use types on project lands. Along with management actions described above in Table 3, changes to the previously documented vegetative communities also may be influenced by development outside the project boundaries. This development has fragmented forests that were once viable ecological communities, and has changed management priorities at Saylorville Lake.

Table EA-4. Land Use Types at Saylorville Lake

	1984 Percentage of Project Lands[1]	2014 Percentage of Project Lands[1]
Forested	43	54
Crop	38	16
Prairie/Open Areas	13	16
Developed (Rec Areas)	5	5
Wetland	not included	9
Sand and Gravel Mining	1	0

[1]Approximate percentage at conservation pool.

Vegetation resources also are discussed in Chapter 5 of the Master Plan. The clearing of vegetation is regulated by many of the same laws and regulations that apply to other natural resources. These laws include the Clean Water Act (404), Section 401, and Endangered Species Act. The District is also responsible for assuring Best Management Practices to include avoidance and minimization when designing and/or implementing actions on Saylorville Lake lands. Threatened and endangered species are discussed further Section 3.2.3 of this EA.

3.2.2. Fish and Wildlife. The 1984 Master Plan and other surveys, have noted viable habitat for a variety of waterfowl, other birds, mammals, amphibians, and reptiles. Since the 1984 Master Plan, increasing levels of urbanization around the project have impacted some of these species by limiting available habitat. This development, however, has made the relatively undeveloped lands at Saylorville Lake more important habitat in the region and increasingly valuable to native species.

A multiple species inventory and monitoring (MISM) final report by Iowa State University and the Iowa DNR tallied 19 species of mammals, 177 species of birds, 20 species of herptiles, 34 species of butterflies, 43 species of dragonfly, and 17 species of mussels during the survey period. This report can be found in its entirety in Appendix G.8 of the Master Plan. Many Species of Greatest Conservation Need (Iowa DNR, 2006) were identified during the MISM study, they include: 3 mammals, 43 birds, 3 herptiles, and 1 dragonfly. Presence and absence of species are noted in the final MISM report. While the data of species present is an important resource tool, many other species including Species of Greatest Conservation Need have been recorded over time outside of the MISM study. Some species not recorded (absent) have suffered significant decline in the last 2 decades. Three mammals including Franklins Ground Squirrel, Grey Fox, and Southern Flying Squirrels have scant records of late but were common occurring mammals in the 1970's. MISM is successful at locating many species, but is not designed to be a definitive listing of species.

Six federally-endangered species are identified as present or potentially occurring on project lands not including Bald Eagle which is now a regular nester. Multiple state endangered species occur or potentially occur on Federal lands as identified by the Iowa DNR in their management program.

Fisheries and other aquatic resources are managed by the Iowa DNR Fisheries Bureau. Work is primarily aimed at maintaining a sport fishery for anglers. Primary management species include Walleye, Wiper and Northern Pike, which require stocking due to limited or no reproduction in the lake. Largemouth Bass, Channel and Flathead Catfish, White Bass, Crappie and other pan fish reproduce naturally and only require supplemental stocking when necessary. The Iowa DNR also inventories and documents fish and wildlife populations at Saylorville Lake, targeted primarily at white-tailed deer, wild turkey, waterfowl and mourning doves. Hunting and fishing of game species at Saylorville Lake is regulated by Iowa DNR. Permits and/or licenses are issued to manage populations of different species.

The value of Saylorville Lake project lands to fish and wildlife continues to be enhanced through work by the District, Iowa DNR, and other partners at wildlife areas, natural areas, and impoundments. These areas were designed to meet the Corps' purpose of enhancing fish and wildlife habitat, as well as providing recreational opportunities for wildlife viewing or hunting. Additional information on fish and wildlife resources is included in Chapter 5 of the Master Plan.

3.2.3. Threatened and Endangered Species. Table EA-5 lists the federally-endangered, threatened, and proposed species possibly found in the three-county area (USFWS, 2014). While most Saylorville Lake lands are characteristic of the Central Iowa region, several unique areas are found and support a diversity of species, including many Iowa Species of Greatest Conservation Need. There are 67 state listed species for Polk, Boone, and Dallas counties. The list includes 37 plant, 9 bird, 5 fish, 5 mammals, 3 insects, 2 mussels, and 1 amphibian species.

Table EA-5. Federally-Endangered, Threatened, and Proposed Species Possibly Found in Polk (P), Boone (B), or Dallas (D) Counties IA

Species	Scientific Name	Status	Habitat
Indiana bat [P,B,D]	*Myotis sodalis*	Endangered	Caves, mines (hibernacula); small stream corridors with well-developed riparian woods; upland forests (foraging)
Northern long-eared bat [P,B,D]	*Myotis septentrionalis*	Proposed as Endangered	Hibernates in caves and mines – swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during late spring and summer.
Prairie bush clover [P,B,D]	*Lespedeza leptostachya*	Threatened	Dry to mesic prairies with gravelly soil.
Western prairie fringed orchid [P,B,D]	*Platanthera praeclara*	Threatened	Wet prairies and sedge meadows.
Least tern P]	*Sterna antillarum*	Endangered	Bare alluvial and dredged spoil islands.
Topeka shiner [B,D]	*Notropis topeka*	Endangered and Critical	Prairie streams and rivers.

The Indiana bat is a federally-endangered species found in central and southern portions of Iowa. This species occupies forested areas, usually near permanent sources of water. It typically roosts under the peeling bark of shagbark hickories (*Carya ovata*) or dead trees and occasionally in tree cavities. Since trees with cavities and dead trees are more abundant in mature forests, the Indiana bat tends to be most common in moderate-aged to older forests containing large trees as well as standing dead trees.

The Northern long-eared bat (*Myotis septentrionalis*) is proposed as endangered. Its range includes much of the eastern and north-central United States. It hibernates in caves and mines and swarms in surrounding wooded areas in autumn. It roosts and forages in upland forests and woods.

Prairie bush clover (*Lespedeza leptostachya*) is a federally-threatened prairie plant found only in the tallgrass prairie region of four Midwestern states. At the beginning of the 19th century, native prairie covered almost all of Illinois and Iowa, a third of Minnesota and 6 percent of Wisconsin. Prairie with moderately damp-to-dry soils favored by prairie bush clover was also prime cropland; today only scattered remnants of prairie can be found in the four states. Many of today's prairie bush clover populations occur in sites that were too steep or rocky for the plow.

The western prairie fringed orchid *(Platanthera praeclara)* 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.

The least tern (*Sterna antillarum*) is listed as endangered in Polk County, Iowa. Historically, terns nested on sparsely-vegetated sandbars along major rivers in the Central United States. Much of their natural habitat has been lost because of broad-scale changes to our natural river systems that include invasive plants, dams and reservoirs, river channelization, bank stabilization, hydropower generation, and water diversion. In June 2006 a pair of least terns nested with 2 eggs on a large mudflat on the upper end of the reservoir. Unfortunately the pair failed to fledge young birds as an increase in water levels submerged the nest. This was the first recorded nest on an interior stream in the State of Iowa.

The Topeka shiner occurs primarily in small prairie (or former prairie) streams in pools containing clear, clean water. Most Topeka shiner streams are perennial (flow year-round), but some are small enough to stop flowing during dry summer months. In these circumstances, water levels must be maintained by groundwater seepage for the fish to survive. Topeka shiner streams generally have clean gravel, rock, or sand bottoms.

3.2.4. Wetlands. Wetlands are known to exist within all Land Classifications at Saylorville Lake, and are considered sensitive. Using the National Wetland Inventory, wetland types with codes shown in parentheses and approximate acreages found within project boundaries include: Lake/Reservoir Basin (L) 6,854; Freshwater Forested Wetland (PFO) 2,624; Freshwater Emergent Wetland Marsh or Meadow (PEM) 2,100; Riverine (R) 1,911; Freshwater Shrub Wetland (PSS) 600; and Freshwater Pond (PUB) 90. The mapping of wetlands using the National Wetland Inventory is generalized; therefore, any proposed future actions would require a wetland determination on a site-by-site basis.

3.2.5. Invasive Species. Exotic and invasive plant species are a part of the existing ecosystem at Saylorville Lake. These invasive species have the ability to rapidly disrupt land and water resources if not aggressively managed. Over time, native species can be replaced and the ecology altered. Additionally, the interdependence and connectivity between the flora and fauna will be out of balance, and the fauna may relocate to find habitat required for preferred food, shelter, or habitat structure. Invasive species not only have tremendous consequences on altering ecosystem compositions, but also economically, high costs stem from labor, materials, and equipment to control. For example, Saylorville Lake's largest invasive offenders are Serecea Lespedeza, Autumn Olive, and Crown Vetch. Emerald Ash Borer has been confirmed in the City of Boone which is adjacent to District lands. All of these invasive species cause serious threat and are expensive to control on an annual basis. Table EA-6 contains invasive species known to occur and/or that pose a future threat to lands and waters at Saylorville Lake.

The Corps has an Invasive Species Leadership Team, which will provide oversight of the Corps invasive species program established by policy in June of 2009 (Appendix G.17). This Corps Policy supports the National Invasive Species Management Plan. The Corps goals mirror and add to the strategic goals found in the NISMP, they are: 1) Leadership and Coordination; 2) Prevention; 3) Early Detection and Rapid Response; 4) Control and Management; 5) Restoration; 6) Research; 7) Information Management; and 8) Education and Public Awareness. Creation and implementation of these goals would not only help prevent the introduction of invasive species, but also control and monitor invasive species already present at Saylorville Lake.

Executive Order (EO) 13112 provides direction and asks Federal agencies to identify and reduce actions that introduce or spread invasive species. All Federal land and water management agencies within the Department of Interior, NOAA, and Defense have authority to control and manage invasive species as well as restore affected areas on their lands and waters. This authority arises from the various agency regulations and other statutes that govern management, uses, and planning on the lands and waters under their jurisdiction. The level of effort and budgetary resources for management, control, and restoration vary with each Department. None of them has the resources to control every invasive species present on Federal lands and waters. Departments and their agencies also work in partnership with States and private landowners to control invasive species on public lands.

Table EA-6. Invasive Species Common and/or of Concern[1]

Species Common Name	Scientific Name	Approx Acreage Impacted	Active Mgmt
Reed Canary Grass	*Phalaris arundinacea*	600	
Crown Vetch	*Securigera varia*	300	Yes
White Sweet Clover	*Melitotus alba*	300	
Wild Parsnip	*Pastinaca sativa*	200	
Garlic mustard	*Alliaria petiolata*	200	
Smooth Brome	*Bromus inermis*	200	
Autumn Olive	*Elaeagnus umbellate*	140	Yes
Siberian Elm	*Ulmus pumila*	100	
Sericea Lespedeza	*Lespedeza cuneata*	70	Yes
Yellow Sweetclover	*Melilotus officinalis*	50	
Quackgrass	*Elytrigia repens*	50	
Queen Annes Lace	*Daucus carota*	50	
Multiflora Rose	*Rosa multiflora*	40	
Glossy Buckthorn	*Frangula alnus*	40	
Curly-leaf Pondweed	*Potamogeton crispus*	[3]	
Eurasian Watermilfoil	*Myriophyllum spicatum*	[3]	
Purple Loosestrife	*Lythrum salicaria*	[3]	
Brittle Naiad	*Najas minor*	[3]	
Emerald Ash Borer	*Agrilus planipennis*	[3]	Yes
Gypsy Moth	*Lymantria dispar*	[3]	
Rusty Crayfish	*Orconectes rusticus*	[3]	
Zebra Mussels	*Dreissena polymorpha*	[3]	
Quagga Mussels	*Dreissena rostriformis*	[3]	
Bighead Carp[2]	*Hypophthalmichthys nobilis*	[3]	
Silver Carp[2]	*Hypophthalmichthys molitrix*	[3]	

[1] This list includes the most prominent invasive species that are either found on project lands or are considered a serious threat in the near future. Forty-seven invasive species have been identified at Saylorville Lake.

[2] Bighead Carp and Silver Carp have been found in the Des Moines River south of Lake Red Rock

[3] Approximate acreages impacted unknown or does not occur currently.

3.3. Socioeconomic Characteristics

3.3.1. Population and Economy. The Master Plan proposes to guide the responsible stewardship of resources at Saylorville Lake to benefit present and future generations. Saylorville Lake is one of Iowa's largest expanses of public land, offering more than 25,000 acres of land and water. The area surrounding the lake consists of high-density urban development.

Saylorville Lake is situated within the Greater Des Moines metropolitan area, which is comprised of Polk, Dallas, Boone, Story, Madison, and Warren Counties and includes the cities of Des Moines, West Des Moines, Ankeny, Altoona, Clive, Indianola, Johnston, Urbandale, and Waukee. The 2010 census population of these counties was 671,527 and the 2013 estimated population was 707,872 (figure EA-5). According to the 2010 Census, Iowa had an estimated population of 3,046,355. This statistic is more than 4.1 percent greater than the Iowa population recorded by the 2000 Census. The population in the Greater Des Moines area alone has grown from 323,600 to nearly 558,700 between 1960 and 2010 (DMAMPO, 2012). Table EA-7 lists the 2010 population, the 2013 estimated population, median household income, and the percentage of population below the poverty level for each county in the Greater Des Moines metro area (US Census Bureau, 2010).

The Greater Des Moines regional industries include financial services, insurance, government, manufacturing, trade and service. The metro area's finance-insurance sector has a $3 billion annual payroll. The top employers in the region are Wells Fargo & Company; Hy-Vee Food Corporation; Mercy Medical Center; UnityPoint Health - Des Moines; Principal Financial Group; Nationwide; John Deere companies; DuPont Pioneer; JBS USA LLC; and Pella Corporation (The Greater Des Moines Partnership).

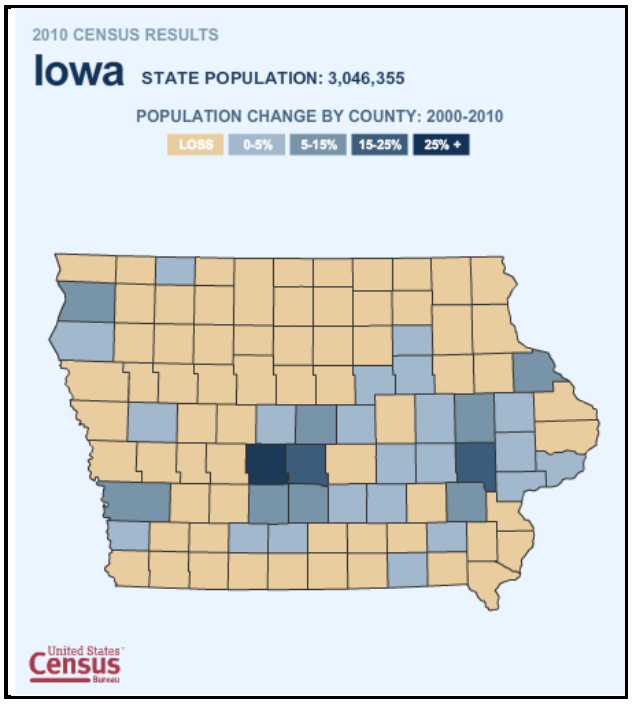

Figure EA-5. Population Change by County in the State of Iowa, 2000-2010

Table EA-7. Pertinent Population Data (Source: 2010 U.S. Census Bureau)

Locality	Population (2010)	2013 Population Estimate	Median Household Income (2008-2012)	Population Below Poverty Level (2008-2012)
Polk County	430,640	451,677	$58,096	11.3%
Dallas County	66,135	74,641	$71,878	7.0%
Boone County	23,306	26,364	$51,284	9.0%
Madison County	15,679	15,448	$56,765	9.2%
Warren County	46,225	47,336	$62,778	7.3%
Story County	89,542	92,406	$49,683	20%

3.3.2. Transportation. Located less than 20 minutes from downtown Des Moines, Saylorville Lake is crossed and bounded by a number of roads. Interstate 80 crosses the Des Moines River just to the south and Interstate 35 is east of the lake. Highway 141 and Beaver Drive are located to the west, with county highway 415 and 17 branching off toward the east and then crossing the northern part of Saylorville Lake. There are several primary transportation corridors that bisect the Project on either side of the lake. These are from North to South, State Highway 30, County Road E-57, County Road E-62, State Highway 210, portion of State Highway 17 and Euclid Avenue. The dam provides a crossing at the southern end of the lake.

Access to specific locations within the project is provided by a network of State and local roads. Within the project boundary, a mix of paved and unpaved roads, parking lots, and trails provide access to different sites. Internal access also is provided by regional trails, such as the Neil Smith Trail, and other trails developed and maintained by the District, Iowa DNR, and other management partners (Polk and Boone CCB). Transportation within the project also is facilitated by the existing marina and numerous boat ramps.

Developed roads and parking lots exist on lands classified for project operations and intensive use in the 1984 Master Plan. These roads and parking lots are confined to areas that support developed recreational sites. The undeveloped portions of the project have limited transportation infrastructure. Trails run throughout the project and provide access to certain portions of these lands. Access to flowage easements is controlled by the individual property owner, with the Corps retaining the right to enter these lands for inspection purposes. Land Classification definitions are discussed in greater detail in Chapter 4 Section 4.02 of the Master Plan.

3.3.3. Utilities. The Energy Policy Act of 2005, Public Law 109-58, 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. In 2009, the Corps issued a Non-Recreational Outgrant Policy (USACE, 2009a), which states that the primary rationale for authorizing any future non-recreational outgrant request for use on Corps lands or waters will be (1) no viable alternative to the activity or structure being located on Civil Works land or waters or (2) a direct benefit to the government. Public utilities including power lines and gas and fuel pipelines, fiber optic, and rural water are past examples of 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 Project Master Plan or OMP as being the preferred location for future outgrants or proposed modifications to existing outgrants suitable to accommodate compatible types of outgrants" (USACE, 2009a).

There are five existing utility corridors (figure EA-6) identified for transmission lines and pipelines that traverse the Project from an east-west perspective, which are generally located in the southern portion of the Saylorville Lake area. (See Appendix H, Map 31). Additional information on utilities is included in Chapter 6.09 Major Utility Corridor Considerations of the Master Plan. Utilities in the Saylorville Lake area are provided by public and private sources. The State of Iowa (Des Moines Water Works) maintains a water intake near the dam that supplies a large portion of the region's drinking water. Potable water within the project boundary is provided by municipal water supply. Private companies provide electricity to project lands, as well as electricity, water and gas service to surrounding residential and commercial customers.

3.3.4. Safety. The District, the State of Iowa, and other management partners work to ensure a safe and enjoyable experience for all visitors at Saylorville Lake. Safety at Saylorville Lake is maintained through a variety of different mechanisms. The Saylorville Lake Safety Plan, included in the Operations Management Plan, identifies safety concerns, responsibilities, and management techniques for different environments at the project. Management agencies have similar plans to direct staff at specific locations within the project. To promote general visitor safety, bulletin boards are posted throughout the different recreation sites with information on water safety, trail use, and hunting. Some of the educational programs provided also are focused on safety, with a special emphasis on water safety. Safety within project lands is a responsibility of the District, Iowa, and other management partners, with the assistance of local emergency services.

3.4. Cultural Resources. Background research, including consultation with Corps archaeologists, the State Historical Society of Iowa (SHSI), and relevant federally-recognized Tribes have identified more than 450 previously recorded archaeological sites within the boundary of Saylorville Lake. Of these sites, a total of 31 archaeological sites are determined eligible for inclusion in the National Register of Historic Places (NRHP); another 166 sites require additional testing to assess their NRHP eligibility. Additional information on cultural resources is included in Chapters 2 and 7 of the Master Plan.

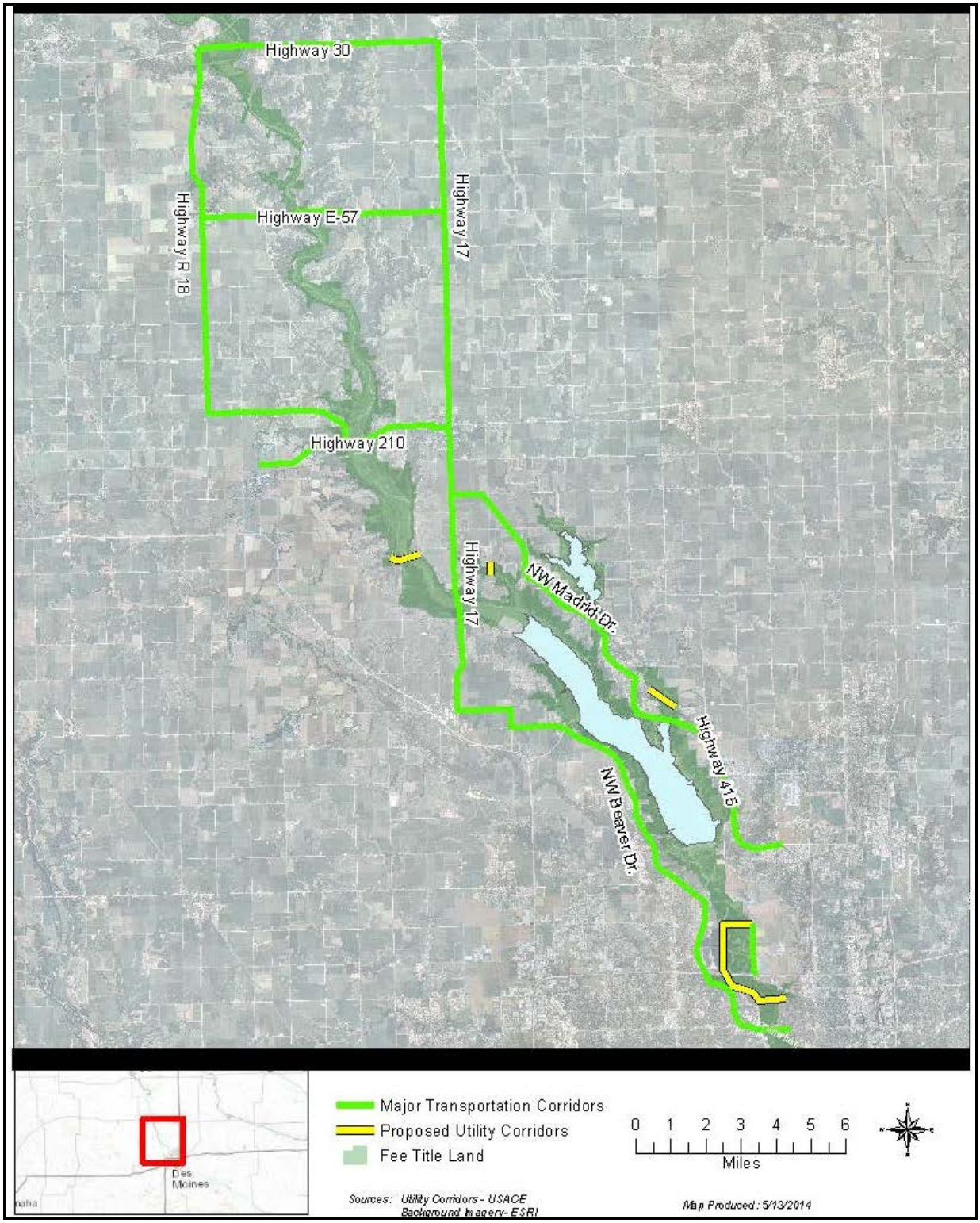

Figure EA-6. Saylorville Master Plan Proposed Utility Corridors

4.0. ENVIRONMENTAL CONSEQUENCES

This section of the EA describes the environmental consequences associated with the alternatives presented in Section 3.0. NEPA requires consideration of context, intensity, and duration of adverse and beneficial impacts (direct, indirect, and cumulative) and measures to mitigate for impacts. These elements are considered in the following impact analysis.

Use of the proposed Master Plan would help define the approval process for future actions affecting project lands, depending on whether the actions are 1) specifically included in the Master Plan, 2) not included in the Master Plan, but consistent with the Plan, or 3) not included and not consistent with the recommendations, objectives and policies stated in Corps regulations (USACE, 2009). For actions that are identified in the Master Plan, the approval process would still require adequate NEPA consideration prior to initiating construction.

The Master Plan will consist of Land Classifications, Resource Objectives, and other specifically-stated policies. It is important to note that this EA assesses the impacts of adopting the Land Classifications included in the proposed Master Plan but not the specific recommended future management actions and opportunities mentioned in Table EA-3, *Future Recommendations of Management Actions by Land Classification,* of this document. These recommendations will be part of the OMP and identified as tasks which will be reviewed 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.

Written requests for new recreation development within the Saylorville Lake boundary which includes the areas leased to the Iowa DNR and other managing agencies and partners will be routed through the Saylorville Lake Project Manager. (See Appendix G.7, *Land Use Review Evaluation Process for Fee and Easement Lands – Saylorville Lake)*. Applicants will coordinate with the District or other managing entity prior to submitting a written request. The District determines if requests are consistent with Master Plan policies. The first step in determining consistency would be to evaluate if the land classification for the location of the Preferred Alternative is appropriate using the Saylorville Lake Land Use Evaluation Process (USACE, 2014). Proposals will also be evaluated in accordance with Corps Non-recreation Outgrant Policy (USACE 2009a) and ER 1130-2-550 Chapter 16, Recreation Outgrant Policy for Outgranted Corps Lands (USACE 2009). The requests include purpose, need, alignment with project purpose, impacts, avoidance, and/or minimization.

The implementation of the Master Plan would not result in any irreversible environmental conditions. Environmental impacts of the No Action and Preferred Alternative (adopt and implement Master Plan) are displayed in table EA-8. When future recommendations are ready for implementation, additional site specific analysis and review for NEPA compliance will be undertaken. Only resources that have either a beneficial or possible adverse impact will be discussed further in Section 4.1. Possible impacts of the proposed Master Plan are shown in table EA-8.

Table EA-8. Environmental Impacts

	NO ACTION IMPACTS			PREFERRED ALTERNATIVE		
Resource	**No Impact[1]**	**Beneficial**	**Adverse**	**No Impact**	**Beneficial**	**Adverse**
Physical Environment						
Geology, Topography, Soils	X			X		
Floodplains	X			X		
Water Resources	X			X		
Air Quality	X			X		
Climate	X				X	
Noise				X		
Hazardous Materials	X			X		
Recreation and Aesthetics			X		X	
Natural Resources						
Vegetation			X	X	X	
Fish and Wildlife			X	X	X	
Threatened and Endangered	X			X	X	
Wetlands	X			X	X	
Invasive Species			X	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	X	
Public Facilities & Services	X			X	X	
Employment	X			X		
Business Growth	X			X		X
Farm Displacement	X			X		
Transportation	X		X		X	X
Utilities	X		X		X	X
Safety	X			X		
Cultural Resources	X			X	X	

[1] No Adverse Impacts Anticipated

4.1. Environmental Impacts. The greatest driver of impacts on environmental resources in the Saylorville Lake area is population, residential and commercial development. As discussed in the Master Plan, there is expected to be a 50 percent increase in population in the region between 2010 and 2050. Over the past decade, the Des Moines 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 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.

4.1.1. Effects on Floodplains and Flooding. In order to meet the missions of the District and the other management partners at Saylorville 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 EO11988, *Floodplain Management*, and related Corps policy.

4.1.2. Effects on Water Resources. There are no significant environmental impacts to water resources from implementation of either the No Action or Preferred Alternative. Operations at Corps facilities and projects are monitored through annual assessments performed as part of the Environmental Review Guide for Operations 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. Under No Action, the ERGO system would continue to insure that impacts of Project operations on water resources and quality would be identified early and corrected.

4.1.3. Effects on Air Quality. Air quality within the project boundary 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). The large open area that is created by the reservoir allows for strong breezes to blow through the project area. These breezes can rapidly reduce and/or eliminate any localized air quality concerns caused by these pollutants. Lands currently classified for Recreation or Project Operations have the greatest potential to produce actions that may 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 boundary. 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.

4.1.4. Effects on Climate. Implementation of the Master Plan will not have a negative effect on climate, ongoing research by the Corps Institute for Water Resources on carbon sequestration potential of Corps-owned land and water demonstrates a potential to capture and store greenhouse gases in vegetation and in reservoir sinks.

4.1.5. Effects on Noise. The implementation of the Master Plan will have no effect on noise levels at Saylorville Lake; conversely, the continued protection of Federal lands will provide a sanctuary for those seeking to reconnect with nature. Noise levels at the upper end of Saylorville Lake should decrease between April 1st to August 31st due to the addition of the Water Surface – Fish and Wildlife Sanctuary classification change which prohibits motorized vessels. Lands currently classified for intensive use or operations have the greatest potential to create noise within the project boundary, but there will be no expansion of high density recreation areas with this Master Plan. Areas within the project have limited noise sources mainly coming from traffic in the surrounding area with short-term impacts from forestry, construction actions, or hunting.

4.1.6. Effects on Recreation and Aesthetic Resources. Although maintenance of current recreational facilities would continue under the No Action alternative, the1984 Master Plan 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 Master Plan. Future recommendations (Table 3) are based on review of the existing facilities, resource suitability, trends and forecasts of future demand. 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. 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 any scale. 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 the proposed Master Plan would not impact the viewshed; the area would remain similar to the existing conditions with minimal or no negative impacts to aesthetics of the area. Protection of Federal lands under the water surface and sensitive area categories will ultimately benefit recreational and aesthetic resources located at Saylorville Lake.

4.1.7. Effects on Vegetation. District would continue to manage the adjacent and nearby woodlands for wildlife following the current operating management plans using best management practices and guidance for Environmental Stewardship. If the District would continue to manage Vegetation under the No Action alternative, the1984 Master Plan no longer accurately reflects the current status of vegetative resources at Saylorville Lake. With implementation of the Master Plan, vegetative resources would be better accommodated 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 Master Plan would benefit natural resources by improving the health of local habitats which in turn encourages wildlife diversity.

4.1.8. Effects on Fish and Wildlife. Although fish and wildlife management would continue under the No Action alternative, the1984 Master Plan no longer accurately reflects the current status of fish and wildlife resources at Saylorville Lake. With implementation of the Master Plan, fish and wildlife resources would be better accommodated by analyzing current conditions, resource suitability, and fish and wildlife trends. Saylorville Lake fish and wildlife have been affected by increasing levels of urbanization and habitat fragmentation. Due to increasing development pressures, it is of benefit to fish and wildlife populations to protect the relatively undeveloped public lands at Saylorville, which have become increasingly valuable to native species as habitat. Protection and management of sensitive areas will also provide benefits to fish and wildlife. Following the goals and objectives found in Chapter 3 of the Master Plan would benefit fish and wildlife by improving the health of local habitats and, in turn, encourages wildlife diversity.

4.1.9. Effects on Threatened and Endangered Species. The District expects the Master Plan to have "no effect" on any listed or proposed endangered species listed in Table 5 of this EA. The District based this statement on the fact that the adoption and implementation of the Master Plan will have a beneficial impact to threatened and/or endangered species. Saylorville Lake will continue to provide a corridor of habitat that is becoming scarce in central Iowa due to the rapidly expanding Des

Moines metro area. The new addition of the environmentally sensitive area and water surface zoning classifications would further protect natural resources from development encroachment and habitat fragmentation. Where identified, state listed species and species of greatest conservation need are included in sensitive area determinations.

The No Action alternative does not include the revised land classifications and management actions affecting Federal lands would analyzed 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 Act. The District will take actions, in compliance with Federal and State regulations, to ensure that the 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 the proposed undertakings. These actions would be reviewed and will determine the type of NEPA documentation needed at that time.

4.1.10. Effects on Wetlands. The effects to wetlands for both the No Action and Preferred Alternatives are essentially the same with the exception being the addition of sensitive areas to the Master Plan, which would provide another level of protection and consequently benefit to natural resources. Wetlands are regulated under Section(s) 401 and 404 of the Clean Water Act. Section 401 Water Quality Certification ensures compliance with water quality standards. Section 404 regulates activities within Waters of the U.S., which includes Saylorville Lake and its surrounding tributaries. Further direction is provided by EO11990: Protection of Wetlands and related Corps regulations. The District and the Iowa DNR are responsible for implementing these regulations through a permitting process.

4.1.11. Effects on Invasive Species. Implementation of either the No Action or Preferred Alternative will not have a negative effect on invasive species management. The 1984 Master Plan has no language pertaining to invasive species and is out of date and non-compliant with current laws and regulations. The District will continue to implement best management practices with regards to invasive species management at Saylorville Lake. Following District 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.

4.1.12. Effects on Socioeconomic Characteristics

- **Community Cohesion and Regional Growth.** Saylorville Lake provides a benefit to a large number of recreation opportunities for the surrounding community and for the region at large, the implementation of the proposed Master Plan would not be expected to significantly impact these areas of growth. Saylorville Lake 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 Master Plan 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 Master Plan seeks to positively enhance public facilities and services by enhancing outdoor recreational opportunities.

4.1.13. Effects on Transportation. Under the No Action alternative planning for recommended future actions would be limited. Due to regional population growth, many areas are experiencing congestion especially during peak recreational periods and holidays. The preferred alternative would include a carrying capacity study, 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. 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.

4.1.14. Effects on Utilities. The proposed Master Plan includes establishing major utility corridors (USACE, 2009a) traversing Saylorville Lake lands to accommodate the future development of linear infrastructure, such as gas and oil pipelines and electrical transmission and distribution lines. Establishing potential utility corridors would 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. The discussion in the Master Plan is intended to address planning-level considerations to anticipate possible future actions in regard to establishing utility corridors. At the time of this environmental impacts analysis report, no projects of this type at Saylorville Lake have been requested for Corps approval; however, it is known that increased urbanization, population and development surrounding Saylorville Lake results in numerous requests for utility easements on government land and these development pressures have adverse impacts to public lands and public enjoyment of these lands. The Master Plan designates where the District will allow utilities to cross government land at Saylorville Lake. By designating these utility corridors, government lands will be protected from negative impacts of fragmentation, erosion, wildlife value and aesthetic quality decline.

4.1.15. Effects on Safety. Implementation of the Master Plan will have no effect on the current Saylorville 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.

4.1.16. 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 that the adoption and implementation of the Master Plan would have "No Effect" on historic properties. Likewise, the Master Plan reclassifications including sensitive area designations would further protect historic properties and sites. The Corps will continue to manage Saylorville

Lake coordinating with interested parties should any future management practices result in separate undertakings in accordance with the Section 106 process. The SHSI, the Advisory Council on Historic Preservation (Council), and relevant federally-recognized Tribes are presently negotiating a programmatic agreement (PA) that will address the Corps cultural resources compliance requirements for the operational management plan and master plan activities at Saylorville Lake pursuant to 36 CFR 800.14(b). The Corps provided the initial draft of the PA to potential signatories for review and comment by letter dated June 19, 2014. The SHSI replied electronically by e-mails dated 23 and 24 July 2014 providing comments on the draft PA. The Council replied by letter dated 1 August 2014 that they would formally like to participate in the PA. No comments were received from any other parties. While the District 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.

4.2. Probable Adverse Effects Which Cannot Be Avoided. Implementation of the Preferred Alternative should not result in unavoidable adverse impacts to any of the resources analyzed in this EA. The Resource Objectives and direction on agency coordination would help the District avoid, offset, and mitigate for any unforeseen impacts. Any anticipated impact is considered minor and localized and would not have significant long-term adverse impacts to project resources.

4.3. Relationship Between Short-Term Use and Long-Term Productivity. The Master Plan is a land use planning document which will benefit productivity of Saylorville Lake 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 Master Plan.

4.4. Irreversible or Irretrievable Commitment of Resources if the Project Is Implemented. The commitment of man-hours required to write, coordinate and review the proposed Master Plan are irretrievable. Other than the aforementioned, none of the proposed actions are considered irreversible.

4.5. Relationship of the Proposed Project to Land-Use Plans. Implementation of the Master Plan 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 Master Plan is consistent with other State and regional goals and programs. If implemented, the District does not expect the proposed action to alter or conflict with other authorized civil works projects.

4.6. Indirect and Cumulative 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 and the No Action Alternative are described below.

Past, present, and reasonably foreseeable future actions have and continue to contribute to the cumulative impacts of activities in and around Saylorville Lake. Past actions include the construction

and operation of the reservoir, the recreation sites surrounding the reservoir, 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 District, Iowa DNR, and other management partners.

The most significant past action was the construction and development of the Saylorville Lake Reservoir. This change created new natural and physical conditions, which, through careful management by the District, Iowa DNR, and other management partners, have created new and successful habitats and other natural resource conditions. The construction of the project also had an impact on cultural resources. Impacts to cultural resources were coordinated with the Iowa SHPO. This coordination included appropriate research and documentation of cultural resources. Since that time, the District, Iowa DNR, and other management partners have worked to preserve, protect, and document cultural resources within the project boundary. The District and the other management partners have also brought a wide variety of high-quality recreational opportunities to the reservoir.

Existing and future actions also contribute to the cumulative impacts in and around the reservoir. 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 District 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 boundary, adverse impacts would be offset through resource stewardship efforts. The programmatic approach to project management, included in this EA and attached Master Plan, would allow for future development plans and mitigation responses to be adapted to address any adverse actions. This would allow the District and other management partners at Saylorville Lake 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 Master Plan.

4.7. Compliance With Environmental Quality Statutes. See table EA-9.

Table EA-9. 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[1]
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.	Full compliance
Flood Plain Management (EO11988)	Full compliance
Protection of Wetlands (EO11990)	Full compliance
Farmland Protection Act	Full compliance
Corps of Engineers Planning Guidance Handbook (ER 1105-2-100)	Full compliance
EO13112 Invasive Species	Full compliance

[1]Full compliance - Having met all requirements of the statute for the current stage of planning.
Not applicable - No requirements for the statute required.

Implementation and adoption of the Master Plan does not authorize or carry out any actions that are likely to promote invasive species proliferation. Any subsequent occurrence of any invasive species at Saylorville Lake will not solely be the result of the implementation and adoption of the Master Plan, which is in full compliance.

5.0. COORDINATION AND PUBLIC INVOLVEMENT

Agency and public involvement was initiated in June 2012, when the District published notices announcing plans to revise the Master Plan. This notice was followed by public comment periods, agency meetings, and additional public open houses. These public involvement activities and comments are described in detail in Chapter 7 of the Master Plan and Appendix B, *Agency and Public Coordination*.

The Saylorville Lake Master Plan and Environmental Assessment public review period (November 18, 2014 to December 18, 2014) resulted in eight letters or emails (Appendix B, *Agency and Public Coordination*).

The following are the District's response to the public review comments.

1. Steve Espland, Iowa Department of Natural Resources, provided in his November 25, 2014, email, a clearer description of the water surface zoning north of the Mile Long Bridge.
District Response: Mr. Espland's comments were integrated into Chapter 5, Section 5.1.5, Water Surface Zoning (page 5-10).

2. Mr. Bob Coulson provided verbal comments to Natural Resource Specialist, Jonathan Wuebker on November 16, 2014. Mr. Coulson's was concerned with the proposed water zoning changes as described in the revised masterplan.
No District Response needed.

3. Mr. Ken Miller provided comments in an email dated December 9, 2014. Mr. Miller was concerned with the proposed water zoning changes as described in the revised masterplan.
District Response: On December 11, 2014,Mr. Jeff Rose, Operations Project Manager, Saylorville Lake, responded to Mr. Miller with the reasons for the proposed water zoning policy change.

4. Mr. Gale Urquhart provided comments in an email dated December 9, 2014. Mr. Urquhart had concerns with the proposed water zoning changes and stated these waters being restricted to non motorized vessels will restrict many people from great fishing waters that have produced many fine fish species in the past and future as well.
District Response: Mr. Jeff Rose, Operations Project Manager, Saylorville Lake, responded to Mr. Urquhart with the reasons for the proposed water zoning policy change.

5. Mr Kraig McPeek, U.S. Fish and Wildlife Service, Ecological Services**,** in a December 15, 2014, letter provided support the for Saylorville Lake master planning efforts.
No District Response needed.

6. Ms Christine Schwake, Iowa Department of Natural Resources, in a December 19, 2014, email stated she did not have any comments pertaining t the master plan document.
No District Response needed.

7. Ms Pauline Drobney, U.S. Fish and Wildlife Service, Division of Biological Resources, in a December 19, 2014 letter, provided several comments concerning sensitive lands, water quality, and erosion reduction.
District Response: Saylorville Lake's natural resource managers have and will continue implementing the best management practices for land management as described in Ms Drobney's letter. The Saylorville lake staff will also continue many land partnerships as well as pursue additional partnerships in the future.

8. Mr. Larry Shepard, U.S. Environmental Protection Agency, Region 7 in an email dated December 19, 2014, agreed with the District's draft Finding of No Significant Impact. Mr. Shepard also had several comments concerning the relationships and issues between the Saylorville Master Plan and NEPA compliance.
District Response: While the comments remain valid and accurate, revising this EA will not change the finding of the no significant impact statement. The District will integrate Mr. Shepard's comments into the master planning efforts at its other projects which are currently revising their master plans.

6.0. LIST OF PREPARERS

District Personnel	Area of Expertise
Jeff Rose	Operations Project Manager
Brian Nail	Natural Resource Specialist
Scott Rolfes	Natural Resource Specialist
Wendy Frohlich	Master Planning, NEPA Documentation
Jim Ross	Cultural Resources
Brant Vollman	Cultural Resources
Tyler Hill	Natural Resource Specialist/GIS
Joe Jordan	NEPA/Endangered Species Coordinator
Mary Rodkey	Report Editing

7.0. REFERENCES

Council on Environmental Quality Executive Office of the President. 2005. *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*.

Des Moines Area Metropolitan Planning Organization. 2012. *The Tomorrow Plan*, State of the Region Greater Des Moines.

Iowa Department of Natural Resources. 2014. Iowa Lakes Information Report, Saylorville Reservoir, Polk County.

Iowa Climate Change Advisory Council. 2010. *Climate Change Impacts on Iowa 2010 – Executive Summary.*

2006. *Iowa Wildlife Action Plan.*

Iowa State University, Department of Natural Resource Ecology and Management and Iowa Department of Natural Resources. 2013. *Multiple Species Inventory and Monitoring Final Report (MISM) – Evaluate Indicators of Environmental Sensitivity with Respect to Native Flora and Fauna – Saylorville Project, Iowa.*

Iowa State University of Science and Technology. 2014. *Windrose Plot January 1970-May 2014*.

Polk County. 2005. *Analysis of Conditions Polk County Comprehensive Plan 1. Natural Resources*. http://www.polk-county.net/boccsite/county-services/comprehensive-plan/

U.S. Army Corps of Engineers. 2014. *Rock Island District Land Use Evaluation Process for Fee and Easement Lands – Saylorville Lake*. See Appendix G.7 of Saylorville Master Plan.

2013. *Engineering Regulation 1130-2-550, Recreation Operations and Maintenance Policies*. Chapter 3: Project Master Plans and Operational Management Plans. Washington, DC.

2009. *Engineering Regulation 1130-2-550, Recreation Operations and Maintenance Policies*. Chapter 16: Recreation Development Policy for Outgranted Corps Lands. Washington, DC.

2009a. *Memorandum on Non-Recreation Outgrant Policy*. Washington, DC.

2003. *Engineering Regulation 200-1-5, Environmental Quality Policy for Implementation and integrated Application of the USACE Environmental Operating Principals and Doctrine.* Washington, DC. Updated 2013.

1988. *Engineering Regulation 200-2-2, Procedures for Implementing NEPA*. Washington, DC.

U.S. Census Bureau. 2010. American FactFinder. http://factfinder2.census.gov/ (Census 2010).

U.S. Department of Commerce National Oceanic and Atmospheric. January 2013. *Regional Climate Trends and Scenarios for the U.S. National Climate Assessment, Part 3. Climate of the Midwest U.S. Technical Report NESDIS142-3.*

U.S. Environmental Protection Agency, Region 7. 2012. *Decision Document, Iowa's Clean Water Act Section 303(d)*

2014. *EnviroFacts*. http://www.epa.gov/enviro/

US Fish and Wildlife Service, Region 3. 2014. *Threatened and Endangered Species for Polk, Dallas, and Boone Counties Iowa.* http://www.fws.gov/midwest/Endangered/lists/iowa_cty.html and *Trust Resources List*. Information, Planning, and Conservation System.

U. S. Fish and Wildlife Service. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. http://www.fws.gov/wetlands/

SAYLORVILLE LAKE MASTER PLAN

POLK, DALLAS, BOONE COUNTIES, IOWA

ENVIRONMENTAL ASSESSMENT

FINDING OF NO SIGNIFICANT IMPACT

The U.S Army Corps of Engineers, Rock Island District proposes to adopt and implement the *Saylorville Lake Master Plan.* The Master Plan applies changes to the land and water classifications, most notably the addition of sensitive area and water surface classifications. The Master Plan also lays out future recommendations for management of both recreation and natural resources.

The Master Plan is a vital tool for the responsible stewardship of resources at Saylorville Lake to benefit present and future generations. The Master Plan provides guidance and includes direction for appropriate management, use, development, enhancement, protection, and conservation of the natural, cultural, and man-made resources at Saylorville Lake. The Master Plan seeks to replace the 1984 Master Plan and provide a balanced up-to-date management plan that follows current Federal laws and regulations while sustaining Saylorville Lake's natural resources and providing outdoor recreational experiences.

I have reviewed the information provided in the accompanying Environmental Assessment, along with data obtained from cooperating Federal, state, and local agencies, and from the interested public. Based on this review, I find adopting and implementing Saylorville Master Plan, will not significantly affect the quality of the human environment. Therefore, it is my determination that an Environmental Impact Statement is not required. The District will reevaluate this determination if warranted by later developments.

Only one other Alternative was considered along with the Preferred Alternative:

- No Federal Action – The District would not approve the adoption or implementation of the Saylorville Master Plan and the 1984 Master Plan would remain as the management guidance document.

Factors considered in determining an EIS is not required are:

- The District does not anticipate any significant impacts to fish and wildlife habitat as a result of implementing the Master Plan.
- The District does not anticipate any significant social, economic, environmental, or cultural impacts as a result of this action.

1-16-15
Date

Mark J. Deschenes
Colonel, US Army
Commander & District Engineer