



PREFACE

The Lake Red Rock 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 Lake Red Rock. The original Master Plan for Lake Red Rock was approved in May of 1968, with a revision completed in December of 1976 (Design Memorandum 24B), 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. This document seeks to provide a balanced management plan that sustains Lake Red Rock's natural resources while providing access to quality recreation opportunity.

By definition, Master Plans for Corps reservoirs are management plans for environmental stewardship of the land and recreational opportunities that do not address the specifics of regional water quality or water level management for flood risk management. This Master Plan presents an inventory of land resources; land classifications; and three main focus areas—Sustainable Environment, A Natural Place to Play, and Connections. The focus areas provide management concepts for environmental stewardship of environmentally sensitive areas and other lands; existing and expanded recreational facilities; and connections between people and nature.

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

The land, water and recreational resources of Lake Red Rock will be managed to conserve natural resources consistent with ecosystem management principles, and provide quality outdoor recreation experiences and opportunities on a sustainable basis to serve the needs of present and future generations.

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 Corps 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 the Corps 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 1976 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 the Corps; 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 in identifying issues that needed to be addressed in the Master Plan. Details regarding public involvement efforts for the Master Plan are provided in Chapter 7 and Appendix B, *Agency and Public Coordination*.

Based on the information contained in the Master Plan, the EA, and comments received during agency and public scoping, the 2015 Master Plan would not significantly impact the quality of the human environment; therefore, an Environmental Impact Statement will not be prepared.

Red Rock Project

ACRONYMS

Master Plan 2015

| | |
|--------|--|
| BO | Biological Opinion |
| BP | Before Present |
| CCP | Comprehensive Conservation Plan |
| CDTP | Central Dissected Till Plain |
| CFS | Cubic Feet per Second |
| Corps | US Army Corps of Engineers |
| DMRWQN | Des Moines River Water Quality Network |
| DNR | Iowa Department of Natural Resources |
| EAB | Emerald Ash Borer |
| EA | Environmental Assessment |
| EIS | Environmental Impact Statement |
| EP | Engineer Pamphlet |
| EPA | Environmental Protection Agency |
| ER | Engineer Regulation |
| ESA | Environmentally Sensitive Area |
| FEMA | Federal Emergency Management Agency |
| FRM | Flood Risk Management |
| FY | Fiscal Year |
| GLO | Governmental Land Office |
| INHF | Iowa Natural Heritage Foundation |
| ISU | Iowa State University |
| MOA | Memorandum of Agreement |
| MOU | Memorandum of Understanding |
| MRES | Missouri River Energy Services |
| MSIM | Multi-Species Inventory and Monitoring Program |
| MSL | Mean Sea Level |
| MW | Megawatts |
| NEPA | National Environmental Policy Act |
| NGVD | National Geodetic Vertical Datum |
| NHPA | National Historic Preservation Act |
| NWR | National Wildlife Refuge |
| OMP | Operational Management Plan |
| PA | Programmatic Agreement |
| RRHP | Red Rock Hydroelectric Project |
| RRLA | Red Rock Lake Association |
| SCORP | State Comprehensive Outdoor Recreation Plan |
| SGCN | Species of Greatest Conservation Need |
| STEM | Science, Technology, Engineering and Mathematics |
| USFWS | United States Fish and Wildlife Service |
| WRDA | Water Resources Development Act |
| WQI | Water Quality Index |



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Lake Red Rock Project

MASTER PLAN

CHAPTER 1

Introduction

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CHAPTER 1

INTRODUCTION

1.1. PROJECT AUTHORIZATION

The Flood Control Act of 28 June 1938 (Public Law 761, 75th Congress, 3rd Session) authorized construction of the Red Rock Dam and Lake Red Rock on the Des Moines River for flood control and related purposes. Recreation and fish and wildlife were authorized in Public Law 534, 78th congress (approved 22 December 1944) and Section III of the Water Resources Development Act of 1976 (Public Law 94-587). The drainage area above the Red Rock Dam is 12,323 square miles. The primary purpose of the Lake Red Rock Project is to provide flood protection for downstream populations. The permanent conservation pool forms a lake with storage of about 185,510 acre feet and extends some 18 miles upstream from the dam. The flood storage pool has storage of 1,648,646 acre feet and extends 33.5 acres upstream from the dam.

1.2. PROJECT PURPOSES

The Lake Red Rock Project is a unit of the comprehensive plan for flood risk management in the upper Mississippi River basin. Although originally authorized for flood control (now termed Flood Risk Management), the project is multi-purpose with secondary missions of recreation and fish and wildlife management. Low flow conservation storage for the Des Moines River is allocated in Saylorville Lake. It is also accommodated through the conservation pool at Lake Red Rock reserved for sedimentation storage. Low flow augmentation (water quality) releases from the Red Rock Dam are intended to provide water downstream during drought conditions.

1.2.1. Flood Risk Management. The purpose of the Corps' Flood Risk Management (FRM) mission is to reduce risk for loss of life, reduce long-term economic damages to the public and private sector from riverine flooding. The Corps flood damage reduction projects include structural and non-structural measures. The Corps is an integral part of the Nation's efforts to manage flood plains and maintain and operate 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. Lake Red Rock's FRM structures include the Red Rock Dam; Remedial Levee Works at Avon, Carlisle and Southeast Des Moines/Southwest Pleasant Hill; and Robert's Creek Sub-impoundment.

1.2.3. 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. 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.
- The National Environmental Policy Act of 1969, as amended.
- U.S. Fish and Wildlife Coordination Act of 1958
- Water Resources Development Acts of 1986, 1988, 1990, 1992, 1996, 1999, 2000, 2007 and Water Resources Reform and Development Act of 2014.
- Coastal Wetlands Planning, Protection and Restoration Act of 1990

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 Lake Red Rock, a wide variety of habitat types are managed on the approximately 53,000 acres of land and water, which includes 23,054 acres managed by Iowa Department of Natural Resources (DNR) and 1,788 acres managed by Marion County Conservation Board. These lands are managed under a lease agreement from the Corps to facilitate stewardship and expand outdoor recreation opportunities. There are over 300 species of nesting and migratory bird life at Lake Red Rock. The lake is a premier waterfowl management area. Every year 125-150,000 migrating waterfowl use the lake along with large proportions of the nation's water birds such as gulls, terns, and pelicans. Open water in the tailwaters of the dam also attracts hundreds of bald eagles each winter.

1.2.4. 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.

Lake Red Rock offers a wide variety of recreational facilities including campgrounds, picnic areas, beaches, boat ramps, trails and other day use areas provided by the Corps, and lease-holders (Iowa DNR and Marion County Conservation Board). As Iowa's largest lake (15,240 surface acres), Red Rock provides ample space for water-based recreational activities such as paddle sports, boating, swimming, etc. The Corps leases land for a private marina concession and with partners, provides numerous 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 Lake Red Rock. 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 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 Lake Red Rock Master Plan was approved in 1976.

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; other State and regional goals and programs. The plan is distinct from the project-level implementation emphasis of the Operational Management Plan (OMP). The Master Plan is a guide implemented through provisions of the OMP, specific Design Memorandums and annual Management Plans. This Master Plan supersedes the previous Lake Red Rock Master Plan.

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

- Engineer Regulation (ER & EP) 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).
- Engineer Regulation (ER & EP) 1130-2-540, *Environmental Stewardship Operations and Maintenance Policies*, 15 November 1996 (with changes 4 November 2002, 31 July 2005, 11 August 2008)
- Engineer Manual 1110-1-400, *Engineering and Design – Recreation Facility and Customer Service Standards*, 1 November 2004.
- ER 200-1-5, *Environmental Quality – Policy for Implementation and Integrated Application of the USACE Environmental Operating Principles and Doctrine*, 30 October 2003.
- ER 200-2-2, *Environmental Quality – Procedures for Implementing the National Environmental Policy Act*, 4 March 1988.
- ER 1105-2-100, *Planning Guidance*, 22 April 2000 (with App D and G revised June 2004 and App F revised January 2006).

1.4. DESCRIPTION OF PROJECT AND WATERSHED

Lake Red Rock and the Red Rock Dam are located in Marion County on the Des Moines River in south-central Iowa, approximately 142.9 miles upstream from its confluence with the Mississippi River. The conservation pool (Lake Red Rock) impounded by the dam is within Marion County. The flood pool extends into Jasper, Warren, and Polk Counties. Major communities proximate to the project are: Des Moines, 40 miles to the northwest; Pella, 4 miles to the northeast; and Knoxville, 8 miles to the southwest.

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, Iowa.

The Des Moines River drains about 98 percent of its 14,802 square miles in this basin. Fort Dodge, Des Moines, and Ottumwa 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. (*State of Region Greater Des Moines, The Tomorrow Plan.*) 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 1-2 provides pertinent information regarding existing recreation development and visitation levels.

Table 1-1. Lake Red Rock Existing Water Storage and Levels

| Construction | |
|---------------------------------------|--|
| Began | 1960 |
| Completed | 1969 |
| Cost | |
| Federal Cost to Construct | \$88,838,000 |
| Reservoir @ Normal Pool | |
| Length | 18 miles |
| Area | 15,507 acres |
| Storage | 185,510 acre feet |
| Reservoir @ Flood Storage Pool | |
| Length | 33.5 miles |
| Area | 67,306 acres |
| Storage | 1,648,646 acre feet |
| Water Surface Elevation | |
| Normal Pool | 742' NGVD29 |
| Flood Storage Pool | 780' NGVD29 |
| Dam | |
| Type | Earth-Filled Embankment |
| Length | 5,676 feet |
| Height | 110 feet |
| Top Width | 44 feet |
| Spillway Elevation | 736' NGVD29 (Top of Concrete Spillway) |
| Top of Dam | 797' NGVD29 |
| Highest Outflows Recorded | 104,500 cfs (July 13, 1993) |
| Record High Pool Elevations | |
| May 18, 1993 | 777.72' NGVD29 |
| May 14, 1973 | 777.95' NGVD29 |
| June 14, 2008 | 779.10' NGVD29 |
| June 21, 1991 | 779.32' NGVD29 |
| June 25, 1984 | 779.61' NGVD29 |
| July 13, 1993 | 782.67' NGVD29 |

Table 1-2. Lake Red Rock Existing Recreation Development and Visitation

| Recreation | |
|------------------------------|---------|
| Number of Recreation Areas | 29 |
| Beaches | 2 |
| Camping Areas | 10 |
| Available Campsites | 641 |
| Marinas | 1 |
| Boat Ramps | 11 |
| Total Boat Ramp Launch Lanes | 24 |
| Miles of Trails | 31.8 |
| Group Picnic Shelters | 22 |
| Number of Visitors | |
| 2013 | 632,839 |
| 2012 | 619,427 |
| 2011 | 596,984 |
| 2010 | 596,346 |



Lake Red Rock

CHAPTER 1
Introduction

**Red Rock
Project**

**Master Plan
2015**

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