SAYLORVILLE LAKE MASTER PLAN

DES MOINES RIVER WATERSHED
JOHNSTON, IOWA

POLK, DALLAS, BOONE COUNTIES, IOWA

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US Army Corps
of Engineers ®
Rock Island District

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PREFACE

The Saylorville Lake Master Plan is a vital tool for the responsible stewardship of resources 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 original Master Plan for Saylorville Lake was approved in February of 1974, with a revision completed in September of 1984 (Design Memorandum 6B), and was intended to serve as a guide for the orderly and coordinated development and management of all land and water resources of the project. This document presented data on existing conditions, anticipated recreational use, types of facilities needed to service the anticipated use, and an estimate of future requirements. 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. This document seeks to provide a balanced management plan that sustains Saylorville Lake's natural resources while providing access to quality recreation opportunity.

The United States Army Corps of Engineers (Corps) vision for the future management of Saylorville Lake land, water and recreational resources is set forth as follows:

> *The land, water and recreational resources of Saylorville Lake will be managed to protect, conserve, and sustain natural and cultural resources, especially environmentally sensitive resources, and provide outdoor recreation opportunities that complement project resources for the benefit of present and future generations.*

By definition, Master Plans for Corps reservoirs are land and recreational use management plans that do not address the technical aspects of water management for flood risk management, navigation, or water supply. This Master Plan presents an inventory of land resources, land classifications for management, modernization of existing park facilities, an analysis of resource use, anticipated influences on project operation and management, and an evaluation of existing and future needs required to provide a balanced management plan to improve outdoor recreation opportunities and sustain natural resources.

To ensure consideration of natural and cultural resources, an Environmental Assessment (EA) to identify and evaluate potentially significant impacts has been prepared for this Master Plan in accordance with the National Environmental Policy Act of 1969, as amended (NEPA); regulations of the Council on Environmental Quality; and USACE regulations, including Engineer Regulation 200-2-2: Procedures for Implementing NEPA. The EA can be found in its entirety in Appendix A.

The typical focus of NEPA compliance consists of environmental assessments for individual projects, rather than for long-range plans. However, application of NEPA allows USACE to begin considering the environmental consequences of their actions long before any physical activity is planned. The EA

evaluated and analyzed two alternatives: the implementation of the proposed Master Plan and a No Action Alternative (continued use of the 1984 Master Plan). The EA also analyzed the potential impact these two alternatives would have on the natural, cultural, and human environments. To ensure future environmental consequences are captured and coordinated as accurately as possible, additional agency review and NEPA coordination for future projects is prescribed in the proposed Master Plan.

Preparation of this Master Plan was a cooperative effort involving USACE; tribal representatives; Federal, state, and local government agencies; non-government organizations; and members of the general public. Listening sessions and scoping comments from government officials and the general public were important for identifying issues that needed to be addressed in the Master Plan. Details regarding the public involvement efforts for the Master Plan are provided in Chapter 7.

Based on the information contained in the Master Plan and the EA, and comments received during agency and public scoping, the 2014 Master Plan would not significantly impact the quality of the human environment; therefore, an Environmental Impact Statement will not be prepared.

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ACRONYMS

ADA	Americans with Disabilities Act
ATV	All Terrain Vehicle
BMP	Best Management Practice
BO	Biological Opinion
CFS	Cubic Feet per Second
EAB	Emerald Ash Borer
EA	Environmental Assessment
EIS	Environmental Impact Statement
ER	Engineer Regulation
EP	Engineer Pamphlet
ESA	Endangered Species Act
GIS	Geographic Information Systems
GPS	Geographic Positioning Systems
HPMP	Historic Properties Management Plan
Iowa DNR	Iowa Department of Natural Resources
ISOP	Interpretive Services and Outreach Program
MP	Master Plan
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MSL	Mean Sea Level
NEPA	National Environmental Policy Act
NGVD	National Geodetic Vertical Datum
NHPA	National Historic Preservation Act
OMBIL	Operations and Maintenance Business Information Link
OMP	Operational Management Plan
PA	Programmatic Agreement
PCCB	Polk County Conservation Board
PSA	Project Site Area
RV	Recreation Vehicle
SCORP	State Comprehensive Outdoor Recreation Plan
SMP	Shoreline Management Plan
USACE	United States Army Corps of Engineers
USFWS	United States Fish and Wildlife Service
WDU	Waterfowl Development Unit
WRDA	Water Resources Development Act

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CHAPTER 1
INTRODUCTION

1.1. PROJECT AUTHORIZATION

In 1958, Congress authorized the U. S. Army Corps of Engineers (Corps) to construct Saylorville Lake on the Des Moines River about 11 miles upstream from the City of Des Moines through the River and Harbor Act of 3 July 1958. (See Appendix D.4.). The drainage area above the dam is 5,823 square miles. The principal purpose of the Saylorville Lake Project is to furnish needed 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 permanent conservation pool forms a lake with storage of about 73,600 acre feet and extends some 24 miles upstream from the dam. The flood storage pool has storage of 641,000 acre feet and extends 54 miles upstream of the dam. The development of recreation facilities at Saylorville Lake was authorized by Section 4 of the Flood Control Act of 22 December 1944. (See Appendix D.3 and Appendix H.1, *Saylorville Lake Project Area Map*.)

1.2. PROJECT PURPOSES

Saylorville Lake is a unit of the comprehensive plan for flood risk management (FRM) in the upper Mississippi River Basin. Although originally authorized for flood control (now referred to as FRM) and for low-flow augmentation, the project is considered a multi-purpose project with additional missions of providing recreation, fish and wildlife management and water supply storage.

1.2.1. Flood Risk Management. The purpose of the Corps' FRM mission is to reduce the threat to life and reduce property damages from riverine and coastal flooding. The Corps' flood and coastal storm damage reduction projects include structural and non-structural measures. The Corps is an integral part of Nation's efforts to manage flood plains and maintain and operate aging water resources infrastructure. Execution of the FRM program serves to integrate and synchronize programs and activities within the Corps and with counterpart activities of the Department of Homeland Security, Federal Emergency Management Agency (FEMA), other Federal agencies, state organizations, and regional and local agencies. Saylorville Lake's FRM structures include the main dam, spillway, and Big Creek Remedial Works (consisting of a diversion dam, diversion channel, terminal spillway, barrier dam and pump station).

1.2.2. Water Supply. The Corps has provided water supply storage space in its multi-purpose reservoirs for many years. Based on current data, approximately 9.8 million acre feet of municipal and industrial water supply storage space are included in 135 reservoir projects in 25 states. As one of the nation's largest water management agencies, the Corps plays an important role in ensuring that Americans have enough water to meet their needs. The Water Supply program currently is capable of

providing about 6.5 billion gallons of water per day to allow state and local interests to supply cost-effective water to homes, municipalities and businesses nationwide. A water-supply contract with the State of Iowa has been in place at Saylorville Lake since 1982. This contract allows the State of Iowa to utilize 18.86 percent of the usable storage space (estimated to be 11,940 acre feet) in the lake between elevations 812. National Geodetic Vertical Datum (NGVD) and 836. NGVD. The state has sub-allocated that water to the Des Moines Water Works and Iowa Southern Utilities (Alliant Energy). There are no direct water intake structures in Saylorville Lake, but water is withdrawn from releases made through the Saylorville Dam.

1.2.3. Low Flow Augmentation. Low flow augmentation (water quality) releases from the outlet works are intended to be met 90 percent of the time. Water quality objectives are met by maintaining a minimum flow of 200 cubic feet per second (cfs)[1] from the dam to the confluence with the Raccoon River, 270 cfs from the confluence to the sewage treatment plant (Des Moines River river mile 199), and 300 cfs below that point. Low flow augmentation also improves riverine water quality by increasing the level of dissolved oxygen in the water and thus improving conditions for aquatic organisms.

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

- Federal Water Project Recreation Act of 1965, as amended. (Appendix D.9)
- The National Environmental Policy Act of 1969, as amended. (Appendix D.14)
- U.S. Fish and Wildlife Coordination Act of 1958 (Appendix D.5)
- Water Resources Development Acts of 1986, 1988, 1990, 1992, 1996, 1999, 2000, 2007 and Water Resources Reform and Development Act of 2014. (Appendix D.26, D.30, D.28, D.31, D.32, D.33, D.34, D.36, D.37)
- Coastal Wetlands Planning, Protection and Restoration Act of 1990 (See Appendix D.29.)

the Corps is responsible directly or indirectly for the maintenance, restoration, and stewardship of natural resources on the flood control projects it owns and manages. At Saylorville Lake, a wide variety of habitat types are managed on the 25,515 acres of land and water, including 14,015 acres managed by Iowa Department of Natural Resources (DNR) and 1,769 acres managed by Boone and Polk County Conservation Boards. These lands are managed under a lease agreement from the Corps to facilitate stewardship and expand outdoor recreation opportunities. Waterfowl management has been a priority at Saylorville Lake. Every year 50-70,000 migrating waterfowl use the lake along with

[1] The rate of flow past a given point, measured in cubic feet per second. One cubic foot of water equals about 7.5 gallons and weighs 62 pounds.

large proportions of the nation's water birds such as gulls, terns, and pelicans. Open water in the tail waters of the dam also attracts dozens of Bald Eagles each winter.

1.2.5. Recreation. The Corps is the nation's leading Federal provider of outdoor recreation opportunities. As host to about 370 million visitors a year, the Corps plays a major role in meeting the outdoor recreation needs of Americans. The Corps recreation projects contribute economically and socially to the communities in which they are located, providing a natural resource setting for visitors to reap the benefits of engaging in outdoor activities to their physical, mental, and emotional health. The Corps' Natural Resources Management Mission is to manage and conserve those natural resources, consistent with ecosystem management principles, while providing quality outdoor public recreation experiences to serve the needs of present and future generations. In all aspects of natural and cultural resources management, the Corps promotes awareness of environmental values and adheres to sound environmental stewardship, protection and compliance and restoration practices. The Corps manages for long-term public access to, and use of, the natural resources in cooperation with other Federal, state, and local agencies as well as the private sector. The Corps integrates the management of diverse natural resources components such as fish, wildlife, forests, wetlands, grasslands, soil, air, and water with the provision of public recreation opportunities.

Saylorville Lake offers a wide variety of facilities including campgrounds, day use and picnic areas, beaches, boat ramps, visitor center and trails provided by the Corps and lessees. A significant focus of recreation at the lake has been providing facilities for water-based recreation activities such as boating, water skiing etc. The Corps leases land for a marina and, along with partners, provides several boat ramps around the lake.

1.3. PURPOSE AND SCOPE OF MASTER PLAN

The Master Plan provides direction for project development and use as well as guidance for appropriate uses, development, enhancement, protection, and conservation of the natural, cultural, and man-made resources at the Saylorville Lake. It is a vital tool for the responsible stewardship of project resources for the benefit of present and future generations. A master plan is programmatic and identifies conceptual types and levels of activities, not designs, project sites, or estimated costs. All actions by the Corps and the agencies and individuals granted leases to the Corps lands (out-grantees) must be consistent with the master plan. Therefore, it must be kept current in order to provide effective guidance in the Corps decision-making. The most recent Saylorville Lake Master Plan was approved in 1984.

The Master Plan is based on responses to regional and local needs, resource capabilities and suitability and expressed public interests consistent with authorized project purposes and pertinent legislation and regulations. It provides a District-level policy consistent with national objectives and other State and regional goals and programs. The plan is distinct from the project-level implementation emphasis of the Operational Management Plan (OMP). Policies in the Master Plan are guidelines implemented through provisions of the OMP, specific Design Memorandums (Appendix E*)*, and the Annual Management Plans. This Master Plan supersedes the previous Saylorville Lake Master Plans (project wide MP and Corridor MP), except for any specific requirements in previously signed cost-share agreements.

This revised Master Plan and EA was prepared in accordance with the following guidance:

- Engineer Pamphlet (EP) *1130-2-550, Project Operations – Recreation Operations and Maintenance Guidance and Procedures*, 15 November 1996. (See Appendix F.9.)
- Engineer Regulation (ER) 1130-2-550, *Project Operations – Recreation Operations and Maintenance Guidance and Procedures,* 15 November 1996 (with changes 1 October 1999, 1 March 2002, 15 August 2002, 30 August 2008, 30 March 2009, 30 January 2013, and 30 September 2013). (See Appendix F.7.)
- Engineer Manual 1110-1-400, *Engineering and Design – Recreation Facility and Customer Service Standards*, 1 November 2004. (See Appendix F.11.)
- ER 200-1-5, *Environmental Quality – Policy for Implementation and Integrated Application of the USACE Environmental Operating Principles and Doctrine*, 30 October 2003. (See Appendix F.1.)
- ER 200-2-2, *Environmental Quality – Procedures for Implementing the National Environmental Policy Act*, 4 March 1988. (See Appendix F.2.)
- ER 1105-2-100, *Planning Guidance, 22 April 2000 (with App D and G revised June 2004 and App F revised January 2006)*. (See Appendix F.3.)

1.4. DESCRIPTION OF PROJECT AND WATERSHED

Saylorville Lake is located in Polk County on the Des Moines River in central Iowa, approximately 214 miles upstream from its confluence with the Mississippi River. The conservation pool (the Lake) impounded by the dam is within Polk County. The flood pool extends into Dallas and Boone Counties. Major communities proximate to the lake are: Des Moines just 10 miles to the south; surrounded by the growing communities of Ankeny, Johnston and Polk City.

The Des Moines River Watershed basin begins in Southwestern Minnesota extends southerly across central Iowa to the southeastern part of Iowa. The Des Moines River joins the Mississippi River in Keokuk, IA. (See Appendix H.2, *Saylorville Lake Watershed Map*.)

The Des Moines River drains about 98 percent of its 14,802 square miles in this basin. Des Moines, Ottumwa, and Fort Dodge are the largest population centers. This basin contains 9.4 million acres of land and 42,000 acres of water surface. Population growth and economic development are basic factors in determining future resource needs. Urbanization continues at a faster rate in this area than the rest of the state. In a five-year period from 2006 to 2011, approximately 14,000 acres were urbanized. The population in the Greater Des Moines area alone has grown from 323,600 to nearly 558,700 between 1960 and 2010. (See Appendix G.15*, State of Region Greater Des Moines, The Tomorrow Plan.)* Future problems and needs include water supply, water quality, flood damage, limited recreational opportunities, and preservation of the environment. Water resource development in the basin includes Saylorville Lake, Lake Red Rock, several local flood protection facilities, and agricultural levees.

1.5. PERTINENT PROJECT INFORMATION

Table 1-1 provides pertinent information regarding existing water storage/levels.

Table 1-1. Saylorville Lake Existing Water Storage and Levels

Construction	
Began	1965
Completed	1977
Cost	
Federal Estimate	$130,100,000
Reservoir @ Normal Pool	
Length	24 miles
Area	5,520 acres
Storage	73,600 acre feet
Reservoir @ Flood Storage Pool	
Length	54 miles
Area	16,100 acres
Storage	567,000 acre feet
Water Surface Elevation	
Normal Pool	836' NGVD (11.5% total storage capacity)
Flood Storage Pool	884' NGVD29 (Top of Concrete Spillway) 890' NGVD29 (Top of Pneumatic Crest Gates)
Dam	
Type	Earth-Filled Embankment
Length	6,750 feet
Height	105 feet
Top Width	44 feet
Spillway Elevation	884' NGVD29 (Top of Concrete Spillway) 890' NGVD29 (Top of Pneumatic Crest Gates)
Top of Dam	915.5' NGVD29
Damages Prevented	
1975-2014	$188,878,916[1] (estimated)
2010	$1,732,900[1] (estimated)
2008	$1,653,200[1] (estimated)
1993	$113,466,800[1] (estimated) [1] (not indexed for 2014 price levels)
Average Normal Inflow	
June	6,000 cfs
July	4,200 cfs
Highest Inflows Recorded	60,600 cfs (June 10, 2008)
Previous Highest Inflows	47,100 cfs (July 11, 1993)
Average Normal Outflow	
June	7,200 cfs
July	6,100 cfs
Highest Outflows Recorded	47,000 cfs (June 12, 2008)
Previous Highest Outflows	44,500 cfs (July 18, 1993)

Table 1-1. Saylorville Lake Existing Water Storage and Levels

Record High Pool Elevations	
July 11, 1993	892.3' NGVD29
June 12, 2008	891.3' NGVD29
June 22, 1984	889.25' NGVD29
July 1, 2010	889.15' NGVD29
June 11, 1991	888.99' NGVD29
April 27, 1993	886.17' NGVD29
April 6, 1979	883.59' NGVD29
Over Spillway / # Days	
July 1, 2010	7 Days
June 10, 2008	12 Days
June 18, 1993	42 Days
April 24, 1993	7 Days
June 6, 1991	9 Days
June 18, 1984	15 Days
Recreation	
Number of Recreation Areas	25
Beaches	2
Camping Areas	4
Available Campsites	517
Marinas	1
Boat Ramps	7
Total Boat Ramp Launch Lanes	15
Miles of Trails	29
Group Picnic Shelters	24
Number of Visitors	
2013	1,408,814
2012	1,274,000
2011	1,246,000
2010	1,156,000

[1] An acre foot is one acre of water one foot deep. One acre foot is equivalent to 325,851.4 U.S. gallons

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CHAPTER 2
SETTING AND FACTORS INFLUENCING MANAGEMENT AND DEVELOPMENT

2.1. DESCRIPTION OF RESERVOIR

Saylorville Lake consists of a lake impounded by the main dam, outlet works, spillway, Big Creek Remedial Works, the downstream floodway corridor, and public use lands and facilities. The Diversion Dam and Spillway were put into operation in 1972 and the Saylorville Reservoir and Barrier Dams in 1977. Approximately 27,400 acres of land was acquired for the reservoir, downstream floodway corridor and recreation areas. Initially 23,829 acres in fee title and 1,400 acres in flowage easements were acquired to an elevation of 892.0 msl on public and non-profit organization lands. The primary operational facilities at Saylorville Lake are described in the following paragraphs:

2.1.1. Embankment. The earth filled structure has a crest length of 6,750 feet and a maximum height above streambed of about 125 feet. The maximum base width is 1,125 feet, and the top width is 44 feet. The crest of the dam is at elevation 915.5 feet. A 2-foot thick riprap layer has been placed below elevation 825.0 feet, and the slope above this elevation is sod with 1 foot of topsoil. The embankment is built of compacted impervious materials. A 4-foot thick horizontal sand drain culminates into a 10-foot thick riser at the centerline of the dam. Total freeboard above maximum design water surface elevation of 908 feet is 7.5 feet. A public-access road crosses the top of the dam.

2.1.2. Outlet Works. The outlet works consists of a gate tower, 22-foot diameter circular conduit 500 feet long, and a stilling basin. Access to the operating floor of the gate tower is available via a high level service bridge. A low level service bridge provides access to the trash rack and recording gate manhole. Outflow from the dam is controlled by three 8-foot by 19-foot service gates (tractor gates with individual hoisting units) located in the gate tower. In addition to the service gates, a single emergency gate is provided just upstream of the service gates to be used during an emergency or during periodic maintenance and inspection. All four gates have identical controls for raising, lowering, and setting the gates. The emergency gate is operated by a traveling hoist mounted on rails in the operating floor. A jib crane is mounted on the traveling hoist. Slots at the upstream edge of the lower level service bridge are for bulkheads to dewater any outlet passage. Maximum outflow of 21,000 cfs is reached at elevation 880 feet. Water regulation manual requires a minimum 200 cfs release.

2.1.3. Spillway. The original spillway design consists of an uncontrolled concrete ogee weir flanked with gravity bulkhead sections, 200 feet of paved chute, and about 5,000 feet of unlined trapezoidal chute. The crest of the ogee section is 430 feet long and is at an elevation of 884.0 feet. The slope of the concrete chute is 0.1, terminating at an elevation of 870.0 feet, beyond which the unlined trapezoidal chute is constructed in varying slopes. Currently, the spillway discharge is controlled by pneumatic crest gates that are attached to and span the entire crest of an ogee weir.

With the gates deflated, the minimum crest of the gate is elevation 884 feet. When the gates are inflated, the maximum crest is elevation 890 feet. The area downstream of the spillway has eroded several times (1984, 1991, 1993, 2008, and 2010) and was stabilized after each event. In 2010, a concrete cutoff wall was constructed with a roller-compacted concrete cap to reduce head-cutting effects near NW 78th Avenue in the unlined spillway channel.

2.1.4. Saylorville Lake. Saylorville Lake is located in parts of Polk, Dallas, and Boone Counties in Iowa. At full flood control pool elevation 890.0, the lake extends 54 miles above the dam and has a water surface area of 16,100 acres. The original conservation pool, elevation 833.0 has been raised to elevation 836.0 for water supply storage and now extends 24 miles upstream and provides a 5,520-acre lake. Varying operating constraints, including seasonal requirements and stage at downstream control points for downstream discharge exist for seasonal conditions (16 December through 20 April and 21 April through 15 December).

2.1.5. Big Creek Remedial Works. Big Creek Remedial Works provides flood protection for parts of Polk City, Iowa, and adjacent Big Creek Valley, which are below the full flood pool level. This flood protection system consists of:

- a barrier dam near the mouth of Big Creek to exclude reservoir waters from Polk City;
- a pump station and gravity outlet to remove interior drainage from the protected area between Big Creek Diversion Dam and the Barrier Dam; and
- an upstream diversion dam across Big Creek diverting Big Creek through a channel to a terminal dam that allows Big Creek to empty into Saylorville Lake.

An 885-acre lake behind the diversion dam has a relatively stable pool elevation of 920.0 controlled by the Terminal Dam Spillway that is unaffected by the Saylorville Lake stages. The diversion dam outlet is set to release a minimum of 3 cfs into Big Creek. The flood protection works for the Big Creek valley are operated and maintained by the Corps. The Iowa DNR manages the adjacent lands and Big Creek Lake.

2.1.6. Downstream Floodway Corridor. The downstream floodway corridor extends about 9 miles downstream of the dam and includes approximately 2,500 acres of the Corps lands to convey the increased maximum regulated reservoir flood release rate from 8,000 cfs to 12,000 or 16,000 cfs, depending on the season. Another purpose was to control the land use to prevent recurrent damage from target releases. The elevations outside of the real property rights acquired are flooded when large discharges are passed through the dam or over the spillway. When the corridor was purchased in the mid 1970's the 1 % exceedance discharge was 21,000 cfs. Recreation development in the floodway includes Federal and cost-shared facilities and lands leased by the Iowa DNR, Polk County Conservation Board and the City of Des Moines. Facilities in the corridor include Bob Shetler and Cottonwood Recreation Areas just below the dam, Sycamore Access, Prospect Park and various trails, parking lots, access roads, and boat ramps. These areas are vulnerable to inundation during high outflows.

2.1.7. Park and Recreation Facilities. Saylorville Lake has recreation facilities developed and operated by Federal, state, and county agencies and by private organizations. Public use areas

associated with the lake include a visitor center, nature education area, trails, day use recreation areas, campgrounds, and boat launching facilities.

2.2. HYDROLOGY

Saylorville Lake, one of the largest lakes in the state of Iowa with 5,520 surface acres of water at conservation pool, is located within Polk, Dallas, and Boone Counties on the Des Moines River approximately 214 miles upstream from the Mississippi River. The Des Moines River watershed 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 glaciation, resulting in 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. (See Appendix G.5, *Iowa Lakes Survey 2009*.)

The primary authorized purpose of Saylorville Lake is flood risk management (FRM) as a part of a general comprehensive Upper Mississippi River Basin Plan on the Des Moines and Mississippi Rivers in conjunction with the Des Moines Local Flood Protection Project (LFPP) and Lake Red Rock. The total flood storage area of the project is 641,000 acre feet. The lake's 836-foot-NGVD29 pool level is maintained to allow for snowmelt runoff, and for predicted and actual rainfall, to minimize downstream flooding. Based upon the flow records 1991 through 2010 the average annual runoff of the Des Moines River at Saylorville, Iowa, is about 3,046,000 acre-feet.

2.3. SEDIMENTATION AND SHORELINE EROSION

The rate of sedimentation within the reservoir is influenced by regional and site specific conditions, including annual and seasonal precipitation patterns and associated storm water runoff, as well as river bank erosion and agricultural runoff. Sedimentation is unavoidable for reservoirs like Saylorville Lake due to steep banks, frequent high water events, and wind and wave action. Accounting for sedimentation was included in the design and management of the reservoir; however sedimentation rates have been higher than anticipated. The results of a sedimentation survey of Saylorville Lake conducted in 2007 provide an analysis of the water storage capacity for the water supply contract with the State of Iowa. This data shows that some storage capacity set aside for water supply has been lost due to sedimentation in the reservoir. In 1982 it was projected that 14,900 acre feet or 18.86 % of the storage between elevations 812 and 836 would be available for water supply at the end of 25 years. The survey conducted in 2007 indicated that 12,300 acre-feet of storage was available within that elevation range. A 2014 resurvey indicates there is currently 11,940 ac-ft of usable storage available for water supply. Sedimentation will continue to be an area of concern for recreation on Saylorville Lake. The project experiences erosion problems associated with frequent flooding events and runoff from adjacent farm land resulting in increased sedimentation that has created mud flats above the Mile Long Bridge. This large complex of mudflats provides excellent wildlife habitat for migrating waterfowl but impacts the amount of surface acres available for recreation boating. (See Appendix

H.3, *Saylorville Lake Mudflats Map,* and Appendices H.34 and H.35*, 2014 Report of Sedimentation Resurvey Maps.)*

Shoreline erosion is a problem along the perimeter of Saylorville Lake. Areas with long wave fetch zones and highly erodible soils are particularly susceptible. Some areas have been protected by utilizing rip-rap to stabilize the banks, primarily around the dams, the Visitor Center observation deck, and boat ramps. Erosion is also a problem on the river corridor below Saylorville Dam. There are many areas along the river corridor that have been addressed, including some Saylorville Lake recreation areas. The Neal Smith Trail had to be rerouted because erosion was undercutting sections of the paved multi-use trail. Des Moines Water Works has utilized rip-rap to stabilize sections of the river bank in order to protect water intake structures. Adjacent land owners have also gained permissions from the Corps to place rip-rap along the river banks to prevent the erosion from spreading onto their property. Normal outflows, wind and wave action and high outflows from flood events will continue to impact the stability of the Des Moines River banks below the Saylorville Lake Dam and future stabilization may be necessary to protect infrastructure.

2.4. TOPOGRAPHY, GEOLOGY, AND SOILS

Saylorville Lake is located in central Iowa, within Polk, Dallas, and Boone Counties. The Saylorville Dam and Big Creek Remedial Works Complex of dams, spillways, diversion channel and pump station are all located in Polk County, Iowa. Saylorville Lake is one of the largest lakes in the State of Iowa with 5,520 surface acres of water at elevation 836 NGVD. The lake lies in the physiographic region of the interior planes, central lowlands province. The reservoir is complemented by a combination of broad flood plains, moderately rolling hills, and upland areas.

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 of the Cherokee Group of the Des Moines Series. Floodwaters flowing through the Saylorville Dam Spillway Discharge Channel over several different events have exposed the shale with inter-bedded strata of siltstone, sandstone, limestone, and coal. Weathering contributes to the high erodibility and wave-action degradation of shale and may create unstable slopes wherever it occurs. In the upper reaches of the reservoir, thick sandstones occur in vertical outcrops in the valley walls, such as in the scenic Ledges State Park, a few miles downstream from Boone, Iowa. Borings at the dam site indicate that the bedding of the strata is remarkably horizontal.

There are three major soil associations within the main pool area of Saylorville Lake (Polk County):

- the Clarion-Nicollet-Webster Association
- the Hayden-Lester association
- the Waukegan-Dickinson-Dorchester Association

Soil mapping is available showing the various soil types, parent material, slope, drainage and fertility characteristics. This information is used to determine resource protection needs, historic biotic occurrence, stability, fertility and drainage characteristics for various uses.

2.5. FISH AND WILDLIFE RESOURCES

Saylorville Lake provides a significant fish and wildlife resource both for the state of Iowa and regionally for the Midwest. Constructed on Iowa's largest interior stream, Saylorville Lake represents the only major extension of timber (forest) into North Central Iowa. Well known for its importance as a migratory corridor, Saylorville was deemed globally significant by the American Bird Conservancy in 1998. Iowa ranks 49th in public land ownership and significant tracts of wildlife habitat are uncommon. 26,000 acres of the Saylorville Lake include 7,000 acres of water, 15,000 acres of forest cover and approximately 4,000 acres in grasslands, crop fields and other open habitat. Large habitat complexes like Saylorville Lake have allowed for the successful reintroduction of once-extirpated species from Central Iowa. These include river otter, bobcat, osprey and bald eagle. All of these species now have reproducing populations and stable or growing numbers of individuals. While 12,807 acres of project lands are out granted to the Iowa DNR for wildlife management, almost all remaindering lands have high wildlife value.

As part of the master plan process, an extensive Multi-Species Inventory and Monitoring Program (MSIM) inventory was conducted on 18 different habitat types identified throughout the project. *(*See Appendix G.8, *Multiple Species Inventory and Monitoring Report.*). Originally produced by the U.S. Forest Service and then modified to meet Iowa need, this extensive inventory system was initiated to help Saylorville Lake identify significant resources. 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 data base due to the extensiveness of the inventory protocols. (See Appendix H.24, *MSIM Poster.)*

The 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 Action Plan 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 two 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 1970s. 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. Where identified, state-listed species and species of greatest conservation need are included in sensitive area determinations.

Pressures on the resource are very significant. Rapid urbanization and resulting land use and vegetative cover changes pose the largest threat. *The Tomorrow Plan* produced in 2013 by the Greater Des Moines Metropolitan Planning Organization *(*see Appendix G.3. *Final Report; The Tomorrow Plan)* projects extensive growth in the greater metro area with primarily residential urbanization

occurring adjacent to project lands. Much of this adjacent land is either in agricultural production or forest cover. All of the problems associated with urbanization will impact wildlife populations, management techniques and dynamics.

Invasive species continue to pose significant threats to project resources. Forty-seven invasive species have been identified on project lands. Many species pose relatively minor risk to altering native systems, while others have the potential to greatly impact. The Emerald Ash Borer will have tremendous consequences, both in actual costs to manage and the overall dynamic change that will occur within forests. A few species including Serecea Lespedeza, Autumn Olive and Crown Vetch cause serious threats and expensive control measures on an annual basis.

Annual visitation of over one-million people also has an impact on Saylorville Lake's natural resources. Recreation from boating to hiking, geo-caching to mushroom hunting all pose some degree of disturbance to wildlife and natural resources. Human disturbance can be a limiting factor and dense visitation impacts will be difficult to quantify.

Wildlife and Fisheries Management. Wildlife and Fisheries management is an important component of the resource management program. Approximately 12,800 acres of the project lands are designated to wildlife management and managed by the Iowa DNR. Close coordination and partnering occurs between Corps staff and the Iowa DNR to reach management objectives. Hunting and fishing are popular at Saylorville Lake and efforts will continue to preserve and promote these activities.

Wildlife management is targeted primarily at White-tailed Deer, Eastern Wild Turkey, waterfowl and mourning doves. Additionally, small game hunting and upland birds are managed species but limited by lack of suitable habitat. Non-game wildlife species benefit from habitat provided project wide. Recent Multiple Species Inventory and Monitoring (MSIM) program data supports the assumption that wildlife and fisheries resources are diverse across a broad spectrum of habitats found on Saylorville Lake lands. (See Appendix G.8, *Multiple Species Inventory and Monitoring Report*.) These findings also demonstrated high value wildlife lands are not limited to manage wildlife lands. Due to intensive agriculture conversion and lack of public lands, large projects like Saylorville Lake (26,000 acres) play an important role in maintaining fish and wildlife resources in Iowa. The Iowa Wildlife Action Plan identifies the importance of Saylorville Lake for wildlife. This statewide management plan implemented in 2005 addresses all wildlife resources and identified needs to protect diversity. Saylorville Lake is located within the Prairie Pothole Joint Venture region within the Tallgrass Prairie Biome. Saylorville's most significant contribution to wildlife at the state level would be its value as a prominent wildlife migratory corridor. Statewide species richness data provided by Iowa Gap Analysis exhibit strong values for diversity in Central Iowa including: avian, vertebrates, mammals, aquatics, amphibians and reptiles. The value of these resources in the gap analysis is also recognized by The Nature Conservancy, Iowa Audubon, American Bird Conservancy and the Heritage Foundation.

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. A commercial fishing license is used to help control overpopulations of carp and buffalo by using net capture in the fall. Controlling

invasive species is a concern for water resource managers. Aquatic plants have difficulty establishing in the reservoir and pose a smaller threat, however if zebra mussel, big head carp and silver carp were introduced they would negatively affect the overall fishery of Saylorville Lake.

2.6. CULTURAL RESOURCES

Saylorville Lake is the result of impounding water in a portion of the Des Moines River Valley a few miles north of the city of Des Moines, Iowa. The Des Moines River is a deeply entrenched valley located on a till plain known as the Des Moines Lobe that was deposited following the retreat of the southernmost extension of the Wisconsinan glacial advance approximately 13,000-14,000 years before present (B.P.). Due to the relatively recent retreat of the glacial ice, people were unlikely to be in the vicinity.

There is a small amount of evidence that the Des Moines River Valley was occupied during the Paleo-Indian period (12,000–9,500 B.P.). This is a period is believed to be a time of highly mobile groups of hunter-gathers who did not have large permanent villages because they were following the seasonal migrations of large animals. There are only a small number of Paleo-Indian period sites in this area. This could be because people may not have been present in large numbers; the still active river may have destroyed some of the site locations; or, it could simply be that the sites have not been identified to date.

The Archaic Period (9500–2350 B.P.) follows the Paleo-Indian Period. The Archaic is a long period of time and is often split into Early, Middle and Late sub periods. It represents a time of transition from the highly-mobile Paleo-Indian Period to settled villages. Populations gradually grew as people began focusing on exploiting plant and animal resources in one area, rather than following the emigrations of herd animals. Trade began to develop as people in settled villages interacted with one another, exchanging food and raw materials.

The Woodland Period (2350–850 B.P.) follows the Archaic and is distinguished by the development of ceramics. Once again this long period is generally split into Early, Middle and Late sub periods. Population increased as food production continued to shift from a focus on hunting and gathering to crop production. By the Middle Woodland period (2050 – 1550 B.P.), society had become quite complex with trade bringing in raw materials and finished goods from as far away as the Gulf Coast and the Rocky Mountains to the Central Iowa region. Also beginning in the Middle Woodland, corn was found in small amounts for the first time. By the Late Woodland (1550 – 850 B.P.), corn became a staple food in the diet. Populations increased substantially and societies became even more complex leading to warfare between villages and groups.

The Mississippian Period (850–European contact) follows the Late Woodland. In some areas of the Midwest the populations were so high that people were living in what we would today call “city states” at places like Cahokia near St. Louis, Missouri, and the Aztalan site in Wisconsin. In the Des Moines River valley the time period is generally referred to as the Oneota period and the villages did not reach such a high level of complexity. It appears that during the later portion of the Mississippian or Oneota period, the region may have been slowly abandoned. None of the sites from the later portion of the period have “trade goods” that would show evidence of contact with Europeans.

The Historic Period (European contact through present day) includes the recent history of the Saylorville Reservoir vicinity. By the mid 1700s the Des Moines valley was occupied by the Sauk &

Fox Tribes. Through a series of treaties the land was eventually transferred to the United States. Euro-American settlement greatly increased in the area after Iowa gained statehood in 1846. A fair number of both individual structures and whole towns from the historic period are present on property managed by the US Army Corps of Engineers at the Saylorville Project.

2.7. RECREATIONAL FACILITIES, ACTIVITIES AND NEEDS

Zones of Influence. The primary area of influence encompasses the Greater Des Moines Metropolitan Area. This region has been utilized as the basis in summarizing the population characteristics of Saylorville Lake. The Greater Des Moines Metropolitan Area in which the lake is located had a total population of 558,700 in the 2010 census. This region saw a 17% growth in population since the 2000 census. The area witnessed an increased pattern of urbanization accounting for 18.4% of Iowa's total population according to the 2010 census. (See Appendix G.15, *State of the Region Greater Des Moines; The Tomorrow Plan.*).

Visitation Profile. Saylorville Lake has been found to be one of the most popular recreation locations in Iowa, primarily due to its location in the Des Moines Metro area. The majority of the visitors to Saylorville Lake come from within a 50-mile radius of the metro area. Saylorville Lake provides an "island of green" centered in the middle of suburban sprawl surrounding the lake. The diverse population consists of campers who utilize campgrounds around the lake, adjacent residents, hunters who utilize Wildlife Management Areas, disc golfers who utilize a nationally-known disc golf course, marina customers who utilize the marina on the lake, and day users who picnic, hike, bike and cross country ski. Saylorville Lake is the primary location for water-related recreation in Central Iowa. Saylorville provides the public a location for boating, sailing, kayaking, paddle boarding, fishing, and swimming. On average, Saylorville Lake entertains approximately 1.4 million visits per year. Peak visitation at Saylorville Lake occurs April through September and accounts for 80% of the total visitation.

Recreation Analysis. Saylorville Lake's recreation areas, trails, and water add to the attractiveness, vitality, and appreciation for the outdoors. These areas provide a sense of place and allow a growing population to enjoy outdoor recreation opportunities in an ever growing suburban landscape. While visitation in recreation areas remains strong, there are indications that there is new demand for upgraded facilities and non-traditional recreation opportunities. Recreation has evolved into a modernized and high-tech activity since the construction of Saylorville's recreation areas. For example, sewer hookups, 50 amp electrical hookups, concrete sites, and wireless internet are becoming the new standard for campers. Technology has changed the habits of modern camping and campgrounds are vital to Saylorville Lake. The popularity of cabins, all-season shelters, natural-surfaced trails, dog parks, educational centers, and archery ranges have also become apparent in other Federal, state, county, and municipal parks in the region. These are examples of unmet recreation demands at Saylorville Lake. The majority of Iowans (59%) believe there are about the right amount of outdoor recreation opportunities available and Saylorville is a large contributor to those opportunities. [See Appendix G.6, *Iowa Survey for the State Comprehensive Outdoor Recreation Plan (SCORP).]* However, facilities and recreation demands have become more upscale than the facilities typically found in Corps-operated parks. There is also an increasing demand for water related recreation activities. Increased adjacent development and intensive agriculture has not only increased sedimentation into the lake, but has also fueled nutrient loading. These environmental impacts have the potential to make Saylorville Lake water conditions unsustainable and undesirable for water

related recreation. The challenge for the future will be improving the water quality and infrastructure to meet the recreation demand.

2.7.1. State Comprehensive Outdoor Recreation Plan. The 2012 Iowa SCORP surveyed Iowans to determine participation in and opinions on outdoor recreation in Iowa. (See Appendix G.6). Demographics for respondents were 51% Female to 49% Male, with a median age of 48 years-old. 92% were white or Caucasian. Level of education completed indicated the majority of respondents had a high school degree; 24% had some college or trade school with no degree; and 22% had a Bachelor's degree. Household incomes at $40,000-$59,000 represented 17%, while household incomes of $20,000-$39,999 and $60,000-$79,000 each followed at 13%. 83% of respondents indicated no member of their household had a physical disability. Respondents either considered their place of residence a small city (38%), a large city or urban area (19%), a rural area on farm or ranch (15%), and a rural area not on a farm or ranch (15%). Iowans surveyed indicated that the highest rates of participation in outdoor recreation are, in descending order: walking, picnicking or barbecuing, driving for pleasure, family-oriented activities other than picnicking, swimming, fishing, and observing, feeding, or photographing wildlife within 1 mile of home (Chart 2-1).

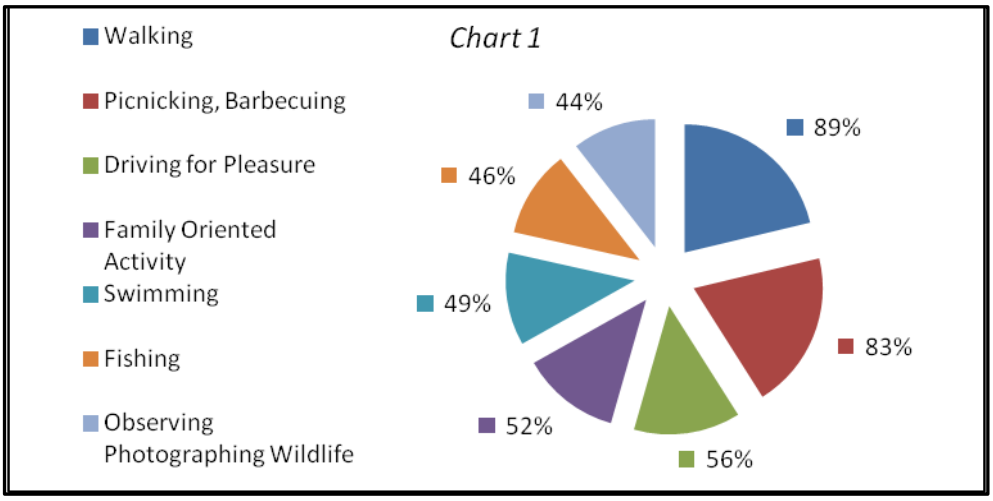

Chart 2-1. Rates of Participation in Outdoor Recreation

Respondents felt the top motivation for interest in outdoor recreation is social and not related to the facilities or opportunities and indicated having more free time (29%) would encourage them to participate more. Many respondents (35%) were in favor of adding outdoor recreational facilities or areas to their communities. They commonly named paved bike trails (19%), lakes/swimming/water access (17%), and dog exercise areas/dog parks (16%). Iowans with children in their household (53%) indicated their children have participated in outdoor activities at a multiplex field. Respondents also indicated that within the next 2 years they will sign up for participation at multiplex fields (59%). Constraints and factors that detract from participation in outdoor recreation showed that a majority of respondents (66%) indicated that nothing took away from the quality of or frequency in which they did an activity, other than weather. Of respondents, (15%) indicated not having enough opportunities for an activity as a reason for lack of participation. The use of parks for recreation is shown in Chart 2-2.

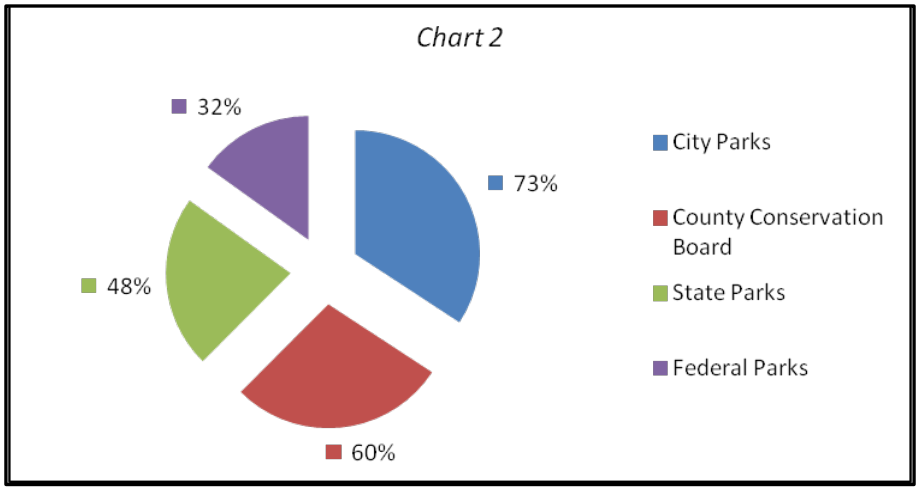

Chart 2-2. Use of Parks for Outdoor Recreation

Respondents who had not hunted, but expressed interest in hunting indicated they would be very or somewhat likely to participate in free hunting and shooting skills seminars (73%). Nearly half (47%) said they would participate in local shooting competitions and a program to find others to hunt with. Respondents, who had not fished, but expressed interest in fishing, indicated they would be very or somewhat interested in family oriented programs. Programs such as Bring Your Kids Fishing Day, topped the list at (75%). For persons who had not hunted or fished, the main reasoning for not doing so was lack of interest, health/age, time obligations, lacking someone to go with, lack of access, lack of equipment, lack of game or fish and cost. Iowans feel the top benefits of parks and recreation areas are cleaner air and water (83%), positive family activities (82%), protecting natural resources (82%) and healthy childhood development (81%). The majority of Iowans (59%) think that the state agencies and organizations provide about the right amount of outdoor recreation opportunities to Iowa residents; while a third (33%) say there are too few opportunities.

2.7.2. Polk County, Iowa: 2012 Survey on Outdoor Recreation. Saylorville Lake Project partnered with Polk County to fund a portion of their 2012 Survey on Outdoor Recreation. (See Appendix G.11). Several survey questions were specific to Saylorville Lake recreational areas. The survey demographics for respondents were 52% Female to 48% Male with a median age of 44 years-old. 84% were white or Caucasian. Seventy-eight percent of respondents had between a high school degree and a Bachelor's degree; the latter led with 31%. Household incomes were at 16% each for $40,000-$59,000 and $120,000 or more. The median number of persons per household was 4. Eighty percent of respondents indicated no member of their household had a physical disability. Eight three percent considered their place of residence to be a large city or suburban area. Visitation to three specific locations was examined among all respondents: Saylorville Lake (59%), Saylorville Campgrounds (42%) and Saylorville's Visitor Center (24%) (Chart 2-3). Half of the respondents had used trails in the Polk County within the last 2 years and 33% indicated they had used the Neal Smith Trail. As shown in Chart 2-4 the activity with the highest percentage of time spent was fishing.

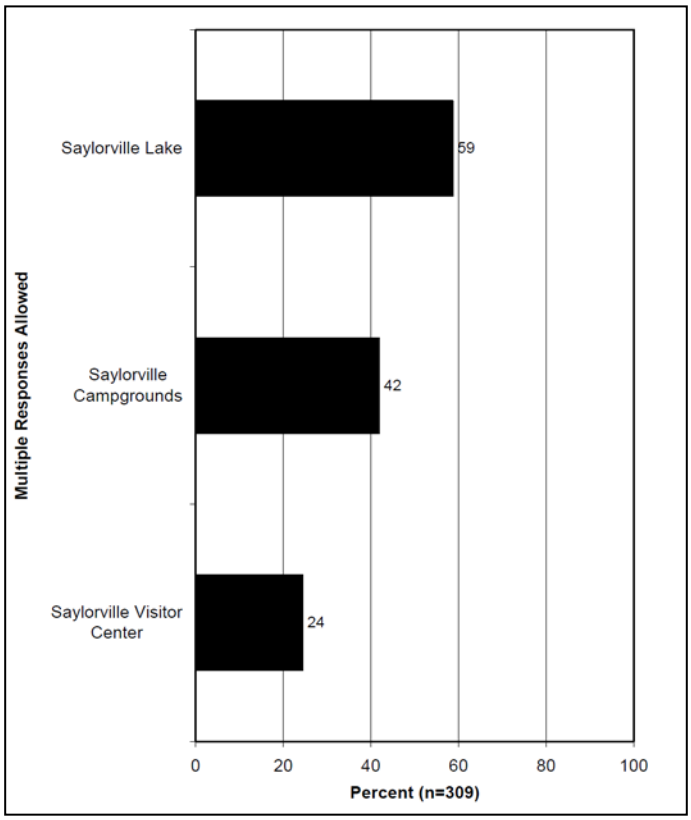

Chart 2-3. Percent of Respondents Who Visited Each of the Following Lakes

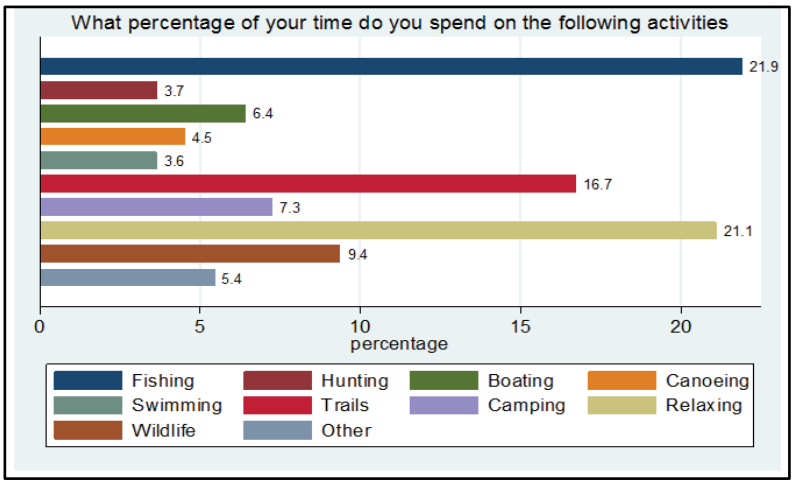

Chart 2-4. Percent of Time Spent by Activity

2.7.3. The Iowa Lakes Valuation Project. Iowa State University conducted a study jointly funded by the Iowa DNR and the U.S. Environmental Protection Agency. As Iowa tries to balance Federal water quality requirements, the economic viability of rural areas, and concerns for the environment, it is more important than ever to understand the value that Iowans place on preserving and restoring lakes. A critical step in this process is to understand the trends in usage of lakes over time. The Iowa Lakes Valuation Project is an ongoing economic study to advance our understanding of lake visitation patterns and preferences of Iowans related to over 130 important lakes in the state. (See Appendix G.5, *Iowa Lakes Survey 2009.*). The Iowa Lakes project has been tracking Iowans' visitation patterns for the major state lakes over nearly a decade. Strong correlations between visitation patterns and water quality have been documented. This most recent survey indicates that Iowans visited lakes in the state substantially more than in any of the base years. The top five most visited lakes by respondents were Saylorville Lake, Coralville Lake, Clear Lake, West Okoboji Lake, and Big Creek Lake, respectively (chart 5) Saylorville Lake 2009 Visitation data ranks the highest among all 132 lakes. The study showed Saylorville Lake's per party spending was $132.59; direct spending $100,843,039.00; total expenditure impacts $159,634,530.00; total income affects $25,183,784.00; and total job effects ($)1,230.

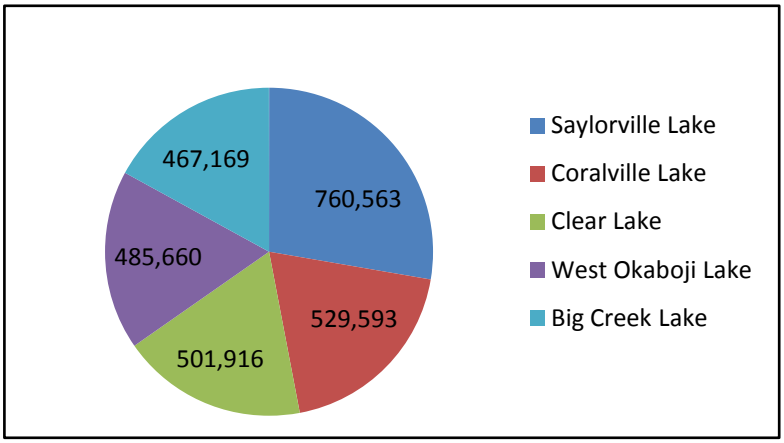

Chart 5. Top Five Most Visited Lakes in Iowa

2.8. TRAILS

Central Iowa has developed a trail system that has become a point of pride. Saylorville Lake has become the backbone of this complex trail network that links multiple communities and counties throughout the Des Moines metro area and beyond. Saylorville Lake offers two National Recreation Trails and several small multipurpose trails. These interwoven trail types provide a unique recreation opportunity and enable visitors to create their own special experience.

The most popular trail at Saylorville Lake is the multi-use Neal Smith Trail. (See Appendix H.33, *Neal Smith Trail Poster*.)

The Neal Smith Trail is a 26-mile paved National Recreation Trail that extends from Des Moines through Saylorville Lake to Big Creek State Park. The Neal Smith Trail allows for year-round outdoor activities including hiking, biking, running, rollerblading, snow shoeing, and cross country

skiing. The trail has become a focal point for connectivity to adjacent trail systems. Many trail connections are on the horizon to create a regional trail system. The Polk County Conservation Board recently constructed the Oralabor Gateway Trail that connects the Neal Smith Trail to the north end of the Gay Lea Wilson Trail in the City of Ankeny. The City of Johnston currently has plans to construct a trail along Beaver Drive on the west side of Saylorville Lake that would connect to the Neal Smith Trail at the Sycamore Access area. The Polk County Conservation Board also has plans to connect the High Trestle Trail in northern Polk County to the northern reaches of the Neal Smith Trail in Big Creek State Park. The Corps has also considered creating a trail across the Saylorville Lake Dam that would connect the Neal Smith Trail and the Beaver Drive Trail. This trail would not only serve as a trail connection, but would also provide a safe route for pedestrians and bicyclists across the Saylorville Dam. However, this trail would need extensive planning and review due to the location on top of an FRM structure. Connections are just one aspect for future management of the trail. Several improvements are also proposed to create a high quality experience. Some improvements include health fitness stations, new trail alignments through recreation areas, an additional trail spur, and a cyclo-camping site.

Saylorville Lake also provides a unique water trail that connects a diverse group of both rural and urban trail users. The Des Moines River Water Trail is a 20-mile National Recreation Trail that runs through the heart of Saylorville Lake and features several accesses to recreation areas, campgrounds, and towns and cities. Interest in the Des Moines River Water Trail has provided a promotional feature for a healthy community along the Des Moines River Basin. The addition of water access points is one area that should be promoted with the increased popularity of the water trail.

In addition to the two National Recreation Trails, Saylorville Lake exhibits trail opportunities for everyone. The Prairie Flower Hiking Trail and the Visitor Center Interpretive Trail have become popular natural surfaced trails for a growing population of trail users. Additional natural surfaced nature trails will be needed to enhance and expand hiking opportunities and to create connectivity between recreation areas.

An abandoned hiking trail along the west side of the Saylorville Lake project has spurred interest for revitalization among several interest groups and the public. The interest in the revitalization of this trail has spawned a need to assess the current conditions of the trail and the feasibility of rehabilitating the existing remnants to meet the public's needs while maintaining a trail that is sustainable and safe.

The Corps also provides trails on outgranted lands. The Sycamore Trail is a 6-mile natural surfaced mountain bike and hiking trail that runs along the bottomlands of the Des Moines River Valley. The trail is outgranted to the Polk County Conservation Board, but has an agreement set up with the Central Iowa Trails Association for the management of the trail. The Jester Park Equestrian Center provides eleven equestrian trails for riders to enjoy. These trails are also outgranted to the Polk County Conservation Board.

The importance of trails has grown in not only the region, but nationally and is predicted to grow exponentially in the future. With this projected growth, the Corps will have to integrate trail planning in the future to meet the demands of the public.

2.9. REAL ESTATE

The acquisition policy for the Saylorville Lake Project was the purchasing of a fee area encompassing all lands at or below elevation 892.0 feet NGVD, which is 2 feet above the flood pool elevation. Additional lands were purchased above this elevation to support project missions including recreation, fisheries and wildlife management. The total fee title real estate interest at Saylorville Lake is 26,000 acres. The total flowage easement interest at Saylorville Lake is 1,478 acres.

The majority of fee title land is leased to other state and county agencies to manage for wildlife or parks and recreation. The largest single lessee is the Iowa DNR, with over 12,800 acres designated for wildlife management and another 1,200 acres for parks and recreation. Other lessees include Polk County Conservation, Boone County Conservation, and the City of Des Moines.

SAYLORVILLE LAKE MASTER PLAN

DES MOINES RIVER WATERSHED
JOHNSTON, IOWA

CHAPTER 3
MANAGEMENT GOALS AND RESOURCE OBJECTIVES

The Corps' vision for the future management of the land, water and recreational resources of Saylorville Lake will be managed to protect, conserve, and sustain natural and cultural resources, especially environmentally sensitive resources, and provide quality outdoor recreation opportunities that complement project resources for the benefit of present and future generations.

This vision is supported by the following broad management goals:

- Practice professional environmental stewardship of the Corps lands and waters consistent with the primary mission of flood risk management
- Identify and protect environmentally sensitive species, habitats, and landscapes
- Identify and protect important cultural resources
- Improve water quality in the lake
- Identify outdoor recreation needs and provide those that complement the natural resources
- Manage public use areas to provide safe and enjoyable opportunities
- Collaborate with community leaders
- Maintain open communication with the public at large
- Create partnerships to leverage fiscal resources

3.1. RESOURCE OBJECTIVES

Resource considerations at Saylorville Lake exist primarily due to user demands on the project. Multiple user types have interests in the project lands, recreation facilities, and waters, and such demands regularly create conflicts. The Corps' Environmental Stewardship mission requires that land and water resources be managed for the benefit of all Americans. Private exclusive use of resources is prohibited with the exception of honoring past commitments. Saylorville Lake is obligated to manage these resources for the overall interest of the general public and not for a select group of individuals. It is the responsibility of the lake staff and the agency to attempt to provide an environmentally sound balance of competing demands to ensure availability of resources for future generations. Impacts on the environment will be assessed during the decision making process prior to any change to management plans, strategies or policies. The following resource objectives are intended to guide the future management of Saylorville Lake.

The following resource objectives set forth specific objectives for environmental stewardship and recreation management. Additional information on management actions that support the following Resource Objectives can be found in Chapter 5 *Resource Plan*.

3.1.1. Environmental Stewardship Resource Objectives

- Periodically update the Multi-species Inventory and Monitoring (MSIM)
- Program MSIM and use this data when making natural resource management decisions.
- Proactively manage habitats to protect Special Status Species which include: Federal and state listed endangered and threatened species, bald and golden eagles, migratory species, birds listed by the USFGWS as Birds of Conservation Concern and other species and their habitats identified in listings compiled by state natural heritage programs as declining or potentially endangered.
- Saylorville Lake's most significant contribution to wildlife at the state level is its value as a prominent wildlife migratory corridor. Statewide richness of species including avian, vertebrates, mammals, aquatics, amphibian and reptile data provided by Iowa Gap Analysis exhibits strong values for diversity in Central Iowa.
- Monitor lands for invasive and exotic species and take action to prevent and/or reduce the spread of these species. The Emerald Ash Borer is an example of an invasive species of great regional and national concern. Aquatic plants have difficulty establishing in the reservoir and pose a smaller threat, but zebra mussel, big head carp and silver carp would cause large detriment to fisheries and the aquatic resource in general if introduced.
- Protect and/or restore important native vegetation associations such as oak savannah, bottomland hardwoods, upland hardwoods, native tallgrass prairie, riparian vegetation, and wetlands where they occur, or historically occurred, on project lands.
- Protect and maintain the Ding Darling and Des Moines River Greenbelt.
- Inventory, protect, and interpret important cultural resources.
- Carefully evaluate land use requests such as road and utility easements to avoid unnecessary resource damage or negative effects on public use. Ensure that all alternatives are considered.
- Improve water quality by participating in watershed management efforts and by managing ground-disturbing activities on project lands to reduce soil erosion.
- Work with neighboring communities to control storm water runoff and non-point source pollution through actions, such as placement of oil and litter separators and construction of effluent polishing wetlands.

3.1.2. Recreation Resource Objectives

- Improve and modernize day use and campground facilities through additional of amenities, including, but not limited to: sewer hook ups, increased electrical service, concrete RV pads, wireless internet access, amphitheaters, fish cleaning stations, restrooms, trails and improved park entrance complexes.
- Improve and expand opportunities for passive recreation such as hiking, birding, and nature study by providing and maintaining high quality trails and wildlife viewing stations.

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

- Enhance the recreation experience by promoting and protecting water quality, promoting non-consumptive use to protect the resource from overuse, maintaining facilities in a safe, attractive condition, and avoiding private and exclusive use.

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

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

3.1.3. General Resource Objectives

- Comply with all applicable laws, regulations and policies.

- Foster public and employee safety through education, research, and proactive visitor assistance activities, such as personal visitor contact, water safety patrols, and timely maintenance of signs and public use facilities. Establish carrying capacities for all activities through a process of public involvement and scientific analysis as needed.

- Maintain regular contact with community leaders and important agency stakeholders and partners. Host periodic information exchange meetings and public workshops to ensure open communication on all activities.

- Eliminate encroachments and trespassing by maintaining an easily recognized Federal property boundary line and performing periodic inspections of the boundary. Maintain contact with adjoining landowners, real estate agents and developers to ensure that Corps policy and regulation is understood. Take prompt action to resolve encroachments and trespass.

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

3.2. ENVIRONMENTAL STEWARDSHIP OBJECTIVE PRIORITIES

Saylorville Lake faces many challenges in the execution of resource objectives. In proximity to the Des Moines Metro area, Saylorville Lake is a magnet for those who enjoy activities such as camping, picnicking, biking, boating, fishing and hunting. However, at times the popularity of these recreation activities is in conflict with the stewardship and protection of the natural resource and general public safety.

The highest objective priorities are compliance with all pertinent laws, regulations and policies. Engineering Regulation (ER) 1130-2-550, Chapter 2, establishes the policy for the administration and management of USACE recreation programs and facilities. (See Appendix F.7.) ER 1130-2-540, Chapter 2, establishes the policy for the administration and management of natural resource activities (See Appendix F.6.) The rules and regulations governing public use at Corps water resources development projects are published as Title 36 CFR Chapter III, Section 327.0-327.30 and enforced by Corps personnel with Title 36 citation authority. *(*See Appendix F.10, *Engineer Pamphlet 1165-2-316.*)

The urbanization of Saylorville Lake has resulted in an increase in the number of homes adjacent to public lands. Areas around the lake that were once considered to be rural are now a more urban-like setting. Increased urbanization and population has caused frequent user group conflicts. Specifically, conflicts have developed in recent years between hunters and new adjacent land owners along the west side of Saylorville Lake. The land owners have concerns for their safety due to the close proximity to these hunting areas or may not care in general for the sport of hunting. The land owners have legitimate concerns, but private and exclusive use should be avoided. An objective priority should be to continue to provide public access to these lands while maintaining a safe environment for adjacent land owners. The existing public hunting lands will remain open to hunting, but will be evaluated annually to determine if changes need to be made for the type of hunting (shot shell, bow, etc.) allowed and managed accordingly.

3.3. RECREATION OBJECTIVE PRIORITIES

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

Land-based recreation activities include camping, picnicking, biking, hiking, disc golf, shore fishing, hunting, bird and wildlife watching, cross country skiing, sledding, snowmobiling, horseback riding, geo-caching, sightseeing, etc. on or adjacent to Corps-owned land. Land-based recreation areas include campgrounds, picnic areas, overlooks, boat ramps, land access points, and wildlife management areas. Facility types typically found within these recreation areas include campsites, picnic shelters, picnic sites, playgrounds, disc golf courses, equestrian trails, sand volleyball courts, horseshoe pits, ball fields, hunting areas, and hard and soft trails. These recreation areas are managed by several entities, which include the Corps, Iowa DNR, county conservation boards, and city governments. Land-based recreation objectives will be to continue modernizing and rehabilitating existing recreation areas and providing a justified level of service.

Water-based recreation activities occurring on Corps water managed areas include pleasure boating, fishing, waterfowl hunting, sailing, swimming, canoeing, kayaking, water skiing and tubing, wind surfing, parasailing, and paddle boarding. The majority of water-based recreation is managed by the Corps with assistance from the Iowa DNR and Coast Guard Auxiliary. The management objective is to ensure public safety, while providing recreation opportunities on the water. This objective will involve promoting water safety, studying recreation carrying capacity vs. current use patterns, zoning requirements for no-wake or restricted areas, and areas to remain open for public recreation.

Recreation activities should be quality outdoor experiences enjoyed by a diverse public to the largest extent possible, but these activities must respect and ensure public safety and promote a healthful environment that protect natural resources. An objective priority should be to increase the public's opportunity for high quality recreation experiences. This should be done for water recreation by conducting a recreational boating study to determine the maximum number of recreating boats for Saylorville Lake. Once the boat carrying capacity is determined, Saylorville Lake management can establish and enforce maximum use limitations to prevent overcrowding on the water. Boating safety and quality of boating experience should increase. Estimates and enforcement of maximum use limitations should also occur for any project site areas that suffer frequent overcrowding or site deterioration.

The Corps recognizes the need to continue to modernize recreation facilities in accordance with its recreation facility standards. Users have a diverse range of activities at Saylorville Lake; satisfying these demands will be a continuous challenge. The mandatory HQ USACE Visitor Comment Card Program and the Saylorville Lake in-house comment card program will be utilized to identify user desires and needs. These comment cards will assist in future management strategies and potential changes to accommodate user needs and facility improvements.

Improving facilities and amenities will increase visitor satisfaction and quality of their experience. With diminishing funding and work force in future years, this objective is extremely sensitive to time, manpower, and budget.

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

SAYLORVILLE LAKE MASTER PLAN

DES MOINES RIVER WATERSHED
JOHNSTON, IOWA

CHAPTER 4
LAND ALLOCATION, LAND CLASSIFICATION, AND EASEMENT LANDS

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

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

4.1. LAND ALLOCATION

In accordance with Engineer Pamphlet (EP) 1130-2-550 land allocations identify the authorized purposes for which corps lands were acquired. *(*See Appendix F.9.*)*. There are four categories of allocation:

- Operations
- Recreation
- Fish and Wildlife
- Mitigation

The entire 26,000 acres originally acquired at Saylorville Lake were allocated for Operations. Operations lands were acquired to provide safe, efficient operation of the project for its authorized purposes. Saylorville Lake missions include flood risk management, water supply, low flow augmentation (water quality), environmental stewardship and recreation. In addition to the original land acquisition, an additional 2,100 acres were acquired in 1981 to accommodate increased outflows in the downstream corridor and to mitigate losses associated with Ledges State Park.

4.2. LAND CLASSIFICATION

All lands acquired for Saylorville Lake are further classified to provide for development and resource management consistent with authorized purposes and other Federal laws. There are six categories of classification identified as:

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

The classification process refines the land allocations to fully utilize project lands and considers public desires, legislative authority, regional and project specific resource requirements, and suitability. Land Classification indicates the primary use for which project lands are managed. (See Table 4.1, Appendix H.21 & H.22, *Saylorville Lake Land Classification Maps*.)

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

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

4.2.3. Mitigation. Mitigation lands were acquired or designated specifically to minimize adverse environmental effects to Ledges State Park. USACE has approximately 2,785 acres of mitigation lands. Acreage breakdown: 2,085 acres in fee title downstream, 315 acres in flowage easement downstream and 385 acres were purchased by USACE adjacent to the Ledges State Park and transferred to the State of Iowa.

4.2.4. Environmentally Sensitive Areas. This classification consists of areas where scientific, ecological, cultural, or esthetic features have been identified. Development of public use on lands within this classification is normally prohibited to ensure that these sensitive areas are not adversely impacted. Agricultural or grazing uses are not permitted on lands with this classification. (See Appendix H.23 & H.24, *Saylorville Lake Sensitive Lands Maps.*)

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

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

management, including agricultural activities that do not greatly alter the natural character of the environment, are permitted for a variety of purposes, including erosion control, retention and improvement of scenic qualities, and wildlife management. Hunting and fishing are allowed pursuant to tribal or state fish and wildlife management regulations where these activities are not in conflict with the safety of visitors and project personnel.

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

- **Vegetation Management.** Management activities in these areas focus on the protection and development of forest resources and vegetative cover.

- **Future or Inactive Recreation Areas.** This sub-classification consists of lands for which recreation areas are planned for the future or lands that contain existing recreation areas that have been temporarily closed. There are no project lands with this classification at Saylorville Lake.

4.2.6. Water Surface. There are four possible sub-classifications. (See Appendix H.25, *Saylorville Lake Water Zoning Map.*)

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

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

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

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

Table 4.1. Land Classification Acres

Classification	Acres
Project Operations	347
High Density Recreation	1,896
Mitigation	2,785
Environmentally Sensitive Areas[1]	11,124
Multiple Resource Managed Lands - Low Density Recreation	3,195
Multiple Resource Managed Lands – Wildlife Management/Vegetation Management	14,836
Water Surface - Open Recreation	3,758
Water Surface - Fish/Wildlife Sanctuary	1,433
Water Surface - Designated No Wake	152
Water Surface - Restricted	18

[1] Environmentally Sensitive Area acreages can be found within other land classifications.

4.3. EASEMENT LANDS

These are lands on which easement interests are held but no fee title ownership was acquired. There are 1,486 acres of easement lands at Saylorville Lake; these consist of flowage easements and road easements.

4.3.1. Flowage Easement. These are easements purchased by USACE which grants the right to temporarily flood private land during flood risk management operations. There are 1,478 acres of flowage easement lands located at Saylorville Lake. The purpose of these easements is to provide adequate storage for flood waters.

4.3.2. Roadway Easement. The Corps owns several roadway easements. Generally, roadway easements allow the government to operate and maintain roadways and associated parallel utility lines to allow government and public access to Corps-managed lands. In certain situations it may be in the interest of the government to acquire roadway easements as fee owned lands so that the Corps can more effectively manage access to government lands. Examples of roadway easements include the entrance road to Walnut Ridge Recreation area and a portion NW 78th Avenue which provides access to Saylorville Dam and Bob Shetler Recreation Area. There are 8 acres of roadway easements at Saylorville Lake.

4.4. OUTGRANTS

The Corps leases federally-owned lands at Saylorville Lake to state and local agencies for recreational purposes. These leases, often referred to as outgrants, specify what types of activities are allowed on Federal lands and all Federal regulations still apply. Outgranted lands provide additional recreational opportunities to the general public. Examples of outgranted recreational lands include: Big Creek State Park managed by the Iowa DNR, Jester Park Equestrian Center and Sycamore Trail managed by Polk County Conservation, Prospect Park managed by Des Moines Parks and Recreation, and Swede Point Park managed by Boone County Conservation. (See Appendix H.26 & H.27, *Saylorville Lake Managing Agencies Maps*.)

SAYLORVILLE LAKE MASTER PLAN

DES MOINES RIVER WATERSHED
JOHNSTON, IOWA

CHAPTER 5
RESOURCE PLAN

5.1. CLASSIFICATION AND JUSTIFICATION

The Saylorville Lake Land Classifications are:

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

The management plans identified are presented in broad terms. A more descriptive plan for managing these lands can be found in the Saylorville Lake Operational Management Plan (OMP). Management tasks described in the OMP must support the Resource Objectives, Land Classifications, and Resource Plan set forth in this Master Plan.

5.1.1. Project Operations. This category includes those lands required for the dam, spillway, switchyard, levees, dikes, offices, maintenance facilities, and other areas that are used solely for the operation of the project. There are 133 acres of lands under this classification managed by the Corps. The management plan for this area is to continue providing physical security necessary to insure continued operations of the dam and related facilities. Public access to these areas is restricted. Mooring private vessels and/or the modification of land form and vegetation are not permitted within this area.

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

The Corps operates and manages numerous areas designated as high density recreation. Table 5.1 shows the areas currently managed by the Corps.

Table 5.1. Corps High Density Recreation Area

Recreation Area	Total Acres
Cherry Glen Campground	41 acres
Cherry Glen Day Use	65 acres
Cherry Glen Boat Ramp	41 acres
Oak Grove Day Use	12 acres
Oak Grove Beach	33 acres
Prairie Flower Campground	225 acres
Sandpiper Day Use	144 acres
Acorn Valley Campground	67 acres
Walnut Ridge Day Use	60 acres
Lakeview Day Use	30 acres
Bob Shetler Campground and Day Use	288 acres
Cottonwood Day Use	245 acres
Visitor Center	19 acres
Saylorville Lake Scenic Viewing Area	9 acres
Control Tower Fishing Access	5 acres
Lakeview High Water Day Use	38 acres
Big Creek Upper Spillway	10 acres
Big Creek Lower Spillway	17 acres
Highway 210 Access	5 acres

There are several areas currently classified as high density recreation, which are leased to other organizations for operation and management. The Corps does not provide any maintenance within any of these locations but there are times when we provide support to the managing agency. The Corps has to provide review of requests and ensure accordance with applicable laws and regulations for proposed activities within high density recreation zoning areas. The goal for is to work with Corps partners to assure recreation areas are being managed in accordance with resource objectives identified in Chapter 3, *Management Goals and Resource Objectives.* The areas currently leased to other agencies can be found in table 5.2.

Table 5.2. Recreation Area Managing Agency

Recreation Area	Total Acres	Managing Agency
Big Creek State Park	1,143 acres	Iowa DNR
Sycamore Access	4 acres	Iowa DNR
Equestrian Center and Trails	844	Polk County Conservation Board
Lincoln Access	38 acres	Polk County Conservation Board
Polk City Sports Complex	13 acres	City of Polk City
Prospect Park	12 acres	City of Des Moines
County Road E57 Access	5 acres	Iowa DNR
Highway 30 Access	7 acres	Boone County
Sportsman Access	10 acres	Iowa DNR
Sub 1 Access	9 acres	Iowa DNR
Swede Point Park	12 acres	Boone County Conservation Board
Saylorville Marina	58 acres	Private Concessionaire

Saylorville Lake has gained popularity with the outdoor recreation community over the past 35 years and has become a popular recreation destination within Greater Des Moines as well as nationwide. Greater Des Moines' 2010 census population was 558,700 persons. Population growth over the past 20 years has significantly outpaced the rest of the state at a 1.1 percent average annual growth rate, compared to 0.2 percent for the rest of Iowa. As noted throughout this plan, urban sprawl is growing and will eventually encompass Saylorville Lake. The increase in population and changing demographics indicate a need to improve and modify Corps-managed recreation areas as described in the following sections:

5.1.2.1. Acorn Valley Campground. Acorn Valley Campground currently provides 87 campsites, 59 of which are tent campsites with no electricity and 28 of which are RV gravel campsites with electricity. The campground contains several amenities for campers including youth camp area, shower buildings, playgrounds, a fishing pond and a sewage dump station. Providing a viable tent camping experience is valuable and needed, but the balance in this campground is weighted too much toward the tent camping experience. Following a national trend, tent camping in this park has decreased while RV camping steadily increased. Based on 2013 National Recreation Reservation System facility utilization reports, RV electric sites usage was 3 times the rate of the tent non-electrical camping site usage. Based on these utilization records this area is overdeveloped and underutilized for tent camping. Increased popularity, size and technological advancements in modern motor homes and travel trailers were not anticipated when the Corps built this campground in 1982. Restructuring camping options by increasing RV campsites, adding cabins and reducing the number of tent campsites will bring renewed interest and improved utilization of this recreation area. Additional improvements may include the addition of a group tent camping area, Wi-Fi, concrete campsites, upgraded electric infrastructure and an amphitheater. The objective for this campground is to change the use pattern and improve existing infrastructure. (See Appendix H.4, *Acorn Valley Campground Map*.)

5.1.2.2. Walnut Ridge Recreation Area. Walnut Ridge Recreation Area provides three group picnic shelters and an 18-hole disc golf course. This area contains several amenities including two restroom buildings, playgrounds and picnic sites. This day use area is slightly underutilized for picnic activity, but the disc golf course receives high usage. Several high-profile tournaments have taken place at this premier disc golf site. The course is maintained in partnership with the Des Moines Disc Golf Association. Additional improvements include an enclosed picnic shelter or large picnic shelter and connection to the City of Johnston's Beaver Drive trail system. The objective for this day use area is to maintain and improve existing infrastructure. (See Appendix H.5, *Walnut Ridge Recreation Area Map*.)

5.1.2.3. Lakeview Recreation Area. Lakeview Recreation Area provides 1 group picnic shelter, 1 restroom, a fee collection building, and a 4-lane boat ramp with 2 courtesy docks and 231 parking spaces. This area provides parking and access to the southern entry point for the West Side Trail system. This day use area is underutilized for day use picnic activity, but the boat ramp receives high usage. Adding a parking lot adjacent to the group shelter area would improve access to the shelter and increase usage of this picnic shelter. An automated pay station for collection of boat ramp fees would improve the efficiency of the fee-collection process. The addition of a fish cleaning station would help boost the appeal of this ramp for fishermen. Additional improvements include removable vault restrooms and redesigning the entrance for the City of Johnston's Beaver Drive trail system. Lakeview is also a feasible location to expand potential winter recreation opportunities. The objective

for this day use area is to make some small modifications while maintaining and improving existing infrastructure (See Appendix H.6, *Lakeview Recreation Area Map*.)

5.1.2.4. Lakeview High Water Recreation Area. Lakeview High Water Recreation Area offers a boat ramp with 2 launch lanes and 1 courtesy dock, accompanied by 24-car and 89-boat-trailer parking spaces. This area is slightly underutilized unless the lake is experiencing high water in which case it is one of three boat ramps available for use. Lakeview High Water Area is also the site of an overlook deck which provides a view of wetlands during normal to low lake levels and views of the spillway during high water events. Additional improvements include removable vault restrooms. The objective for this day use area is to maintain and improve existing infrastructure. (See Appendix H.6, *Lakeview Recreation Area Map*.)

5.1.2.5. Bob Shetler Campground. Bob Shetler Campground offers 63 RV campsites. The campground amenities include a sewage dump station, shower and restroom buildings, 2 playgrounds, and close access to Bob Shetler day use area (See Appendix H.7 & H.8, *Bob Shetler Recreation Area Maps*.) Objectives for this area are to maintain and modernize the existing infrastructure. The addition of an amphitheater, or presentation area would greatly improve the ability to give effective educational and interpretive programs. Another proposed change would be the addition of a small restroom on the east side of the river for campsites 12-20. Additional improvements would be more concrete campsites, upgrade of electric service, Wi-Fi, and conversion of the small west campground to a second volunteer village.

5.1.2.6. Bob Shetler Recreation Area. Bob Shetler Recreation Area provides 2 group picnic shelters, 11 single family picnic sites, a playground, fish cleaning station, access to the Neal Smith Trail, a gravel boat ramp to ponds adjacent to the river, and access to the river below the dam. Bob Shetler day use is heavily utilized throughout the recreation season and into the winter, as it is a popular fishing and bird watching site. Maintenance and improvement of the existing infrastructure is a main objective but the development of new facilities is also important in this area to help meet the growing demands of the public. Proposed additions to enhance the visitor experience are timber thinning and trail building on the west side of the spillway, wildlife boardwalk and viewing area at the back ponding area, which is off the Neal Smith Trail, installation of a fishing pier at the ponding area, upgrade of fish cleaning station, new vault toilets, archery range, and small, single-family group picnic shelters. (See Appendix H.8 & H.9, *Bob Shetler Recreation Area Maps*.)

5.1.2.7. Cottonwood Recreation Area. Cottonwood Recreation Area provides 9 group picnic shelters, 32 single-family picnic shelters, 9 volleyball courts, 4 playgrounds, 6 restroom buildings, a universally accessible fishing pier, access to the river, and access to the Neal Smith Trail. This area is utilized heavily during the recreation season, with frequent special events taking place. Objectives for this area are to maintain and improve the existing infrastructure, but additional recommendations are to remove a portion of the volleyball courts due to infrequent use and associated maintenance. Additions to the current infrastructure are the construction of small single-family group picnic shelters with roadside car lots and construction of a Super Shelter which is capable of accommodating groups with over 150 people. The proposed location for the Super Shelter is the current Picnic Shelter 7 location. This location is preferred over others because there is adequate space for a larger shelter and parking lot, and this location already has a playground and restroom facilities. (See Appendix H.10, *Cottonwood Recreation Area Map*.)

5.1.2.8. Visitor Center Recreation Area. Visitor Center Recreation Area provides one interpretive building with a restroom facility, interpretive hiking trail, overlook deck, butterfly garden and adjacent picnic sites. This day use area is slightly underutilized for picnic activity, but is highly utilized for information and educational outreach. The visitor center is a popular destination for visitors to the lake and surrounding area. Special interest groups such as cyclists and birders regularly use the facility. Birders use the facility as a meeting/gathering place while cyclists often use it as a rest/water stop and an important launching point for the Neal Smith Trail system. The visitor center interpretive exhibits and theater underwent a major re-design in 2010, which upgraded and modernized the informational experience for visitors. Desired additions to enhance the visitor experience would include an outdoor playscape for children, an outdoor amphitheater and the development of a hiking trail through the timber, linking the butterfly garden and the visitor center. This is an important area to maintain and improve existing infrastructure with some slight additions to meet modern needs for communication and educational outreach. (See Appendix H.11, *Visitor Center Map.*)

5.1.2.9. Cherry Glen Campground. Cherry Glen Campground is part of the Cherry Glen Recreation Area, which is made up of the campground, picnic area, and boat ramp. The campground offers 121 electric RV sites which were upgraded to 50-amp service in 2012. The campground also has 4 restroom and shower facilities, a playground, and a sewage dump station. Additions of a pedestrian trail from the campground to the boat ramp and amphitheater to increase the ability for education and outreach are proposed. The entrance to the campground needs to be redesigned to accommodate today's larger RVs and reduce congestion at the entrance. Other additions include concrete campsites, re-designed poor sites, installation of a small playground near site 110, and Wi-Fi availability. (See Appendix H.12, *Cherry Glen Campground Map*.)

5.1.2.10. Cherry Glen Recreation Area. Cherry Glen Recreation Area is one of the most heavily used recreation areas at Saylorville Lake because it hosts 3 recreation opportunities in one area. Cherry Glen Day Use Area encompasses a picnic area and boat ramp complex. The picnic area has 6 group picnic shelters, 32 single family picnic sites, 2 playgrounds, and 4 restroom buildings. The Neal Smith Trail runs directly through the picnic area making the area popular as a trailhead and a rest area for trail users. In the winter, a sledding hill is graded behind picnic shelter 6 to provide a designated sledding area. The objectives for this area are to maintain and improve existing infrastructure. The boat ramp is divided into two sections, an upper lot, which is still usable at high water elevations, and a larger lower lot and an adjacent gravel lot, which are located near the normal pool elevation of 836 msl. The upper ramp has two launch lanes, one courtesy dock, and a restroom building. The lower ramp has four launch lanes and two courtesy docks for boaters and the small gravel lot has two gravel launch lanes to accommodate personal watercraft. Total parking for this area is 3 specified vehicle spots at the restroom building and 368 trailer spaces. A modification to this area is to install an automated pay station and remove the fee booth at the boat ramp. The addition of a fish cleaning station at the upper boat ramp and removable vault restrooms at the lower boat ramp are proposed. Placing additional courtesy docks on the shoreline is also proposed to alleviate congestion on busy days. (See Appendix H.13 & H.14, *Cherry Glen Recreation Area Maps*.)

5.1.2.11. Oak Grove Recreation Area. Oak Grove Recreation Area provides the public with 2 group picnic shelters, 1 beach, 35 single-family picnic sites, 1 restroom facility and 1 playground. This area has an entrance station where beach fees are collected. There are 481 parking spaces at the beach and 65 parking spaces at the picnic area. Oak Grove Day Use Area has low utilization for the

picnic area, but moderate beach use. The beach is susceptible to frequent flooding due to the elevation of the beach area. Plans to remove selected timber within the day use area will allow for a more open feel giving visitors more opportunities to recreate. Currently, the park is overstocked and needs selective thinning, not only to improve timber health, but also meet the needs of the public. Adding shaded picnic shelters would boost the appeal of beach, but shelters must be removable due to frequent flooding of this area. An automated pay station for collection of beach fees would improve the efficiency of the fee collection process. Additional improvements to this area include the additions of wind surfer access, volleyball court, fishing access, picnic tables and grills, new water fountains and rinse showers with paved sidewalk access and removable vault restrooms. The objective for this day use area is to make slight improvements and maintain existing infrastructure. (See Appendix H.15 & H16, *Oak Grove Recreation Area Maps*.)

5.1.2.12. Prairie Flower Campground. Prairie Flower Campground is one of the more heavily utilized recreation areas at Saylorville Lake. The campground is made up of two sections; a North campground and a South campground. The north campground is made up of 10 wagon-circle style electric group camping loops and one loop of traditional style single electric RV sites, while the South campground is made up of 4 camping loops of traditional style single electric RV sites. Overall, Prairie Flower Campground offers a total of 245 RV electric sites. Both halves of the campground offer shower and restroom facilities, playgrounds, a sewage dump station, and a hiking trail. The hiking trail winds it ways through varying habitat types and offers a scenic tour through the back of the campground. Trail users may hike just a section of the trail that is closest to their RV site or walk from one end of the campground to the other. Maintenance and improvement of existing infrastructure is an important objective in this recreation area, but several additions are proposed. Proposed improvements for this campground include the construction of a amphitheater space for educational and outreach programs, timber thinning along both the hiking trail and the pond, expansion of the hiking trail into the prairie area, making one group loop designated for bicyclists, moving the Neal Smith Trail off the shared roadway, construction of a dump station for the North campground, upgrade of electric service, concrete campsites and Wi-Fi. (See Appendix H.17 & H.18, *Prairie Flower Campground Maps*.)

5.1.2.13. Sandpiper Recreation Area. Sandpiper Recreation Area provides 1 large group picnic shelter, 1 restroom, a boat ramp, a beach and 13 full hookup campsites currently used as a volunteer/contractor village. Additional amenities include a playground, baseball field, a sand volleyball court, a horseshoe pit, 2 picnic sites, vault restrooms and changing station with showers. This recreation area has an entrance station boat ramp and beach use fees are collected. The boat ramp contains 2 launch lanes with 1 courtesy dock, accompanied by 135 trailer parking spaces. Five parking lots in this recreation area provide 443 car parking spaces. The day use area receives moderate day use picnic activity and high use of the large group shelter. The boat ramp has moderate to high usage and the beach has low to moderate usage, both of which are dependent on lake levels due to frequent flooding. Proposed improvements to enhance and assist the volunteer program would be to install Wi-Fi capability, construct concrete campsites, pave the roadway throughout the Volunteer Village, and create a berm to protect campsites from high water. The addition of a fish cleaning station would help boost the appeal of the boat ramp for sportsmen. Adding shaded picnic shelters will appeal to beach users, but shelters must be removable due to frequent flooding of this area. An automated pay station for collection of boat ramp/beach fees would improve the efficiency of the fee collection process. Additional improvements to this area include removal of the changing house at the beach, adding new removable vault restrooms, small removable shade shelters with picnic

tables and grills, finish LED parking lot lighting, and redesign the service road and parking lot on roadway access to an in-ground concrete structure called a fish kettle, which allows the Corps and Iowa DNR staff to manipulate and record the fish released into the reservoir from the rearing pond. The objective for this day use area is to make improvements while maintaining and improving existing infrastructure. (See Appendix H.19 & H.20, *Sandpiper Recreation Area Maps*.)

5.1.2.14. Saylorville Dam. The Saylorville Dam spans just over one mile and provides 4 overlook parking locations adjacent to the roadway. Each of these overlook locations have informational signage providing interpretive messages on different aspects and missions of the lake. The dam overlooks offer a popular scenic view of Saylorville Lake and the Des Moines River Valley. Additional improvements to this area include a hiking/biking trail adjacent to the south side of the roadway. The objective for this area is to improve and maintain the existing infrastructure.

5.1.3. Environmentally Sensitive Areas. Defining sensitive areas as part of the master plan process assists in the protection of valuable resources. Many factors contribute to identifying sensitive areas. These sites are mapped and managed by the Corps. Data includes locations of threatened and endangered species and cultural sites not available to the public. Many species of greatest conservation need are found on Corps lands and are identified in various conservation plans including the Iowa Wildlife Action Plan. Degree of sensitivity varies by location and by contributing factors to sensitivity. An area may be available to construct a properly designed hiking trail, or may be actively managed by forest practices like timber stand improvement without negatively impacting the site's sensitivity. Other sites can be very sensitive to human disturbance and need adequate protection from development. Examples of this degree of sensitivity would involve eagle nests, osprey nests and heron rookeries. These animals are threatened by human activities especially during active breeding seasons.

Buffering of sensitive locations is necessary for resource protection. Size of the buffer is tied to the ecology of the location. On occasion, multiple sensitive areas may exist within proximity to one another. These are often combined into one larger sensitive area.

Fragmentation threatens sensitive species and large block habitats have been identified as sensitive. Many wildlife species that are identified as having significant conservation need are often associated with large habitats. Forests, grasslands and wetlands are found at Saylorville Lake in large, mostly un-fragmented tracts. Fragmentation through construction of a utility corridor, road or other fragmenting disturbance is prohibited.

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

- Known or discovered cultural sites
- Large tract woodlands
- Savanna remnants
- Mature oak woodlands
- Reforestations
- Remnant prairies
- Larger planted prairies
- Wetlands identified in the National Wetlands Inventory

- Lands possessing unique wildlife value by diversity or conservative species
- Steep slope
- Aesthetic quality or aesthetic views (scenic)
- Corridors between habitats that protect connectivity

Areas designated as sensitive can change over time and continued monitoring through programs like Multiple Species Inventory and Monitoring program (MSIM) provide valuable information to keep identified sensitive areas current. Through the use of Geographic Information System (GIS) databases maintained with separated layers, the dynamic nature of sensitivity can be managed in an up-to-date program. Some areas may be highly sensitive to change; other areas need prescribed management to remain viable. Management practices include invasive species control, prescribed fire or plantings. The goal of sensitive area management is to protect and preserve known areas that contribute to the diversity and health of the Des Moines River Valley. The program should be beneficial to plants, animals and the people that enjoy the resource. (See Appendix H.23 & H.24, *Saylorville Lake Sensitive Lands Poster*.)

5.1.4. Multiple Resource Management Lands. These are areas where predominate use is that of the classification. However, there are other compatible uses which may occur on these lands without impacting the predominant use. These lands can be divided into four sub-categories for the purposes of this master plan. These categories are; Low Density Recreation, Wildlife Management, Vegetative Management, and Future/Inactive Recreation Areas. The following is a description of the resource objectives, acreages, and description of use pertaining to each sub-category.

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

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

The majority of Corps land zoned for low density recreation use is located between the Iowa Highway 17 Bridge and the Mile Long Bridge. Other areas include satellite recreation areas, the land bordering the west shoreline of Big Creek Lake, areas between the Walnut Ridge Recreation Area and the dam, and the area south of Cherry Glen and the dam. These areas are comprised of both upland and transition zone areas and are either vegetated with uneven-aged mixed forest stands or transition zone species (table 5-3).

Table 5.3. Operations: Recreation Low Density Use

Managing Agency	Acres Managed
U.S. Army Corps of Engineers	4,277
Other Federal Agencies	0
State	160
Local Public Agencies	978
Private	0
Total	**5415**

5.1.4.2. Wildlife Management. Lands designated for stewardship of fish and wildlife resources. Wildlife management is conducted by the Corps, the Iowa DNR, Iowa State University, and Polk County Conservation Board (PCCB). There are currently 12,807 acres of land licensed to the Iowa DNR and 286 acres to PCCB for wildlife management areas. 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 into Dallas and Boone County. The primary strategy in these areas is to manage game species with the understanding that those actions benefit both game and non-game species. Fall pool elevations are manipulated to maximize migrating waterfowl habitat. Pool increases up to 4 feet are allowed dependent on habitat condition and maturity.

In addition to the Iowa DNR and PCCB licensed areas, the Corps has 1,370 acres of land directly managed for wildlife. These lands provide public hunting opportunities for both big and small game. The management plans will include common wildlife management practices, such as planting of food plots, maintaining public access, and implementing a nesting box program.

Non-game species are also managed by the Corps. Special attention is given to Species of Greatest Conservation Need (SGCN). These species are identified as having small or declining populations. SGCN's will continue to receive attention to assure they are managed in accordance to their habitat needs and parameters identified in a biological opinion. Other wildlife enhancement programs, such as blue bird and kestrel nest box monitoring and planting of non-game food plots, support a variety of non-game species on Corps lands.

5.1.4.3. Vegetative Management. These lands are designated for stewardship of forest, prairie, and other native vegetative cover. There are two vegetative communities that are the primary focus of restoration efforts at Saylorville Lake—Oak Savanna and Tallgrass Prairie, among the rarest of all ecosystems in North America.

Savanna is the transition between areas of forest and prairie and is comprised of large open-grown oak trees with a variety of shade tolerant grasses and forbs making up the ground cover. Remnant Oak Savanna is found across Corps lands, but is slowly converting to closed canopy forests in the absence of fire. Through combinations of mechanical thinning and prescribed fire, Oak Savanna is being restored on government-owned lands. Land managers at Saylorville Lake work closely with state, county, and private entities to coordinate efforts to restore Oak Savanna to the Iowa landscape.

Tallgrass Prairie once covered over 80 percent of Iowa's landscape; today, less than 0.1 percent of that original prairie remains. Small tracts of remnant prairie are located on government lands and are being actively managed through prescribed fires. Red Feather Prairie is Iowa's second-largest restored Prairie at over 170 Acres. This area was the original borrow site for Saylorville Dam and poor soil

conditions made reforestation unfeasible. This prairie now boasts 10 species of grasses and 40 species of forbs and is one of Saylorville's richest birding areas with approximately 142 species including Henslows' sparrows, bluebirds and bobolinks.

Invasive species pose a significant threat to the Saylorville landscape. The vegetative management program spends over 30 thousand dollars annually on invasive species management. Vegetative threats include reed canary grass, Sericea lespedeza, emerald crown vetch, garlic mustard, and honeysuckle. All of these species have the ability to significantly alter native ecosystems. Trees are also very susceptible to invasive species, as evidenced by the emerald ash borer, gypsy moth (oak) and thousand cankers disease (walnut), to name a few. Diligent monitoring and swift reaction are key to successful invasive species management. Forty-seven invasive species have been identified on project lands; all pose threats to different plant communities. Eradication is rarely attainable, but control is critical to managing invasive species.

5.1.4.4. Future/Inactive Recreation Areas. These areas have site characteristics compatible either with future recreational development or recreation areas that are closed. Until there is an opportunity to develop or reopen these areas, they will be managed for multiple resources. There are no locations at Saylorville Lake that match this description.

5.1.5. Water Surface Zoning. This section is in reference to water surface management needs, which Saylorville utilizes to ensure efficient operations. There are multiple surface water recreation and conservation zonings on Saylorville Lake. There are 2 restricted areas where only shoreline access to the edge of the water is allowed and boats are prohibited. They are located on the upstream portion of Saylorville Lake's main dam near the control tower inlet and the Big Creek upper spillway restriction delineated with buoys. Additionally, there are prohibited entry locations on both the downstream sides of the dams in accordance with ER 1130-2-520 (Appendix F.5) of which signage is posted for the restriction. The purpose of these restrictions is to limit public access, and ensure the security of the structures and public safety.

Along with recreational boating zoning the area north of Saylorville Lake's Mile Long Bridge is very shallow, providing a unique opportunity for small paddle craft in an area managed for shallow water habitat and wildlife diversity. Portions of these shallow areas are posted "No Motorized Vessels" from 1 April through 31 August to limit disturbance on wildlife. After 1 September, the motor restriction is lifted to allow waterfowlers access to these mudflats for the waterfowl hunting seasons. The fall pool may be incrementally raised to optimize waterfowl habitat. The lake may be raised up to four feet in the fall, per the current water regulation manual. During periods of flood storage of elevation 840' NGVD elevation and rising, this motorized vessel restriction may be lifted until the lake returns to elevation 840' and falling. (See Appendix H.25, *Saylorville Lake Water Zoning Map*.) This zoning shall restrict motorized vessels from waters that are on average approximately 2 feet deep or less. The restricted zone will be north of the shallow water buoy line. Motorized vessel access to the Big Creek Spillway will be allowed for fishing access. The proposed zone represents approximately 600 acres of shallow islands and 800 acres of very shallow waters surrounding these islands only, rather than all waters north of the Mile Long Bridge.

SAYLORVILLE LAKE MASTER PLAN

DES MOINES RIVER WATERSHED
JOHNSTON, IOWA

CHAPTER 6
SPECIAL TOPICS

6.1. COMPETING INTERESTS AFFECTING NATURAL RESOURCES

Saylorville Lake is a large multi-use project with five authorized purposes (flood risk management, low-flow augmentation, recreation, environmental stewardship, water supply). The benefits stemming from these missions are critical to local and regional economies and are of great interest to the public at large. The interests of the various entities benefitting from Saylorville Lake are sometimes in conflict and become competing interests. To the extent possible within the constraints of the primary mission of flood risk management, low flow augmentation, and contractual agreements for water supply, the Corps will endeavor to balance the needs of all user groups.

6.2. WEST SIDE TRAIL

Saylorville Lake has seen an increase in trail advocates seeking natural surfaced multi-use trails that offer a sense of remote solitude. Due to the altered landscape in Iowa, limited public lands, natural area fragmentation, and urban growth specific to Central Iowa, there are limited opportunities to enjoy remote natural surfaced trails. This has spurred interest in the revitalization of an abandoned 3.5-mile hiking trail along the rugged west side of Saylorville Lake. This trail is historically known as the West Side Trail. The trail was originally built and maintained with the assistance of the Boy Scouts of America, but over time the partnership dissolved and management of the trail fell back to the Corps. The Corps was presented with several challenges in maintaining the trail due to frequent high-water events, severe soil erosion, rugged terrain, accessibility limitations, maintenance costs, and lack of manpower. Eventually the flood of 1993 proved to be too much for the trail. The sustained high-water from the lake and severe erosion from torrential rains damaged the trail beyond feasible repair at that time. This flood event compromised the safety and sustainability of the trail. Several bridges also became a concern due to damage and the cost for regular inspections and maintenance. The combination of all of these challenges caused the inevitable closure and present-day abandonment of the trail. Due to the challenges presented by the trail, a planning process will have to be implemented to evaluate the feasibility of reconstructing the trail. A review of the existing trail will need to be performed. Prior to developing a trail reconstruction proposal, an extensive current conditions assessment needs to take place. Once the assessment has been performed, a trail proposal should be generated to examine the following:

- background and perceived need for the trail
- overall trail purpose
- intended users
- scope of the reconstruction
- timing of the development of the trail
- any possible partnership support

After the proposal is generated, a conceptual design will need to be created. Research of similar trails and discussions with trail groups will need to take place to develop a trail design. Following this design work, a funding plan will need to be made to investigate the trail's economic viability. Finally, a maintenance and management plan will need to be developed. The plan should outline the items that need to be maintained, by whom, how often, and costs involved. Once these planning steps are completed, the proposed trail will have a final evaluation to assure the trail maintains a holistic approach so that it continues to offer value as the public's needs, standards, and attitudes towards the outdoors, technology, and funding shift in the future. (See Appendix H.32, *Saylorville Lake Trails Poster*.)

6.3. NEED FOR CARRYING CAPACITY STUDY

Significant urban growth of the Des Moines metro area and specifically the Cities of Johnston, Ankeny, and Polk City have increased visitation to Saylorville Lake. Recent studies from The Tomorrow Plan have projected that the current population of 558,700 in Des Moines metro will increase to approximately 745,000 within the next 25 years. (See Appendix G.15, *State of the Region Plan; The Tomorrow Plan*.) This rapid population growth has already 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 Corps believes a Recreational Boating Study (RBS) is necessary to make future operational decisions regarding boating access and use at Saylorville Lake. The RBS is needed to insure that recreational boating on the lake continues to be a safe and enjoyable activity. High-water conditions in 2013 prevented the RBS from being conducted. An RBS is still planned to help guide future recreation and land management decisions. Saylorville Lake experiences frequent high-water events that inundate and limit the availability of boat ramps and parking lots. During these periods, open boat ramps can become overcrowded and these conditions are likely to persist due to lack of available land. Saylorville Lake's land-based recreation areas are highly visited with some portions more heavily used than others. Saylorville Lake occupancy rates at Corps-operated parks are much higher on weekends compared to weekdays. Despite these periods of heavy use in the parks, overcrowding is not an issue at this time. We will continue to evaluate the carrying capacity of the recreation areas as the surrounding population increases.

6.4. MODERNIZATION OF RECREATION FACILITIES

Although Saylorville provides over 500 campsites with amenities, such as concrete sites, 50 amp service, and water and sewer hookups, there are no Corps-managed areas that currently provide cabins. Acorn Valley Campground would be a prime location to fill this niche. There are numerous tent sites at Acorn Valley Campground that are underutilized and these tent sites could be converted to cabin sites. There is a growing segment of the outdoor recreating community that are not tent campers or who use RV's, but still want to experience camping. Cabins are becoming increasingly popular and more county, state and Federal parks have been adding these amenities. The addition of cabins would replace an underutilized facility with one that is in high demand.

Prairie Flower Campground is Saylorville Lake's largest campground and one of its most popular. It has been voted as one of the Top 100 campgrounds to visit in the U.S. The campground has one dump station that is located in the south area of the campground that is insufficient for this amount of demand. Due to the high usage and the location of the dump station, RVs line up to empty their holding tanks and can take a significant amount of time and create traffic flow issues. A second dump

station is recommended for the north area of the campground. The addition of a north dump station will relieve the pressure on the south dump station, speed up the dumping process and eliminate most of the traffic flow issues.

Soft trails for walking, hiking and biking is one of the most predominately mentioned facilities that should to be added to the Saylorville Lake managed areas. A soft trail once existed along the west side of the lake, but had to be abandoned due to safety issues with the bridges. Outdoor recreation involving trails is on the rise and soft trails are extremely popular. Based on focus group research, the addition of a soft trail at Saylorville Lake would be well-received by the public. The west side of Saylorville between Lakeview Recreation Area and Acorn Valley Campground would remain the logical location for a major trail. Shorter trails should also be considered for the Bob Shetler Recreation Area, along the west side of the Des Moines River downstream of the main dam outlet, and a trail between the Cherry Glen Campground and Cherry Glen Boat Ramp. Both of these locations receive heavy foot traffic by fishermen, boaters and sightseers. The use of water trails is also becoming more popular, especially among kayakers and canoeists. The addition of more water access points would increase trail usage and encourage beginners that may be hesitant to use the trail due to their lack of experience.

The steady increase of visitation at Saylorville Lake over the years has created problems with overcrowding at many recreation areas. The high frequency of significant pool fluctuations during flooding events magnifies this problem by inundating facilities in particular boat ramps and parking areas. During periods of high pool levels, available boat ramps and trailer parking are restricted to high water ramps. These ramps include the Cherry Glen Upper Boat Ramp (70 parking spaces) and the Lakeview High Water Boat Ramp (45 parking spaces). An additional parking lot could be constructed east of the Cherry Glen Upper Boat Ramp parking lot. This area is currently used as a grass overflow lot and could be converted to a permanent paved lot and provide an additional 25 parking spaces.

Campgrounds are a common location for summer interpretive programs. All four of Saylorville's campgrounds lack an amphitheater or theater space. The addition of this type of facility to the campgrounds would provide a centralized location with seating and increase attendance of campers and other park uses. Attractive site locations would also be aesthetically pleasing to the audience and would enhance interpretive presentations and the user experience.

The addition of individual picnic sites with overhead shading would welcome small groups of 2-10 people to Saylorville Lake. The few sites currently located at Bob Shetler Recreation Area are well utilized on weekends and holidays. Additional sites could be added along the river in this area. Other recreation areas for consideration for shaded picnic sites are the beaches at Oak Grove and Sandpiper Day Use Areas.

6.5. URBAN SPRAWL/ADJACENT DEVELOPMENT

Lands within Polk County that border Saylorville Lake are experiencing rapid urban development. The main body of the lake is nearly surrounded by the cities of Ankeny, Johnston, and Polk City. More rural areas within a few miles of the lake are also being parceled into larger residential lots. This development near the lake has many impacts and challenges the ability of the Corps to meet its missions. (See Appendix H.28, *Saylorville Lake Urban Sprawl Ma*p.)

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

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

Increased urban sprawl complicates management of natural resources on Corps lands. One of the most preferred ways to manage both grasslands and timber resources at Saylorville Lake is by prescribed fire. The use of fire is much more difficult adjacent to urban development due to the care and site preparation that must be taken to ensure that private lands and structures are not placed at risk. Even if the prescribed fire is a significant distance from private lands, the smoke from the fire can impact visibilities on roadways and irritate health problems of local residents. The development of adjacent lands will certainly affect ability to manage natural resources with prescribed fire.

Historically adjoining developments have also increased stormwater runoff or concentrated flows, causing increased erosion and damage to Corps lands. With stormwater also comes pollution in the form of nutrient and chemical runoff. Once insufficient stormwater infrastructure is in place it is very costly to correct these problems. A concerted effort from neighbors, developers, cities, counties, and the Corps to review adjacent developmental plans early in the process will go a long way to reduce or eliminate impacts to Corps lands and waters.

6.6. WATER QUALITY IMPACTS

The management of erosion and sedimentation in the Des Moines River watershed will remain a major environmental issue for many years to come. It is widely acknowledged that erosion and sedimentation is the number one environmental problem in the watershed, as it leads to degraded water quality and aquatic habitat. However, there is no comprehensive management plan to deal with this problem.

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

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

Agricultural runoff also introduces additional chemicals into the system, such as inorganic fertilizers. Some of these chemicals settle out and are incorporated into the bottom substrate. Other chemicals join the water column and course down the Mississippi River to the Gulf of Mexico. The high concentration of nitrates within the water column is a primary cause of the hypoxia phenomenon, the so-called "Dead Zone", in the Gulf of Mexico. This Dead Zone is increasing in size and is the object of intense study.

Blue Green Algae continues to be a concern on Saylorville Lake. Water-based recreation is negatively impacted by water quality concerns. Blue green algal blooms and elevated levels of E. coli levels are common water quality issues that hinder recreational use of the lake.

6.7. DING DARLING GREENWAY DESIGNATION/DSM GREENBELT DESIGNATION

Designation of the "Ding Darling Greenway" was requested by the Iowa Department of Natural Resources in 1998 and the area was so designated by Polk County Conservation on 9 December 1998 and by the City of Des Moines on 24 May 1999. The Corps of Engineers recognized the designation and participated in a formal dedication ceremony at Prospect Park on 23 June 1999. This greenway provides environmental focus on public lands from Sycamore Access on NW 66th Avenue on south to Grand Avenue in Des Moines. (See Appendix H.29, *Ding Darling Greenway Map*.)

The Des Moines Recreational River and Greenbelt was established by Public Law 99-88 to establish a partnership between both local and Federal government and private interests in developing ecosystem improvements and recreational opportunities in the Des Moines River corridor. (See Appendix D.27.) The greenbelt boundaries are essentially Fort Dodge to Pella, Iowa, and they include large Federal tracts of land including Saylorville Lake, Lake Red Rock and the Neal Smith Wildlife Refuge. Projects executed within the greenbelt authorization have totaled over $83 million in Federal and $43 million non-Federal costs to date. (See Appendix H.30, *Des Moines River Greenbelt Map*.)

6.8. EDUCATIONAL BUILDING FOR PUBLIC USE

Saylorville Lake is a large multi-use project with numerous public user groups who often request a location for interest groups to hold meetings. Currently, Saylorville Lake does not offer an open space to utilize to fulfill this need. The current facility, the visitor center, is insufficient as it lacks open space and can only accommodate groups of 30 or less in a classroom setting. Utilizing the visitor center also interferes with use of the exhibits and the movie theater.

Two proposals have been identified:

- **remodel the current construction office and expand the parking lot.** Prior to becoming the construction office, this building was known as the Oak Woods Learning Center and was frequently used by the public as a meeting location. In order to meet the needs of various user groups, the office would require extensive remodeling, electrical and plumbing upgrades and universal accessibility improvements, or
- **construct a new building in the Walnut Ridge Recreation Area near Shelter #2**

Either of these options would meet the needs of the various user groups.

6.9. MAJOR UTILITY CORRIDOR CONSIDERATIONS

According to Engineering Pamphlet (EP) 1130-2-550, Recreation Operations and Maintenance Guidance and Procedures (USACE, 1996a), special programs are programs or situations that should be identified and discussed in a Master Plan, but are not covered in other sections of the plan. (See Appendix F.9.) The potential and suitability for utility corridors was identified as the special consideration at Saylorville Lake.

The Energy Policy Act of 2005 directed the Secretaries of Agriculture, Commerce, Defense, Energy and Interior to identify corridors for oil, gas, and hydrogen pipelines, electrical transmission and distribution facilities on Federal lands and to schedule prompt action to identify, designate, and incorporate the corridors into the applicable land use plans. (See Appendix D.35.) In 2009, the Corps issued a Non-Recreational Outgrant Policy (USACE, 2009a) stating 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 lands or waters, or (2) a direct benefit to the government. (See Appendix G.9.) Public utilities including power lines and gas and fuel pipelines 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 Master Plan or Operational Management Plan as being the preferred location for future outgrants or proposed modifications to existing outgrants suitable to accommodate compatible types of outgrants" (USACE, 2009a).

Although there is currently no proposal for either an underground or above-ground utility line through the Saylorville Lake, such proposals may be put forth in the future.

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

As noted above, the focus is on identifying existing corridors and sharing these corridors for multiple utilities. Local utilities are also included in this utility corridor program. Coordination with Saylorville Lake's Operations Project Manager in the earliest stages of utility planning is essential. Land Use Request Policy and the Non-Recreation Outgrant Lease Policy of 1996 clearly address Corps policy in regard to use of government lands. These policies are included in this document. (See Appendix G.9, *Non-Recreational Outgrant Policy*.)

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

6.9.2. Existing Roadways. Roadways are present throughout Saylorville Lake to provide access to Corps lands and waters and allow residents to traverse the area. These roadways have already been removed from recreational use and have disturbed/impacted the natural environment. Placing utility corridors adjacent to primary existing roadways, i.e., state and county arterial and collector roads,

rather than small access roads within Corps recreation areas, could potentially decrease the recreational and environmental impacts.

Three primary roadway corridors—State Highway 17, State Highway 415, and Beaver Drive—generally traversing north-south, parallel Saylorville Lake.

State Highway 30, County Road E-57, County Road E-62, State Highway 210, Portion of State Highway 17 and Euclid Avenue bisect Corps lands north-south on either side of the lake,.

6.9.3. Existing Utility Corridors. The use of existing utility corridors should be evaluated to determine whether the proposed utilities can be placed along the same corridor. Using an existing corridor could cause less disruption to Corps 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 identified which traverse Corps lands from an east-west perspective, which are generally located in the southern portion Saylorville Lake.

6.9.4. Intensive-Use Recreation Areas and Recreation Facilities. One of the primary objectives of Saylorville Lake is recreational use. Development of a utility corridor through recreation areas and near recreation facilities could disrupt the use and enjoyment of these areas. The southern portion of the lake has the highest intensity recreational use. Avoiding recreation areas should be a prime consideration in identifying utility corridors.

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

6.9.5. Environmentally or Culturally Sensitive Areas. A number of potential environmentally and culturally sensitive areas are located throughout Corps lands. These wetlands and archeological resources areas are unique and will be maintained; therefore, potential utility corridors shall avoid these areas. Data includes locations of threatened and endangered species and cultural sites not available to the public.

Forested habitats represent a unique resource on Saylorville Lake due to the decline associated with the rapid spread of development in the area, as well as the large amount of open agricultural lands. Avoiding or minimizing impacts to these forested habitats should be given strong consideration when selecting a potential utility corridor due to the rarity of such habitats in the region. While these areas are not designated as critical habitat for threatened and endangered species, the uniqueness of the habitat increases the potential for any threatened and endangered species in the area to utilize this resource. Before any utility-related corridor work is undertaken, a survey of the potentially impacted area will be performed to verify the presence or absence of any designated sensitive areas to include cultural resources, wetlands, threatened and endangered species, steep slope and habitats vulnerable to fragmentation.

6.9.6. Footprint on Corps Lands. The width of the Saylorville Lake Project varies throughout the Des Moines River corridor. If a proposed utility corridor alignment cannot avoid Corps lands, options that minimize the utility footprint should be given strong consideration. The location of the utility footprint is also important in relation to topography, soils, and stream/waterway crossings. Areas with slopes of over 15% shall be avoided due to the high erodibility of some of the soils. This is also important in terms of stream crossings and riparian zones. Stream crossings shall be avoided and/or minimized where possible. In the event that a stream cannot be avoided, a vegetation buffer could be left in the riparian zone to reduce the potential for erosion and increased sediment in the water body.

Once a formal proposal is received, an evaluation shall be conducted using the factors above to identify potential impacts and alternatives to minimize impacts. Mitigation will be required for both temporary and permanent resource degradation. Vegetative management plans are critical to resource protection within the utility corridors and must be approved in the evaluation process. Recommendations for alternative utility corridor locations shall be based on the evaluation. (See Appendix H.31, *Saylorville Lake Utility Corridors Map*.)

6.10. ARCHERY RANGE

Saylorville Lake is well known as an outdoor recreation destination for all types of activities. Archery has become an activity of high interest in recent years and the lack of local outdoor facilities has brought interest for an outdoor range in the area.

The area east of the Bob Shetler Recreation Area and west of the Saylorville Gorge would make a suitable location to introduce an archery range. This area currently would require minimal change in becoming an archery range. The proposed area has in the past filled the need of a staging area for the spillway and road construction project. The area is flat with a small tree planting and has an existing parking lot. East of the proposed area is a soil embankment which would isolate the area from other user groups. Proper signage could be placed to safely identify the area as an archery range. The fence lining the gorge on the west portion of the proposed area needs repair and movement to ensure visitor safety. The archery range would require a partnership with a volunteer group or organization to assist with management of the range. Possible range activities include a 3-D shooting course, elevated shooting stands, distance shooting out to 100 yards and proficiency shooting for the urban deer hunt.

6.11. IOWA NATIONAL GUARD MEMORANDUM OF AGREEMENT

In June 2002, a Memorandum of Agreement (MOA) was created between the Iowa National Guard (IANG) and the Corps at Saylorville Lake. At the time, this working document was the gateway to allow the IANG to hold minimally invasive training exercises on Corps lands and waters. the Corps annually grants permissions to the IANG to hold numerous trainings on different tracts of land and water. The IANG has assisted the Corps in flood debris cleanup from previous high water events, as well as granted permission for the Corps to access IANG lands for an annual Wheelin' Sportsmen Turkey Hunt.

With troops returning from overseas and Federal funding levels decreasing, both the IANG and the Corps understand that this partnership has very high potential for future resource sharing. Communication between the Corps and the IANG is critical for the partnership to be successful. Both

the IANG and the Corps understand the importance of this agreement and will continue to utilize and possibly expand this MOA for innovative ways to partner in the future.

6.12. ENERGY CONSERVATION/SUSTAINABILITY

In July 2007, the Corps issued Commander's Policy Memorandum #4. (See Appendix G.1.) This policy formally introduced the path forward in implementing sustainability practices in everything the Corps does. Corps Environmental Operating Principles guides the agency to integrate sustainability practices into operations in an effort to recycle, reduce waste and meet or exceed energy efficiency goals. (See Appendix F.1.) With these principles, the Corps can implement the Energy Policy Act of 2005 (Appendix D.35) and the President's Executive Order 13423 "*Strengthening Federal Environmental, Energy and Transportation Management*" (Appendix G.12). On October 5, 2009, Executive Order 13514 further directed Federal agencies to increase energy efficiency and laid out goals for agencies to achieve. (See Appendix G.13.)

As the Corps moves forward with energy sustainability, Saylorville Lake continues to implement sustainability initiatives into daily operations. Over the last several years, Saylorville staff has taken actions towards energy efficiency to include: an energy audit provided by energy provider, Mid-American Energy; replacing the administration office HVAC with a high efficiency, high SEER heat pumps; replacing office lights with T8 light fixtures; and installing external LED fixtures on buildings and on recreation area street lights. LED lights have also been installed in some interior facilities with more installations planned. Additional actions taken include the use of occupancy sensors in strategic locations in the main office building and this type of technology will be incorporated in public buildings in the future. The vehicle fleet that staff uses has also seen a dramatic shift in numbers. Ranger patrol vehicles are smaller SUVs that utilize flex-fuel, which allows greater mileage per gallon of fuel. With changes in technology, new heavy equipment vehicles that have been purchased have become more efficient and create fewer emissions than previous models. Policies in operations have also contributed to Saylorville's sustainability and energy efficiency efforts.

During the off-season when parks are closed, electricity is turned off, which eliminates any use of power, including security lights. This simple change in operating policy has saved thousands of dollars annually and reduced energy usage. The barrier dam pump station policy calls for the sluice gate to remain open, allowing water to gravity flow into the main lake when conditions are right. This change has permitted not only greater efficiencies in flood risk management, but, from an energy perspective, has resulted in thousands of dollars in electrical use savings on an annual basis. For many years, as a part of the waste disposal contract, Saylorville provides recycling containers in four campgrounds. Year-round recycling occurs at the Administration Complex to include, paper, plastic and metals. A routine maintenance practice of recycling old grills, picnic tables, aluminum signs and other materials continues on an annual basis. Since 2005, the Corps has been purchasing "green" cleaning products to provide to our service contractors performing custodial and janitorial services in recreation facilities. These products are less damaging to the environment, but still maintain the ability to safety and adequately clean and sanitize public facilities.

As Saylorville Lake continues to seek innovative and sustainable solutions in operating and maintaining all facilities and structures, sustainability and energy efficiency will be incorporated into decision making, materials and equipment purchases and policy development where feasible and applicable. A new LEED-certified administrative office and maintenance building has been proposed

to reduce energy use and modernize operations. New technology and innovative ways of doing business can and should be implemented to meet all of Saylorville Lake's authorized missions and provide a sustainable future for many years to come.

6.13. NATURAL PLAYSCAPE

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

The Butterfly Garden near the Visitor Center would provide a natural setting for a natural playscape to blend comfortably into the surroundings. The Butterfly Garden is in proximity to the visitor center via the Neal Smith Trail. The garden attracts numerous parents, children and school groups with its multiple beds of colorful flowers, herbs, native plants and the butterflies, moths and hummingbirds that feed on the nectar they provide. The playground would be an attractive addition to the Butterfly Garden area.

6.14. CONNECTIVITY TO MUNICIPAL SEWER

Saylorville Lake provides recreation and administration facilities that include waste disposal systems of various design. Both gravity and pressure sewers drain to: lagoon systems, "Wisconsin Mound " systems, conventional septic systems and holding tanks. These systems continue to work resonably well, but as facilities age and visitation increases there may be other options for treatment, such as connection to Metropolitan Wastewater Reclamation Authority or through adjacent municipalities. Efforts will continue to investigate all options and availability of each system.

6.15. EMERALD ASH BORER

Emerald Ash Borer (EAB) (Argrilus planipennis) poses a significant threat to natural lands and developed recreation sites throughout the Saylorville Lake. The entire state of Iowa has been placed within a forest products quarantine zone and EAB has been confirmed in six Iowa counties (as of May 2014). The time line for EAB infestation is unknown but preparations must begin. The purpose of the Emerald Ash Borer Policy is to provide the Saylorville Lake staff with guidelines related to the Emerald Ash Borer infestation impacting the project. (See Appendix G.2.)

Ash is a significant component of two common forest associations that dominate the 13,000 acres of forest cover on Corps lands. Elm, ash, and cottonwood associated systems are common and ash is a significant component. Loss of ash coupled with Elm Disease impacts will alter this forest cover but significant other species like hackberry, mulberry and cedar will fill the voids created by elm and ash loss. Oak-Hickory associations have significant numbers of ash trees and are home to less common

ash species in Central Iowa, blue and black ash. While the diversity of Saylorville forests will be able to absorb the loss of ash component, impacts that occur may include the following:

- 282 species of arthropods rely on ash trees for food and shelter. 44 species feed exclusively on ash trees and are at risk of extinction.
- Woodpeckers will temporarily respond positively to infestation sites as food source and nesting sites will dramatically increase.
- Generated dead wood on forest floor can significantly impact forest soil ecology including pH, soil moisture mineral content.
- Significant changes to fire risks are anticipated with increased fuel loads complicating all fire issues in our urban interface environment.
- Loss of large canopy trees and the corresponding additional sunlight hitting the forest floor will tend to favor invasive species which infest all of our forested lands. Invasive plants and native poison ivy will respond positively to loss of ash across the spectrum.
- The impact to oaks is unknown. Saylorville Lake lands suffer from poor regeneration, but anticipate oak not being able to take advantage of canopy changes. Ash is a primary pioneer species on naturally reforesting lands around the project and perhaps oak can become a more consistent pioneer through natural reproduction.

6.16. SAYLORVILLE CORRIDOR

The Saylorville Corridor Master Plan supplement of 1975 contains two important components that are captured in the new Master Plan. The first component involved the expansion of both fee title lands and flowage easements downstream of the dam to accommodate increased outflows from a change in the water regulation plan. This change was a result of a court action involving anticipated flood damage to Ledges State Park in Boone County by the operation of Saylorville Lake as a flood control reservoir. Three changes were applied to mitigate damages to Ledges State Park. To mitigate for damages to lower elevations within the park, the Corps purchased a 385-acre tract along the northeast boundary of the park and transferred ownership to the state of Iowa in 1981. The second term of mitigation was to provide funds to move low-lying recreation facilities to higher elevations above the maximum storage elevation. The third term of mitigation required the Corps to increase outflow maximums during non-emergency flood situations to lessen the impact and duration of flooding in the lower reaches of Ledges State Park. To accomplish this mitigation requirement, the Corps altered the water regulation manual to accommodate discharges of 12,000-16,000 cubic feet per second. An additional 2,085 acres of fee title lands were purchased along with 315 acres of flowage easement. The corridor expansion and subsequent proposed greenbelt represent a significant greenway running deep into the city of Des Moines.

The second component of the Saylorville Corridor Master Plan Supplement recognized the ecological value of this greenbelt. Much of this newly expanded corridor was set aside as wildlife refuge or forest preserve. In the supplement document, environmentally sensitive areas were identified and significant tracts were to be avoided for high density recreation development and preservation. The Neal Smith Trail on the east side of the river was designed to be a link between Des Moines residents and Saylorville Lake. Two major Corps recreation areas were constructed under the 1975 supplement plan. They were Bob Shetler Recreation Area and Cottonwood Recreation Area. Small parking lot

accesses are available to trail users at Sycamore access, Morningstar Drive and the Sycamore Mountain Bike trail which traverses the west side of the river. This large riparian zone contains approximately 3,120 acres of fee title and 218 acres of flowage easement. The area is dominated by wetland oxbows, forested wetlands and rich wildlife diversity. Several wildlife and plant surveys have been conducted over time reflecting the richness of species. Outflows from the dam keep water open throughout the winter season; this area has developed as an important wintering bald eagle area. Eagles are regularly seen along the river in the very urban environment of downtown Des Moines.

This same open water condition has attracted large numbers of wintering waterfowl. Both ducks and geese are annually surveyed during midwinter national survey dates and individual counts are commonly over 10,000 birds. This area was also identified as being sensitive for bird species with conservation concern. Results from breeding bird studies along with recommendations from the Iowa Ornithologist Union, and Iowa Audubon verify sensitive area classification. The Multi-species Inventory and Monitoring Report also identified this zone as being under the highest threat from identified human related stressors; changing the land use classification to wildlife refuge along with proper management can depreciate some of the stressors identified within the analysis provided. (See Appendix G.8.) This area lends itself to significant restoration potential, as portions of this currently-farmed landscape can be reforested, planted to wet prairies or restored as wetlands.

The vision of the 1975 Saylorville Corridor Master Plan recognized the unique opportunity for visitors to enjoy a significant wild tract of land embedded in the metropolitan complex. Much of the area is accessible through trail systems for biking, hiking, canoeing, and kayaking, which are all low consumptive uses of the greenbelt corridor. The original master plan identified sites for additional small parks and athletic fields to be constructed by the managing agencies. These recreation facilities were never constructed. The new master plan changes these parcels from high density use areas in the 1975 supplement to appropriate wildlife refuge. These once open, farmed areas have reverted to young riparian forest.

The difficulties in maintaining this corridor are significant. Four agencies are involved in the management of the corridor: the Corps, Iowa DNR, Polk County Conservation Board and Des Moines Parks and Recreation. Stressors to the resource are mostly urban in nature and the metro area's rapidly growing population only exacerbates the problem. Pollution, fragmentation pressures, water quality issues and invasive species all play a role in diminishing the quality of the resource. It is imperative that for this greenbelt corridor to flourish in the future that all partners need to work together to protect the resource. .

From the Saylorville Dam south to the 6th Avenue Bridge, all Corps-owned lands will be classified as wildlife refuge. It is the intent of this master plan to develop this refuge in partnership with the U.S. Fish and Wildlife Service (USFWS) under a program titled *Urban Wildlife Refuge Initiative*. (See Appendix G.4.) The goals under this program attempt to protect valuable wildlife landscapes within urban areas, while assuring public access to the resource. All agencies involved in the management of Corps lands within this corridor will continue to manage the resource with the assistance of USFWS. The Urban Wildlife Refuge Initiative program attempts to connect urban populations with nature through natural settings. Proximity of this greenbelt to many City of Des Moines residents as well as many elementary schools, makes the Saylorville Corridor an ideal resource. Public hunting will continue to be promoted, as the corridor provides urban residents a close area to pursue hunting as a sport. The trails within the proposed refuge offer plenty of access for persons interested in being out

in nature. This proposal to become an urban wildlife refuge will take significant amount of time and agency coordination.

This Master Plan also identifies and recommends expansion of the Saylorville Corridor from south of 6th Avenue to the Lake Red Rock boundary. The advantages of having contiguous corridors are well documented. This concept would require coordination with the City of Des Moines and other interest groups and the benefits gained are significant. (See Appendix H.1, *Saylorville Lake Project Area Map*.)

6.17. SURFACE WATER ZONING

Certain surface waters have use restrictions around the reservoir. For public safety, no boating or swimming is allowed within 600 feet of the control tower on the west end of the dam.

Boaters have distance restrictions at Oak Grove and Sandpiper swimming beaches to reduce risk to swimmers. Areas of heavy boat traffic including the marina and Commodores Cove north of the Visitor Center are zoned no wake for public safety.

The "No Motorized Vessel" zone in the very shallow upper reaches of the reservoir is locally identified as the "mud flats". This shallow water island complex is listed as a sensitive area in this master plan and is the largest contributor to Saylorville Lake's globally significant designation as a bird conservation area by the American Bird Conservancy. Motorized vessels are highly disruptive to thousands of birds that forage and rest in this shallow water environment. The area is highly visited by birders and is a primary stop on the Makoke Bird Trail. The restriction is from 1 April through 31 August. After 1 September, the motor restriction is lifted to allow waterfowlers access to these mudflats for the waterfowl hunting seasons. The fall pool may be incrementally raised to optimize waterfowl habitat. The lake may be raised up to four feet in the fall per the current water regulation manual. During periods of flood storage of 840' NGVD elevation and rising, this motorized vessel restriction may be lifted until the lake returns to conservation pool. (See Appendix H.25, *Saylorville Lake Water Zoning Map*.)

SCORP data supports the growing popularity of kayaking in central Iowa. These vessels are allowed to boat within this "no-wake" zone and separating these small crafts from large power boats should further enhance safe boating on the reservoir. Kayaks and canoes can easily operate in shallow water conditions and enjoy a safer open water experience in an enjoyable setting. Float trips that commonly occur on the river can terminate at the small ramp located within this section of the reservoir and avoid having to cross large open water.

6.18. SHORELINE MANAGEMENT IN REGARDS TO DOCK PERMITS

Saylorville Lake was constructed after December 13, 1974. In accordance with Title 36 Code of Federal Regulations 327.30. (See Appendix F.10, *Engineer Pamphlet 1165-2-316*.) and Engineer Regulations (ER) 1130-2-406, Shoreline Management at Civil Works Projects, 31 October 1990, private shoreline uses are not allowed on projects where project construction was initiated after December 13, 1974, or on projects where no private exclusive shoreline uses existed as of that date, except to honor written commitments made prior to that date. (See Appendix F.4.) Current and future management of Saylorville lands and shoreline will be to protect and preserve the existing shoreline

from erosion and overuse through natural resource management and cooperation with partners while avoiding private and exclusive use.

6.19. INTERPRETIVE SERVICES AND OUTREACH PROGRAM

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

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

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

Saylorville Lake's ISOP has been working to communicate to the public through various resources to include self-guided signage on trails, guide by cell tours, virtual tour web site and interactive displays throughout the Visitor Center. Reduced personnel and budget constraints have presented many challenges to providing interpretive services to the public. However, the increased popularity of social media and the Internet has opened up many new possibilities to reach more people without direct interaction. Moving forward, the Corps understands that new technologies must be embraced and to connect and communicate with the public to meet their needs. Although there are new ways to reach the public, face-to-face interaction remains one of the most effective means of communication. Saylorville Lake's 2010 Visitor Center remodel updated many of the outdated displays, bringing new interest and public involvement to the program.

6.20. VOLUNTEERS AND PARTNERSHIPS

In today's financial environment, volunteering and partnering are essential tools that allow the Corps to effectively manage recreation and environmental resources. In order to successfully meet the agency's recreation and stewardship missions and to foster shared values, vision, and a sense of ownership, it is imperative that the Corps work together with volunteers, state governments, private/public organizations, local communities, and other partners to maintain or advance programs, from wildlife protection and habitat improvement, to recreation facility enhancements (figure 6-1).

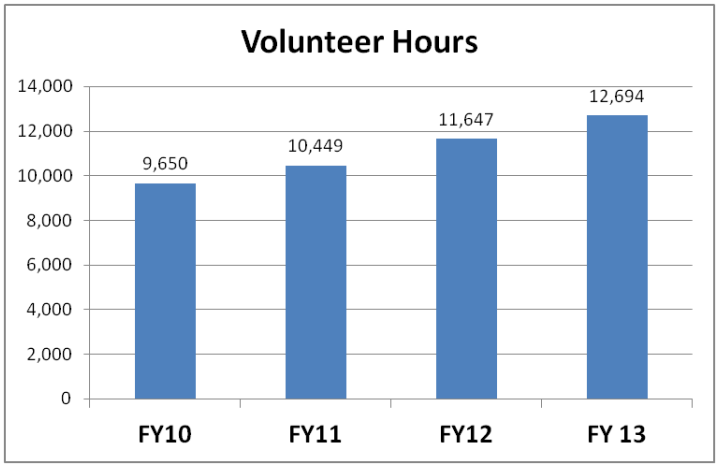

Figure 6-1. Volunteers Hours at Saylorville Lake, 2010-2013

Saylorville Lake has various partnerships, which currently include one cooperative agreement, one cooperating association and seven Memorandums of Understanding or Memorandums of Agreements. The partnership program at Saylorville Lake has embraced this reality and is committed to fully exploring the potential development of new public-private partnerships to leverage limited appropriated funds and human resources.

Public Law 98-63, Supplemental Appropriations Act of 1983 authorized the Corps' Volunteer Program. (See Appendix D.25.) At Saylorville Lake, volunteers play an important role in protecting the natural resources and maintaining recreation facilities. Volunteers serve as campground hosts, operate visitor centers, conduct programs, clean shorelines, restore fish and wildlife habitat, and maintain park trails and facilities, among a number of tasks. Corps personnel can recruit their own volunteers or get help from the Volunteer Clearinghouse, www.corpslakes.us/volunteer, (1-800-VOL-TEER or 1-800-865-8337), a national information center for people interested in volunteering at Corps lakes across the country. Saylorville Lake annually averages 75 to 100 volunteers who donate over 10,000 hours of volunteer service.

6.21. SIGNIFICANT ENVIRONMENTAL CHALLENGES ON THE HORIZON

This master plan emphasizes the need to have adequate resource protection to maintain diversity of species, quality of habitat and outdoor recreational experience. Environmental challenges beyond our control will significantly impact our resources. A brief description of inevitable challenges is as follows:

Climate change will alter the landscape of the river valley in multiple ways. Perhaps the most visible would be changes in river flows. More erratic high flows and droughts can influence rates of siltation, rim erosion, lake access for recreational boating and flood protection. Habitat degradation for water birds will be a concern as Saylorville Lake is nationally recognized for our importance to this group of birds. Wildlife can move or migrate as conditions change but plants lacking this mobility have difficulty surviving significant climatic change. Some species can be generalists across a wide range of growing conditions, but more conservative species with very specific growth niches will be

impacted. Impact is difficult to predict but climate is singularly the most influencing determinant of landscapes.

Urbanization will continue at a very rapid rate and adjacent lands to Saylorville will rapidly convert from forested lands and agriculture to hardscape conditions and will greatly influence our resources. With development comes the associated problems of increased storm water runoff, air and water pollution, loss of wildlife habitat on private lands, and fragmentation. Urban landscapes also invite alien species like house sparrows, starlings, housecats and dogs. These aliens have significant impact on native wildlife. Increased recreational use and subsequent disturbances to wildlife will eventually impact sensitive wildlife. Eastern wild turkeys are a good example of how landscape conversion to housing or human encounters will drive populations away.

Invasive species are tremendously damaging to the resource. In addition to what is currently here and crowding out native communities, there are several invasive species on the horizon capable of altering an entire landscape. Emerald ash borer is likely already on project grounds, but has yet to be discovered. Within the decade, thousands of ash trees will perish on the Saylorville Lake properties. Forest dynamics will shift significantly as ash tree mortality becomes final; riparian forests will be the most impacted. Despite human intervention, the gypsy moth is expected to infest central Iowa within 30 years. This insect represents a tremendous threat to native oaks, as well as many other hardwood species. Impacts will be harsh, as evidenced in the eastern United States and control measures prove expensive. Additionally, aquatic invasive species are eventually going to be established at the reservoir and their impact to aquatic environments is substantial. Zebra mussel, big headed carp and silver carp are potentially the biggest threats to Saylorville Lake.

These challenges only represent a small sample of future impacts. Increasing impairments to the resource include light pollution, noise pollution, water quality, loss of aesthetic value, and wildlife mortality as a result of increased human traffic. Wise land use policy, zoning requirements and design criteria can lessen impacts.

SAYLORVILLE LAKE MASTER PLAN

DES MOINES RIVER WATERSHED
JOHNSTON, IOWA

CHAPTER 7
AGENCY AND PUBLIC COORDINATION

7.1. AGENCY AND PUBLIC COORDINATION

On June 8, 2012, the Corps announced its decision to revise the Master Plan, which was last revised in 1984. Throughout the process, the Corps involved the public, and coordinated with Tribes, Federal, state, and local agencies, and communities.

Public and agency scoping meetings were conducted from June 2012 through May 2014. Many different means were used to obtain public and agency input into the master planning process, these included:

- **Web Page:** The Saylorville Lake Master Plan page invited comments using an online questionnaire; fact sheets were posted along with a copy of the previous master plan.
- **Focus Groups:** Letters were mailed to local groups, agencies, congressional representatives and local governments inviting participation in various focus group meetings
- **News Releases:** These were mailed to local and state newspapers and radio stations in June 2012 and May 2014 in preparation for the public meeting.
- **Comment Boxes and One-on-One Communication:** Questionnaires and master planning fact sheets were handed out to the public at the Saylorville Lake Visitor Center, interpretive programs, Corps-managed campgrounds, boat ramps, and day use areas.

Public scoping was conducted from June 2012 through May 2014. Comments were submitted in writing, by email, or online to the Saylorville Lake project office. All written and verbal comments received at the meetings are provided in Appendix B. Comments were received on a wide range of topics including:

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

7.1.1. Agency Scoping Meetings. The Corps held an initial scoping meeting with state and local agencies directly involved in managing Corps lands at Saylorville Lake. On May 30, 2012, the Corps held a meeting at the project office with members of the Iowa DNR (Fisheries, Big Creek State Park, and Saylorville Wildlife Unit) and Polk County Conservation Board. Boone County Conservation Board members were also invited, but unable to attend. This meeting focused on announcing the intent to revise the Master Plan, purpose and need for revision, Corps master planning processes, and expectations or concerns of partners.

A second agency/stakeholder meeting was held on February 6, 2014, during which the Corps met with representatives from the Iowa DNR, Polk County Conservation Board, Iowa State University, and IA Audubon in order to define and discuss preliminary locations of environmentally sensitive areas located on Corps lands.

7.1.2. Agency and Tribal Coordination. The Corps sought input during the planning process and initial coordination of the proposed Saylorville Master Plan and corresponding Environmental Assessment with the following Federal, state and local agencies:

- US Fish and Wildlife Service
- US Environmental Protection Agency
- US Federal Highway Administration
- US Department of Agriculture Natural Resource Conservation Service
- Iowa DNR
- Iowa DOT
- Polk, Boone, and Dallas County Conservation Boards
- Polk, Boone, and Dallas County Board of Supervisors
- Cities of Des Moines, Ankeny, Johnston, and Polk City

On May 1, 2104, the Corps mailed an initial coordination letter requesting comments to assist in the development of the proposed Master Plan and preparation of an Environmental Assessment. Comments were received from USEPA, the Iowa DNR (Fisheries and Water Quality), and USFWS. These agency comments were taken into account and included in the Master Plan where appropriate.

In April 2014, the Corps contacted ten tribes in writing, who had expressed an interest in Polk, Boone and Dallas Counties of Iowa on the Tribal Directory Assessment Tool, a website managed by the U.S. Department of Housing and Urban Development regarding the updating of the Programmatic Agreement (PA) for management of cultural resources at Saylorville Lake. The tribes were invited to attend a meeting at Saylorville Lake on March 19, 2014, and/or provide comments or concerns in writing. In the letter regarding the updating of the PA, the Corps also mentioned that the Master Plan was being revised. The tribes were subsequently provided a letter regarding the updating of the Saylorville Lake Master Plan in May 2014.

In response to notification by the Corps, the Advisory Council on Historic Preservation has notified the Corps that it will be formally participating in the consultation process to develop the PA for cultural resource management at Saylorville Lake. Consultation with the tribes will continue after the Master Plan and PA are completed as individual cultural resource issues arise and need to be addressed.

7.1.3. Public Meeting. On May 15, 2014, Corps employees hosted a public meeting for the public to review and comment on the Draft Master Plan. Participants were asked to sign in at a table where personnel provided the participants with information regarding the structure of the public meeting, comment forms, and the electronic submission of comments via the Saylorville Lake website. After signing in, participants were directed to an area where topic-specific information tables were set up. Large-scale boards were displayed at each table to convey information about the following topics:

- The Master Planning Process and Timeline
- Recreation Area Improvements
- Natural Resource Management
- Land Classifications

At each of the information tables and throughout the meeting room, Corps employees were available to answer questions and receive comments. Interested persons had the opportunity to comment about the project using a variety of methods, including:

- filling out a comment form at the open house;
- giving verbal comment; and
- submitting a comment using electronic mail.

Comments were received from concerned citizens, interest groups, partner agencies, other government agencies, and businesses. Over 30 comments were received both during and after the public meeting. (See Appendix B, *Agency and Public Coordination.*) All comments received were considered, and some proposals were integrated into the Draft Master Plan. The Environmental Assessment analyzed potential impacts to the environment should the Draft Master Plan be approved.

On November 19, 2014, the *Final Saylorville Lake Master Plan Revision with Environmental Assessment* was distributed to interested agencies, organizations, and individuals for an opportunity to make comment. The public comment period was 30 days long and closed on December 18, 2014. The Final Master Plan and EA incorporated, as appropriate, review comments received on the preliminary draft from the public, local organizations, and representatives of state, Federal and local agencies. This final comment period provides the public and agencies an opportunity to make comment before the Finding of No Significant Impact statement is signed by the District Engineer.

SAYLORVILLE LAKE MASTER PLAN

DES MOINES RIVER WATERSHED
JOHNSTON, IOWA

CHAPTER 8
SUMMARY OF RECOMMENDATIONS

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

Throughout this Master Plan process, the Corps focused on the modernization of current recreation areas and facilities within their existing footprints. No new recreation areas are being proposed at this time. The Corps also focused on resource protection in accordance with Engineering Regulation 1130-2-540 and Engineering Pamphlet 550. Rapid urbanization and population growth are greatly affecting the resources, management decisions and land use around Saylorville Lake. The following are focal points within this document that will assist Corps management in facing contemporary challenges well into the future.

8.1. FACILITY MODERNIZATION

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

8.2. LAND CLASSIFICATION CHANGES

This Master Plan includes minor changes to land classifications. The majority of the acreage changes occurred due to change in classification categories as required and in compliance with the current Engineering Regulations and Engineering Pamphlets. Two of the notable changes include a 950 acre conversion of low density recreation lands to wildlife management and zoning approximately 1,433 acres of shallow water mudflat complex surface waters to restrict motorized vessels seasonally due to fish and wildlife concerns. This restriction is in place May through August and involves waters on the upper reaches of the lake. This restriction will be lifted when the Saylorville Lake pool elevation is 840’ NGVD and forecasted to rise.

Environmentally Sensitive Area land classification was added to the Master Plan revision. Sensitive areas as part of the Master Plan will ensure the protection of valuable resources. Many factors contribute to identifying sensitive areas, and 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. Over 11,000 acres were identified in this process.

8.3. MULTI-SPECIES INVENTORY AND MONITORING PROGRAM

As part of this Master Plan process, an MSIM inventory was conducted on 18 different habitat types throughout Saylorville Lake. The inventory assisted the Corps in identifying environmentally sensitive areas throughout the 26,000 acres. This data collected from the inventory is a part of the extensive statewide inventory that supports the Iowa DNR Wildlife Action Plan. This inventory serves as a base line and can be compared against future data.

8.4. UTILITY CORRIDORS

Increased urbanization, population and development surrounding Saylorville Lake result in numerous requests for utility easements on Corps-owned land. This document designates where the Corps will allow utilities to cross government land at Saylorville Lake. By designating these utility corridors, Corps lands will be protected from negative impacts of fragmentation, erosion, wildlife value and aesthetic quality decline.

8.5. NON-RECREATION OUTGRANT POLICY

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

8.6. URBAN REFUGE

Corps lands downstream of the main dam represent a significantly sized riparian corridor of high value wildlife lands. These lands were identified in the MSIM study as being most vulnerable to change by human disturbance. The USFWS has a new program to develop Urban Wildlife Refuges. This 3,120-acre tract of land is ideally suited for consideration as an urban refuge. Much of this land is outgranted to other agencies whose primary purpose is wildlife management with secondary use being recreation. Under the Urban Refuge program, public access and public hunting are keys to the success of allowing urban populations enjoyment of public lands. While some areas of the corridor have developed recreation areas, most of the land acreage is in a natural state. The area is heavily forested and rich in riverine wetlands. The Master Plan process of identifying sensitive areas declared this riparian zone as having the highest concentration of sensitive areas on Corps lands. The goal is to continue coordination with USFWS and with the support of our managing partners, to successfully nominate and designate these acres as an Urban Wildlife Refuge.

8.7. SUMMARY

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 and water quality, and higher ambient noise levels. These development trends are expected to continue into the foreseeable future and will be the principal driver of adverse impacts on the environmental attributes for this area.

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

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

SAYLORVILLE LAKE MASTER PLAN

DES MOINES RIVER WATERSHED
JOHNSTON, IOWA

APPENDIX A

ENVIRONMENTAL ASSESSMENT

POLK, DALLAS, BOONE COUNTIES, IOWA

JANUARY 2015

US Army Corps
of Engineers ®
Rock Island District

SAYLORVILLE LAKE MASTER PLAN

DES MOINES RIVER WATERSHED
JOHNSTON, IOWA

APPENDIX A

ENVIRONMENTAL ASSESSMENT

COVER SHEET

Proposed Actions (Project)	*Saylorville Lake Master Plan* - Adopt and implement the Master Plan which includes reclassification of U.S. Army Corps of Engineers-managed lands.
Type of Statement:	Environmental Assessment
Lead Agency	U.S. Army Corps of Engineers, Rock Island District
For Further Information:	Wendy Frohlich, Biologist Economic & Environmental Branch U.S. Army Corps of Engineers Rock Island District Clock Tower Bldg. PO Box 2004, Rock Island, IL 61204-2004 Phone: (309) 794-5573 E-mail: wendy.m.frohlich@usace.army.mil
Abstract:	This EA seeks to evaluate resources in the project area for potential effects that may be caused by the adoption and implementation of the proposed Master Plan. Implementing the Master Plan will provide a vital tool for the responsible stewardship of resources at Saylorville Lake to benefit present and future generations. The following factors were taken into account when forming resource objectives, development needs, and alternatives to be evaluated in the environmental analysis: 1) meeting project purposes, 2) minimizing adverse environmental impacts, 3) taking into account public interests and regional plans, and 4) complying with relevant laws and regulations. This EA determined that there would be no significant impacts and that no mitigating actions or permits would be required by adoption and implementation of the Master Plan.