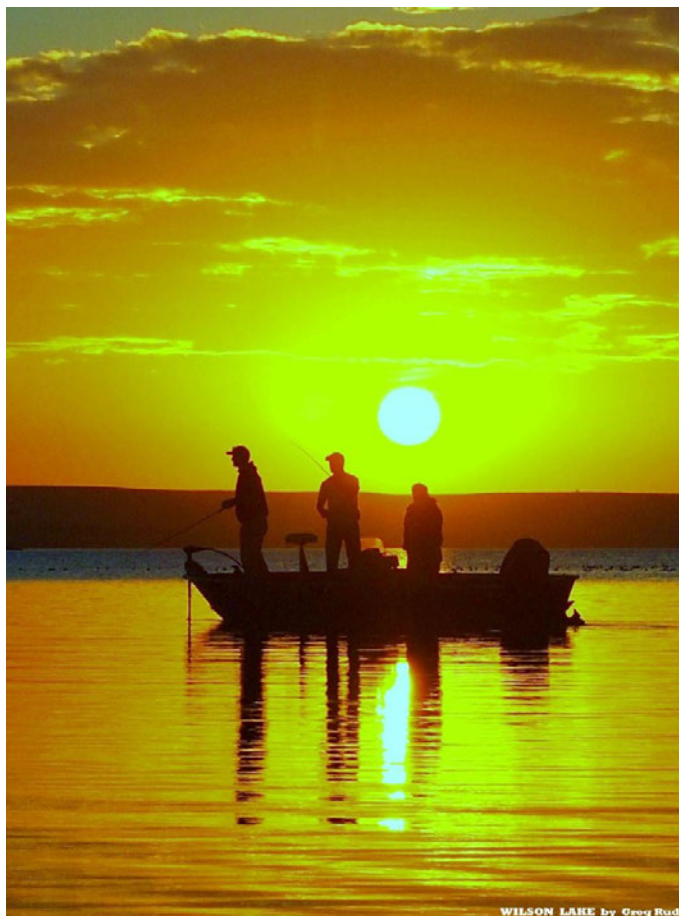




**US Army Corps
of Engineers**
Kansas City District

KANSAS RIVER BASIN SALINE RIVER

WILSON LAKE MASTER PLAN



WILSON LAKE by Greg Rud

3/24/2021



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, KANSAS CITY DISTRICT
601 E. 12TH STREET, 635 FEDERAL BLDG
KANSAS CITY, MO 64106-2824

CENWK-PM-PR (200A)

MEMORANDUM FOR RECORD

SUBJECT: Approval of Wilson Lake Master Plan

1. This Master Plan meets the policy and procedure outlined in Engineering Regulation/Engineer Pamphlet 1130-2-550 (DATED 30 January 2013), to be followed in preparation and revision of project Master Plans.
2. All requirements for the National Environmental Policy Act and other applicable environmental regulations have been met.
3. In order to guide the land management at Wilson Lake into the future, I hereby approve this Master Plan.
4. POC on this Master Plan is Mr. Curtis Hoagland, Environmental Resource Specialist, who can be reached at (816) 389-3401 or email curtis.r.hoagland@usace.army.mil.

WILLIAM C. HANNAN, JR.
COL, EN
Commanding

PREFACE

The Master Plan (MP) for Wilson Lake was first approved August 22, 1962. Subsequent revisions were prepared with the latest revision approved in November 1984.

In 2002 the US Army Corps of Engineers (USACE) developed and released a set of Environmental Operating Principles to instill environmental stewardship across all USACE business practices. As the Nation's resource challenges and priorities have evolved, the principles have been refined and USACE has re-committed to adhere to these principles. The re-energized Environmental Operating Principles are:

- Foster sustainability as a way of life throughout the organization.
- Proactively consider environmental consequences of all USACE activities and act accordingly.
- Create mutually supporting economic and environmentally sustainable solutions.
- Continue to meet our corporate responsibility and accountability under the law for activities undertaken by USACE, which may impact human and natural environments.
- Consider the environment in employing a risk management and systems approach throughout the life cycles of projects and programs.
- Leverage scientific, economic and social knowledge to understand the environmental context and effects of USACE actions in a collaborative manner.
- Employ an open, transparent process that respects views of individuals and groups interested in USACE activities

The format utilized for this plan is outlined in Engineering Regulation/Engineer Pamphlet 1130-2-550 (DATED 30 January 2013), which sets forth policy and procedure to be followed in preparation and revision of project MPs. This guidance is different from the original MP format which was a design memorandum. Wilson Lake's original MP can be found in design memorandum 17A. A listing of all the previous MP design memorandums and prior supplements can be found in Chapter 1, Section e.

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Chapter 1 Introduction

a. Project Authorization

The Wilson Lake project was authorized as a part of the comprehensive plan for the Missouri River Basin by the Flood Control Act of 1944 (Public Law 78-534). The comprehensive plan for the Missouri River Basin was developed by the Corps of Engineers and the Bureau of Reclamation. Wilson Lake was originally authorized as a Bureau of Reclamation project. In May of 1956, authority for the construction, operation and maintenance was transferred from the Secretary of the Interior to the Secretary of the Army by Public Law 84-505. Wilson Lake was originally authorized for flood control, silt control, and irrigation.

b. Project Purpose

Under the above cited authorizations, the project purposes at Wilson Lake included flood control, recreation, and fish & wildlife.

c. Purpose and Scope of MP

This revised MP replaces Design Memorandum No. 12A, MP for Wilson Lake dated November 1984. The MP is the strategic land use management document that guides the comprehensive management and development of all project recreational, natural, and cultural resources throughout the life of the water resource project. The MP guides the efficient and cost-effective management, development, and use of project lands. It is a vital tool for the responsible stewardship and sustainability of project resources for the benefit of present and future generations.

The MP guides and articulates U.S. Army Corps of Engineers (USACE) responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands, waters, and associated resources. The MP is a dynamic operational document projecting what could and should happen over the life of the project and is flexible based upon changing conditions. The MP deals in concepts, not in details, of design or administration. Detailed management and administration functions are addressed in the Operational Management Plan (OMP), which implement the concepts of the MP into operational actions.

The MP will be developed and kept current for Civil Works projects operated and maintained by USACE and will include all land (fee, easements, or other interests) originally acquired for the projects and any subsequent land (fee, easements, or other interests) acquired to support the operations and authorized missions of the project.

The MP is not intended to address the specifics of regional water quality, shoreline management, or water level management; these areas are covered in a project's shoreline management plan or water management plan. However, specific issues identified through the MP revision process can still be communicated and coordinated with the appropriate internal USACE resource (i.e. Operations for shoreline

management) or external resource agency (i.e. Kansas Department of Health and Environment (KDHE) for water quality) responsible for that specific area.

d. Brief Watershed and Project Description

Wilson Project is located on the Saline River in North Central Kansas. The lake primarily lies in eastern Russell County although a small portion extends into western Lincoln County. The dam site is approximately 45 miles west of Salina and 10 miles north of Wilson, Kansas. Towns in the vicinity of the project include Sylvan Grove, Lucas, Dorrance, and Bunker Hill. The area surrounding Wilson Lake is served by federal and state highways and a county road system. The dam crosses the Saline River at river mile 153.9.

The Saline River and Hell Creek are the major sources of surface water into Wilson Lake. The drainage basin of the Saline River is long and narrow, with a total area of the basin of 3,283 square miles of which 1,917 square miles are upstream of the dam. The lake has a flood control pool of approximately 20,000 surface acres and a multi-purpose pool of 9,000 surface acres. Lake capacity for flood control is 511,000 acre-feet and 225,000 for the multipurpose pool.

e. Listing of Prior Design Memorandums

Table 1.1

Design Memoranda	Title	Date Submitted	Date Approved
1	Hydrology	31 Mar 58	23 Jul 58
2	General Project Development	27 Feb 59	12 Jun 59
	Supp 1 Boundary Surveys and Marking	17 Jun 66	6 Oct 66
3	Real Estate	6 Sep 60	1 Dec 60
4	Sediment and Degradation Ranges	17 Aug 60	22 Sep 60
5	Sources of Construction Materials	3 Nov 60	15 Dec 60
6	Earthwork	4 Nov 60	23 Jan 61
	Supp A Earthwork	1 Feb 61	20 Feb 61
	Supp B Earthwork	5 Apr 63	8 Jul 63
7	Access Roads	22 Jan 60	18 Apr 60
8	Outlet Works and Spillway	22 Dec 60	18 Apr 60
9	Administrative Facilities	29 Nov 60	21 Feb 61
10	County Road Relocations	8 Feb 61	7 Apr 61

	Supp A County Road Relocations	19 Jun 63	19 Jul 69
	Supp B County Road Relocations	12 Nov 68	24 Feb 69
11	Reservoir Clearing	9 Apr 62	20 Jun 62
12A	Master Plan	31 May 62	22 Aug 62
	Supp 1	116 Sep 65	21 Oct 66
	Supp 2	18 Dec 67	1 Mar 68
	Supp 3	20 Jul 70	10 Sep 70
	Supp 4	28 Dec 70	26 Feb 71
	Supp 5	14 Sep 79	18 Dec 79
12A	Operational Management Plan	30 Jul 82	2 Nov 82
	Appendix A – E	29 Jun 76	28 Sep 76
	Appendix F	9 Jun 76	16 Aug 76
12A	Master Plan		Nov 84
13	Operator's Quarters	12 Jan 62	13 Mar 62
14	Power & Telephone Line Relocations	7 Mar 62	18 May 62
	Supp A Smoky Hill Electric Cooperative Association, Inc. Powerline Relocation	7 Feb 63	17 Apr 63
15	Fallout Protection	11 Apr 62	11 May 62
16	Cemetery Relocation Plan	18 Sep 62	4 Jan 63
17	Landing Strip	18 Aug 64	
18	Feature DM, Shower Bldg., Otoe Park	Feb 81	12 Mar 81

f. Pertinent Project Information

Table 1.2

GENERAL	
Location of Dam	The dam is located about 10 miles north of Wilson in Russel County, Kansas, at river mile 153.9 on the Saline River
Operational and Jurisdictional Agency	US Army Corps of Engineers, Kansas City, Missouri
Purposes	Flood control, recreation and fish and wildlife
Initial Authorization	Flood Control Act of 1944 (Public Law 78-534), 22 December 1944
Date Construction Started	April 1961
Closure of Dam	1964
Date Placed in Operation	December 1964
Multipurpose Pool Initially Filled	March 1973
Project Life	100 Years
Project Cost	\$20,463,500 (through FY1964) *
Total Cost Including Maintenance	\$67,242,000 (through FY2017)
Benefit/Cost Ratio	2.5 (1986)
*Includes \$2,089,522 for supplemental recreation development.	
RIVER BASIN	
Basin	Kansas River Basin
Stream	Saline River
Drainage area above Dam	1,917 square miles
Channel Capacity Below Dam	6,480 cubic feet per second (cfs)
Start of Appreciable Damage	120 cfs
Time of Water Travel	18 hours to the mouth

LAND	
Fee Land	20,936 acres of Russell County <u>872</u> acres of Lincoln County 21,808 acres of total fee land
Easement	11,657 acres of Russell County <u>1,288</u> acres of Lincoln County 12,945 acres of total easement
Separable Recreation	0 Acres
Total Acquisition	21,636 Acres
Acquisition Guideline Elevation	1525 and 1,582 feet, mean sea level (msl)
Fish and Wildlife General Plan	6,752 acres

LAKE			
Water Surface Area			
Multipurpose Pool		9,045 acres – 1,516 feet, msl	
Full Pool		20,000 acres – 1,554 feet, msl	
Shoreline at Multipurpose Pool Elevation		100 miles	
Storage Designation	Elevation Range (feet, msl) From To	Capacity (acre-feet)	Area at Top of Pool (Acres)
Surcharge	1,554 – 1,587.5	899,963	39,943
Flood Control	1,516 – 1,554	530,152	19,980
Multipurpose	1,516 – 1,516	236,188	9,040
Gross Storage	1,437 – 1,587	1,666,303	
Sedimentation Reserve		11,188 (all in multipurpose pool, 2008)	
Annual Sediment Inflow		265	

DAM AND EMBANKMENT	
Type of Construction	Rolled earth fill
Crest Elevation (top of dam)	1,592 feet, msl
Top Width	40 feet
Maximum Base Width	1,750 feet
Length	5,600 feet
Height Above Streambed	160 feet
Freeboard	10 feet
SPILLWAY	
Location	Right abutment
Type	Uncontrolled
Crest Elevation	1,582 feet, msl
Width	450 feet

OUTLET	
Location	Right abutment
Type	12 foot circular Tunnel
Tunnel, Number, Diameter	1 – 12 foot circular
Length	1,152 feet
Capacity at Elevation 1,587.5 feet, msl	1 gate open - - 5,300 cfs 2 gates open - - 7,420 cfs
Capacity at Elevation 1,554 feet, msl	1 gate open - - 4,700 cfs 2 gates open - - 6,500 cfs
Capacity at Elevation 1,516 feet, msl	1 gate open - - 3,800 cfs 2 gates open - - 5,300 cfs
Capacity at Elevation 1,460 feet, msl	1 gate open - - 2,000 cfs 2 gates open - - 2,000 cfs
Emergency Gate, Number, Size, Type	2 – 6' x 12.0 feet hydraulically operated slide gates
Control Gates, Number, Size, Type	2 – 6' x 12.0 feet hydraulically operated slide gates with built in low flow gates
Low Flow Gate, Number, Size, Type	2 – 2' by 2' hydraulic gates located inside the service gates

Chapter 2 Project Setting and Factors Influencing Management and Development

a. Description of Reservoir

Wilson Project is located on the Saline River in North Central Kansas. The lake primarily lies in eastern Russell County although a small portion extends into western Lincoln County. At multipurpose pool Wilson Lake covers 9,045 acres and can expand to as much as 35,670 acres during periods of heavy rain as excess runoff is impounded to prevent downstream flooding. Wilson Lake works in conjunction with several other lakes operated by USACE to provide flood protection for the Kansas River Basin and the lower Missouri and Mississippi Rivers.

Wilson Lake has approximately 100 miles of mostly rocky shoreline. The Lake has approximately 242,528 acre-ft of storage for multipurpose and sedimentation and at flood control pool increases to 511,000 acre-ft of storage. There are 12,842 acres of fee land above the multipurpose pool of 1516.00 mean sea level (MSL).

b. Hydrology and Groundwater

The Saline River and Hell Creek are the major sources of surface water in the Wilson Lake. The Saline River basin is long and narrow with a total drainage of 1,917 square miles above Wilson Dam. The surface area, surface elevation, and water volume of the reservoir fluctuate based on inflow and local climatic conditions.

The lake falls within the area of the Dakota Aquifer. The Dakota aquifer system consists of sandstone bodies deposited about 100 million years ago during the Cretaceous Period. The discontinuous sandstone bodies are lens shaped, rather than flat and continuous. Typically, the best sandstone aquifers are up to 100 feet (30 m) thick, 1.5 miles (2.4 km) wide, and 20 miles (32 km) or more long. Outcrops of these thick, alluvial sandstone bodies form the bluffs and canyons along the Saline River valley in the vicinity and upstream of Wilson Reservoir in Russell County. Ground water from the Dakota aquifer is used for domestic, municipal, industrial, and agricultural purposes.

c. Sedimentation and Shoreline Erosion

Wilson Lake has one of the lowest sedimentation rates of any of the Corps Lakes located in Kansas. The annual depletion rate from sediments is just 0.09% per year (Rahmani et. al., 2018). The sedimentation rate is 265 acre-feet per year. Shoreline erosion and deposition of silt have become an increasing concern at Wilson Lake. The last shoreline rock armoring on USACE managed areas was in 1992. Much of the pre-existing armor between elevations 1516 and 1519 are broke down and exposing vulnerable soils to erosion. The wave and wind erosion from the 2019 flood caused significant loss of soil. The state park reported some areas in Hell Creek eroded back into the campsite utilities and exposed water and electric lines. KDWPT will be rock armoring these areas. On USACE managed areas, A 5,700 ton rip rap contract has been awarded for 2020 for shoreline rock using placement with a high loader and excavator.

d. Water Quality

The Kansas City District (District) Water Quality Program collects monthly water samples from standardized locations during the recreation season. Chemical, physical and biological parameters are measured to evaluate water quality at four lake sites and the outflow. These data describe conditions and changes from within the main lake, and outflow focusing on eutrophication, nutrients, sediment, herbicides, metals, and contaminants. Lake water quality improves as water moves through the lake as settling, dilution, and biological processes remove sediments and nutrients. Water quality at Wilson Lake in 2018 was beneficial to operating purposes and measured parameters did not exceed Kansas state water quality standards for designated uses. Seasonally adjusted total maximum daily load (TMDL) limits for sulfate and chloride ions are in effect to reduce inputs into receiving waters with elevated background concentrations. Water quality monitoring will continue as a critical part of a holistic, environmentally sound water quality management strategy for the project to continue to meet applicable federal and state environmental laws, criteria, and standards.

e. Project Access

Access to Wilson Lake is excellent. Interstate Highway 70 (I-70) is located approximately 10 miles south of the project, U.S. Highway 281 is approximately 7 miles west of the project, and Kansas State Highway 18, located 10 miles north of the lake, provide the primary access to the Wilson Lake area. Direct Access to the lake is provided by Kansas 232 which crosses over the dam and connects I-70 and Kansas 18. Access to the lake is also provided by Kansas 181 and numerous county roads on the north and south sides of the lake. The Dorrance Road, which connects I-70, and South Shore Drive are paved county roads that provide access to the parks on the south side of the lake. Other county roads are well maintained gravel roads. This system is expected to provide access over the life of the project.

f. Climate

The Saline River basin lies in the Central Great Plains climate zone. The record high and low temperatures are 111 degrees Fahrenheit (F) and minus 26 degrees F. Mean annual precipitation at Wilson Lake was 26.03 inches. Greatest daily precipitation was over five inches. The area receives on average about 14 inches of snowfall each year. Snow packs are usually short-lived and are not commonly a concern for flooding.

The effects of climate change for this region is projected by an increase in the average annual temperatures; however there would be large year-to-year variations. More frequent high-volume rainfall events are expected along with an increase in periods of drought. These shifts in climate may lead to shifts in the growing season and allow species to shift their ranges northward.

	Temperature (F)									Precipitation (inches)							
	Means			Extremes		Mean # of Day				Mean	Greatest Monthly	Greatest Daily	Snow		Mean Number of Days		
	Daily Max	Daily Min	Monthly	Record High	Record Low	Max		Min					Mean	Maximum Monthly	.10 or More	.50 or More	1.00 or More
						90 and Above	32 and Below	32 and Below	0 and Below								
Jan	41.6	18.8	30.2	80	-15	0	9	29	2	0.56	1.48	1.39	3	21.5	1	0	0
Feb	45.5	21.9	33.7	86	-17	0	6	24	2	0.76	2.08	1.29	5	17.0	2	1	0
Mar	56.2	30.7	43.5	89	-5	0	2	18	0	1.72	8.84	3.05	2	10.5	3	1	0
Apr	66.2	40.2	53.2	100	12	1	0	6	0	2.44	5.29	2.32	0	4.2	5	2	1
May	75.6	51.9	63.8	100	27	2	0	0	0	3.62	9.41	4.86	0	0	7	3	1
Jun	85.8	61.7	73.8	111	38	12	0	0	0	3.69	10.59	2.27	0	0	6	2	1
Jul	92.3	67.1	79.7	110	46	21	0	0	0	3.79	11.56	4.70	0	0	5	2	1
Aug	90.4	65.4	77.9	111	45	18	0	0	0	3.64	7.81	5.11	0	0	5	2	1
Sep	81.8	55.6	68.7	105	28	8	0	0	0	2.28	7.96	3.41	0	0	4	2	1
Oct	69.2	43.0	56.1	97	17	1	0	4	0	1.80	6.62	3.07	0	1.5	3	1	1
Nov	55.1	30.8	42.9	87	-5	0	1	17	0	1.04	4.29	3.50	1	5.3	2	1	0
Dec	42.6	21.0	31.8	76	-26	0	6	27	1	0.69	3.25	2.85	3	18.8	2	0	0
Year	66.9	42.3	54.6	111	-26	61	25	122	5	26.03	40.93	5.11	14	40.7	44	16	6

Table 2.1 Climatological Summary for Wilson Lake, Kansas Source: National Climatic Data Center, Monthly Normals, 1981-2010

g. Topography, Geology, and Soils

Wilson Lake is located in an area of well-defined hills and valleys with numerous sandstone outcrops. Elevation ranges from 1,440 ft. msl in the area below the dam to 1,780 ft. msl at the western end of the project. Wilson Lake occupies a broad, flat flood plain that is deeply cut into the surrounding uplands. The local geographic unit is the Smoky Hills. The Smoky Hills are made up of a maturely dissected belt, some 20 – 40 miles wide, lying on the eastern border of the dissected High Plains province which forms the eastern edge of the High Plains. Much of the area around Wilson Lake is characterized by relatively high hills with steep foot slopes to the shoreline. Away from the river valley, the topography is less severe with indistinct terraces, dissected escarpments and rolling hills.

The lake area is characterized by sandstone outcroppings of the Dakota formation. This formation of the Cretaceous Age is the oldest bedrock exposed in the lake area. The sandstone appears in most cases to weather rapidly, but in some instances has become case hardened and quite resistant to weathering. The Saline River has in the past, undercut the channel sandstone causing massive blocks of the sandstone to separate along the vertical jointing and to slump toward the river. Steep sandstone walls and ledges line the valley and adjoining canyons throughout this part of the Saline Valley. On the Western Edge of Lucas Park is an interesting concentration of rock formations resembling a small scale city. These formations, known as Rocktown, are comprised of a soft sandstone ranging in color from white to bright red. In the lake areas there are also deposits of limestone, gravel, lignite, and various clays. For the most part, these deposits are buried beneath overburden or water and so are not readily observable.

Figure 1. Rock Formations in Water



Soils in the lake area are generally considered to be of the Chernozem and Chestnut Great Soil Group. These soils are generally shallow and have developed under prairie conditions associated with relatively low rainfall.

h. Resource Analysis (Level One Inventory Data)

Operational civil works projects administered by USACE are required, with few exceptions, to prepare an inventory of natural resources. The basic inventory required is referred to within USACE regulations (ER and Engineering Pamphlet [EP] 1130-2-540) as a Level One Inventory. This inventory includes the following: vegetation in accordance with the National Vegetation Classification System through the sub-class level; assessment of the potential presence of special status species including but not limited to federal and state listed endangered and threatened species, migratory species, and birds of conservation concern listed by the U.S. Fish and Wildlife Service (USFWS); land (soils) capability classes in accordance with the Natural Resource Conservation Service (NRCS) criteria; and wetlands in accordance with the USFWS' Classification of Wetlands and Deepwater Habitats of the United States. This basic inventory information is used in preparing project MPs and Operation Management Plans (OMP). The OMP is a five-year management plan setting forth detailed information required to implement the concepts set forth in the MP. An overview of the natural resources and related management actions at the project is provided in the following sections and paragraphs.

1) Fish and Wildlife Resources

The impoundment of the Saline River and other tributary streams, which form Wilson Lake, changed it from a riverine to a lake system. Fisheries in Wilson Lake are managed by the fisheries division of the Kansas Department of Wildlife, Parks, and Tourism (KDWPT). Fisheries management activities include fish sampling, creel surveys, habitat work, aquatic vegetation enhancement, fish stocking, and special studies to monitor fish populations and improve fishing opportunities. A fisheries habitat improvement plan has been established and each year fish habitat (Georgia Cubes) is placed in a variety of spots around the lake to provide cover. A variety of sport and non-sport fish species are found in the lake. A list of fish species in the lake can be found in Appendix C.

Figure 2. Placement of Georgia Cube for Fish Habitat Improvement



The project lands with its variety of habitats supports a number of game animal, furbearers, and other mammal species. A wide variety of resident and migratory bird species utilize the project lands and water for at least a portion of the year. These provide visitors with both consumptive and non-consumptive uses. Reptiles and amphibians typical of the Smoky Hill region are also located on Wilson Lake project lands.

Figure 3. Hen Turkey with Poults



2) Vegetative Resources

As part of the Level I inventory the project lands were classified according to the National Vegetation Classification System down to the sub-class level. In addition, an assessment was made as to the condition of those lands to determine if they are sustainable.

Description of each of the assessment categories:

Sustainable – Meeting the desired state. The acreage is not significantly impacted by any factors that can be managed and does not require intensive management. The acreage also meets operational goals and objectives set out in the project OMP or other applicable management document. These acres are considered healthy and sustainable for future generations. Only minor management practices may be required to maintain the health.

Transitioning – Managed to meet desired goals. The acreage is impacted by human or other environmental factors that require management of the acreage to meet goals and objectives outlined in the project OMP or other applicable management document.

Degraded – Does not meet desired goals. The acreage is significantly impacted by human or other environmental factors that prevent the acreage from meeting desired goals outlined in the project OMP or other management documents. The acreage is not considered healthy. Intense management may be required to meet desired goals.

Figure 4. Coneflowers



Table 2.2

Project Site Vegetation Classification and Condition Records for								
Fiscal Year 2017								
Version 9								
** THE FOLLOWING CLASSIFICATION INFORMATION IS DERIVED FROM THE NATIONAL VEGETATION CLASSIFICATION SYSTEM **								
Division NORTHWESTERN DIVISION								
District KANSAS CITY								
Project Site WILSON LAKE KANSAS								
Fiscal Year 2017								
Project Fee-Owned Area 21796								
Division	Order	Class	Sub-Class	Total Sub-Class Acreage	Sustainable Acres	Transitioning Acres	Degraded Acres	Total Condition Acres
NON-VEGETATED	Non-Vegetated	Non-Vegetated	Non-Vegetated	9884	0	9884	0	9884
VEGETATED	Herb Dominated	Herbaceous Vegetation	Annual graminoid or forb vegetation	636	0	636	0	636
VEGETATED	Herb Dominated	Herbaceous Vegetation	Perennial gramimoid vegetation (grasslands)	9800	2000	7500	300	9800
VEGETATED	Shrub Dominated	Shrubland (Scrub)	Deciduous shrubland (scrub)	380	300	80	0	380
VEGETATED	Tree Dominated	Closed Tree Canopy	Deciduous closed tree canopy	600	350	200	50	600
VEGETATED	Tree Dominated	Open Tree Canopy	Deciduous open tree canopy	496	100	200	196	496
WILSON LAKE KANSAS Totals				21796	2750	18500	546	21796

3) Threatened and Endangered Species

The USFWS maintains the list of federally listed threatened or endangered species, and their designated critical habitat under the Endangered Species Act. MDC is responsible for maintaining the state listed species. The state Endangered Species Act and Missouri Wildlife Code are the guiding legislation for the state. A table of federal and state listed species believed to occupy Russell and/or Lincoln County is found below.

Table 2.3

Name	State Status	Federal Status	Habitat
Northern Long-Eared Bat (<i>Myotis septentrionalis</i>)		Threatened	Hibernates in caves and mines - swarming in surrounding wooded areas in autumn. Roosts and forages in upland forests during spring and summer.
Whooping Crane (<i>Grus americana</i>)		Endangered	During migration they tend to stop over on wide shallow river flats, along with shallow areas of lakes and Marshes

4) Invasive Species

Invasive species have been introduced for a specific purpose such as wildlife habitat or erosion control without realizing the full ecological impacts. The invasive species known to occur on project lands includes autumn olive (*Elaeagnus umbellata*), Johnson grass (*Sorghum halepense*), musk thistle (*Carduus nutans*), field bindweed (*Convolvulus arvensis*), and phragmites (*Phragmites australis*). Out of these the Johnson grass, phragmites and musk thistle are the most prolific. The project staff has done some limited treatment of these species. Control of invasive species is guided by the Operations Management Plan in conjunction with KDWPT and the KS dept. of ag.

Within the last two decades zebra mussels (*Dreissena polymorpha*) have been identified within Kansas waterbodies. They can spread by moving off a contaminated boat to an uninfected waterway. They can be transported by infected water that may be within bilge, livewells, or motor water intakes. The project has had zebra mussels discovered first in October 2009. A large education effort by both state and federal agencies about zebra mussels and their mechanism of spread has potentially slowed the spread of this species. Once a waterbody becomes infested the mussels clump together and can cover power plants, industrial and public water intakes. They can also foul boat hulls, cover docks and other structures, and decimate native mussel populations.

Figure 5. Invasive Species Alert Sign



5) Ecological Setting

Wilson Lake occupies a broad, flat flood plain that is deeply cut into the surrounding uplands. The local geographic unit is the Smoky Hills. The Smoky Hills are made up of a maturely dissected belt, some 20 – 40 miles wide, lying on the eastern border of the dissected High Plains province which forms the eastern edge of the High Plains. Much of the area around Wilson Lake is characterized by relatively high hills with steep foot slopes to the shoreline. Away from the river valley, the topography is less severe with indistinct terraces, dissected escarpments and rolling hills.

Tree cover historically was sparse with most timber limited to narrow strips adjacent to the Saline River and smaller tributaries. Stands of cottonwood, willows and tamarisks can be found along the shoreline. After the record pool level of 1993 and the long draw down experienced thereafter, low lying vegetation died off. The old tree stands remain and through natural decay will eventually fall and decompose.

Majority of the grasslands at Wilson Lake can be classified as natural prairie. Many of the fields which were improved pastures before the dam was constructed. Open areas which were once cultivated continue to be cultivated under agriculture leases or have been re-vegetated by prairie species.

6) Wetlands

Much of the wetland systems classified at the project are associated with the lake and the tributaries feeding into the lake. Classification of the wetlands was derived from the USFWS Classification of Wetlands and Deepwater Habitats of the United States. A table listing the wetland systems and acreages is found below.

Table 2.4

System	Sub-System	Class	Class Acres
Lacustrine	Limnetic	Unconsolidated Bottom	8820
Lacustrine	Littoral	Unconsolidated Bottom	180
Palustrine		Emergent Wetland	12
Palustrine		Forested Wetland	12
Palustrine		Scrub-Shrub	62
Palustrine		Unconsolidated Bottom	2.5
Riverine	Lower Perennial	Unconsolidated Bottom	221

Figure 6. Emergent Wetland on the Periphery of the Lake



i. Borrow Areas and Utilities

Borrow area for fill utilized by the project is located below the dam. This area is less than one-half acre in size. There are no other active borrow areas on the project.

The project has 63 utility easements for electric, water, fiber optic, antennas, telephone, petroleum, and road rights-of-way.

j. Mineral and Timber Resources

No oil and Gas, Sand & gravel, or commercial tree harvest. If grants are issued authorizing extraction of mineral resources from the project, the grant would contain special conditions, and stipulations for protecting the natural, physical, structural, and cultural aspects of the project for its authorized purposes.

k. Cultural Resources

1) Background

Numerous cultural resources have been recorded on Wilson project lands. Cultural resources are the physical remains of past human activity and occupation and include prehistoric and historic archeological sites, artifacts, features, burial sites including mounds and cairns, structures, landscapes, and traditional cultural places. In Kansas, including the Wilson Lake area, past periods of human occupation have been divided into broad time periods including the Paleoarchaic (10,000-1 B.C.), Early Ceramic (A.D. 1-1000 A.D.), Middle Ceramic (A.D. 1000-1500), Late Ceramic (A.D. 1500-1800), and Historic (A.D. 1800 to present). Each of these time periods is represented by diagnostic remains that represent cultural practices and adaptation to environmental factors.

2) Previous Investigations

Initial archeological investigations for the Wilson Lake Project began shortly following its authorization under the Flood Control Act of 1944. The project was transferred from the Bureau of Reclamation to the Corps in 1956. Construction of the lake began in 1961 and was completed in 1964. The National Park Service conducted archeological field reconnaissance of the proposed reservoir area between 1948 and 1960. Sites found during the earlier surveys were excavated and tested in 1960 by Kansas State Historical Society (KSHS). In 1981, a statewide rock art study was performed by the Department of the Interior Heritage Conservation and Recreation Service and the KSHS. A preliminary cultural resources plan was developed in 1978 by Kansas State University archaeologists. Following development of the management plan, Corps has funded two large cultural resource projects as part of its obligations under the National Historic Preservation Act (NHPA). A survey of the public use areas was published by KSHS in 1982. Archeologists from Wichita State University surveyed and tested sites along the lake edge in 1986 and documented the Pawnee Trail. Since these large projects, smaller scale archeological investigations have been conducted by the Kansas Department of Transportation project on Corps land in 2004 and by Corps archeologists for specific real estate and lake project undertakings. In 1997 a new and updated Historic Properties Management Plan (HPMP) was completed for Wilson Lake.

3) Recorded Sites

The Wilson Lake Project consists of 12,796 acres of USACE fee-owned land above the multipurpose pool, of which about 60 percent has been professionally surveyed for archeological sites. A total of 101 cultural resource sites have been recorded on the fee-owned land and another 11 sites are recorded on easement land. Of these, there are three sites, all petroglyphs, that are listed on the National Register of Historic Places (NRHP). One is on fee land and two are on easement land. An additional 37 sites on fee land and 5 sites on easement land are potentially eligible for the NRHP and need to be evaluated for listing on the NRHP. Fifteen sites on fee land were inundated before they were evaluated. Forty-eight sites on fee land and 4 on easement land need to be re-surveyed and evaluated for eligibility to the NRHP. Since only 62 percent of USACE-owned lands have been surveyed at the lake, it is likely that many as of yet unrecorded sites are present in the areas that have not been surveyed.

4) Cultural Resources Management

The cultural resources management policy of the District is to preserve and protect significant cultural resources in a spirit of stewardship for the nation. Federal law and USACE regulations require USACE to identify, evaluate, and provide stewardship for cultural resource sites on USACE land at Wilson Lake. These laws include but are not limited to the NHPA, Archeological Resource Protection Act, and the Native American Graves Protection and Repatriation Act.

5) Historic Properties Management Plan

The HPMP for Wilson Lake is the primary tool used to provide proper stewardship for cultural resources on project lands. The HPMP specifies the appropriate management of cultural resources and serves as an appendix to the lake Operation Management plan. All organizational elements that have administrative and management responsibilities for Wilson Lake have access to the plan. The HPMP is an effective way of identifying and meeting the District's cultural resource stewardship needs and requirements. HPMPs provide comprehensive overviews of all cultural resources on USACE-owned property and easement lands; information on current and future required stewardship actions; information on eligibility status of all known sites at the project; information on past investigations; information on land use restrictions; updates from site monitoring; future budget needs for specific actions; and an overview of current laws and regulations.

6) Standard Guidelines

All real estate actions or other undertakings that include ground disturbing activity require a cultural resource review to determine if the activity could impact cultural resource sites. The District Archeologist reviews project plans, makes determinations on the necessity for field investigations, coordinates the undertaking with the Kansas State Historic Preservation Officer, and consults with appropriate federally recognized Native American tribes.

Sites listed on or eligible for listing on the NRHP are required to be monitored and protected from destruction or looting activity. For undertakings that have the potential to impact NRHP properties, avoidance is the preferred alternative. If avoidance is not possible, any disturbance would require SHPO and Tribal consultation. Mitigation

measures would also be required for such disturbances. In the case of archeological sites, mitigation typically consists of intensive excavations. Unevaluated sites that could be impacted would require an NRHP eligibility determination prior to the undertaking. Sites determined not eligible for the NRHP can be modified in a manner consistent with land use classifications, resource management objectives, and environmental laws. Detailed guidance on land use is contained in the HPMP.

I. Interpretation & Visual Qualities

Wilson Lake is located in the natural division of Kansas identified as the Smoky Hills. The Smoky Hills natural division is composed largely of sandstone, limestone, and chalk. Although visibly different, they were all formed from sediment in the Cretaceous Period which lasted from 145 to 66 million years ago. Over millions of years, rivers and streams flowing through the region carved the rock layers into hills and created wide and flat river valleys. Sediment carried in and deposited by the streams in the river valleys is younger than the rock making up the surrounding hills (Kansas Geological Survey. 2019).

Wilson Lake is a popular recreation spot in this regional division. The Wilson Lake Valley has a maximum relief in the area of about 250 feet along the meandering stream and lake. The surrounding upland areas are gently rolling.

Rocktown Natural Area is a site comprising 305 acres in Lucas Park. It is named for the sandstone pillars, ranging in height from 15 feet to 30 feet that occupy its landscape. It is also home to a number of plant species uncommon to the region: Fremont's clematis, short stem spiderwort, and Maryland senna among others.

I. Demographics

The population of Kansas is just shy of three million people. According to the Kansas State Comprehensive Outdoor Recreation Plan (SCORP), the population density in Kansas has steadily shifted from rural agricultural regions to urban areas and to rural areas that are rich in recreational amenities. The overall population of Kansas has been growing steadily at 2% per decade, which is lagging behind the national growth projection of 10% per decade. Kansas's population is aging and the number of people 65 and older is projected to become a larger proportion of the total population. Following another national trend, Kansas has become more racially and ethnically diverse over the course of the last decade. Minority populations in Kansas are growing faster than the general population, increasing over the past decade three times as fast as the state population as a whole.

The project is located within Russell and Lincoln Counties. A summary of the demographic information and projections are as follows:

Russell County

- Population estimates for Russell County shows a slow decline (-0.8%) in population until since 2010 Census as compared to the state average of 2% growth during that same period.

- Russell County has one of the largest proportions of persons age 65 and over (24.17%) within the region and is greater than the statewide percentage (15.4%).
- Russell County is much less diverse compared to the statewide demographics. White or Caucasian comprises 95.2% of the population compared to 86.5% statewide. Hispanic or Latino was the next largest ethnic group comprising 3.3% as compared to 12.1% statewide. Black or African Americans represented only 1.3% of the Russell County Population as compared to 6.2% statewide population

Lincoln County

- Population estimates for Lincoln County shows a sharp decline (-6.7%) in population until since 2010 Census as compared to the state average of 2% growth during that same period.
- Lincoln County is much less diverse compared to the statewide demographics. White or Caucasian comprises 96.8% of the population compared to 86.5% statewide. Hispanic or Latino was the next largest ethnic group comprising 3.4% as compared to 12.1% statewide. Black or African Americans represented only 0.8% of the Lincoln County Population as compared to 6.2% statewide population.
- Lincoln County had a similar proportion of the population below the poverty level 11.8% versus 11.9% statewide.

m. Economics

The money spent by visitors to USACE lakes on trip expenses adds to the local and national economies by supporting jobs and generating income. Visitor spending represents a sizable component of the economy in many communities around USACE lakes. Wilson Lake Project contributed the below to the economy.

287,254 visits per year (FY 2016) resulted in:

- \$10,768,969 in visitor spending within 30 miles of the lake
- \$7,781,942 in sales within 30 miles of the lake
- 99 jobs within 30 miles of the lake
- \$2,364,071 in labor income within 30 miles of the lake
- \$3,537,128 in value added within 30 miles of the lake
- \$3,492,763 in National Economic Development Benefits

With multiplier effect, visitor trip spending resulted in:

- \$11,642,545 in total sales
- 129 jobs
- \$3,492,605 in labor income
- \$5,374,180 in value added (wages & salaries, payroll benefits, profits, rents, and indirect business taxes)

Cumulative damages prevented from project implementation through FY 2016 totaled \$1,602,629,200.

n. Recreation Facilities, Activities and Needs

1) Zones of Influence

The zones of influence for Wilson Lake include the metropolitan areas of Hays, Salina, and Great Bend, as well as towns and communities within a relatively short distance from the lake.

2) Visitation Profile

During the period of fiscal year (FY) 2002 – FY 2012 ranged from 169 thousand to over 325 thousand visits with an average of 220,795 total visits. Total overnight visits during this time period ranged from about 73,771 to 126,434 with an average of 95,594 overnight visits per FY. Day-use visits accounted for between 1.2 million to 1.9 million with an average of 1.47 million day-use visits per FY during FY 2002 – 2012.

Table 2.5. Total Visitation and Recreation Day Equivalents		
Year	Visitation Total	Recreation Days
2002	281,545	970,794
2003	325,480	1,242,589
2004	183,970	1,294,780
2005	169,336	1,580,211
2006	187,669	1,360,172
2007	212,297	1,079,332
2008	211,137	1,035,609
2009	205,869	1,037,419
2010	232,562	1,187,816
2011	217,949	1,096,533
2012	200,926	1,107,118
Average over this period is 220,795 Visits & 1,069,307 Recreation Days		

3) Recreation Analysis

By providing opportunities for active recreation, USACE lakes help combat one of the most significant of the nation's health problems: lack of physical activity. Recreational programs and activities at USACE lakes also help strengthen family ties and friendships; provide opportunities for children to develop personal skills, social values, and self-esteem; and increase water safety and awareness. The programs also

increase community involvement and ownership of shared resources. Physical recreation contributes to a full and meaningful life, which is good for the mind and body, good for the economy, and great for the outdoors.

Wilson 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 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 Wilson Lake's recreation areas. The popularity of campsites, cabins, and, hiking and biking trails, have also become apparent in other federal, and state parks in the region.

Recreational Facilities as of 2016

- 5 recreation areas
- 507 picnic sites
- 473 camping sites
- 14 playgrounds
- 4 swimming areas
- 6 number of trails
- 25.8 trail miles
- 9 boat ramps – 22 Launch Lanes
- 187 marina wet slips
- 45 dry storage slips

Visits (person-trips) in FY16

- 287,254 in total
- 26,763 picnickers
- 37,028 campers
- 64,828 swimmers
- 20,671 water skiers
- 93,990 boaters
- 61,328 sightseers
- 110,548 fishermen
- 27,698 hunters
- 95,870 others

4) Recreational Carrying Capacity

No formal recreational carrying capacity study has been conducted for Wilson Lake. The below table and discussion provide a look at recent occupancy data.

Table 2.6

Wilson Project Occupancy					
Park Name	AVERAGE OF FISCAL YEAR 2015-2019				
	# of Days Available	Occupancy	Walk-ins	Reservations	Total Percent Usage
LUCAS	20,231	3,154	397	922	21.42%
MINOOKA	32,644	5,480	576	1,666	21.58%
SYLVAN	6,421	1,543	149	456	29.47%
Total:	59,295	10,178	1,122	3,043	23.46%

The total walk-in transactions represent a much lower number than the reservations made in advance. The total occupancy of 23 percent is somewhat lower than the national average of USACE facilities at 29 percent. In addition, Lucas Park was closed for part of 2018 and all of 2019 for road work

o. Related Recreational, Historical, and Cultural Areas

Several of the surrounding towns such as Ellsworth, Russell, Wilson and Lucas hold several festivals annually.

Garden of Eden

Post Rock Scenic Byway

Sternberg Museum of Natural History (Hays)

Rolling Hills Wildlife Refuge (Salina)

p. Real Estate Acquisition Policy

Acquisition policy for Wilson Lake was established in 1953 in the Design Manual Memorandum number five which was revised in 1956.

Lands to be acquired in fee are described as those lands: (1) Required for the dam site spillway control structure, construction areas, and other permanent structures; (2) Frequently used operational areas and access thereto; (3) Required for public access; (4) Subject to frequent inundation (below elevation 1,525, the 5-year flood-frequency contour, blocked out), (5) Areas wherein excessive erosion is anticipated, (6) Borrow area (downstream of Dam), and (7) Quarry sites (not established as of this date) outside of the reservoir, as required, (a lesser interest will be acquired if, during negotiations with the owners, it is determined to be to the financial advantage to the Government.) Flood easements on adjacent private property are monitored from construction of habitable structures below elevation 1582 (emergency spillway elevation)..

q. Pertinent Public Laws

(1) Application of Public Laws.

Development and management of federal reservoirs are regulated by a number of statutes and guided by USACE documents. The following sections provide a summary of the relevant policies and federal statutes.

(2) Recreation

The policies and public laws listed below address development and management of recreational facilities on public lands and are pertinent to the Wilson Lake Project.

PL 78-534, Flood Control Act of 1944 (22 December 1944), authorized the Chief of Engineers to provide facilities in reservoir areas for public use, including recreation and conservation of fish and wildlife.

PL 79-526, Flood Control Act of 1946 (24 July 1946), amends PL 78-534 to include authority to grant leases to nonprofit organizations at recreational facilities in reservoir areas at reduced or nominal charges.

PL 83-780, Flood Control Act of 1954 (3 September 1954), further amends PL 78-534 and authorizes the Secretary of the Army to grant leases to federal, state, or governmental agencies without monetary considerations for use and occupation of land and water areas under the jurisdiction of the Department of the Army for park and recreational purposes when in the public interest.

PL 87-874, Flood Control Act of 1962, broadened the authority under PL 78-534 to include all water resource projects.

Joint Land Acquisition Policy for Reservoir Projects (Federal Register, Volume 27, 22 February 1962) allows the Department of the Army to acquire additional lands necessary for the realization of potential outdoor recreational resources of a reservoir.

PL 88-578, Land and Water Conservation Fund Act of 1965 (1 September 1964), prescribes conditions under which USACE may charge for admission and use of its recreational areas.

PL 89-72, Federal Water Project Recreation Act of 1965 (9 July 1965), requires sharing of financial responsibilities in joint federal and non-federal recreational and fish and wildlife resources with no more than half the cost borne by the federal government.

PL 90-480, Architectural Barriers Act of 1968 (12 August 1968), as amended, requires access for persons with disabilities to facilities designed, built, altered, or leased with federal funds.

PL 101-336, Americans with Disabilities Act of 1990 (ADA) (26 July 1990), as amended by the ADA Amendments Act of 2008 (PL 110-325), prohibits discrimination based on disabilities in, among others, the area of public accommodations and requires reasonable accommodation for persons with disabilities.

PL 102-580, Water Resources Development Act of 1992 (31 October 1992), authorizes USACE to accept contributions of funds, materials, and services from non-federal public and private entities to be used in managing recreational facilities and natural resources.

PL 103-66, Omnibus Budget Reconciliation Act – Day-Use Fees (10 August 1993), authorized USACE to collect fees for the use of developed recreational sites and facilities, including campsites, swimming beaches, and boat ramps.

PL 104-333, Omnibus Parks and Public Lands Management Act of 1996 (12 November 1996), created an advisory commission to review the current and anticipated demand for recreational opportunities at lakes and reservoirs managed by the federal government and to develop alternatives to enhance the opportunities for such use by the public.

PL 104-303 (the Water Resources Development Act of 1996), authorizes recreation and fish and wildlife mitigation as purposes of the project, to the extent that the additional purposes do not adversely affect flood control, power generation, or other authorized purposes of the project.

(3) Water Resource Protection and Flood Risk Management

A number of public laws address water resources protection and flood risk management and integration of these goals with other Project purposes such as recreation. The following are pertinent to Wilson Lake:

PL 75-761, Flood Control Act of 1938 (28 June 1938), authorizes the construction of civil engineering projects such as dams, levees, dikes, and other flood risk management measures through USACE.

PL 78-534, Flood Control Act of 1944 (22 December 1944), specifies the rights and interests of the states in water resources development and requires cooperation and consultation with State agencies in planning for flood risk management.

PL 79-14, Rivers and Harbors Act of 1945 specifies the rights and interests of the states in watershed development and water utilization and control, and the requirements for cooperation with state agencies in planning for flood control and navigation improvements.

PL 85-500, Water Supply Act of 1958 (3 July 1958), authorizes USACE to include municipal and industrial water supply storage in multiple-purpose reservoir projects.

PL 87-88, Federal Water Pollution Control Act Amendments of 1961 (20 July 1961), requires federal agencies to address the potential for pollution of interstate or navigable waters when planning a reservoir project.

PL 89-80, Water Resources Planning Act of 1965 (22 July 1965), provides for the optimum development of the Nation's natural resources through coordinated planning of water and related land resources. It provides authority for the establishment of a water resources council and river basin commission.

PL 89-298, Flood Control Act of 1965 (27 October 1965), authorizes the Secretary of the Army to design and construct navigation, flood risk management, and shore protection projects if the cost of any single project does not exceed \$10 million.

PL 92-500, Federal Water Pollution Control Act (Clean Water Act) (October 18, 1972) Establishes a national goal of eliminating all discharges into U.S. waters by 1985 and an interim goal of making the waters safe for fish, shellfish, wildlife and people by July 1, 1983. Also provides that in the planning of any USACE reservoir consideration shall be given to inclusion of storage for regulation of stream flow. PL 95-217, Clean Water Act of 1977 (15 December 1977), amends PL 87-88 and requires the Environmental Protection Agency (EPA) to enter into written agreements with the Secretaries of Agriculture, the Army, and the Interior to provide maximum utilization of the laws and programs to maintain water quality.

PL 99-662, Water Resource Development Act of 1986 (17 November 1986), establishes cost sharing formulas for the construction of harbors, inland waterway transportation, and flood risk management projects.

(4) Fish and Wildlife Resources

A number of public laws address protection and maintenance of fish and wildlife resources. The following are pertinent to the Wilson Lake project:

PL 79-732, Fish and Wildlife Coordination Act (10 March 1934), provides authority for making project lands available for management by interested State agencies for wildlife purposes.

Title 16 U.S. Code (U.S.C.) §§ 668-668a-d, Bald and Golden Eagle Protection Act of 1940 (8 June 1940) as amended, prohibits anyone, without a permit issued by the Secretary of the Interior, from taking bald eagles (*Haliaeetus leucocephalus*), including their nests or eggs.

PL 85-624, Fish and Wildlife Coordination Act (12 August 1958), states that fish and wildlife conservation will receive equal consideration with other project purposes and be coordinated with other features of water resources development programs.

The Federal Water Project Recreation Act of 1965 (PL 89-72) requires consideration of opportunities for fish and wildlife enhancement in planning water resources projects. Non-federal bodies are encouraged to operate and maintain the project fish and wildlife enhancement facilities. If non-federal bodies agree in writing to administer the facilities at their expense, the fish and wildlife benefits are included in the project benefits and project cost allocated to fish and wildlife. Fees may be charged by the non-federal bodies to repay their costs. If non-federal bodies do not so agree, no facilities for fish and wildlife may be provided.

PL 91-190, National Environmental Policy Act of 1969 (NEPA) (1 January 1970), establishes a broad federal policy on environmental quality stating that the federal government will assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings, and preserve important historic, cultural, and natural aspects of our national heritage.

PL 93-205, Conservation, Protection, and Propagation of Endangered Species (28 December 1973), requires that federal agencies will, in consultation with the USFWS, further conservation of endangered and threatened species and ensure that their actions are not likely to jeopardize such species or destroy or modify their critical habitat.

PL 95-632, Endangered Species Act Amendments of 1978 (10 November 1978), specifies a consultation process between federal agencies and the Secretaries of the Interior, Commerce, or Agriculture for carrying out programs for the conservation of endangered and threatened species.

PL 101-233, North American Wetland Conservation Act (13 December 1989), directs the conservation of North America wetland ecosystems and requires agencies to manage their lands for wetland/waterfowl purposes to the extent consistent with missions.

PL 104-303, The Water Resources Development Act of 1996, authorized recreation and fish and wildlife mitigation as purposes of the project, to the extent that the additional purposes do not adversely affect flood control, power generation, or other authorized purposes of the project.

PL 106-147, Neo-tropical Migratory Bird Conservation Act (20 July 2000) promotes the conservation of habitat for neo-tropical migratory birds.

(5) Forest Resources

The following law pertains to management of forested lands and is pertinent to the Wilson Lake project:

PL 86-717, Conservation of Forest Land Act of 1960 (6 September 1960), provides for the protection of forest cover in reservoir areas and specifies that reservoir areas of projects developed for flood risk management or other purposes that are owned in fee and under the jurisdiction of the Secretary of the Army and the Chief of Engineers will be developed and maintained so as to encourage, promote, and ensure fully adequate and dependable future resources of readily available timber through sustained yield programs, reforestation, and accepted conservation practices.

(6) Cultural Resources

A number of public laws mandate protection of cultural resources on public lands. The following are pertinent to USACE project lands at the Wilson Lake project:

PL 59-209, Antiquities Act of 1906 (8 June 1906), applies to the appropriation or destruction of antiquities on federally owned or controlled lands and has served as the precedent for subsequent legislation.

PL 74-292, Historic Sites Act of 1935 (21 August 1935), declares that it is a national policy to preserve for public use historic sites, buildings, and objects of national significance for the inspiration and benefit of the people of the United States.

PL 86-523, Reservoir Salvage Act of 1960 (27 June 1960), provides for the preservation of historical and archaeological data that might otherwise be lost as the result of the construction of a dam and attendant facilities and activities.

PL 89-665, National Historic Preservation Act of 1966 (15 October 1966), establishes a national policy of preserving, restoring, and maintaining cultural resources. It requires federal agencies to take into account the effect an action may have on sites that may be eligible for inclusion on the NRHP.

PL 93-291, Archaeological and Historic Preservation Act of 1974 (24 May 1974), amends PL 86-523 and provides for the Secretary of Interior to coordinate all federal survey and recovery activities authorized under this expansion of the Reservoir Salvage Act of 1960. The federal construction agency may expend up to one percent of project funds on cultural resource surveys.

PL 96-95, Archaeological Resources Protection Act of 1979 (31 October 1979), updates PL 59-209 and protects archaeological resources and sites on public lands and fosters increased cooperation and exchange of information among governmental authorities, the professional archaeological community, and private individuals.

PL 101-601, Native American Graves Protection and Repatriation Act (16 November 1990), requires federal agencies to return Native American human remains and cultural items, including funerary objects and sacred objects, to their respective peoples.

(7) Leases, Easements, and Rights-of-Way

A number of laws and regulations govern the granting of leases, easements, and rights-of-way on federal lands. The following are pertinent to USACE project lands at the Wilson Lake project:

16 U.S.C. § 663, Impoundment or Diversion of Waters (10 March 1934), for wildlife resources management in accordance with the approved general plan.

10 U.S.C. § 2667, Leases: Non-excess Property of Military Departments and Defense Agencies (10 August 1956), authorizes the lease of land at water resource projects for any commercial or private purpose not inconsistent with other authorized project purposes. U.S.C. Titles 10, 16, 30, 32, and 43 address easements and licenses for project lands;

16 U.S.C. § 460d authorizes use of public lands for any public purpose, including fish and wildlife, if it is in the public interest.

16 U.S.C. §§ 470h-3, Lease or Exchange of Historic Property (15 October 1966), for historic properties.

PL 91-646, Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (2 January 1971), establishes a uniform policy for fair and equitable treatment of persons displaced as a result of federal or federally assisted programs.

PL 94-579, Federal Land Policy and Management Act of 1976 (21 October 1976) establishes a policy that the federal government receives fair market value for the use of the public lands and their resources unless otherwise provided for by statute. It also provides for the inventory of public land and land use planning and establishes the extent to which the executive branch may withdraw lands without legislative action.

r. Management Plans

1) Operations Management Plan

Whereas the MP is a more conceptual framework to guide the park, the Operational Management Plan (OMP) gives more specificity to what work will be accomplished over the next two to three years. The OMP is updated on a frequent basis. Several other plans have been incorporated into the OMP and are listed below.

2) Natural Resources Management Plan

This plan describes the overall goals and actions needed for all natural resources on the project land and waters.

3) Shoreline Management Plan

Establishes policy, provide guidance for the management of the shoreline; establish and maintain acceptable fish and wildlife habitats; maintain aesthetic quality and natural environmental conditions; promote the safe, healthful use of the shoreline for recreational purposes; and achieve a balance between permitted private use and resource protection for general public use.

4) Restricted Area Plan

Uses a series of criteria to determine buffer area around operations structures.

Chapter 3 Resource Objectives

a. Recreation Objectives

- 1) Providing a quality recreational experience to the visiting public
- 2) Insuring visitor safety.
- 3) Minimize visitor impact on project resources.
- 4) Provide environmental education opportunities.
- 5) Consider Environmental Operating Procedures (EOPs) in all aspects of the project management.

b. Natural Resource Objectives

- 1) Control noxious weeds and invasive plants and wildlife in selected areas.
- 2) Providing habitat types conducive to sustaining wildlife populations.
- 3) Providing high energy wildlife food sources.
- 4) Soil conservation

Chapter 4 Land Allocation, Land Classification, Water Surface, and Project Easement Lands

a. Land Allocation

Lands are allocated by their congressionally authorized purposes for which the project lands were acquired. There are four land allocation categories applicable to USACE projects:

1) Operations (i.e., flood control, hydropower, etc.)

Lands acquired for the congressionally authorized purpose of constructing and operating the project. Most project lands are included in this allocation.

2) Recreation

Lands acquired specifically for the congressionally authorized purpose of recreation. These are referred to as separable recreation lands. Recreation lands in this allocation can only be given a land classification of "Recreation."

3) Fish and Wildlife

Lands acquired specifically for the congressionally authorized purpose of fish and wildlife management. These are referred to as separable fish and wildlife lands. Lands under this allocation can only be given a land classification of "Wildlife Management."

4) Mitigation

Lands acquired or designated specifically for the congressionally authorized purpose of offsetting losses associated with development of the project. These are referred to as separable mitigation lands. Lands under this allocation can only be given a land classification of "Mitigation."

Table 4.1

Land Use Allocations	
Allocation	Acres
Operations	667
Recreation	4,764
Fish and Wildlife	6,752
Mitigation	420
<i>Total Land Use Allocations</i>	12,603
Water	9,000
Total Fee Acquisitions	21,603

b. Land Classification

Land classification designates the primary use for which the lands are managed. Project lands are zoned for development and resource management consistent with authorized project purposes and the provisions of the NEPA and other federal laws. The land classifications in this MP are found in EP 1130-2-500 dated June 2013 and differ from those found in the previous 1988 version of the MP which was a design memorandum. The classification names vary only slightly from the previous classification system and do not result in any direct changes to the way the land is managed.

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.

2) High-Density Recreation

Lands developed for intensive recreational activities for the visiting public including day-use areas and/or campgrounds. These could include areas for concessions (marinas, comprehensive resorts, etc.), and quasi-public development.

3) Mitigation

This classification will only be used for lands with an allocation of Mitigation and that were acquired specifically for the purposes of offsetting losses associated with development of the project.

4) Environmentally Sensitive Areas

These are areas where scientific, ecological, cultural or aesthetic features have been identified. Designation of these lands is not limited to just lands that are otherwise protected by laws such as the Endangered Species Act, the NHPA or applicable State statutes. These areas must be considered by management to ensure they are not adversely impacted. Typically, limited or no development of public use is allowed on these lands. No agricultural or grazing uses are permitted on these lands unless necessary for a specific resource management benefit, such as prairie restoration. These areas are typically distinct parcels located within another, and perhaps larger, land classification, area.

5) Multiple Resource Management Lands

This classification allows for the designation of a predominate use as described below, with the understanding that other compatible uses described below may also occur on these lands (e.g. a trail through an area designated as Wildlife Management.) Land classification maps must reflect the predominant sub-classification, rather than just Multiple Resource Management.

a) Low Density Recreation

Lands with minimal development or infrastructure that support passive public recreational use (e.g. fishing, hunting, trails, wildlife viewing, etc.)

b) Wildlife Management

Lands designated for stewardship of fish and wildlife resources.

c) Vegetative Management

Lands designated for stewardship of forest, prairie, and other native vegetative cover.

d) Future/ Inactive Recreation Areas

Areas with site characteristics compatible with potential 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.

6) Water Surface

The Wilson project does not administer an official surface water zoning program, however, there are various areas on the project waters that contain several types of marker buoys.

a) Restricted

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

b) Designated No-Wake

To protect environmentally sensitive shoreline areas, recreational water access areas from disturbance, and for public safety.

c) 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. KDWPT manages two wildlife refuge areas with restricted seasons and access.

d) Open Recreation

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

c. **Project Easement Lands**

Project easement land classification is for those lands for which USACE holds an easement interest, but not fee title. Planned use and management of easement lands will be in strict accordance with the terms and conditions of the easement estate acquired for the project. Easements were acquired for specific purposes and do not convey the same rights of ownership to USACE as other lands.

1) Operations Easement

USACE retains rights to these lands necessary for project operations (access, etc.). USACE retains no Operations Easements at Wilson Lake.

2) Flowage Easement

Flowage easement acquired for the operation of Wilson Lake is typically applicable to that portion of the described property laying between elevation 879 feet National Geodetic Vertical Datum, and the Government Fee Take Line. The typical flowage easement estate grants the Government the perpetual right to occasionally overflow the easement area, if necessary, for the operation of the reservoir; and specifically provides that, "No structure for human habitation shall be constructed or maintained on the land [...]; and provided further that, "No other structures of any type shall be constructed or maintained on the land except as may be approved in writing by the representative of the United States in charge of the project." All flowage easement deeds should be checked for exact rights acquired prior to proceeding on any action on the easement. Tree cover historically was sparse with most timber limited to narrow strips adjacent to the Saline River and smaller tributaries. Stands of cottonwood, willows and tamarisks can be found along the shoreline. After the record pool level of 1993 and the long draw down experienced thereafter, low lying vegetation died off. The old tree stands remain and through natural decay will eventually fall and decompose of flowage easement at Wilson Lake.

3) Conservation Easement

USACE retains the rights to lands for aesthetic, recreation, and environmental benefits. There are currently no lands classified as Conservation Easement lands on Wilson Lake.

Chapter 5 Resource Plan

Unit 1 – Wildlife Refuge

1) Classification and Justification: Wildlife Management

2) Management Agency: KDWPT

3) Location/Acreage: This 2,547.8 acre unit marks the western edge of USACE Property and is bound by Angle Point 171 to the West. The south edge of this unit is marked by the Saline River and lake. The eastern edge of this unit is delineated by 197th (Duvall Road). There are several access points throughout this unit including Mellard Rd, 197th Rd, and the Bunker Hill Blacktop. All of these are maintained by Russell County.

4) Description and Use: A variety of soil types including Lancaster Hedville Loam, Armo-loam, and Roxburg Silt Loam can be found throughout this unit. Grasslands, crop ground, canyons, and rock outcroppings can all be found in this unit. Due to the large acreage, the terrain varies greatly. This unit is primarily accessible by ATV/UTV during normal pool years.

Eastern red cedar continues to be a nuisance throughout this unit and mechanical control efforts have been implemented by KDWPT. Musk Thistle and Johnson grass also continue to be a management concern. Phragmites continues to expand throughout the wetland and riparian zones.

The crop lands are under a lease program with local farmers managed by KDWPT. In 2019, KDWPT elected to develop a grazing lease on the eastern edge of this unit. A fence was constructed and a water source was developed prior to advertisement. The lease was awarded in the spring of 2019 on a 3 year term. Further grazing lease developments are in future plans.

A 1,000 acre Wildlife Refuge is included in this unit. The refuge is restricted to public access (special draw only) during certain hunting seasons.

5) Resource Objectives:

(a) Optimize public access for hunters, anglers, and other compatible recreational opportunities.

(b) Conserve, manage and optimize wildlife and their habitats.

(c) Support and expand hunter/angler recruitment and retention efforts.

(d) Provide public, health and safety for all public lands users through pro-active management and law enforcement.

- (e) Effectively coordinate with other sections, divisions, and agencies.
- (f) Utilize sound business intelligence information.
- (g) Market public lands opportunities.

6) Development Needs:

- (a) Expand public access by opening/improving 193rd Rd leading to wildlife refuge. A new parking lot and approximately 0.8 mile of road would be improved to allow better public/hunter access.
- (b) Identify and improve infrastructure to expand grazing management opportunities to improve rangeland health and wildlife habitat.

7) Special Considerations:

- (a) Project are contingent on funding opportunities.
- (b) All management activities should take special consideration for effects on Endangered Whooping Cranes.

Unit 2 – Public Use

1) Classification and Justification: Low Density Recreation

2) Management Agency: USACE

3) Location/Acreage: This 628.1 acre unit is bound by Duvall Road (Angle Point 105) to the West and the western edge of Rocktown natural area (Angle Point 20) to the East. Primary access to this unit is provided by Mellard Road to the North accessing 197th Rd (Duvall Rd), 199th Rd (Sawhill Rd), and 200th Rd (Fenceline Rd). Russell County maintains all of the gravel road access points.

4) Description and Use: Lancaster Hedville Loam is the predominant soil type located throughout the unit, though Roxburg Silt Loam and Armo loam can also be found on the foot slopes. These soils are best suited for the native grasses that constitute the major vegetation type found throughout this unit.

This unit is primarily accessible by ATV/UTV during normal pool years. The terrain around Duvall Cove is steep and vehicle accessibility is inaccessible through government property. The eastern edge of this unit, around Rocktown Cove, is inaccessible by vehicle due to rock formations and steep hillsides.

Willows, Tamarisks, and Cottonwoods had invaded a narrow band along the shoreline and were killed during periods of prolonged inundation during 1993, including a five-row shelterbelt that was planted in 1979. A three-row shelterbelt consisting of cedar and plum seedlings was planted in 1999, though the planting failed. Eastern red cedar continues to be a nuisance throughout this unit and mechanical control efforts have been implemented. Musk Thistle is also a management concern throughout this unit, though it is particularly difficult around the Duvall Cove area due to terrain issues. Aerial spraying, constant digging and spot spraying has historically been done for control of Musk Thistle and will be a continuing effort for years to come. Johnson grass is also a management concern, particularly around Fenceline Road access. Spot spraying has been the most effective control method.

A small pond is located near Angle Point #85 that may be subject to damage from unauthorized livestock grazing. The field area of this unit located east of 199th Rd, was in a five-year lease for alfalfa production. Due to non-compliance of the lease terms, the lease was allowed to expire in 2007 and further advertisement was completed. The fields were planted to native grass in 2008. In 2015, the native grass plots (total of 53 acres bordering 199th Rd) were advertised and awarded on a 5 year hay lease.

The Natural Resource Conservation Service provided a written plan for this area to control erosion, improve water quality, and provide upland game habitat. This unit has

been evaluated for Ring-Necked Pheasant using the Wildlife Habitat Appraisal Guide (WHAG).

Historically, the area known as Duvall Cove was housed by several private docks. Following the high pool level of 1993, only one boat dock remains in this area. The 2-track access road to the one boat dock is minimal maintenance and difficult to traverse. High pool levels deem the road impassable. Past inspection of the unit indicates a need for detailed encroachment detection and fence repair needs.

5) Resource Objectives:

- (a) Maintain the native grass rangeland ecosystem and prevent the invasion of noxious weed species.
- (b) Maintain the existing farm pond and project boundary. History indicates the need for detailed encroachment detection and fence repairs.
- (c) Maintain wildlife habitat diversity in order to benefit area wildlife populations and encourage public use of the resource.
- (d) Allow natural succession to continue on the eastern portion of the unit due to rugged terrain and inaccessibility. A rocky prairie climax community should remain for many years.

6) Development Needs:

- (a) Improve Road Access to Duvall Cove

7) Special Considerations:

- (a) Road access obligations to private dock owner in Duvall Cove.

Unit 3 – Rocktown Area

1) Classification and Justification: Mitigation

2) Management Agency: USACE

3) Location/Acreage: This 419.7 acre unit is located on the western edge of Lucas Park, bound by Angle Point 20 to the West, Lucas Point road to the East, and the Lucas swim beach road delineates the southern edge. Access to this unit is provided exclusively through Lucas Park by utilizing the Lucas Point road. No public vehicle access is authorized.

4) Description and Use: The Rocktown Natural Area located in this unit has been registered as a natural and scientific area by the Kansas Biological Survey due to its geological features and plant diversity. This area is maintained in its natural condition. Following the 1984 Master Plan Update, the gravel road leading to Rocktown Cove was closed to public access. No camping or motor vehicles are allowed and the only improvements have been the creation and maintenance of a 3 mile hiking trail and parking area at the trailhead. Two culverts were installed and maintained for mowing firebreaks and vehicle access on the North side.

The area is comprised of rugged terrain that includes Dakota sandstone and limestone outcrops with mixed prairie plants being the major vegetation. Lancaster Hedville Loam (8 25% slopes) and Armo Loam (7 15% slopes) are the major soil types.

This unit is primarily accessible by ATV/UTV during normal pool years. The terrain around Rocktown Cove is steep and vehicle accessibility becomes difficult.

Large Bur Oaks are scattered along the shoreline throughout this unit, many of which were killed during prolonged inundation sustained in 1993. Eastern Red Cedar trees are invading the native grassland. Sumac and buck brush have become a management concern over recent years. Chemical and mechanical methods have been utilized to control. Prescribed burning is an important management tool used to maintain natural conditions in this unit.

Portions of the shoreline in this unit are sandy and gently sloping. This makes them popular day use areas for visitors that boat into the area

5) Resource Objectives:

(a) Maintain diverse mix of prairie plant species and control woody species invasion.

(b) Maintain area in its natural condition.

(c) Maintain public access use facilities in the area to ensure that visiting public may enjoy the natural resource.

6) Development Needs:

(a) No developmental needs due to area being a registered natural area.

7) Special Considerations:

(a) Rocktown is a registered natural area and all management activities should reflect that.

Unit 4 – Lucas Park

1) Classification and Justification: High Density Recreation

2) Management Agency: USACE

3) Location/Acreage: This 1,085.2 acre unit is comprised mostly of Lucas Park, bound by Lucas Point Road and Lucas swim beach road to the West and Highway 232 to the East. Access to this unit is provided by way of Highway 232 and 203rd Road.

4) Description and use: The terrain varies from hilly, rugged slopes with generally flat plains nearest the lake. Lancaster Hedville (8 25% slopes) and Armo Loam (7 15% slopes) are the major soil types with Nibson Silt Loam (5 25% slopes) found along the limestone outcrop areas and the abandoned airstrip area.

Native grasses constitute the predominant vegetation. Several trees and shrubs have been planted throughout the unit for shade and landscaping. Cedar and Russian Olive glades have developed throughout the area and invasion by these species into the native grassland should be a management concern. Scattered stands of hardwoods and brushy vegetation can be found in the draws.

An abandoned airstrip is located on the flat hilltop area overlooking the main campground.

A controlled burn was conducted in 1998 and has been a regular management tool since. Rotational hay sales were abandoned in 2014 in favor of a 3 year rotational hay lease. Each field was to be hayed once during the 3 year lease. Due to limited interest in the hay lease, the lease was changed to a 5 year lease with each field being hayed on an “every other year” basis. Purpose of the change was to increase annual acreage and potentially increase interest. Interest was still difficult to come by, so North Otoe hay lease was added.

A land slide occurred along the main entrance road in 2016 that impacted access. Access to the campground required a detour for exiting traffic utilizing the old Lucas Park entrance road. A contract was awarded for road repairs in 2019. The park was closed for the majority of the 2019 recreational season due to road repairs and flooding. The road construction was completed in November of 2019 and access was restored. Another road abutment slide occurred in July 2020 and was stabilized by USACE in August 2020.

High pool levels in 2019 caused concern due to the amount of shoreline erosion that occurred, particularly in the North Lucas area (south of the water-borne restroom), around sites 51-57, and the old Marina cove area (sites 86-95). As a result, shoreline

stabilization efforts are a management concern. Rip rap placement is a priority to slow/eliminate erosion concerns.

In 1992, Congressional Add funding provided additions to Lucas Point consisting of two breakwater jetties at the boat ramp, the installation of an ADA accessible fishing dock and updated signage. In 1997, random camping was eliminated from Lucas Point and designated sites were established; a volleyball court was also added in the group campground. In 2006 the waterborne restrooms at the group camp were replaced with new CXT concrete waterborne facility which is ADA accessible. In 2007 the vault toilet at the boat ramp was replaced with a new ADA accessible CXT concrete vault toilet.

The Lower Lucas area provides 63 electrical sites, 21 primitive campsites, two playgrounds, potable water, one vault toilet and a shower building/comfort station. 1992 additions to this area included construction of 36 electrical sites, installation of fire rings and picnic tables and a substantial tree planting effort. A shower building, sanitary dump station and an additional 19 electrical hookups were completed in the summer of 1994. In 1997, renovation of one camping loop with 15 sites was completed, 8 sites include both electric and water. A new playground was also constructed and bank stabilization was also completed. In 2004, approximately 1 mile of road received a 4" overlay which extended from the park entrance to the dump station. The fee booth was also painted.

The Lucas Overlook and West Dam Access day use areas are located on the northeastern edge of Lucas Park just off Highway 232. The overlook area consists of a paved parking lot, a set of two vault toilet buildings and a canopied viewing area. The West Dam Access area is quite popular with fishermen and is just below the overlook. This access point consists of a hard surfaced parking lot and vault toilet building.

During the summer and fall of 1993, Wilson Lake experienced a 32 foot above normal pool level. This significant rise, associated with the amount of time necessary to draw the level down to conservation pool, resulted in the loss of nearly 90% of the landscape plantings throughout Lucas Park. 17 Cottonwoods and Silver Maples were planted in the spring of 1994. Another 70 thornless Honey Locusts, Hackberry and Sycamore were added in the fall of 1994. In the spring of 1996, 28 balled and burlapped trees were planted in the campground in addition to the 2 balled and burlapped trees and 34 cedar seedlings planted at the Park Attendant site. In 1997, 55 bare root Cottonwoods and 6 balled and burlapped Maples were planted. Cottonwood seedlings have been planted and many others voluntarily sprouted throughout the campground. Weed barrier fabric and wood chip mulch were added to all plantings.

Throughout the years of 2005 and 2006, the Wilson Lake area experienced drought conditions. The lake continued to decline in elevation throughout 2006 and reached an

all-time record low of 1508.75 on December 19, 2006, 7.25 feet below normal pool. The record low was further reduced during the drought of 2012-2016. Record low at was 1505.47 on April 16, 2016, 10.5 feet below normal pool. At the lake levels of 1508.00 and below, the boat ramp at Lucas Park became very difficult to access. Some smaller flat-bottom boats were still capable of launching, but not easily.

Following the prolonged drought years, Lucas Park experienced a land slide that impacted the entry/exit road. Traffic was reduced to 1-lane (entry only) for the recreation seasons of 2017 and 2018 as funding options were researched. Finally, in late 2018 funding was located and a repair strategy began. To reduce potential cancellations of reservations, Lucas Park was converted to “walk-in” only camping for 2019 until road repairs are completed. Lucas Park is set to be converted to a “cashless” park in an attempt to reduce management cost of having an on-site park attendant in future. Plans to begin the change to cashless are set to begin in May of 2020.

5) Resource Objectives:

- (a) Manage the park’s natural resources to allow for safe recreational use by the visiting public.
- (b) Maintain habitat diversity for the benefit of local wildlife populations.
- (c) Provide a safe, high quality and aesthetically pleasing recreational area for the public to enjoy while conserving the natural resources of the area.

6) Development Needs

- (a) Due to rising utility costs, sustainability projects including solar power, have been proposed to offset electric costs.
- (b) Anticipating catastrophic culvert failure and full replacement on main park.

7) Special Considerations

- (a) Continue to adopt substantial changes on how we operate to adapt to budget that is trending less every year.

Unit 5 – Project Operations Spillway

1) Classification and Justification: Project Operations

2) Management Agency: USACE

3) Location/Acreage: This 666.7 acre unit comprises all of the project operations area, including the dam, control tower, emergency spillway, spillway boat ramp, radio tower, and the project office. The unit is bound by Highway 232 to the west, Angle Point 455 to the northeast, and Angle Point 444 to the south. Sylvan Park sits between the Saline River outflow and the seep stream and is excluded from this management unit. Access is available through State Highways 232 and 181 along with Outlet Boulevard. This unit sits in both Russell and Lincoln Counties.

4) Description and Use: Soil types consist of Lancaster Hedville Loam (8 25% slopes) along the western edge of the unit and dam area, McCook Silt Loam throughout the majority of the area including the agricultural lands, Armo loam (3 7% slope), and Geary Lancaster (5 10% slope).

Vegetation varies from native grasses, dense hardwood stands, and a sizable riparian corridor. Vegetation is predominately native grass and smooth brome with mixed hardwoods located along the outlet channel. Several Cedar shelterbelts were established throughout this unit in order to restrict wind and visibility. The lakeside portion of this unit has a long draw with large cottonwoods and scattered plum thickets. The majority of the lakeside woody vegetation was killed during the prolonged inundation of 1993. Invading eastern red cedars have continue to be a concern through the emergency spillway areas despite efforts to mechanically remove.

The Bur Oak Nature Trail is located within this unit. The native grasses within the Bur Oak Trail were burned in 1992 and 2005. Prescribed burning has become a difficult task due to the risk involved with housing developments south of the emergency spillway and the State Highways proximity. Johnson grass has spread south from the KDWPT lease area and is competing with the native grass stands in the Bur Oak Nature Trail area.

The back slope of the dam was historically mowed by project personnel to increase visibility and reduce woody vegetation. In 2014, a 3 year mandatory hay lease was advertised and awarded. Due to costly damages to several piezometers (caused by lessee's equipment) the lease was abandoned in 2016. Project personnel resumed mowing the back slope periodically.

Hay sales were abandoned in 2014 in favor of a multi-year hay lease in combination with Lucas Park hay lease. After one haying in 2014, the area near the volunteer village was converted to a grazing lease. Rental abatement funds were utilized in 2014 to add

a solar well, a tire tank, and construct a 4-strand barbed wire fence. The grazing lease was advertised and awarded in December of 2014. The emergency spillway remained in a hay lease until 2017 when it was also converted to a grazing lease. A perimeter fence was constructed over 2 years utilizing rental abatement funds. A solar well and tire tank system was installed on an existing well head near Highway 181. This 5-year lease was first advertised and awarded in 2017.

Two food plots were historically maintained on each side of the cedar and Osage-orange tree row in the Admin Grazing Lease. Those food plots were abandoned in 2013, when the grazing lease was being developed. A small food plot located in the Spillway Grazing lease on the west side of the drainage was abandoned in 2016 due to the pending grazing lease development.

A land slide occurred along the downstream embankment (west portion of the dam south of the Bur Oak Trail parking lot) in 2016 that required immediate attention. The Napoleon River Office completed repairs that summer.

An encroachment has been long standing on this unit. A private driveway off of Highway 181 crosses Corps property on its way to private land. Several efforts have been made to resolve with no success. Efforts will continue to resolve this encroachment in accordance with district guidelines.

The Spillway Boat Ramp is also present in this unit. The boat ramp is comprised of 2 lanes and also includes a concrete low-water ramp. The low-water ramp is heavily used during drought years.

5) Resource Objectives:

- (a) Maintain wildlife management areas to provide a diversity of habitat for our area wildlife populations.
- (b) Control the spread of noxious weeds throughout the management unit and encourage the establishment of native grass stands.
- (c) Resolve boundary encroachment concerns

6) Development Needs:

- (a) N/A

7) Special Considerations

- (a) Continue to adopt substantial changes on how we operate to adapt to budget that is trending less every year.

(b) Invasive zebra mussels and their effect on the control tower reductor pipes is an engineering concern

Unit 6 – Sylvan Park

1) Classification and Justification: High Density Recreation

2) Management Agency: USACE

3) Location/Acreage: This 41.5-acre unit is located north of the dam. The area is completely within the boundaries of Sylvan Park and is bordered on the west by the old river channel and on the east side by the outlet channel.

4) Description and Use: McCook Silt Loam is the predominant soil type throughout this unit.

Vegetation consists of a variety of native and non-native grasses with mixed hardwoods throughout. A die off of elms occurred during 1992 and 15 trees were removed from the campground area. An additional 14 elms were removed from around the stilling basin. A tree trimming contractor was hired in 2018 to remove dead limbs and clean up the cottonwoods within the campground. Due to their sheer size, a bucket truck is required.

In 1997, 9 of the 15 individual campsites were renovated to include the addition of water/electric hookups. In 2000 further renovation included the addition of the Sylvan Group camp area. This area includes 8 electric/water campsites and a large group shelter. In 2001 the park again went through a major rehab in which 12 additional water/electric sites, a gatehouse, playground and waterborne restroom/shower was added. Beginning with the 2004 recreation season, the park was included in the NRRS (National Recreation Reservation System). In the fall of 2004, the 2 original vault toilets were removed as they had fallen into disrepair.

5) Resource Objectives:

(a) Manage the parks natural resources to allow for safe recreational use by the visiting public

(b) Provide a safe, high quality and aesthetically pleasing recreational area for the public to enjoy while conserving the natural resources of the area.

6) Development Needs:

(a) Install vault toilet in park to meet campground standards during times of water-borne facility failure.

7) Special Considerations;

(a) Continue to adopt substantial changes on how we operate to adapt to budget that is trending less every year.

(b) Mill the interior asphalt roads and convert to gravel due to budget concerns

Unit 7 – Public Use

1) Classification and Justification: Wildlife Management

2) Management Agency: KDWPT

3) Location/Acreage: This 426.8 acre unit is located on the northeast edge of the property. It is bound by Angle Point 6 to the West and Angle Point 455 to the East. This unit contains 165 acres of crop ground that is under KDWPT agricultural lease management.

4) Description and Use: A variety of soil types including Lancaster Hedville Loam, Armo-loam, and Roxburg Silt Loam can be found throughout this unit. Grasslands, crop ground, and a mature stand of cottonwood with significant eastern red cedar understory are present in this unit. This unit is primarily accessible by ATV/UTV during normal pool years.

A 2-acre sand borrow pit is located on the southeast quadrant of this unit. Access had become difficult due to overgrowth of access road. In 2017, the road was cleared out by USACE personnel and a cable gate was installed to provide better access.

The northeast corner of this unit contains a 4-acre landlocked crop field that is currently utilized under the agricultural lease program. The adjacent land-owner is the current lease holder due to exclusive access

5) Resource Objectives:

- (a) Optimize public access for hunters, anglers, and other compatible recreational opportunities
- (b) Conserve, manage and optimize wildlife and their habitats
- (c) Support and expand hunter/angler recruitment and retention efforts
- (d) Provide public health and safety for all public lands users through pro-active management and law enforcement
- (e) Effectively coordinate with other Sections, Divisions, and Agencies
- (f) Utilize sound business intelligence information
- (g) Market public lands opportunities

6) Developmental Needs

- (a) N/A

7) Special Considerations:

- (a) If/when this landowner no longer maintains this lease, this 4-acre landlocked crop field will be converted to native grass.

Unit 8 – North Otoe

1) Classification and Justification: Low Density Recreation

2) Management Agency: USACE

3) Location/Acreage: This 195.7 acre unit forms the majority of the east shoreline of the lake. The area starts with AP 444 at the north and ends at AP 433; the area between Spillway boat ramp and north of Otoe Park.

4) Description and Use: The unit hosts a series of soils from Armo loam on the top of the sloping Lancaster Hedville soils and two fingers of Nuckolls silt loam on the southern portions.

The grassland vegetation has a few isolated pockets of willows and cottonwoods, of which were killed during the prolonged inundation of 1993. Prior to the high pool levels of 1993, the majority of this unit was native grass cover. Much of the native grass was lost due to the prolonged inundation and invasion of annual weeds occurred.

Two food plots were located in this unit but have not been maintained since 1993. Between 1976 and 1980, this area was utilized in a hay production lease. Following 1980, no active grassland management was accomplished. In 2013, access to a 70-acre tract on the southern edge of this unit was restored in an attempt to create a hay lease to limit woody species invasion. Utilizing rental abatement funds, North Otoe hay lease was aerial sprayed to kill brush in the area. Much caution was exercised during the aerial spraying due to the housing development to the east. A contractor came in to remove the standing brush in early 2015 as well. The area was advertised and awarded in 2014 for a 5 year hay lease (North Otoe) but was ultimately cancelled due to the lessee's request (rough terrain concerns). The area was re-advertised again in 2015 with no interest. In an attempt to prevent losing the area to woody species takeover, the 70-acre tract was added to the existing Lucas Hay Lease. The area is to be hayed on an every-other year basis.

Prescribed burning is not a feasible management tool due to the high risk of property damage on adjacent lands.

5) Resource Objectives:

- (a) Allow for natural reestablishment of the previous native grass stand.
- (b) Manage the unit's vegetative resources in order to provide habitat diversity for area wildlife populations.
- (c) Maintain access road to hay field so hay lease can continue

6) Development Needs:

(a) N/A

7) Special Considerations:

(a) Prescribed burning is not a viable management tool due to housing developments on adjacent property.

Unit 9 – Otoe State Park

1) Classification and Justification: High Density Recreation

2) Management Agency: KDWPT

3) Location/Acreage: This 161.3 acre unit is comprised of Otoe State Park. The unit is bound by Angle Point 435 to the North and Angle Point 429 to the South. Unit is accessible by 15th Street (Shoreline Drive) managed by Russell County. A black top road wraps around the underside of Hell Creek Bridge to provide access to the campground.

4) Description and Use: This unit includes campground facilities, boat ramp, swim beach, walking trail, and cabins for public use. KDWPT also has several storage buildings constructed on this unit. Access to North Otoe hay lease is accomplished through a gate located on this unit. Myrtle's Cove is located on the southeast side of Hell Creek Bridge and is a popular kayak launch and fishing location.

The park was previously operated by USACE until 1984 when management was transferred to KDWPT.

During the 2019 high water events, Otoe State Park was forced to close down entirely due to water over the entrance road. This will continue to be a management concern for KDWPT during periods of high lake elevations.

5) Resource Objectives:

- (a) Continue inmate program with Ellsworth Correctional Facility.
- (b) Continue AmeriCorps program and recruit qualified members.
- (c) Continue park maintenance at current levels as Operations and Maintenance budget allows to provide recreational opportunities to public.
- (d) Continue relationships with Kansas Trails Council and their trail coordinator
- (e) Maintain cabin facilities and continue to promote cabin rentals for public usage.

6) Development Needs

- (a) Replace/update two shower buildings with modern ADA compliant facilities.
- (b) Upgrade Coneflower, Yucca, and Sunflower campgrounds from primitive to 50 amp and water campsites.

(c) Upgrade Yarrow campground from 30 amp to 50 amp service

7) Special Considerations:

(a) N/A

Unit 10 – Hell Creek NRM

1) Classification and Justification: Low Density Recreation

2) Management Agency: USACE

3) Location/Acreage: This 239.5 acre unit encompasses government ground on either side of Hell Creek. Unit includes AP 395 on the south side of the lake to AP 428 on the north line adjacent to Otoe Park.

4) Description and Use: The vegetation is native grass dominated by big and little bluestem on the hills and slopes of the south side of the unit while the lowlands are dominated by smooth brome and giant ragweed.

Dense stands of Cottonwood and Willow had voluntarily established themselves along the banks of Hell Creek. Nearly all of these trees were killed during the prolonged inundation of 1993. The area east of highway 232 contains a dead stand of cottonwoods also inundated by the flood of 1993. A shelterbelt consisting of 800 cedar and 700 American Plum seedlings was planted in the spring of 1996. Several stratified walnuts were planted adjacent to the shelterbelt.

A 2.5-acre food plot was developed but has not been maintained since 2007. Three areas that were in the prolonged inundation of 1993 were developed into food plots from 2004 – 2006. The two areas east of Hell Creek were planted back into native grasses in 2006. The third plot west of Hell Creek was planted to native grasses in 2008. A part of one plot east of Hell Creek was not planted to native grasses and will remain as a food plot. As of 2019, approximately 20 acres of food plots are still managed around Highway 232. This unit was evaluated for pheasants using the Wildlife Habitat Appraisal Guide (WHAG) during FY97.

A public fishing access, Deer Drive, was utilized for many years that crossed public property before entering back onto Corps property. In 2012, the crossing of public property was put to an end by the landowner. As a result, the road was redirected around the private property. Public access is still allowed in that area.

5) Resource Objectives

(a) Restrict off road vehicle use and prevent the degradation of natural resources.

(b) Manage the unit's vegetative resources in order to provide habitat diversity for area wildlife populations.

6) Development Needs

(a) N/A

7) Special Considerations

(a) Access to the food plot on the east side of Hwy 232 is limited due to spring on county roadway. It becomes inaccessible at certain times of the year.

Unit 11 – Hell Creek State Park

1) Classification and Justification: High Density Recreation

2) Management Agency: KDWPT

3) Location/Acreage: This 795.9 acre unit comprises Hell Creek State Park. This unit is bound by Angle Point 380 to the West and Angle Point 394 to the East. 15th Street (Shoreline Drive) is the primary access road for all of this unit.

4) Description and Use: This unit includes campground facilities, boat ramp, swim beach, and cabins for public use. KDWPT also has their area office and park office located on this unit. The Lake Wilson Marina concessionaire is housed here as well. Switchgrass Mountain Biking Trail, a 26 mile is located within this unit and is extremely popular amongst the biking community.

During the 2019 high water event, KDWPT experienced some heavy erosion concerns particularly along the Big Bluestem campground shoreline.

5) Resource Objectives

- (a) Continue inmate program with Ellsworth Correctional Facility.
- (b) Continue AmeriCorps program and recruit qualified members.
- (c) Continue park maintenance at current levels as Operations and Maintenance budget allows to provide recreational opportunities to public.
- (d) Continue relationships with Kansas Trails Council and their trail coordinator
- (e) Maintain cabin facilities and continue to promote cabin rentals for public usage.

6) Development Needs:

- (a) Replace/update shower building with modern ADA compliant facility.
- (b) Construct new permit office.

7) Special Considerations

- (a) Lake's only concessionaire, Lake Wilson Marina, is located in this unit.

Unit 12 – One Horse Canyon

1) Classification and Justification: Low Density Recreation

2) Management Agency: USACE

3) Location/Acreage: This 580.5 acre unit is bound by angle points AP 381 on the east and to AP 34 on the west. The western edge of this unit is adjacent to Minooka Park. Access to this unit by vehicle is possible only across private property at two openings along Shoreline Drive. A written agreement is in place with the adjacent landowner to allow access across private property.

4) Description and Use: The soils are moderately deep to shallow, moderately to steeply sloping, well to excessively drained. Lancaster Hedville loams (8 to 24% slopes) dominate with significant areas of Nuckolls silty loams on (3 to 7% slopes) with some Armo loam on (3 to 7% slopes).

The vegetation in this unit is predominately native grass with Big Bluestem, Indian Grass, Switch Grass, and Little Bluestem. The high pool level of 1993 inundated the majority of this management area and annual weeds have invaded where the native grasses had previously dominated.

Scattered throughout the upper ends of the draws are dense stands of cottonwood, willow and bur oaks up to sixty feet in height intermixed with chokecherry, elm and cedar. The standing dead cottonwoods in Deer Run Cove provide roosting habitat for wintering bald eagles. There are no established tree plots or food plots on this largely rangeland management unit.

One Horse Canyon is a land-locked tract which can only be accessed through private property, owned by CK Ranch. Due to the inaccessibility of the property, a grazing lease agreement was negotiated with the adjacent private land owner in 2014. Lease holder is required to provide temporary fencing (hot wire) to prevent cattle from accessing the lake directly. Aerial spraying to kill brush was completed in 2014 utilizing rental abatement funds. A wildfire in March of 2017 burned this entire unit. The wildfire yielded positive results from a brush/woody management control perspective but extensive fence damages were incurred. The adjacent landowner, CK Ranch, hired a fence contractor to complete the necessary repairs. Due to timeframe, no agricultural lease funds were available but early expenditures were authorized on the lease held by the adjacent landowner.

5) Resource Objectives:

(a) Maintain integrity of government boundary line.

(b) Manage vegetation in order to provide habitat diversity for area wildlife populations.

(c) Maintain record of conditions of cultural resource sites.

6) Development Needs

(a) Develop a viable water source for grazing lease to reduce erosion concerns due to cattle traffic.

7) Special Considerations

(a) Maintain good communication and relationship with adjacent landowner who provides access.

Unit 13 – Minooka Park

1) Classification and Justification: High Density Recreation

2) Management Agency: USACE

3) Location/Acreage: This 580.5 acre unit is bound by angle points AP 342 on the east and to AP 329 on the west. Minooka Park located on the south shore of the lake is the most heavily visited Federal Park. The west portion of the park contains day use facilities, a boat ramp, and group camp area.

4) Description and Use: The natural resources surrounding the day use area to the south and east include the deep and strongly sloping soils of Armo loam to the south and east of the main road. The north shore is composed of Lancaster loamy upland with similar native grass and smaller portions of Indian grass and Switch grass. The area south of the original shower building is composed of Nuckolls and Armo loam. The area south of the road leading to the east boat ramp is primarily Lancaster loam.

Scattered cedars and block cedar plantings surround the group camp area. With the reduction in recreation mowing, the overgrown native grass has grown adjacent to these block plantings leaving not only a potential fire hazard but also an un-kept appearance to the group area. The group area has had extensive landscape plantings. Pruning and maintenance, including protection from fire by mowing, needs to be directed to this area. A one-acre food plot/firebreak was established near the cedar block plantings in 1998.

The area west of the old shower building is part of the hay lease as well. Its native grasses include cool season brome. Burned in the spring of 1992 to reduce cool season grasses, the area should continue to be burned prior to spring green-up. The abandoned peninsula called Alcohol Point is steadily getting narrower due to the erosion caused by wave action. Shoreline vegetation was an erosion control option but disregarded due to the limited land size and the history of unstructured camping in the area. Alcohol Point was closed during the spring of 1994 due to the damage inflicted by the 1993 pool level. Plans are to allow this area to return to a native grass rangeland ecosystem. In the spring of 1994 an uncontrolled fire swept through the southeast corner of this tract destroying a cedar pine block planting.

Middle Minooka includes the major campground, the middle and east boat ramp, and the area south of the shower buildings. Renovation of the campground occurred in 1987. Both rock rip rap and tire bank stabilization was placed on the east shore of the Minooka Point in 1982. Tracts 309, 309A, and 305C & D are located south of the original shower building and south of the park road leading to the east boat ramp. The west side of this area has had an invasion of Siberian elms which are 15 feet or taller. Controlled burns have been conducted in 1990 and 1992 to encourage native grass

growth and to kill out the elm invasion. Two food plots are located on the east portion. In 1991, a 2.62-acre food plot was established on the former roadbed connecting the entrance road to the Marshall Cove area. Cedar trees were tree spaded at both the east and west ends of the food plot during the spring of 1991. Tree seedlings of cotoneaster, lilac, and cedar were planted on the north and south sides of the food plot in spring of 1992. The second food plot of 1.4 acres was established in 1992 and is located south of the storage area. An uncontrolled fire swept throughout a portion of this tract during the spring of 1994 that killed off many invading cedars along with several elms.

This area is also in the hay lease. Former farming practices included terraces. The area provides two food plots of 1.2 acres located in the middle of the hayfield and 1.2 acres located southwest of the boat ramp. The mixed shrub/tree area that is north of both food plots and protected by a firebreak offers shelter to not only smaller wildlife but to wild turkey and deer. Portions of this area was burned in the spring of 1998. A small portion of this hay lease was inundated during 1993 resulting in a major setback to the native grass stand.

Brown sandstone rises approximately 36 inches from ground surface making this area a difficult site for vegetation establishment. Working with the Marshall Cove Boat Dock Owners Association since 1989, the Corps has provided seedling trees and shrubs for boat dock owners to plant in the area. The owners are then responsible for watering the seedlings. The majority of these seedlings were lost during the high pool level of 1993. This unit was evaluated for pheasants using the Wildlife Habitat Appraisal Guide (WHAG) during FY97. The Minooka Park hay lease was incorporated in 1998.

A hay lease has been utilized throughout the years to assist with woody species control along with maintain a native grass land throughout the Natural Resource Areas of this unit. Prescribed burning has been an active management tool throughout the years as well. In March of 2017 a wildfire started west of Minooka Park and burned a large majority of the area. The fire ended up burning over 20,000 acres of public and private lands. No structures were lost on Federal property but the tree kill-off was extensive. A large amount of dead cedars and pines were removed following the wildfire but there are still cedar skeletons throughout this unit.

In 2018, the western end of this unit was developed into a grazing lease. A permanent steel post fence was installed along the gravel road from the boundary line towards the day use shelter. Due to the unavailability of a viable water source at the time, a negotiated bid with the adjacent landowner (Huseman Ranch LLC) was utilized to lease the area. Permanent fence is present along the road but the remaining acreage is fenced utilizing temporary hot-wire fence. Current plans are to develop a solar well water source prior to December of 2023 and advertise as a competitive bid.

An interpretive walking trail was incorporated into Minooka Park in 2011. The trail is a 2.5 mile loop with a 1-way option of 1.5 miles. Two trailheads exist, one at the Minooka Middle Ramp and the other near the group camp. The trail has interpretive signage providing insight to the history of the area as well as management techniques.

The swim beach parking area is inclined and its gravel base is subject to washing during periods of heavy rain. In 2006 this parking lot was downsized and terraces were added to reduce the erosion and washing of the parking lot. \$5,000 from Congressional Addition monies was spent in 1992 to construct the shelter located in the group campground. Riprap was added along the north shoreline near the boat ramp, during the winter of 1992, to control shoreline erosion. A single, small area of overgrown campsites is located east of the group campground and outside the boundaries of the main campground. This area, known as "Alcohol Point" had been subject to destruction of vegetation and government property, wanton litter, noise complaints and difficulties in fee collection. The shoreline along the peninsula was steadily eroding away. Due to the high pool level of 1993, and the prolonged inundation of this area, a cost/revenue study determined this area to not be feasible for repairs and it was closed to camping during the spring of 1994. Approximately 140 acres of this area is rotationally advertised for hay harvest.

The main Minooka camping area provides 153 campsites of which 66 have electric and 36 electric/water utilities. Facilities include two shower buildings, two trailer dump stations, two sets of vault toilets, playground area, volleyball court, amphitheater, which was removed in 2007, and boat ramp. During periods of high electrical demand, the electricity in C and E historically tripped the breakers. The problem was remedied in 1994 by reducing the number of sites per circuit. Landscape plantings with drip irrigation were established in 1988. All landscape plantings in A, B, D and F were lost during the high pool levels of 1993. C and E Loops lost 60% of their plantings. In the spring of 1994, 17 Silver Maples and Cottonwoods were planted throughout D and F loops with a planting emphasis around the lakeside campsites. In the fall of 1994, 70 Hackberry, thornless Honey Locust and Sycamore were planted in D and F loops. 50 balled and burlap trees were planted in the fall of 1995 and 40 Cottonwood trees were planted in the spring of 1998.

The A and B loops were upgraded with electric and water sites in 2004.

The middle and east boat ramps are located on either side of the main campground. Both ramps include a paved parking lot, vault toilet and slide-in courtesy dock. The vault toilet on the way to the east ramp was removed in 2006 due to the degrading of the building and lack of use for replacing.

The Marshall Cove area consists of 82 private boat docks regulated by shoreline use permits. As of January 2015, the number of docks in Marshall Cove had been reduced to 76. A gravel road accesses the north and south portions of Marshall Cove. All fire rings were removed from the cove in 2004. Fires are only allowed for cooking purposes when contained in a device designed for that purpose. A water line into North Marshall Cove was installed in 1992. In 1996, access was restricted to a popular cliff diving area due to safety concerns. This area sustained 100% tree mortality in 1993. Approximately 127 acres of this area are rotationally advertised for hay harvest.

5) Resource Objectives:

- (a) Maintain integrity of government boundary line.
- (b) Continue hay and grazing leases to provide habitat diversity for area wildlife populations.
- (c) Maintain record of conditions of cultural resource sites.
- (d) Continue to “right-size” our quantity/quality of campsites in order to increase overall utilization
- (e) Provide a safe, high quality and aesthetically pleasing recreational area for the public to enjoy while conserving the natural resources of the area.

6) Development Needs

- (a) Encourage expansion of Marshall Cove Dock Owner’s Association. And further encourage licensing of Marshall Cove area to reduce O&M costs.
- (b) Replace middle ramp floating dock with a “slide-in” courtesy dock.
- (c) Extend existing wave retention riprap structures at East Boat Ramp.
- (d) Utilize rip-rap and other management tools to eliminate erosion concerns.
- (e) Due to rising utility costs, sustainability projects including solar power, have been proposed to offset electric costs.
- (f) Convert interior asphalt camp loop roads to gravel due to budget concerns.

7) Special Considerations

- (a) Continue to adopt substantial changes on how we operate to adapt to budget that is trending less every year.
- (b) Maintain shoreline permit program for private dock program.

(c) If licensing of Marshall Cove area were to occur, ensure that public use opportunities are maintained.

(d) Continue to explore opportunities for other partners to manage the park due to budget concerns.

Unit 14 – Wildlife Management Area

1) Classification and Justification: Wildlife Management

2) Management Agency: KDWPT

3) Location/Acreage: This 3,777.8 acre unit marks the western edge of USACE Property on the south side of the river and is bound by Angle Point 328 to the East and Angle Point 171 to the West. The north edge of this unit is marked by the Saline River and lake. The eastern edge of this unit is delineated by the western edge of Minooka Park Grazing Lease. There are several access points throughout this unit including Shoreline Drive and the Bunker Hill Blacktop. All of these are maintained by Russell County.

4) Description and Use: A variety of soil types including Lancaster Hedville Loam, Armo-Loam, and Roxburg Silt Loam can be found throughout this unit. Grasslands, crop ground, canyons, and rock outcroppings can all be found in this unit. Due to the large acreage, the terrain varies greatly. This unit is primarily accessible by ATV/UTV during normal pool years.

Eastern red cedar continues to be a nuisance throughout this unit and mechanical control efforts have been implemented by KDWPT. Musk Thistle and Johnson grass also continue to be a management concern. Phragmites continues to expand throughout the wetland and riparian zones.

A Waterfowl Refuge is included in this unit. The refuge is restricted to public access during all hunting seasons.

The crop lands are under a lease program with local farmers managed by KDWPT.

5) Resource Objectives:

- (a) Optimize public access for hunters, anglers, and other compatible recreational opportunities
- (b) Conserve, manage and optimize wildlife and their habitats
- (c) Support and expand hunter/angler recruitment and retention efforts
- (d) Provide public health and safety for all public lands users through pro-active management and law enforcement
- (e) Effectively coordinate with other Sections, Divisions, and Agencies

(f) Utilize sound business intelligence information

(g) Market public lands opportunities

6) Development Needs

(a) N/A

7) Special Considerations

(a) Projects are contingent upon funding opportunities.

(b) All management activities should take special consideration for effects on
T&E Species Whooping Cranes

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Chapter 6 Special Topics/Issues/Considerations

a. Zebra Mussels

Zebra Mussels were detected within Wilson Lake in 2009. This invasive species poses significant management challenges throughout the three major business lines of Environmental Stewardship, Recreation, and Flood Risk Management, and it could ultimately affect water quality, also. Zebra mussels outcompete native mussel species and can negatively impact habitat conditions for other aquatic species. Zebra Mussel shells can be hazardous to visitors due to their sharp shells near swimming beaches, dock facilities, etc. Decomposing mussels can also emit a foul odor near recreation areas. Zebra mussels also adhere to water intake pipes, service gates, and other operational control structures often causing them to plug or jam up.

Treatment methods have focused on preventing the infestation from moving between bodies of water and limiting the impact to project facilities. Crucial infrastructure such as public water intakes have been retrofitted with treatment upgrades to prevent clogging of pipes, pumps, and other components. Public outreach and education has been a major component to preventing the spread and impact of this invasive species.

b. White Perch

White Perch, a fish native to estuaries of America's eastern coast, were inadvertently stocked into Wilson with a shipment of small striped bass in the late 1990's. They have been found at Cheney and El Dorado lakes in Kansas as well. Most places, fish have brought bad news by drastically declining multiple classes of popular sport fish such as white bass and walleye as they ate the young of the species and out competed all sizes for gizzard shad and other foods. White Bass populations are extremely low since the invasion of white perch.

Although a nuisance fish, White Perch have become a food source for Striped Bass. White Perch are small but they have grown into a very popular sport fish and known for fast action, dependability and tasty fillets.

c. Water Reallocation Study

In 2010-2011 the Wilson Lake Water Reallocation Study was a federally funded study to determine the water supply needs of users and water supply storage available in the reservoir. Stakeholder meetings were conducted to determine the variety of interests in Wilson Lake. At the request of the Kansas Water Office and pushed along by the cities of Russell and Hays to determine how much water could be withdrawn to serve as a source of supply for area communities. The study was halted abruptly because of budget cuts but will likely be a subject in the future.

d. Johnson Grass & Phragmites

Wilson Lake has a long term Johnson Grass dating back to the early 1980's. It is a designated noxious weed for Kansas and can quickly establish itself as a monoculture on cropland. The infestation of Johnson grass on agriculture crop land at Wilson Lake has severely impacted the crop rotation plans. Round-up ready crops such as alfalfa, corn, and soybeans have been viable options. Wheat rotation has also been very successful.

Phragmites is an invasive common reed that was first discovered at Wilson in the early 2000's. It is a very aggressive plant that will outcompete all shoreline vegetation. It can grow to a height of 12 feet and on shoreline and also can thrive in water as deep as 6 feet. Phragmites is exceptionally aggressive in drought years on sand and soil shorelines and has clogged recreation shoreline access. Aerial spray applications is the best control method but can be very costly. This invasive has

e. Budget Cuts

USACE Wilson Lake's annual budget was cut approximately 30% over the course from 2005 – 2020. Substantial reductions in footprint have been required such as closure of the fish cleaning station, handicap fishing dock, campsite reduction and shortening length of recreation seasons. Asphalt roads have been reclaimed back to gravel and many existing roads have not received preventative maintenance. The operation continues to adopt substantial changes on how we operate to adapt to budget that is trending less every year.

f. Lincoln County Downstream Bridge

The first Lincoln County Bridge downstream of the dam approximately 1 mile (20th Road) is the lowest bridge on the Saline River until the confluence with the Smoky Hill River near Salina. Maximum release is 1200cfs before water starts to overtop the bridge deck. Large scale flood releases are limited due to this bridge. Long term releases near 1000cfs have historically eroded the abutments in the past and requiring the county to make bridge closures and repairs. Flood events at Wilson Lake have historically been a much longer term event because it takes a very long time to draw down with outflow limitations. Phase 2 and 3 flood elevations authorize a much higher

outflow release. Pool elevations experienced in 1993 exceeded the Phase 2 release trigger point; however, releases were maintained at the Phase 1 flow rate to avoid negative bridge impacts. As a result, the pool evacuation period exceeded 6 months and public use areas experienced increased damage due to the prolonged inundation.

g. Encroachments

Wilson Lake has had many long-standing encroachments that have been difficult to resolve for a variety of issues (funding, adjacent landowner cooperation, etc...). Several of these encroachments have been resolved through a concentrated management effort.

Many of the historic encroachments at Wilson were a result of fences not being moved to reflect the correct property line when the government originally acquired the land. Cost sharing efforts including project funds, agricultural lease abatements, KDWPT involvement, and adjacent land-owner participation have allowed the resolution of several encroachments.

Despite the recent success, there are still several encroachments that remain including a long-standing dispute on a private driveway along Highway 181. Several efforts have been made to resolve with no success. There is a 4-acre landlocked crop field on KDWPT managed lands behind the dam and adjacent to Saline River. This small encroachment is currently utilized under the agricultural lease program. The adjacent land-owner is the current lease holder due to exclusive access. Efforts will continue to resolve these encroachments in accordance with district guidelines.

h. Marshall Cove Licensing

The Marshall Cove area is a dock zone for private docks on Wilson Lake. These docks have been grand-fathered in and no “new” docks are allowed. All the docks are subject to an inspection program led by Natural Resource Management staff in accordance with the Wilson Lake Shoreline Management Plan. A private association known as the “Marshall Cove Dock Owners Association” was formed to assist with special projects to improve Marshall Cove. They have assisted with several projects pertaining to the maintenance of Marshall Cove. Many of the members of the association have expressed interest in expanding the dock program to include camping facilities and shelters. Corps management has been open to these discussions. With budgetary concerns in mind, licensing an area like Marshall Cove to a private association would be considered as long as it provides for a variety of public use.

Many of these conversations have revolved around constructing electric on campsites for private use and not public use. If a license was issued, all daily upkeep would become the association’s responsibility. The Corps would continue dock inspections and permits but daily management of that area would be relinquished.

i. Seaplane Landing Consideration

The Kansas City District implemented a seaplane policy in 1993. The policy refers to an evaluation and review conducted in 1986 of all lakes in the Kansas City District. The review was prompted by renewed public interest. As a result of the review, ten (10) lakes remained closed and eight (8) will remain closed pending subsequent review of their recreation master plans. Wilson Lake is one of the lakes that remain closed pending master plan review. The criteria used to determine which lake projects would be considered for seaplane usage include the size and dimension of the lake; the project's proximity to metropolitan areas; actual usable water acreage; and the boating and visitation pressure experienced at the lake. Wilson Lake may be large enough to accommodate seaplanes, but the lake's usable acreage is greatly reduced by the presence of project structure, bridges, shallow water areas created by increased sedimentation, standing timber, shoreline, and public use areas, including visitation pressure experienced on weekends. Based on these factors it was determined that Wilson Lake will remain closed to seaplane use.

Chapter 7 Agency and Public Coordination

On March 6, 2019, scoping letters were sent to fifty-one politicians, government agencies, local governments and organizations, and marinas that have a potential interest in the management of Wilson Lake. In addition, a public notice was posted on the District website and the Wilson project website. The letters and public notices explained that the USACE was in the process of revising the Wilson Lake MP and invited recommendations to be considered in the MP revision process. A scoping meeting was held on April 4, 2019 with 8 participants.

USACE received three comments during the scoping period. Commenter's included Scott Thomasson KDWPT Wildlife Area Manager, Willis Ohl KDWPT State Park Manager, and Terry Favinger of the Lake Wilson Marina. Issues identified the revision process include items planned by each entity for the future.

Chapter 8 Summary of Recommendations

The MP for Wilson Lake was last approved in 1984. Over the past 36 years population demographics as well as the economy have undergone changes. These changes can affect patterns of recreation and usage and require a frequent examination project management objectives and facilities.

This MP conceptually establishes and guides the orderly development, administration, maintenance, preservation, enhancement and management of all natural, cultural, and recreational resources at Wilson Lake. The MP 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. The MP is stewardship-driven and seeks to balance recreational development and use with protection and conservation of natural and cultural resources.

a. Facility Modernization

It is the goal of USACE at Wilson Lake to continue to modernize current facilities within existing footprints of recreation areas.

b. Land Classification

The number of management units were reduced to 14 in addition to minor land-classification wording changes to comply with current MP regulations.

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