



**US Army Corps  
of Engineers**

Kansas City District  
*Leaders in Customer Care*

Multiple-Purpose Project  
Kansas River Basin  
Delaware River  
Kansas

## **Perry Lake**

# **Master Plan**

Design Memorandum No. 3D

December 1991

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DEPARTMENT OF THE ARMY  
KANSAS CITY DISTRICT, CORPS OF ENGINEERS  
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REPLY TO  
ATTENTION OF:

10 DEC 1991

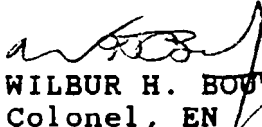
CEMRK-OD-R (1165-2-26a)

MEMORANDUM FOR Commander, Missouri River Division,  
ATTN: CEMRD-EP-ER

SUBJECT: Perry Lake, Kansas, Design Memorandum 3D, Master Plan

1. The updated Perry Lake Master Plan is submitted in accordance with ER 1130-2-435, entitled "Project Operations - Preparation of the Project Master Plan". This planning document presents the policies, objectives and program essential for the preservation and improvement of project resources.
2. An Environmental Assessment and Finding of No Significant Impact have been prepared and are being submitted to satisfy the National Environmental Policy Act requirements.
3. Approval of the master plan is recommended as submitted.

Encl

  
WILBUR H. BOUTIN, JR.  
Colonel, EN  
Commanding

MULTIPLE-PURPOSE PROJECT

PERRY LAKE  
KANSAS RIVER BASIN  
DELAWARE RIVER  
KANSAS

PREVIOUS DESIGN MEMORANDA

<u>Design Memoranda</u>	<u>Title</u>	<u>Date Submitted</u>	<u>Date Approved</u>
1	Hydrology	23 Dec 60	16 Feb 61
2	General Project Development	2 Nov 61	20 Mar 62
	Supplement 1 Boundary Surveys	2 Jun 66	10 Oct 66
Ltr DM 3	Stoplog Modification	22 Feb 72	
3	Master Plan (Revised)	10 Mar 83	18 May 83
	Appendix A-E	9 Aug 76	28 Sep 76
	Appendix F - Lakeshore Mgmt. Plan	15 Mar 75	20 May 75
3A	Preliminary Master Plan	16 Oct 61	15 Jun 65
3B	Development Chapter	19 Jan 66	3 May 66
C-1	Construction DM C-1 to DM 3B	17 Jul 67	29 Sep 67
3C	Master Plan and Appendix III	11 Apr 69	30 Sep 69
	Supplement 1 - Perry Area & Old Town	27 Aug 71	28 Sep 71
	Supplement 2 - Rock Creek Concession	31 Mar 72	24 May 72
3C	Operational Management Plan	30 Nov 82	10 May 83
4	Soil Data Embankment Design	16 Aug 63	29 Jan 64
5	Access Roads	27 Feb 63	26 Jul 63
6	County Road Detour	31 May 63	15 Jul 63
7	Sources of Construction Materials	29 Jul 63	13 Sep 63
8	Outlet Works & Spillway	26 Apr 63	9 Aug 63
9	Administrative Facilities	17 May 63	17 Jul 63
9B	Maintenance & Storage Buildings	8 Feb 79	
10	Preliminary Cost Allocation	8 Nov 63	3 Jun 65
11	State Highway Relocations	4 Feb 64	10 Apr 64
12	Radio Tower Access Road	10 Jan 64	17 Jan 64
13	Cemetery Relocation Plan	31 Mar 64	15 May 64

<u>Design Memoranda</u>	<u>Title</u>	<u>Date Submitted</u>	<u>Date Approved</u>
14	Real Estate	8 May 64	17 Jul 64
	Supplement A	2 Sep 65	14 Mar 66
	Supplement B	27 Jan 66	31 Mar 67
	Supplement C	11 Feb 66	22 Sep 66
	Supplement D	29 Apr 66	6 Jul 66
	Supplement E	1 Jun 66	14 Sep 66
	Supplement F	23 Aug 66	7 Nov 66
	Supplement G	14 Sep 66	18 Nov 66
	Supplement H	31 Jan 67	15 Jun 67
	Supplement I	11 Feb 63	19 Mar 63
	Supplement J	2 Aug 74	24 Jan 75
15	Jefferson County Road Relocations	24 Jul 64	10 Nov 64
	Supplement A - Road Dustproofing	25 Mar 71	12 Apr 71
16	Relocation of Railroad Facilities	30 Dec 64	18 Mar 65
17	Powerline Relocations	18 Jan 65	24 Mar 65
	Supplement A	23 Apr 69	28 May 69
18	Telephone Line Relocations	1 Apr 65	16 Aug 65
	Supplement A	23 Apr 69	28 May 69
19	Relocation of Grade School	28 Jan 65	22 Nov 65
	Jefferson County School District		
20	Cities Service Gas Co. Relocation of Pipe Lines	25 May 65	16 Jul 65
21	Reservoir Clearing	30 Sep 65	3 Dec 65
22	Relocation of Municipal Facilities City of Valley Falls	11 Apr 66	8 Sep 66
	Supplement A	29 Mar 71	28 Sep 71
23	Gas Service Co. Relocation of Gas Distribution Lines	11 Feb 66	2 May 66
24	Waterline Relocation - Jefferson County; Rural Water District #3	23 Apr 69	28 May 69
25	Jefferson County Road Improvements	29 Nov 73	23 Jan 74
26	Report on the Allocation of Costs	30 Mar 73	14 May 73
27	O&M Project - Water Supply	6 Jun 77	5 Jul 77
28	Relief Well Replacement	18 Oct 85	8 Oct 85
29	Breakwater Raise	9 Dec 85	

Kansas City District, Corps of Engineers  
700 Federal Building  
Kansas City, Missouri 64106

MULTIPLE-PURPOSE PROJECT

PERRY LAKE

KANSAS RIVER BASIN

DELAWARE RIVER, KANSAS

DESIGN MEMORANDUM

MASTER PLAN

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MULTIPLE-PURPOSE PROJECT

PERRY LAKE  
KANSAS RIVER BASIN  
DELAWARE RIVER  
KANSAS

DESIGN MEMORANDUM 3D  
MASTER PLAN  
DECEMBER 1991

PERTINENT DATA

GENERAL

Location of Dam	The dam is located about 3 miles north of Perry, Kansas in Jefferson County and at mile 5.3 of the Delaware River.
Operational and Jurisdictional Agency	Corps of Engineers, Kansas City District.
Purposes	Specific authorized purposes include flood control, recreation, fish and wildlife and municipal and industrial water supply.
Authorization	The River and Harbor Act of 1954 (Public Law 83-780) authorized the project substantially in accordance with House Document 81-642.
Date Construction Started	16 March 1964
Closure of Dam	2 August 1966
Date Placed in Operation	15 January 1969
Multipurpose Pool Initially Reached	3 June 1970
Project Life	100 years
Project Cost	
Initial Construction Cost	\$ 48,371,706 (1989 price levels)
Total Federal cost	\$ 49,095,918 *

\* Includes \$ 724,212 for supplemental recreation development (Code 710).

Benefit/Cost Ratio                      6.5

RIVER BASIN

Basin                                      Kansas River Basin

PERTINENT DATA (cont.)

Stream Delaware River

Drainage Area Above Dam 1,117 square miles of total drainage area above the dam.

LAND

Fee Land 39,338.47 acres of Jefferson County

Flowage Easement 1,187.58 acres of Atchison County  
2,261.66 acres of Jefferson County  
-----  
3,449.24 total acres

Separable Recreation 0 acres

Total Acquisition 42,787.71 acres (as of 17 January 1991)

Fish and Wildlife General Plan  
(approved 2 April 1970) 10,984 acres

LAKE

Water Surface Area  
Multipurpose Pool 11,631 acres (891.5 feet, mean sea level - msl)

Flood Control 25,389 acres (920.6 feet, msl)

Shoreline at Multipurpose Pool 159 miles

RESERVOIR DATA

<u>Elevation</u> <u>Storage</u> <u>Designation</u>	<u>Elevations</u> (feet, msl) <u>From</u> <u>To</u>	<u>Capacity</u> (acre-feet)	<u>Area At</u> <u>Top of Pool*</u> <u>Acres</u>
Surcharge	941.2 - 920.6	692,375	42,859
Flood Control	920.6 - 891.5	515,795	25,389
Multipurpose & Power	891.5 - 835.0	209,513	11,631
Gross Storage	920.6 - 835.0	725,308	
Sediment Reserve		140,000	
Annual Sediment Inflow (estimate)		1,400	

\* Storages and elevations are from Summary of Engineering Data - Lower Kansas River Basin Projects, updated 1989.

PERTINENT DATA (cont.)

DAM AND EMBANKMENT

Type of Fill	Earth
Fill Quantity	8,000,000 cubic yards
Top of Dam	946.0 feet, msl
Length of dam (net)	7,750 feet
Damming Height	95 feet from valley floor to top of flood pool
Maximum Height Above Streambed	151 feet

SPILLWAY

Location	Left abutment
Number, size and type of gates	None
Type	Uncontrolled limited service
Crest Elevation	922.0 feet, msl
Width (crest)	300 feet
Discharge Capacity at Top of Surge Pool	65,000 cfs

OUTLET

Location	Near center of dam
River Outlet Type	Gated
Number and size of conduits	1 - 23.5'
Length of Conduit	592 feet
Entrance Invert Elevation	833.0 msl
Discharge Capacity, top Flood Pool @ 920.6 msl	27,500 cfs
Discharge Capacity, top Multipurpose Pool @ 891.5 msl	21,200 cfs

PERTINENT DATA (cont.)

Service Gates, number and size	2 - 11.75' x 23.5'
Emergency Gates, number and size	2 - 11.75' x 23.5'
Low Flow Gates	None

FLOOD DAMAGES PREVENTED

Fiscal Year 1989	\$ 20,250,000
Cumulative Total through 1989 (1970 - 1989)	\$400,753,000 *

\* Gates were closed in June 1967 on an emergency basis and prevented \$10,438,000 in flood damages. The emergency impoundment was later released and construction continued.

## PREFACE

The objective of the Corps recreation program is to fully consider the recreation potential that may be afforded at Corps projects and to capitalize on that potential for the benefit and enjoyment of the public on a sustained basis. The goal is to provide an economical and quality program which will afford the public with a diversity of recreational opportunities in harmony with the wise use of the natural resources. These goals and objectives will be realized through sound planning, development, and management strategies that optimize the use of available resources while limiting adverse environmental impacts and operation costs.

### a. Planning Considerations.

1. All proposed master plan items fully considered the potential opportunities that the Perry Lake project afforded for both recreation and fish and wildlife benefits.

2. The plans for recreation are the result of public input and the problems, needs, and opportunities identified during the planning process. Plans for recreation considered a diverse range of activities along with the characteristics of the regional setting and the project's natural and cultural resources.

3. Recreation development plans at Perry Lake are consistent with public needs as identified in the State Comprehensive Outdoor Recreation Plan (SCORP).

4. The proposals insured that project resources, natural or created, are treated as an integrated whole with continuing concern for environmental quality.

5. The Corps plans were coordinated with other Federal agencies, state regional and local public entities and appropriate groups and organizations.

b. Development Considerations. All development activities are consistent with authorized plans for the development and management of the project resources.

c. Management Considerations. The administration and maintenance of recreation areas continues to be a substantial portion of the Corps overall recreation program. Other major considerations are:

1. the safety of project visitors and employees;
2. the protection of project resources, including enforcement of land use requirements to prevent conflict between uses;
3. the prevention of visual and physical encroachments upon project land and waters;
4. the preservation and enhancement of the aesthetic integrity of banks and shorelines;
5. the retention of access for public use;

6. environmental improvement through vegetative management;
7. interim utilization of project lands for appropriate agricultural practices to optimize recreation and fish and wildlife benefits;
8. the monitoring of public recreation use to insure that future recreation developments are consistent with recognizable public preferences and needs; and
9. the desirability of separating day use and overnight activities.

Planning for the orderly development, management, and use of the resource is accomplished over time and involves coordination with various public and community elements. This master plan required coordination and integration of efforts and actions. It establishes the policies, objectives, and programs for the preservation, enhancement, development, administration, and management of the resources and facilities at Perry Lake.

DEPARTMENT OF THE ARMY  
Kansas City District, Corps of Engineers  
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Kansas City, Missouri 64106

MULTIPLE-PURPOSE PROJECT

PERRY  
KANSAS RIVER BASIN  
DELAWARE RIVER  
KANSAS

DESIGN MEMORANDUM 3D  
MASTER PLAN  
November 1991

1-1. Project Authorization and Purposes.

a. Perry Lake was authorized by the River and Harbor Act of 1954 (Public Law 780 - 83d Congress) for flood control, fish and wildlife, recreation, water quality and municipal and industrial water supply.

The Chief of Engineers, in House Document 642, 81st Congress, recommended that the comprehensive plan for the Missouri River Basin, as approved by the Flood Control Act of June 28, 1938 and as modified and expanded by subsequent acts, be further expanded to include the Perry Reservoir on the Delaware River.

b. Average annual benefits derived from the project have been estimated at the 1973 price level and are shown in Table I-1.

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Table I-1. Average Annual Dollar  
Benefits for Perry Lake \*

<u>Purpose</u>	<u>1973 Dollars</u> <u>Annual Benefits</u>
Flood Control	\$ 10,310,000
Tributaries (Delaware River)	(41,000)
Main Stem (Kansas including KC)	(8,690,000)
Missouri River (below KC)	(1,086,000)
Mississippi River	(493,000)
Water Supply	769,000
Recreation	854,000
Fish and Wildlife	<u>284,000</u>
Total	\$ 12,217,000
Annual Cost	\$ 1,888,200
Benefit/Cost Ratio	6.5

\* Issued by Planning Division, Revised 1 March 1983

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c. Authority to prepare this plan is contained in Engineering Regulation (ER) 1130-2-435 (Project Operation - Preparation of Project Master Plans). The 1983 Master Plan, Design Memorandum 3C, provided for land use allocations and recreation facilities for Perry Lake. This planning document updates the 1983 Master Plan and incorporates new information, guidelines and directives. Additional opportunities and problems based on operational experience and public comments are also addressed in this plan.

#### 1-2. Master Plan Policy and Goals.

This updated Perry Lake Master Plan is the basic document guiding long range Corps responsibilities pursuant to Federal laws (See paragraph 1-3) to preserve, conserve, restore, maintain, manage, and develop the project lands, waters and associated natural and man-made resources. The master plan is a continuing and dynamic document anticipating what could and should happen. It is flexible to meet changing conditions. It deals in concepts, not in details of design or administration. Detailed management and administration functions are addressed in the Operational Management Plan (OMP), which translates the concepts of the master plan into implementing directives and programs.

#### 1-3. Applicable Federal Laws. Public laws applicable to Perry Lake include:

a. Flood Control Act of 1944, as amended (Public Law 534 - 78th Congress), (16 USC 460d), 22 December 1944. Section 4 of the Act authorizes the construction, maintenance, and operation of public park and recreational facilities at water resource development projects under the control of the Department of the Army. The act authorizes providing facilities in reservoir areas for public use, including recreation and conservation for fish and wildlife. It provides that facilities in the water areas at these projects be open for public use for activities such as boating, fishing, swimming, and other recreational purposes.

b. Public Law 86-717, (16 USC 580 m and n), 6 September 1960. States a policy to develop and maintain reservoir lands so as to encourage future resources of readily available timber and to increase the value of such areas for conservation.

c. Federal Water Project Recreation Act, as amended (Public Law 89-72), (16 USC 4601-12 et seq), 9 July 1965. It is the intent of this act that full consideration be given to the opportunities for outdoor recreation and fish and wildlife enhancement. The act provides for the formulation of uniform policies with respect to recreation and fish and wildlife benefits and costs of Federal multi-purpose water resource projects. The administration of project lands and water areas for recreation and fish and wildlife enhancement is encouraged by non-Federal agencies. In the event that a non-Federal sponsor is not available, no facilities for recreation and fish and wildlife enhancement may be provided, except those required to serve other project purposes or such facilities are required for the public health and safety. Section 4 of the Flood Control Act of 1944 (534-78th Congress) applies to recreation authority at Perry Lake; however, the principles of Public Law 89-72, through subsequent administrative policy decisions made by the Chief of Engineers, will be applied when future recreation developments are proposed at Perry Lake. Public Law 89-72 "established development of the recreational potential at Federal water resources as a full project purpose."



d. Water Resources Planning Act, as amended (Public Law 89-80), (42 USC 1962 et seq), 22 July 1965. In order to meet the rapidly expanding demands for water throughout the nation, the act declares a policy of encouraging the conservation, development, and utilization of water and related land resources on a comprehensive and coordinated basis by the Federal government, states, and localities with the cooperation of all affected Federal and state agencies, local governments and others concerned.

e. Fish and Wildlife Coordination Act, as amended (Public Law 85-624), (16 USC 661 et seq), 12 August 1958. The act requires that wildlife conservation receive equal consideration with other features of water-resource development programs; that proposals for work affecting any body of water be coordinated with both the U.S. Fish and Wildlife Service (USFWS) and the state wildlife agency; that recommendation of the USFWS and the state agency be given full consideration; and that justifiable means and measures for wildlife purposes, including mitigation measures, be adopted. It also requires that adequate provision be given for the use of project lands and waters for the conservation, maintenance, and management of wildlife resources, including their development and improvement. The availability of project lands for wildlife management shall be in accordance with a General Plan approved jointly by Army, Interior, and the state wildlife agency. A General Plan, designating 10,984 acres for wildlife conservation and management, was approved in April 1970.

f. Endangered Species Act, as amended (Public Law 93-205), (16 USC 1531 et seq), 28 December 1973. The act requires that Federal agencies shall, in consultation with USFWS, utilize their authorities in furtherance of conserving endangered and threatened species and take such action as necessary to assure that their actions are not likely to jeopardize such species or destroy or modify their critical habitat. The act also sets up a procedure of coordination, assessment, and consultation.

g. National Environmental Policy Act of 1969, as amended (Public Law 91-190), (42 USC 4321 et seq), 1 January 1970. The act declares a national environmental policy and requires that all Federal agencies shall to the fullest extent possible use a systematic, interdisciplinary approach which integrates natural and social sciences and environmental design arts in planning and decision making; study, develop and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources; utilize ecological information in the planning and development of projects; and include an environmental impact statement in every recommendation or report on proposals for major Federal actions significantly affecting the quality of the human environment.

h. Archaeological and Historic Preservation Act, as amended (Reservoir Salvage Act) (Public Law 86-523), (16 USC 469 et seq), 27 June 1960. The act provides for the preservation of historical and archaeological data which might otherwise be lost or destroyed as the result of flooding or any alteration of the terrain caused as a result of any Federal construction project; for coordination with the Secretary of the Interior whenever activities may cause loss of scientific, prehistorical, historical or archaeological data; and for expenditure of funds for recovery, protection and data preservation.

i. National Historic Preservation Act, as amended (Public Law 89-665), (16 USC 470 et seq), 15 October 1966. The act states a policy of preserving, restoring, and maintaining historic resources and requires that Federal agencies take into account the effect of any undertaking on any site on or eligible for the National Register of Historic Places; afford the Advisory Council on Historic Preservation opportunity to comment on such undertaking; nominate eligible properties to the National Register; exercise caution in disposal and care of Federal property which might qualify for the National Register; and provides for the maintenance of Federally owned and registered sites.

j. Archaeological Resources Protection Act of 1979 (Public Law 96-95), (16 USC 470aa et seq), 31 October 1979. The act protects archaeological resources and sites which are on public lands and fosters increased cooperation and exchange of information between governmental authorities, the professional community, and private individuals. It also establishes requirements for issuance of permits by Federal land managers to excavate or remove any archaeological resource located on public lands.

k. Water Resources Development Act of 1986 (Public Law 99-662), (33 USC 2201), 17 November 1986. This act provides for the conservation and development of water and related resources and the improvement and rehabilitation of the nation's water resources infrastructure. It also establishes cost-sharing requirements for the non-Federal interests for flood control projects and other project purposes (i.e. hydroelectric power, 100%; municipal water supply, 100%; recreation, 50% of separable costs; etc.). The act also provides for historical properties, fish and wildlife mitigation, fish and wildlife habitat improvements, and other related issues.

l. Water Supply Act of 1958 (Public Law 85-500), (72 Stat. 319), July 3, 1958. It is determined that the Federal government should participate and cooperate with states and local interests in developing water supplies in connection with the construction, maintenance, and operation of Federal navigation, flood control, irrigation, or multiple purpose projects. This act provides that storage may be included in any reservoir project surveyed, planned, constructed, or to be planned, surveyed, and/or constructed by the Corps of Engineers to impound water for present or anticipated future demand or need for municipal or industrial water. Before construction or modification of any project is initiated, state or local interests shall agree to pay for the cost of such provisions.

1-4. Regulatory Directives. Regulatory directives applicable to Perry Lake include:

a. ER 200-2-2. (Environmental Quality - Policy and Procedures for Implementing NEPA)

b. ER 1105-2-100 (Planning Guidance - Environmental Planning and Evaluation Considerations; Section VII - Historic Preservation)

c. ER 1130-2-200. (Sign Program)

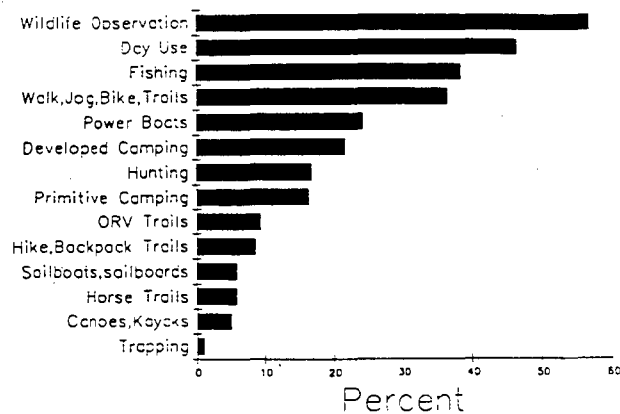
d. ER 1130-2-400. (Project Operation - Management of Natural Resources and Outdoor Recreation at Civil Works Water Resources Projects)

- e. ER 1130-2-401. (Visitor Centers)
- f. ER 1130-2-404. (Recreation User Fees)
- g. ER 1130-2-405. (Use of Off-Road Vehicles)
- h. ER 1130-2-406. (Shoreline Management on Civil Works Projects)
- i. ER 1130-2-414. (Project Operation - Natural Resource Management System)
- j. ER 1130-2-420. (Visitor Assistance)
- k. ER 1130-2-428. (Interpretive Services)
- l. ER 1130-2-432. (Volunteer Program)
- m. ER 1130-2-435. (Project Operation - Preparation of Project Master Plans)
- n. ER 1130-2-438. (Project Construction and Operation, Historic Preservation Programs)
- o. ER 1165-2-400. (Water Resource Policies and Authorities - Recreation Planning, Development, and Management Policies)

#### 1-4. Project-Wide Resource Objectives

In a 1989 survey of Kansas residents conducted by the Kansas Department of Wildlife and Parks, at least 88 percent of the residents aged 16 and over responded that they participate in some form of outdoor recreation. According to the Kansas Strategic Plan, a plan for Kansas wildlife and parks (1991-1996), "outdoor recreation provides significant social, economic, and environmental benefits." In the 1989 survey, outdoor recreation participation was greatest for wildlife observation; day use activities; fishing; walking, jogging, or bicycling on trails; motor boating or jet skiing; and developed camping (see Figure I-1).

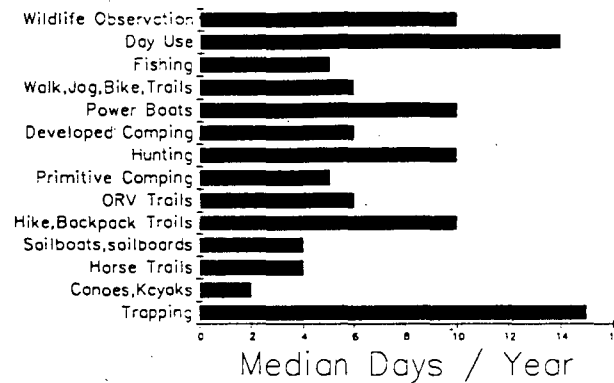
Figure I-1 Participation Rates



Participation of Kansans, age 16 or older. (Hardt, 1990)

The median number of days of participation (per individual per year) was ten or more days for wildlife observation; fishing; walking, jogging and bicycling on trails; hunting; off-road vehicles; and trapping (see Figure I-2).

Figure I-2. Median Days of Participation



Days of participation by Kansans, age 16 or older. (Hardt, 1990)

A national survey conducted by the Gallup Poll in 1989 demonstrated that the following recreation activities had the highest participation rates -- swimming, fishing, bicycling, running/jogging, and motor boating. Since 1959, Gallup Polls have concluded that common recreation activities pursued by Americans have remained fairly constant, with swimming, bicycling, and fishing continuing to be favorite pastimes. In 1989, Americans were more likely than in prior years to engage in outdoor recreation activities such as bicycle touring and racing, camping, hiking, and boating. A comparison of the 1960 and 1982 National Recreation Surveys indicates rapidly growing participation in canoeing, bicycling, attending cultural events, camping (all types), sailing, hiking/backpacking, attending outdoor sports, walking for pleasure, and water skiing.

Based on these survey results, project experience, and other pertinent factors such as past demand, the following resource objectives have been developed to guide future design, development, and management of the resource base at Perry Lake.

a. To provide overnight camping opportunities. Camping opportunities for both transient and destination visitors will continue to be made available through management efforts of the Corps and the Kansas Department of Wildlife and Parks in their respective campgrounds. Facilities ranging from highly developed areas with shower buildings and electrical hookups to more primitive areas with minimum amenities will be provided. Because the demand for camping units is currently being met for all but major holiday weekends at Perry Lake, future development will center around consolidating seldom used areas and improving existing camping units.

b. To provide day use picnicking opportunities. Most of the demand for picnicking opportunities comes from local community residents and sightseers. Since present facilities at Perry Lake currently meet this demonstrated demand, future development will be minor. As in the past, improvements and changes will involve consolidating lesser used facilities into more popular areas.

c. To provide safe swimming opportunities in a controlled setting. The demand for swimming beach areas comes from both campers and day users. In an effort to separate camping and day use activities, swimming beach areas will physically be located in day use areas. Future development will occur at existing beaches or in areas within existing parks.

d. To provide adequate lake access opportunities. Nearly 90,000 boats were registered in Kansas in 1989 and a 1972 U.S. Coast Guard survey estimated that the number of unregistered boats equaled the number of registered boats. The participation rate for boating activities in Kansas (as determined by the 1989 survey) exceeded 20 percent; the median days per year numbered ten (10) days of participation by Kansans aged 16 or older. Adequate lake access will continue to provide opportunities for this popular activity. Boating will also continue to be an integral part of the recreation scene at Perry Lake. The managing agencies and organizations that provide lake access opportunities will continue to maintain sufficient boat ramps and related facilities -- parking areas, sanitary facilities, courtesy docks, fish cleaning stations, and courtesy lights -- to provide a safe environment for boaters.

e. To provide the public with hiking, equestrian, off-road vehicle, and nature trails. The 1989 survey of Kansans indicated that 36.6 percent walked, jogged or bicycled on a trail; 9.4 percent used off-road vehicle trails; 8.7 percent hiked or backpacked; and 5.8 percent rode horse trails. Perry Lake offers trail opportunities for all these activities in separate locations. At the national level, Americans are increasing their trail activities as reported in the 1982-83 Nationwide Recreation Survey. Walking for pleasure is the most popular trail activity with more than half of the nation's population participating. At Perry Lake, numerous volunteer organizations cooperate with the Corps to construct and maintain the myriad of trails that exist at the project.

f. To provide quality hunting and fishing opportunities. Almost 11,000 acres of land is licensed to the Kansas Department of Wildlife and Parks for the purpose of wildlife management activities. With the exception of two waterfowl refuges, the majority of this licensed land is available for hunting opportunities. Shoreline fishing opportunities are also available. The Corps manages land for hunting and other low density recreational activities such as fishing. To help insure that the fishery population remains strong, it is important to establish good water quality and to cooperate closely with the Kansas Department of Wildlife and Parks on fisheries management.

g. To provide properly managed natural resources. The maintenance of the project's natural resource base -- vegetation, soil, fish and wildlife, historic properties and the water base -- is of utmost importance. The proper management of these resources is essential if the other resource use objectives are to be met. The Corps and the Kansas Department of Wildlife and Parks have a broad stewardship responsibility to manage project lands and the associated resources wisely. Opportunities will be provided for consumptive and non-consumptive public use of the resources activities while still maintaining the integrity of the natural resources.

h. To provide quality interpretive services and opportunities. Quality interpretive programs and service compliment nearly all phases of project management. At Perry Lake, personal interpretive services include presenting water safety programs, tours for schools and other groups, and project informational presentations to community organizations. Static interpretive opportunities include the visitor center and its displays, project brochure, informational bulletin boards, and interpretive signing around the project. Future interpretive opportunities include the development of nature trails, amphitheaters, off-site school programs, educational media for schools, interpretive publications, and mass media interpretive activities.

## II. FACTORS INFLUENCING RESOURCE MANAGEMENT AND DEVELOPMENT

### 2-1. General.

Perry Lake is located in the northeast portion of the state (see Figure II-1). It is situated within 50 miles of one-third of the state's population. Three of the state's four metropolitan areas are in close proximity to the lake -- Topeka, Kansas City, and Lawrence. Due to the lake's proximity to these population areas, the lake will continue to receive high use.

The entire water surface of Perry Lake (at multipurpose level) and all project lands lie within Jefferson County. The following are various socio-economic characteristics of the county compared with neighboring counties -- Atchison, Douglas, Jackson, Johnson, Leavenworth, Shawnee, and Wyandotte.

a. One hundred percent of Jefferson County's population is rurally based; there are no large metropolitan areas located within the county.

b. Jefferson County is the third largest county in terms of area (square miles) and is the second least densely populated county; Jackson County is the least densely populated. The total amount of land that is incorporated in farming again ranks second behind Jackson County. Jefferson County is third in the overall number of individual farms (see Table II-8).

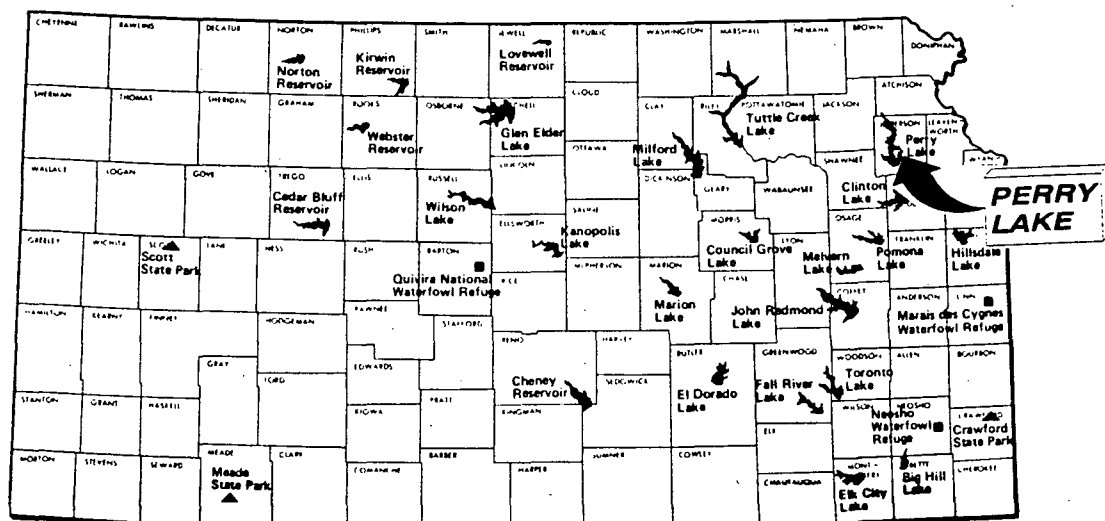
c. Of the eight counties, Jefferson County ranks eighth in the growth of per capita income in the past decade (1980-1990), yet its current per capita income ranks third behind Johnson and Shawnee Counties (see Table II-6).

d. Jefferson County has the third highest unemployment rate (1988) (see Table II-6).

e. The population growth figures for Jefferson County rank fourth for actual population figures (1980-1990). See Table II-2.

f. In terms of education, Jefferson County realizes the second highest percentage of high school graduates and the third lowest in high school dropout rate (see Table II-7).

Figure II-1. Kansas Lakes and Recreation Areas



Source: Kansas Park and Resources Authority.

The State of Kansas covers 82,264 square miles and is the 13th largest state in the United States. Ninety-seven percent of the land is in private ownership while 0.6 percent is owned by the state. The remaining 2.4 percent is owned by federal, municipal, and county entities.

## 2-2. Accessibility.

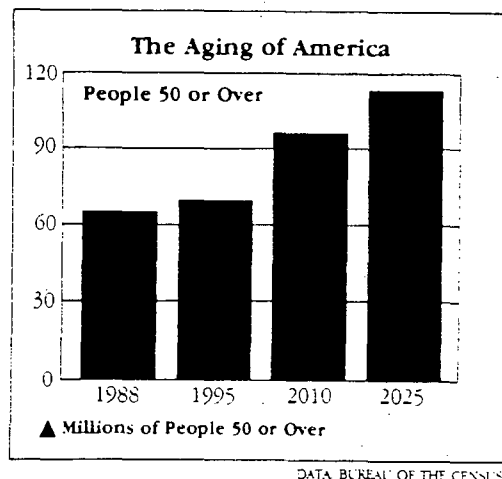
The access to Perry Lake is excellent in its diversity and well maintained highways. Four highways act as focal access roads which funnel traffic from other nearby highways into the lake area. US Highway 24 is the major access route to the southern portion of the lake (Administration Area, dam, Outlet Area). It follows the east-west Kansas River population corridor and links the lake to Interstates 70 and 35; US Highways 40, 75, and 59; and Kansas State Highways 4, 10, 16, and 32. State Highway 4 provides access to the western and northern section of the lake. State Highways 16 and 92 provide access to the northern and eastern portions of the project. This network of highways allows visitors a wide variety of access routes. For example, there are at least six different routes from Kansas City and at least three from Topeka.

Circulation around the lake is achieved by US Highway 24; State Highways 16, 92, and 237; and a network of paved county roads. All parks are reached via paved roads.

## 2-3. Socioeconomic Characteristics.

### a. Population.

1. General - United States. It has been estimated that the population of the United States will reach 260 million people by the year 2000. Though most Americans are now between the ages of 15 and 35, the long trend is toward an aging population. This trend may be attributed to an increase in life expectancy coupled with a slowing birth rate. In 1980, slightly more than 11 percent of the total population in the United States was aged 65 or older. The percentage of older Americans by the year 2030 is estimated to be greater than 20 percent. There are, and will continue to be, more older Americans in the country who will live longer, healthier, and more active lives. Figure II-2 illustrates the "aging of America" phenomenon.



Nearly 30 million Americans are age 65 and older; 48 million are 55 and older; and 62 million are over the age of 50. Demographers are predicting that the median age will eventually reach 50. According to Business Week, the population of people over the age of 50 now control 75 percent of the nation's wealth and half of the discretionary income.

To further illustrate the numbers of elderly Americans across the nation, if the American Association of Retired Persons (AARP) were to become an independent nation, it would be the 30th largest country with its more than 30 million members. Its population would only be slightly smaller than that of Argentina.

Figure II-2



2. Kansas - Population. The population of Kansas, like that of the United States, is aging and becoming more urban. In 1960, 11 percent of Kansas' total population was 65 years old and older. By 1980, 13 percent were age 65 or older. Table II-1 illustrates the projections for the population aged 65 and older by the year 2020. The elderly appear to be migrating to the larger cities in Johnson and Douglas Counties to take advantage of large medical facilities, improved housing opportunities for the elderly, centralized recreational opportunities, and convenient educational institutions.

Table II-1. Population Projections of People Aged 65 +  
1990 - 2020

<u>County</u>	<u>1990</u>	<u>2000</u>	<u>2010</u>	<u>2020</u>	<u>% Change</u>
Atchison	2,431	2,278	2,305	2,683	9.4 %
Douglas	5,930	6,859	8,358	10,386	43.0
Jackson	1,691	1,793	2,062	2,498	32.3
Jefferson	2,395	2,606	3,176	4,135	42.1
Johnson	33,622	43,955	57,500	90,253	62.7
Leavenworth	6,488	7,614	9,801	14,192	54.0
Shawnee	20,454	22,521	24,346	32,361	36.8
Wyandotte	22,705	23,347	23,045	28,885	21.4

As illustrated in Table II-2, the Northeast section of Kansas currently has the top four most densely populated counties in the state -- Wyandotte (1st), Johnson (2nd), Shawnee (3rd), and Douglas (4th). Three of these same four counties have top spots in actual population figures (1990) as well as for the projected population statistics (2000) -- Johnson (2nd), Wyandotte (3rd), and Shawnee (4th). Sedgwick County (Wichita, Kansas) is currently the most populated county in the state. In the year 2000, Johnson County is predicted to surpass Sedgwick County as the most populated county in the state; currently, Johnson County is the second most populated county, with Wyandotte third, and Shawnee County placing fourth for the state.

Table II-2. State Population Components

<u>County</u>	<u>1980</u>	<u>1990</u>	<u>% Change</u>	<u>Population</u> <u>Density</u>	<u>Land Area</u> <u>(sq. mile)</u>	<u>2000 Projected</u> <u>Population</u>
Atchison	18,400	16,900	- 8.0 %	39	431	17,460
Douglas	67,640	81,800	+ 20.9 %	177	461	84,200
Jackson	11,640	11,500	- 1.0 %	18	658	12,420
Jefferson	15,200	15,900	+ 4.6 %	30	535	18,270
Johnson	270,270	355,050	+ 31.4 %	743	478	433,580
Leavenworth	54,800	64,370	+ 17.4 %	139	463	83,250
Shawnee	154,900	160,980	+ 3.9 %	293	549	168,200
Wyandotte	172,300	162,000	- 6.0 %	1,087	149	176,230
Sedgwick (for comparison purposes)	367,088	403,662	+ 10.0 %	401	1,007	425,778

Table II-3. Population of Kansas vs. United States

	<u>1980</u>	<u>1990</u>	<u>% Change</u>	<u>Kansas population as a % of US population</u>	
				<u>1980-1983</u>	<u>1.04 %</u>
Kansas	2,364,200	2,477,600	4.8 %	<u>1984-1985</u>	<u>1.03</u>
United States	226,545,800	248,709,900	9.3	<u>1986-1988</u>	<u>1.02</u>
				<u>1989</u>	<u>1.01</u>
				<u>1990</u>	<u>1.00</u>

As illustrated in Table II-3, the population of Kansas comprises only a slight percentage of the total United States population and has systematically grown proportionately smaller in the last decade.

In 1930, the distribution of the population in Kansas was 39 percent urban and 61 percent rural. By 1980, the distribution had shifted to 67 percent urban and 33 percent rural (see Table II-4).

Table II-4. Kansas Urban and Rural Populations 1860 - 1980

<u>Year</u>	<u>Urban</u>	<u>Rural</u>
1860	9.4 %	90.6 %
1900	22.4	77.6
* 1950	52.1	47.9
1980	66.7	33.3

\* 1950 was the first year in which the percentage of the population residing in urban areas exceeded the population residing in a rural setting.

In Table II-5, the low median age for Douglas County is possibly attributed to the large population of college-aged individuals (18-24) attending the University of Kansas in Lawrence. Neither Jackson nor Jefferson County is the home of a four-year college which may attest to their high median age. Rural counties generally have an older population as the younger residents move away to urban and metropolitan areas to pursue diverse employment and social opportunities.

Table II-5. Median Age in Kansas by Counties, 1980

<u>County</u>	<u>Age</u>
Atchison	29.8
Douglas	24.3
Jackson	32.3
Jefferson	32.8
Johnson	30.4
Leavenworth	30.1
Shawnee	30.2
Wyandotte	28.8

c. Income and Employment. A large percentage of the visitation to Perry Lake originates in Wyandotte County. This county displayed the lowest per capita gain between 1980 and 1987 and also registered the highest unemployment rate. The other county associated with Kansas City, Johnson County, had one of the highest gains in per capita and the lowest unemployment rate. Lower incomes have a great impact on the reduction of participation of outdoor recreation activities. Advanced age also takes its toll in decreased participation.

Table II-6. Income and Unemployment

<u>County</u>	<u>Per Capita Income</u>			<u>Unemployment Rate</u>
	<u>1980</u>	<u>1987</u>	<u>% change</u>	<u>1988</u>
Atchison	7,800	12,000	35 %	5.9 %
Douglas	8,100	12,350	34	3.8
Jackson	7,900	12,350	36	7.0
Jefferson	8,500	12,800	33	6.1
Johnson	13,900	21,200	34	3.1
Leavenworth	8,700	12,000	28	4.8
Shawnee	10,700	16,100	33	4.7
Wyandotte	8,600	12,100	29	7.9

d. Education. Generally the population that has taken advantage of higher education opportunities have increased levels of interest in the diverse array of recreational and leisure opportunities as well as participation in activities previously reserved for the affluent.

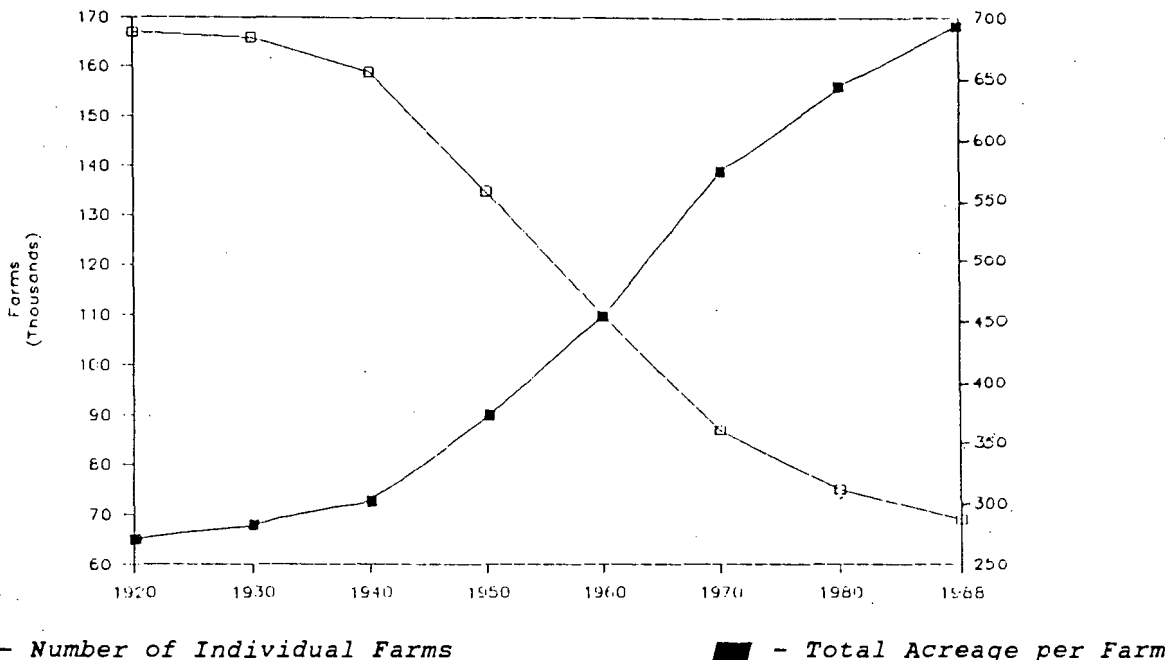
Table II-7. Education  
Public School Enrollment, Kansas

<u>County</u>	<u>Total Enrollment</u>	<u>High School Graduates</u>	<u>Percent Graduating</u>	<u>Dropouts</u>	<u>Percent Dropouts</u>
Atchison	2,625	173	6.6 %	6	1.3 %
Douglas	10,069	666	6.6	103	1.0
Jackson	2,189	168	7.7	9	0.4
Jefferson	3,640	276	7.6	35	0.96
Johnson	55,874	4,061	7.3	582	1.0
Leavenworth	10,987	672	6.1	93	0.85
Shawnee	26,204	1,691	6.5	618	2.4
Wyandotte	30,080	1,668	5.5	435	1.4

e. Area Land Use. Agriculture remains as one of the major industries in the area with principal agricultural products being cash crops and livestock. Kansas City is the major industrial and manufacturing center influencing the area. Topeka and Lawrence also provide industrial bases and serve as the state capitol and home of the University of Kansas, respectively.

Figure II-3 illustrates the changing situation with the farms in Kansas within the last 60 years. In 1920, the number of farms numbered close to 170,000 while the acreage per farmstead totaled less than 300 acres. In contrast, by 1988, the number of individual farms totaled approximately 70,000 while the acreage per farmstead had increased to 700 acres.

Figure II-3. Statistics of Farms in Kansas  
Number/Acreage 1920-1988



Kansas' modest population growth and general migration to urban centers translates into a direct threat to aquatic and terrestrial habitats, especially riparian zones. Conversion of land to urban and non-agricultural uses in Kansas is projected to run as high as nearly 11,000 acres per year. Off-site impacts on wildlife associated with continual development, such as degraded water quality, are likely to be even greater.

Table II-8. Agriculture Uses - 1989

<u>County</u>	<u>Number of Farms</u>	<u>Total Land (acres)</u>	<u>Value field crops</u>	<u>Value livestock</u>
Atchison	698	240,000	\$ 19,437,800	\$ 13,306,100
* Douglas	852	230,000	19,821,900	13,700,900
Jackson	1082	347,000	19,522,600	16,028,700
Jefferson	1017	280,000	16,137,600	13,972,400
* Johnson	659	167,000	11,252,300	7,554,100
Leavenworth	1144	221,000	14,748,300	15,639,600
* Shawnee	852	233,000	17,954,000	7,140,400
* Wyandotte	200	24,000	2,502,400	1,715,800

Not surprisingly, four of the five counties that house the fewest number of farms (\*) are home to the three major metropolitan centers in northeast Kansas -- Topeka, Kansas City, and Lawrence. These counties also have the majority of their population in urban areas as opposed to rural settings (see Table II-9).

Table II-9. Urban and Rural Population by County, 1980

<u>County</u>	<u>Urban</u>	<u>Percent of total</u>	<u>Rural</u>	<u>Percent of total</u>	<u>Major Metropolitan Area</u>
Atchison	11,407	62 %	6,990	39 %	
* Douglas	58,573	87	9,067	13	Lawrence
Jackson	3,132	27	8,512	73	
Jefferson	----	0	15,207	100	
* Johnson	244,828	91	25,441	9	Kansas City
Leavenworth	38,963	71	15,846	29	
* Shawnee	125,936	81	28,980	19	Topeka
* Wyandotte	170,836	99	1,499	1	Kansas City

2-4. Topography, Geology, and Soils.

a. Topography. The topography of Perry Lake is typical of northern Kansas, which consists of rolling uplands, eroded valleys of varying widths and meandering streams. The valley along the Delaware River is formed by irregular hills with slopes ranging from fairly gentle to steep. The steep slopes are usually covered in native woodlands. Gentler slopes prevail in the upper valley of the main river and along tributary arms and are generally tillable.

b. Geology. Perry Lake is located on the southern edge of the Dissected Till Plains section of the Central Lowlands Physiographic Province. The mature and well-drained topography of the area has developed during and since Pleistocene time. The drainage divides are mantled with as much as 40 feet of glacial drift. Thin, discontinuous deposits of loess overlie the till and residual bedrock soil. Differential weathering of the nearly horizontal limestone and shale beds of Pennsylvania Age have produced frequent benches and scarps. Terraces dating from the Pleistocene to the present exist along the Delaware Valley. The Delaware River has experienced alternating periods of deposition and degradation since early Pleistocene time. Glaciation of the area caused widening and deepening of the river valleys, removal of some bedrock from the uplands, deposition of glacial drift, and in its later stages, alluviation of the Delaware River. Following the erosion and deposition associated with the Kansas glacier, there were at least two subsequent periods of degradation and alluviation during the remainder of the Pleistocene Age and in recent times.

c. Soils. Soils in the area are fairly stable unless denuded. Most of the parks, except Slough Creek Park, are on glacial drift deposits up to forty (40) feet deep. These soils, unless covered with native or cool season grass, are subject to severe sheet and gully erosion. This condition becomes quite significant in the parks and agricultural areas where these glacial soils do not have sufficient cover to reduce soil erosion. The crop production land that has been classified as highly erodible will be removed from the program and planted to native grass or cool season grasses that will provide protective cover. The river bottom fields in the northern portion of the project contain rich, deep soils suitable for agriculture.

In March 1990, Engineering Division, Kansas City District prepared a report concerning reservoir shoreline and the problems associated with erosion. Perry Lake demonstrated several erosion problems as outlined:

- a. Loss of beneficial multipurpose pool storage accompanied with a volume exchange of 2.5 + to 1.
- b. Loss of recreational areas or public facilities. Most of these losses have been corrected, relocated, and/or other action has been taken.
- c. Potential for loss of private structures.
- d. Loss of perimeter shoreline vegetation, due to erosion, critical to fish and wildlife habitat.

The overall average annual shoreline erosion at Perry Lake is 2.6 feet/year and is characterized as severe. Severe is defined with limits of > 2.5 feet per year. Future development and construction must be designed to consider this erodible soil situation which has historically created problems in the parks and around the project. Prehistoric systematic surveys in high impact areas, such as the eroding shoreline, will be conducted. It is recognized that historical property site losses are occurring along the shoreline due to erosion; therefore, funding for additional surveying will be pursued.

#### 2-5. Scenic Qualities

A very noticeable quality of Perry Lake is its diverse habitats and environment. Traveling through one park may evoke impressions of the Missouri Ozarks while moments later, another area will possess characteristics of a prairie environment found in central Kansas. The rolling geography and wooded roadsides provide scenic drives through some of the park areas. Most of the shorelines are enshrouded with woodlands and shrubs which partially obscure scenic views of the lake. To provide improved views of the lake in the parks, selective thinning of shrubs and trees will be implemented by project personnel. This clearing of the understory will be accomplished to improve lake access from the campgrounds as well as allowing air circulation through the camping areas. The roadway system throughout the parks, constructed during the 1960's, provides visitors with an opportunity to visit a majority of the designated park acreage. "Driving for pleasure" through the parks is a recognized recreational and leisure pursuit due to the impressive scenic quality that is present at Perry Lake; however, sometimes the cost to provide this opportunity becomes cost-prohibitive in terms of maintaining these winding and extensive roads.

#### 2-6. Water Quality.

In an attempt to meet the objectives established for the Water Quality Management Program by the Missouri River Division, twenty-six (26) Corps of Engineers water quality observation stations have been established on Perry Lake to monitor various physical, chemical, and biological water quality parameters. Selected stations are visited periodically by personnel of the District's Water Quality Group. This monitoring program provides the information necessary to assess its effects on project multipurpose functions. A water quality survey of Perry Lake was conducted in August 1989. The outlet, three lake stations, and an inflow station were surveyed. In addition, bacterial analyses of the swimming beaches were performed periodically between June and September 1989 by the Kansas Department of Health and Environment in cooperation with project personnel.

- a. Inflows. During the survey, the normally turbid Delaware River exhibited an extremely high turbidity level and suspended solids due to recent rains. Dissolved oxygen concentrations were depressed which would stress aquatic

organisms. The very low flow of the stream created intermittent pools containing only a limited diversity and low densities of benthic macroinvertebrates. The low dissolved oxygen concentration and the sandy, silty substrate adversely affected the community composition. Organisms with some pollution tolerance dominated. The only pollution sensitive form present was mayflies. The water quality conditions in the inflow region were not conducive to the support of aquatic life.

b. Lake. The three lake stations sampled were selected as representative of the uplake, midlake, and downlake regions. All regions had chlorophyll concentrations well below that needed to produce a visible algal bloom. Atrazine concentrations continued to be high at the downlake and midlake stations. These levels were well above the Environmental Protection Agency criterion for the protection of aquatic life. Other general chemical levels were within normal ranges.

c. Downstream. The dissolved oxygen concentrations at the downstream station were excellent. High densities but a very limited diversity of benthic macroinvertebrates were observed. Their habitat included only weeds and rocks at the otherwise concrete outlet. The only pollution sensitive forms present were damselflies.

d. Future Conditions. The water quality of Perry Lake continues to be moderately good as evidenced by its good sport fishery. However, the greatest potential threat to the lake's water quality is pesticide loading as revealed by pesticide surveys initiated in the mid 1980's. The parameters which affect the water quality are its high level of turbidity, suspended solids, nutrients, and pesticides. In the two most recent surveys of 1988 and 1989, atrazine concentrations exceeded the Environmental Protection Agency criterion. The herbicide also poses a threat to the lake's future sport fishery and recreation benefits.

## 2-7. Lake Operations.

Perry Lake is operated to provide flood control, water supply, navigation support on the Missouri River, low flow support on the Kansas River to enhance water quality, and a diversity of recreation opportunities consistent with sound conservation and aesthetic values.

There are five major factors which may influence this plan of operation and its consequences on the project's resource management -- flood control, adjustments for wildlife and fish management, supplementation of flows on the Missouri River for navigation, releases for water quality improvement on the Kansas River, and the potential use of water stored for supply purposes.

Flood control is one the major purposes for which the lake was authorized. Flood impoundments increase the area exposed to shoreline erosion and aggravate the erosion problem. Shoreline erosion has eliminated once desirable recreation sites and changed the lake's sediment distribution. While the temporary effects of flood control operations are the temporary inundation of recreational sites, roads, and facilities, diminished recreational opportunities and possible removal or repair of disturbed facilities, another more permanent effect of floods is the sediment deposition that accompanies high inflows. Based on a hydrographic survey conducted in 1989, 39,600 acre-feet of storage is occupied by sediment, 33,700 acre-feet below multipurpose pool elevation 891.5 msl. The leading edge of the sediment delta was located near the projected location calculated during the design of the project, less than two miles upstream of the bridge of Ozawkie. The

leading edge of the delta approximates the limit of navigation outside of the river channel at multipurpose lake level. The historical delta progression is shown on Plate 2 along with the projected delta locations for the years 2000 and 2020. The recreational and water supply facilities in the area of lake near Ozawie will be affected within 10 to 30 years.

Perry Lake is one unit in a system of multi-purpose projects which make up the comprehensive plan for the flood control and water resource development in the Missouri River Basin. The flood control capacity of Perry Lake is used in coordination with the flood storage potential of all storage projects in the Kansas River Basin to provide flood protection on the Delaware, Kansas, and lower Missouri Rivers. Accumulated storage is evacuated at rates not to exceed downstream criteria insofar as practicable. Regulation plans limit the maximum controlled outflow from the flood control pool to 20,000 cubic feet per second (cfs). The normal low-flow release from the multipurpose pool is 25 cfs.

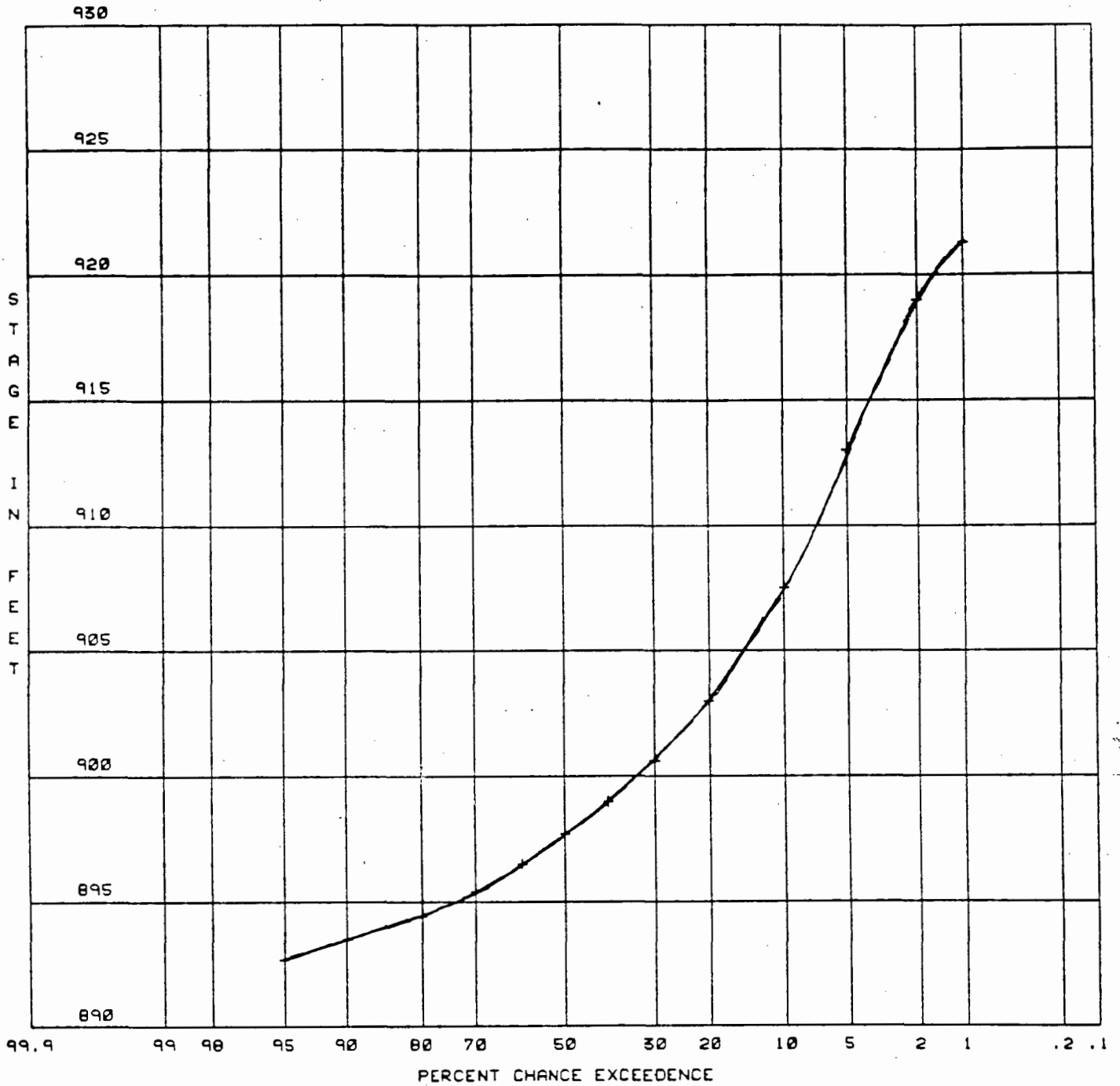
The frequency curve (Figure II-4) is a combination of maximum pool elevations based on an operation study using flows for the period 1935 to 1978 and the actual pool elevations from 1970 to 1989. The actual maximum annual pool elevations define the curve for recurrence intervals less than two (2) years and historical operation study data were used to define the curve for intervals greater than 20 years. There is a transition between these two curves. The actual pool level curve for recurrence intervals of 3 to 20 years is 1.5 to 2 feet higher than pool levels shown in the combined curve. It is believed that if a longer historical record were available, the actual pool level curve would more closely follow the historical operation curve for the longer recurrence intervals.

The pool elevation is regulated by agreement between the Corps of Engineers and the Kansas Water Office with input from the Kansas Department of Wildlife and Parks and the general public. This agreement provides for the seasonal adjustment of the pool level to benefit fish spawning and survival and waterfowl feeding. Typically, the calendar year begins with the pool at the winter drawdown elevation of 889.5 msl, two feet below multipurpose level. The plan is designed to enter the spring season at a low level and allow for normal spring increases to elevation 893.5 which inundate the vegetation-covered shoreline, improving the spawning habitat, and promoting the spawning of forage fish. It is also designed to allow the lake to impound some of the spring runoff without resorting to large discharges which can adversely affect the spawning runs of fish such as walleye. The pool level is lowered to 891.5 for the summer and raised again to elevation 893.5 or 894.5 in the fall to provide improved feeding habitat for waterfowl. The pool level is lowered to the winter level prior to the winter ice-over.

The water level management plan calls for a pool level fluctuation of five to six feet between the fall and winter. There has been some concern that the fluctuating pool level increases shoreline erosion with no easily definable benefit to the fish, but an obvious benefit of increased surface acreage for waterfowl in the fall. Because the actual pool level is greatly dependent on the inflow experienced, the actual pool level most times varies significantly from the proposed plan making it difficult to determine whether observed erosion or an apparent change in fish population resulted from the use of the plan. The pool level management plan would appear to improve fish and wildlife habitat if inflow conditions were ideal. Therefore, it will probably continue on an annual basis similar to the one described. If the state calls additional water supply storage into service, they may decide to restrict intentional drawdowns below multipurpose pool level for fish and wildlife purposes so that water supplies are not impacted.



# PERRY LAKE



LEGEND:

— MAXANUAL

PERRY LAKE  
POOL ELEVATION FREQUENCY  
MAXIMUM ANNUAL

U.S. ARMY ENGINEER DISTRICT

KANSAS CITY, MISSOURI  
OCTOBER 1990

Figure II-4

Releases for navigation flow support on the Missouri River usually occur late in the navigation season that runs from April 1 to November 30 at St. Louis, Missouri. The navigation supplementation from Perry, Milford, and Tuttle Creek Lakes is used when the Missouri River main-stem lakes are experiencing drought conditions and other tributaries between Nebraska City and Kansas City do not contribute enough flow to meet the required incremental increase in navigation flow targets of 4,000 cfs between Nebraska City and Kansas City. Drawdown at Perry Lake resulting from supplementation of Missouri River navigation flows are restricted to elevation 888.5 prior to October 1 and elevation 885.5 after October 1. In addition, if water supply releases contribute to that drawdown, the amount of water released for water supply can also be released for navigation.

The two other factors which influence the plan of lake operation -- water supply and water quality -- are usually less consequential than the factors previously discussed. Although the State of Kansas is planning in the near future to call into service 25,000 acre-feet of the 150,000 acre-feet of water supply storage the state has under contract, little change should occur from the usually small drawdowns that have been experienced to meet water quality flow criteria on the Kansas River. However, releases for these purposes during an extended period of extreme drought could result in a drawdown greater than the five feet of drawdown resulting from the releases made to meet the water quality target during the drought of 1988-1989. In addition, if significantly more water supply storage is called into service in the future and releases are increased to meet greater water supply demands, drawdowns would be more severe.

Releases to enhance water quality on the Kansas River are made from Perry, Milford, and Tuttle Creek Lakes. A flow target of 1,000 cfs at Desoto, Kansas has been used as a target flow level that maintains adequate water quality. This target level was changed as of October 1990 to vary the target flow during periods of drought based on the pool level at Tuttle Creek Lake as an indicator of drought severity. The target was reduced to a low of 700 cfs during the winter if Tuttle Creek Lake is below elevation 1065 msl, an indicator of a severe drought. This conserves water quality storage for later use in a drought.

The Kansas River Assurance District (KRAD), comprised of all municipal and industrial water users along the Kansas River, has agreed to purchase water supply storage through the state from Perry, Milford, and Tuttle Creek Lakes. The KRAD plans to purchase 25,000 acre-feet of storage at Perry Lake. The storage should be called into service in early 1991. The frequency and quantity of releases for water supply from Perry Lake will depend on the flows occurring on the Kansas River at Topeka and DeSoto as well as the KRAD's demands on the river at the time. The State of Kansas will request the quantity of water released from each lake for water supply based on the District's demands at that time. In most cases, water supply demands on the Kansas River below the confluence of the Delaware River should be satisfied by releases prorated with approximately 15 percent from Perry Lake, 25 percent from Milford Lake, and 60 percent from Tuttle Creek Lake. Releases from these lakes for water quality will be adjusted by the Corps so that water quality flow targets are still met.

Table II-10. Storage Allocations and Elevations  
Perry Lake

<u>Storage Zone</u>	<u>Elevation, Top of zone in Feet, msl</u>	<u>Surface Area in acres</u>	<u>Storage Allocation in acre-feet</u>	
			<u>Initial</u>	<u>100-Year</u>
Flood control	920.6	25,000	527,000	480,000
Multi-purpose	891.5	11,631	243,000	150,000
Sediment			(140,000)*	---
			770,000	630,000

\* Initially distributed 1/3 to the flood-control zone and 2/3 to the multipurpose

\*\* Water supply storage requested by Kansas Water Office.

a. Existing project.

Perry Dam is an earth-filled embankment extending across the Delaware River valley with a crest length of 7,750 feet and rising 95 feet above the valley floor with gated-outlet works and an uncontrolled spillway in the left abutment. Water supply storage is included in project plans at the request of the State of Kansas under provisions of the Federal Water Supply Act of 1958. The initial cost of constructing the project was \$48,371,706. Construction was initiated in March 1964 and the project was placed in operation in January 1969.

2-8. Recreation Surveys and Trends

a. Recreation Surveys. The Kansas Statewide Outdoor Recreation Survey was conducted in the fall of 1989 by the Kansas Department of Wildlife and Parks (KDWP). The KDWP has a statutory responsibility for providing the public with the opportunities for use and appreciation of the natural resources of Kansas. Their survey was conducted to learn the constituent groups outdoor recreation interests and their demands.

The survey was designed to obtain three (3) major types of information from Kansas residents:

- o participation rates in a variety of activities;
- o for those responding "yes" to an activity, why did they not participate more;
- o for the "no respondents, they were asked to choose the main reason why they did not participate in that activity.

Of the 2,596 residential contacts, 53 percent completed the surveys; 47 percent were refusals. Eighty-eight (88) percent of the respondents participated in one or more of the outdoor activities surveyed and the following represents the most popular activities:

- o wildlife observation
- o day use activities in state parks
- o fishing
- o walking, jogging, and bicycle trails
- o power boating

Visitation at Kansas state parks increased from 4.1 million visitors in 1983 to 5.1 million visitors in 1988. Demand for public lands and waters continues to increase for a variety of recreation uses. Thirty (30) percent of state park users drive more than 50 miles for access to existing public lands and waters.

To obtain input regarding management plans being developed for KDWP lands, 39 public meetings were held during 1989 and 1990. A summary of the statements given by participants follows:

- o improve existing outdoor recreation services,
- o upgrade or replace deteriorated facilities and equipment,
- o rehabilitate deteriorated lands,
- o provide a wider range of recreational opportunities on public lands, and
- o increase fish and wildlife populations on public lands.

Outdoor recreation is highly valued by Kansans as indicated by the high participation rate of those surveyed (88 percent). This compares to the 90 percent participation rate nationwide in outdoor recreation as surveyed by the President's Commission on Americans Outdoors, 1986. The major reasons why people did not participate in a particular activity or did not participate more were "Not enough time", "Physical limitations", and "Not interested". The KDWP survey discovered that participation rates in Kansas declined after age 45 for many of the activities with the notable exception being wildlife observation.

It was determined from the survey that the average Kansas outdoor recreation participant:

- o works (68%)
- o has some college education (29%)
- o is 16-24 years of age (23%)
- o has an annual income of \$20,000 - \$30,000 (24%)
- o has been a resident of the state for 20-29 years (23%)
- o is Caucasian (91%)

For the residents surveyed who regularly participated in hunting, trapping, fishing, and operating off-road vehicles, the median education level was a high school diploma rather than some college education as with the other activities. The median income for participants using walking, jogging, and bicycling trails, and sailboats and sailboards was slightly higher than other activities (\$30,000-\$40,000).

The activity days per year was highest for walking, jogging and bicycling trails. The urban concentration of people is a major factor impacting participation rates. The Northeast (Region 2) portion of the state demonstrated a significantly higher rate of participation in walking, jogging, and using bicycling trails than other parts of the state.

At the national level, Americans are increasing their trail activities as reported in the 1982-1983 Nationwide Recreation Survey. Walking for pleasure is the most popular trail activity with more than half of the population participating. One-

third participate in bicycling and a quarter participate in running or jogging. Because of this demand for trail oriented activities, the KDWP has initiated a goal to develop, maintain, and enhance trail opportunities for recreation, education, tourism, wildlife habitat, and cultural and historic preservation. As of 1989, the Land and Water Conservation Fund (LWCF) has provided a total of \$40 million for land acquisition and project development in Kansas. With this fund, 9,176 acres of land have been protected for recreational purposes. Federal funding of the LWCF declined dramatically during the 1980's; the apportionment for Kansas was \$4.5 million in 1979 but decreased to \$211,744 in 1990.

Modern Maturity Magazine conducted a study in 1987 that "measured the values and behavior patterns of the over-50s and the generation of 39-to-49-year-olds, who are the next wave of mature Americans." The findings from the survey included:

a. The over-50 group strongly supports attitudes relating to one's health and appearance which is no different from the generation of 39-49 year olds;

b. 41 percent of those 50 years and over exercise regularly and 56 percent participate in sports or physical activities on a regular basis. Of those participating in activities on a regular basis, 76 percent enjoyed walking for fitness;

c. In some self-improvement/enrichment areas, men and women 50 and over were more active than those aged 39-49.

Figure II-5 illustrates the five (5) administrative regions designated by the Kansas Department of Wildlife and Parks. Region 2 contains 43 percent of the total state's population and is one of the most urban areas of the state. Region 4 is the second most urban area and is home to 27 percent of the state's population. Perry Lake (Jefferson County) is located in Region 2.

Figure II-5. Administrative Regions of the Kansas Department of Wildlife & Parks

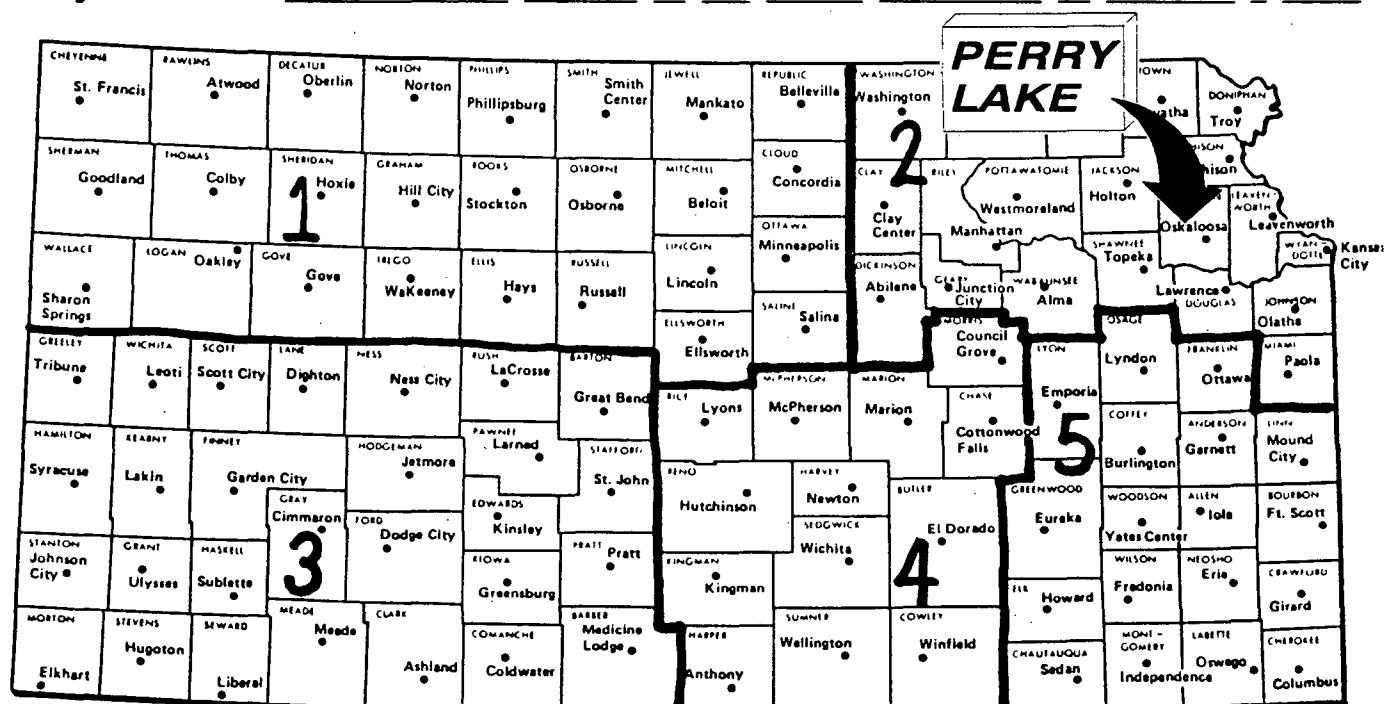


Table II-11 compares the participation rates of Kansas residents between the statewide rate and the regional participation rate for Region 2 (Perry Lake) as determined by the Kansas Outdoor Recreation Survey, 1989.

Table II-11. Statewide and Regional Participation Rates of Kansas Residents

<u>Activity</u>	<u>State-wide rate</u>	<u>Region 2 rate</u>
Wildlife observation	57 %	58 %
Day use activities (state parks)	47	51
Fishing	39	35
Trails (walking, bicycle, jogging)	37	44
Power boating	24	26
Camping - developed	22	21
Camping - primitive	16	16
Hunting	17	12
ORV trails	9	8
Trails (hiking, backpacking)	9	11
Sailboats, sailboards	6	7
Trails - horse	6	5
Canoes, kayaks, rafts	5	5

Table II-12 compares the 1989 Kansas Outdoor Recreation Survey with other national recreation surveys conducted by various agencies.

Because watching wildlife is amazingly widespread and quite popular with all groups, a new nationwide "Watchable Wildlife" program will make observing, studying, or photographing wildlife much easier. Twelve (12) conservation groups and government agencies have signed an official memorandum of understanding (MOU) marking the start of the National Watchable Wildlife Program. The program will:

- provide enhanced opportunities to enjoy wildlife on government lands;
- promote learning about wildlife and its habitat needs;
- enhance federal and state wildlife conservation programs;
- help protect wildlife habitat and prevent depletion of any fish and wildlife species.

The program is designed to include a nationwide system of wildlife viewing sites on federal and state land, special road signs for viewing areas, and the publication of state viewing guide books. The agencies and organizations which signed the Watchable Wildlife MOU include:

- |                             |   |
|-----------------------------|---|
| ▪ Defenders of Wildlife     | ▪ Izaak Walton League of America                          |
| ▪ National Audubon Society  | ▪ National Wildlife Federation                            |
| ▪ Bureau of Land Management | ▪ National Park Service                                   |
| ▪ Bureau of Reclamation     | ▪ Air Force   |
| ▪ Corps of Engineers        | ▪ Navy  |
| ▪ U.S. Forest Service       | ▪ International Association of Fish and Wildlife Agencies |

Table II-12. Comparison of the 1989 Kansas Outdoor Recreation Survey With Other Recreation Surveys

<u>Activity</u>	<u>1989 Kansas Outdoor Recreation Survey 1</u>	<u>1985 National Hunting, Fishing, &amp; Wildlife Associated Recreation Kansas 2</u>	<u>1982-83 Nationwide Recreation Survey 3</u>
Hunting	16.8 percent	10.8 percent	12.0 percent
Fishing	38.8	25.8	34.0
Trapping	1.1		
Wildlife observation	57.0	65.2	
Camping - developed	21.5		17.0
Camping - primitive	16.3		10.0
Day Use activities	46.7		
Hiking, Back-packing trails	8.8		14.0 backpacking 5.0 day hiking
Horse trails	5.8		9.0
Off-road vehicle trails	9.4		11.0
Walking, jogging, bicycling trails	36.8		57.0 walking 26.0 jogging 32.0 bicycling
Power boating	24.3		19.9 motorboat 9.0 waterskiing 6.0 other
Sailing	5.8		6.0
Canoeing	5.1		8.0

Sources:

- 1 Kansas Department of Wildlife and Parks, 1989
- 2 U.S. Department of the Interior, 1989
- 3 U.S. Department of the Interior, 1986

According to the U.S. Fish and Wildlife Service, approximately 93.2 million Americans participated in some form of wildlife viewing as a recreational activity in 1980. By 1985, the number had increased to 134.7 million, a 69 percent increase.

It becomes apparent that observing wildlife is not only a regional interest, but also one of national importance. Although there are no specific wildlife observation areas nor special structures that facilitate viewing at Perry Lake, the various agencies at the lake are managing the base resources to improve the existing habitat in an effort to increase wildlife. Converting cropland to native grass provides a good, stable habitat that will not only support a diversity of wildlife, but will also help protect the highly erodible soil base

found in the area. The numerous marshes and wetlands around the lake provide valuable aquatic habitat in addition to waterfowl viewing areas. The large wildlife refuges also enhance the abundance of wildlife that exists at the project. Similar to the refuges, hunting is prohibited in all the public parks. This encourages visitors to tour the parks in anticipation of observing wildlife. Over the years, project personnel have created diverse habitats that are beneficial to wildlife. The public, realizing these efforts enhance wildlife viewing opportunities, become involved in non-consumptive activities.

Recognizing that "watching wildlife" is a regional and national interest, the Corps will provide specific opportunities for the public to observe wildlife, such as viewing blinds, marsh boardwalks, and nature trails.

## 2-9. Project Visitation

Beginning in 1987, the visitation computation program began using survey data collected in 1982. Previously, the data used to compute visitation statistics were from the 1976 visitation survey. These updated survey data changed some of the specifications (e.g., load factors, distribution factors, re-entry data, etc.) used in calculating the visitation figures. These changes account for the seemingly drastic decline in visitation beginning in 1988 as shown in Table II-13. The low visitation figure for 1989 is probably attributed to the severe drought and subsequent low lake elevations that affected the state of Kansas and Perry Lake. During 1990, the lake elevation was stable throughout the recreation season and visitation increased.

Based on the State of Kansas' relatively slow rate of growth (4.8 %) and the past visitation of Perry Lake, it is projected that the future visitation for the lake will be approximately 1.36 million recreation days.

Table II-13. Visitation 1980-1990  
Recreation Days

<u>Year</u>	<u>Visitation</u>	
	<u>Recreation Days</u>	<u>Visitor Hours</u>
1980	1,683,000	N/A
1981	1,396,400	N/A
1982	1,667,700	N/A
1983	1,628,800	N/A
1984	1,353,100	N/A
1985	1,375,300	N/A
1986	1,552,100	N/A
1987	1,133,200	9,608,000
1988	1,057,100	6,160,400
1989	702,850	4,681,900
1990	764,000	4,784,000
	-----	-----
Average	1,301,200	6,308,600

Table II-14 illustrates that the visitation pressure at Perry Lake is quite uniform during the late spring and early summer months -- May, June, and July. During the two late summer months (August and September), visitation tends to drop off as the weather turns hotter, fishing successes decline, vacations end, and schools begin their new year session.



Table II-14. Average Monthly Visitation  
Recreation Days 1980-1990

<u>Month</u>	<u>Visitation</u>	<u>Percent of Total</u>
January	19,460	1.5 %
February	22,340	1.7
March	48,140	3.7
April	111,150	8.6
May	236,560	18.2 *
June	216,260	16.6
July	216,740	16.7
August	174,950	13.5
September	134,630	10.3
October	63,060	4.8
November	36,900	2.8
December	20,960	1.6
Total	1,301,150	100.0 %

\* peak month - May

As illustrated in Table II-15, Perry Park experiences one of the highest percentages of visitation for the Corps managed parks; however, it has one of the least developed camping areas. Slough Creek and Rock Creek rank close behind Perry Park in terms of visitation. When comparing recreation user fees collected in the various parks, it becomes obvious that campers generally utilize the camping facilities in Slough Creek. The high visitation figures for Perry Park can be attributed to day users taking advantage of the recreational opportunities found at the marina, beach, picnicking units, playground, and boat ramp, as well as enjoying the scenic drive through the park. A small percentage of the visitation is attributed to campers.

Table II-15. Recreation User Fees and Visitor Hours

<u>Parks</u>	<u>Recreation User Fees</u>				<u>Visitor Hours</u>			
	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
Perry State Park \$	N/A	48,653	46,323	49,809	736,000	1,478,900	997,560	1,113,770
Longview	4,922	4,450	3,861	5,279	257,550	168,400	175,830	149,500
Old Town	7,666	8,816	10,179	11,541	988,000	307,640	270,300	410,200
Outlet	*	*	*	*	322,200	188,400	96,100	109,550
Perry Park	**	**	3,484	3,247	764,400	757,600	687,500	528,700
Rock Creek	12,139	16,199	14,722	18,986	2,513,250	527,200	484,900	420,900
Slough Creek	26,588	32,703	32,593	36,457	2,105,500	586,140	604,450	411,500
Thompsonville ***	30	90	80	30	72,100	77,950	88,850	87,200
Old Military Trail	825	1,595	1,180	860	144,200	326,650	170,900	130,000
Other,					3,010,839	1,830,751	1,387,200	1,413,535
Totals \$		112,506	112,422	126,209	10,914,039	6,249,631	4,963,590	4,774,855

\* free campground

\*\* no fees collected during these years

\*\*\* reservable shelter only (no camping allowed)

Slough Creek benefited from a recent major campground renovation that improved and expanded the camping facilities in the park. The addition of electrical hookups and renovation of individual camping units continue to enhance the popularity of the area. When the planned development and renovation activities in Rock Creek and Longview Parks are completed, these parks will probably also receive increased visitation as well as increased income from the collection of recreation user fees.

The visitation figures for Rock Creek Park and Slough Creek Park in 1987 seem to be completely unrealistic when compared with the data generated in the following years (1988-1990). The total visitation for Perry Lake during 1987 is inflated not only by the figures for Rock Creek and Slough Creek, but also due to the fact that Paradise Point and Sunset Ridge Parks were closed following the summer recreation season in 1987.

## 2-10. Mineral and Timber Resources.

Prior to construction of the lake, most of the project land was used for agriculture. The only significant pre-project exploitation of timber or mineral resources was the extraction of limestone for crushed rock. There are at least three (3) quarry sites on project lands, but none provide safe recreational opportunities. The timber resources are fairly extensive, but generally acknowledged as being not of commercial quality. Table II-16 illustrates the mineral activity found in the counties around the lake project.

Table II-16. Kansas Oil, Gas, and Nonfuel Mineral Production, 1988

<u>County</u>	<u>Barrels</u> <u>(oil)</u>	<u>Million Cubic Feet</u> <u>(gas)</u>	<u>Nonfuel</u> <u>Mineral</u>
Atchison	----	----	----
Douglas	77,000	----	sand & gravel
Jackson	6,000	----	sand & gravel
Jefferson	83,000	808	----
Johnson	161,000	248	sand & gravel
Leavenworth	247,000	3,209	----
Shawnee	----	----	sand & gravel
Wyandotte	----	4	cement, sand & gravel

## 2-11. Ecological Resources.

Perry Lake is located in the tallgrass prairie/oak-history forest mosaic region. Little of the project can be classified as prairie since most of the land has been converted either to cropland or pasture land containing brome, fescue, orchardgrass, and other cool season grasses.

## 2-12. Public Relations and Interpretive Opportunities.

Press releases from the project office are used to inform the public of changes in park management policies, potential safety concerns and problems, and special recreation and interpretive opportunities. The Lake Perry Association, dormant for a number of years, has become active once again. Although assembled for purely commercial reasons, the association has the potential to promote the lake, thereby increasing visitation to the lake.

Signs, bulletin boards, and brochures represent the predominant interpretive methods used. The exhibits in the administration building have been completed and provide static interpretive opportunities. The displays in the visitor center are designed to be semi-permanent or temporary in nature to allow for changes in the photographs, drawings and artifacts. Future interpretive opportunities include the development of nature trails, amphitheaters and increased interpretive signage in the parks. Utilizing volunteer interpreters to conduct amphitheater programs, guided nature walks, and interpretive group activities will be persued.

A driving tour will be prepared which will focus on not only the historic sites which are significant in the historic development of the area, but important and interesting natural resource sites around the lake, such as the largest cottonwood tree in Kansas, the numerous wetland areas, and the progression of the delta.

The interpretive appendix in the OMP discusses interpretive media choices which change frequently due to shifts in priorities and advances in media technology.

#### 2-13. Habitat Types.

Perry Lake has a variety of habitat types and an abundance of edge habitat. The large number of smalls fields creates an abundance of quality edge habitat. Mechanical (structural) soil conservation practices are not economical alternatives within the agricultural leasing program. The major habitat types are:

- o upland deciduous forest (oak/hickory association)
- o riparian forest (cottonwood/willow/elm/ash association)
- o tallgrass prairie
- o cool season grass fields and meadows
- o old fields (brushy areas characterized by weeds and young trees)
- o coniferous stands (the old tree nurseries)
- o marshes (constructed by the state) and old pond sites
- o lake and stream
- o ponds
- o mud flats and natural beaches
- o mixture of all the above

#### 2-14. Wetlands.

Kansas wetlands play a major role within the Central Flyway by providing crucial waterfowl wintering areas for more than 27 percent of the flyway's mallard population and 9 percent of its Canada geese. Nineteen of Kansas' 46 listed threatened or endangered species, including six federally listed species (bald eagle, eskimo curlew, least tern, peregrine falcon, whooping crane, and piping plover), are closely dependent upon wetland ecosystems for part of their life requirements.

Kansas wetlands have a significant socioeconomic value as an important outdoor recreation resource. Nationally, 26 percent of all sport hunting and 28 percent of all wildlife viewing occurred on wetlands. In Kansas, seven percent of all fishing occurs on natural lakes and ponds which includes wetlands. Wetlands also support a variety of other outdoor recreation experiences, and are an important component of community open-space, historical, archaeological and other site preservation programs.

The Kansas Department of Wildlife and Parks (KDWP) have established fourteen (14) marshes on their licensed land that encompass 1,150 acres. There are small wetlands located around the project where old ponds have silted in and lake backwaters have created marshy conditions that support hydrophilic plant communities.

Three (3) of these existing wetlands will also be used as experimental sites under the Wetlands Research Program to study water quality and the effectiveness of wetlands to filter out chemicals (specifically atrazine) from waters passing through the system. Preliminary soil samples were taken in August 1991. Additional soil samples will be collected and analyzed periodically over the next two years.

In accordance with the Water Resources Development Act of 1990 (Public Law 101-640), (WRDA) the Corps will submit a proposal to Waterways Experiment Station (WES) for the consideration of funding a wetland site near Paradise Point. WES is authorized by the Energy and Water Development Appropriation Act of 1991 (Public Law 101-514) to conduct a Wetland Research Program and to expend funds for research and development. The development of this wetland habitat is consistent with the goals and objectives of the North American Waterfowl Management Plan.

#### 2-15. Wildlife

The project has abundant wildlife resources supported by diverse habitats. Among resident game species, white-tailed deer, quail, and turkey populations are excellent. Pheasant populations are improving and a ruffed grouse introduction program is in the planning stages. The furbearer populations are strong with red fox and bobcat making comebacks after populations were depleted by disease several years ago.

Non-game wildlife populations are equally impressive with the Kansas Herpetological Society filing new records of reptiles and amphibians on a regular basis. The bird populations are excellent and the diversity identified in Jefferson County equals the best counties in the state, including famed bird habitats such as Cheyenne Bottoms and Quivira National Wildlife Refuge.

#### 2-16. Threatened and Endangered Species.

Table II-17 illustrates the threatened and endangered species that have been linked with Jefferson County as current, probable ranges.

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Table II-17. Federally Listed  
Threatened and Endangered Species  
Jefferson County

<u>Birds</u>		<u>Fish</u>		<u>Reptiles</u>	
Bald Eagle	(E)	Chestnut lamprey	(T)	Northern redbelly snake	(T)
Whooping crane	(E)	Flathead chub	(T)	Western earth snake	(T)
Peregrine falcon	(E)				
Least tern	(E)				
Piping plover	(T)				
Snowy plover	(T)				

Bald eagles winter at Perry Lake in substantial numbers and sightings have occurred from mid-September until mid-May. Peregrine falcons are regular, low density fall migrants through the area. They rarely winter at the lake and are occasional spring migrants. Piping plovers utilize the lake shore and marsh edges for resting and feeding opportunities during their spring migrations. Their increased use of the lake was especially notable in 1988 and 1989 when drought conditions exposed large areas of mud flats. Least terns are seen occasionally at the lake and several pairs remained well into the summer in 1982, 1983, and 1984, past the normal nesting dates which led to speculations about possible nesting activity. Thompson and Ely's book, Birds in Kansas lists Jefferson County as one where whooping crane sightings have been confirmed.

The state and federal agencies that manage the public lands around Perry Lake have established the goal of maintaining and improving threatened and endangered (T&E) wildlife species and their habitats.

## 2-17. Real Estate.

a. Acquisition. The Perry Lake project contains 39,338.5 acres of fee land and 3,449.2 acres of easement land for a total acquisition of 42,787.7 acres of land.

b. Leases. Forty-eight (48) leases at Perry Lake have been issued to various agencies and organizations to manage and operate portions of the project. These leases provide additional recreational opportunities. The grantees are listed in Table II-18.

Table II-18. Real Estate Leases

<u>Instrument</u>	<u>Grantee</u>	<u>Acreage</u>	<u>Term of Agreement</u>
Leases (2)	Kansas Department of Wildlife & Parks	1,597	25 years
Lease	Lake Perry Yacht and Marina	46	25 years
Lease	Menninger Foundation	43	25 years
Lease	City of Ozawie	118	5 years
Lease	Perry Yacht Club	32	20 years
Lease	Rock Creek Marina	194	25 years
Lease	Topeka Audubon	232	5 years
Lease	USD 501	91	20 years
Lease	USD 345	104	25 years
Lease	City of Valley Falls	197	20 years
Leases	37 agricultural leases	6,678	

c. Easements. An easement is a right-of-use which one party has on the lands of another party. Rights-of-way for roads, pipelines, buried cables, and overhead utility lines are the most frequent easement requests across public lands. As of January 1991, sixty-two (62) easements existed at the project. Forty-seven (47) easements were for utility properties (telephone lines; electric lines; and water, gas, and sewer pipelines); eleven (11) easements for road right-of-ways; one (1) for a well site; one (1) easement for a railroad right-of-way; one (1) easement for a low water crossing; and one (1) easement has been provided to the Hickory Acres Dockowners for a road and stairway right-of-way.

d. Licenses. A license grants authority to enter or use another's land or property without possessing estate in it. It is revocable. Action without a license constitutes trespassing. Table II-19 lists the licenses issued at Perry Lake.

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Table II-19. Real Estate Licenses

<u>Instrument</u>	<u>Grantee</u>	<u>Acreage</u>
License	Kansas Department Wildlife & Parks	10,984
Licenses	10 for assorted rights-of-way	
License	Kansas National Guard	
License	Lakewood Hills boat ramp & parking area	1.2
Licenses (2)	Jefferson County Rural Water District ground water exploration	345.4
License	Indian Ridge boat ramp & parking area	.6
Licenses (2)	Jefferson County	

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2-18. Kansas Department of Wildlife and Parks Management Plan - Perry Lake

The Kansas Department of Wildlife and Parks (KDWP) manages and maintains 10,984 acres of land under a license agreement for wildlife management activities. These acres are broken down into the following categories:

a. grasslands	2,600 acres
b. cropland	2,957
c. timber	1,850
d. marsh	1,150
e. other	2,427
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Total	10,984 acres

Over 60 percent of the 10,984 acres of land is in permanent wildlife habitat. The most important concern facing Kansas wildlife is the quality and quantity of available habitat and the KDWP management plan addresses this concern. There is significant potential for enhancement and management of upland game, waterfowl, and non-game species for non-consumptive uses. The reduction of quality and quantity habitat has been identified by KDWP as a problem affecting all terrestrial wildlife. The following activities will be implemented to affect successional progression and improve wildlife cover and diversity:

- o prescribed burning of grass and weed areas;
- o timber management;
- o brush pile construction;
- o planting and maintenance of shrub sites and native grasses; and
- o planting and maintenance of food plots.

Areas of permanent native vegetation are important as wildlife is dependent on lasting and diverse vegetative cover.

The Kansas Department of Wildlife and Parks has management control of 0.6 percent of the state's area. Their land acquisition goal is to increase its land holdings by a minimum of one (1) percent within the next 20 years. Kansas' recreation and wildlife land holdings are modest in comparison to neighboring states (see Table II-20).

Table II-20. Comparison of Land Holdings Between States

<u>State</u>	<u>Acres</u> <u>(million)</u>	<u>Population</u> <u>(million)</u>	<u>Acres</u> <u>Managed *</u>	<u>% of</u> <u>state</u>	<u>Recreational</u> <u>Acres/Capita</u>
Missouri	44.60	4.92	910,000	2.04	.18
Oklahoma	44.75	3.03	897,456	2.01	.30
Colorado	66.72	2.89	** 585,000	0.88	.20
Kansas	52.52	2.36	321,687	0.61	.14
Nebraska	49.43	1.57	250,780	0.51	.16

\* includes wildlife, fisheries, and park lands

\*\* excludes most federal lands

The average portion of the four adjoining states' land areas under similar agency management is 1.36 percent. Kansas ranks last among regional states regarding recreational acres per capita. Nebraska Game and Parks is the only agency that manages a lesser portion of its state land than Kansas.

## 2-19. Historic Properties

a. Previous Investigations. Initial historic property investigations began at Perry Lake in 1962 by Mr. Tom Witty, Kansas State Historical Society, under a purchase order with the National Park Service. Subsequent investigations were also funded by the National Park Service. Beginning in 1976, the Kansas City District Corps of Engineers funded investigations for approximately 10 percent of project lands. As a result of this work, 220 sites were identified on project land. Additional surveys have been conducted on project lands and more than 10 percent of the land has actually been surveyed. However, accurate maps are not available which identify the total percentage of project land that has been surveyed.

Table II-21 chronicles historic preservation investigations at the lake project and Table II-22 lists the reports resulting from this work.

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Table II-21. Historic Property Investigations

<u>Year</u>	<u>Institution</u>	<u>Investigation</u>
1962	Kansas State Historical Society	Survey and identification of 36 sites
1964	Kansas State Historical Society	Excavation of 4 sites
1965	University of Kansas	Testing of 3 mounds
1965	University of Kansas	Testing of 7 sites
1967	Kansas State Historical Society	Testing of 3 sites
1975	Kansas State Historical Society	Survey and identification of 1 site
1977	Kansas State Historical Society	Survey and identification of 2 sites
1979	Kansas State Historical Society	Survey, identification of 9 sites, evaluation of 5 sites
1985	Environmental Systems Analysis	Survey, identification of 23 sites, evaluation of 3 sites
1988	Kaw Valley Engineering	Evaluation of 17 sites

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Table II-22. Historic Property Reports Relating To  
Perry Lake, Kansas

Witty, T.A., Jr.

1964 Appraisal of the Archeological Resources of the Perry Reservoir, Jefferson County, Kansas. Report to the National Park Service.

Bass, W.M., D. McWilliams, and B.A. Jones

1965 Archeological Investigations at Five Sites in Lyon, Jefferson, and Phillips Counties, Kansas. Report to the National Park Service.

Jones, B.A.

1968 Archeological Investigations in the Perry Reservoir, Jefferson County, Kansas, 1965. Report to the National Park Service.

Jones, B.A.

1976 Phase II Archeological Survey of Perry Lake Road Improvements 1 & 2, Jefferson County, Kansas. Report to the Kansas City District Corps of Engineers.

LeeDecker, C.H., T.C. Fahey, et al.

1977 Preliminary Management Plan for Cultural Resources, Perry Lake. Report to the Kansas City District Corps of Engineers.

Jones, B.A.

1978 Phase II Archeological Survey of Perry Lake Road Improvement 3, Jefferson County, Kansas. Report to the Kansas City District Corps of Engineers.

Reynolds, J.D.

1979 Archeological Investigations at the Malm, Anderson and Teaford Sites in Perry Reservoir, Jefferson County, Kansas. Report to the National Park Service.

Witty, T.A., Jr.

1982 Cultural Resources Sample Survey of Shoreline Areas, Perry Lake, Delaware River, Kansas. Report to the Kansas City District Corps of Engineers.

Witty, T.A., Jr.

983 Four Archeological Sites of Perry Lake, Kansas. Report to the National Park Service.

Schmits, L.J.

1987 Archeological Survey and Testing at Perry Lake, Jefferson County, Kansas. Report to the Kansas City District Corps of Engineers.

Logan, B.

1989 Archaeological Investigations in the Perry Lake Area, Northeastern Kansas National Register Evaluation of 17 Sites. Report to the Kansas City District Corps of Engineers.

b. Future Historic Property Work. The following work items are recommended for the Perry Lake historic property program:

1. Conduct a historic sites survey of project lands. This survey will include an inventory of both the historic Indian occupations of the area and the Euro-American settlements.

2. Continue the protection recommendations as set forth in the 12 March 1990 Memorandum for sites 14JF420, 423, 448, and 449 (Memorandum contained in the Perry Lake Operational Management Plan).

3. Nominate to the National Register of Historic Places those sites recommended in the report entitled: Archaeological Investigations in the Perry Lake Project Area, Northeastern Kansas National Register Evaluation of 17 Sites.

4. Conduct a prehistoric systematic survey in high impact areas including: shoreline, public use areas and lands leased for agricultural activities.

5. Implement restoration and protection strategies for the four identified graves located on project lands in Tracts 935 and 930.

6. Nominate to the National Register of Historic Places the Cedar Creek Marsh Arch Bridge located on project lands on Old Highway 16. The structure is already listed on the Kansas Register of Historic Places, but was inadvertently not included on the thematic nomination of Kansas Marsh Arch bridges to the National Register.

7. Implement a volunteer program for interested parties to report on vandalism and condition of historic properties at the project.

8. Numerous sites were identified in the 1960's and 70's on project lands with recommendations made to evaluate and preserve many of these resources. A re-examination of these recommendations should be made by implementing a program designed to determine the present status of these sites. If sites are still extant, than a testing program should be initiated to determine their significance.

9. Continue to persue funding for additional surveying and testing as it is recognized that historical property site losses are occurring along the shoreline due to erosion.

d. Inter and Intra Office Coordination. A District Office archeologist will conduct and coordinate all compliance activities with the Keeper, National Register of Historic Places; Director, Advisory Council for Historic Preservation; and the Kansas State Historic Preservation Office. Planning Division historic property personnel will be requested for assistance in these matters when necessary. A District Office archeologist will also meet with the project's Historic Property Field Coordinator in the beginning of a new fiscal year to discuss and plan the implementation of the historic property program at the project.

e. Protection of Historic Properties. Caution will be used during project related activities to avoid alteration or destruction of any historic property. The effect of these activities on project resources will be considered during the operational planning stage. For some routine activities, such as seeding or camp

pad resurfacing, monitoring by the Historic Property Field Coordinator will suffice. The decision on the level of study required will be made by the Operations Division archeologist in consultation with the field office. For more extensive ground disturbing activities, a historic property survey will be undertaken by a District Office archeologist and the Historic Property Field Coordinator or by contract labor.

### III. COORDINATION WITH OTHER AGENCIES AND ENTITIES

#### 3-1. General

In accordance with ER 1135-2-435, in-house, interagency, congressional, and public input was solicited. The comments and recommendations received from Federal, state, municipalities, organizations, and individuals follow.

#### 3-2. Federal Agency.

a. The Soil Conservation Service suggested that the master plan (quote) "be integrated with the state water planning process. The Lake Perry watershed is an extensive area that has significant problems that need to be addressed." Problems, existing actions, and future needs are elements of the plan that the SCS felt needed to be addressed.

b. The Environmental Protection Agency (EPA) suggested that the Corps continue efforts to work with the state agriculture and environmental agencies to arrive at a long term solution to the issue of excessive levels of several pesticides, including atrazine, in the water at Perry Lake.

#### Response.

The Corps genuinely supports the various agencies and organizations in their control of pesticides and their pesticide monitoring programs. Since much of the lake watershed is not located on project lands, demonstrating support to the agencies that have jurisdictional authority is warranted. On cultivation areas that are located on highly erodible project lands, cool and native warm season grasses are being sown to reduce erosion, sedimentation, and chemical pollution of the lake. The amount of land at the project utilized in agricultural crop activity will be decreased to help deter erosion, sedimentation, and water pollution. This decrease in croplands should result in reduced chemical application, water pollution and soil erosion. The agricultural crop production program will continue on lands that are not classified as highly erodible. The program will also continue to provide benefits for wildlife. Although the total amount of project land involved in cultivation practices is insignificant when compared to the entire drainage basin, measures are being taken to rectify the stated problems on project land.

#### 3-3. State Agencies.

a. The Kansas Water Office emphasized the need to consider water quality monitoring and appropriate action plans to protect visitors and recreational usage of the lake. They identified two potential sources that they felt needed to be considered in the plan. First, natural inflows to the lake could bring in contaminants. Second, many of the housing developments around the lake discharge treated sewage under the lake surface or to small streams which then discharge directly into the lake.

#### Response.

Perry Lake undergoes significant and extensive water quality monitoring by the Water Quality Unit, Kansas City District Office. The information obtained from the analysis is widely shared with various state and Federal agencies. Water samples are sent to the Missouri River Division laboratories for additional

analysis. Investigations are being conducted to decide how to filter out certain contaminants, namely atrazine. Alachlor is also being closely monitored. Although the level of alachlor found in water samples does not currently exceed the EPA standards, it is nearing the point of exceeding the recommended levels.

b. The Kansas Biological Survey contributed information concerning rare and threatened species that occur at Perry Lake. In the Big Slough Creek area is the western earth snake; in the Little Slough Creek area, both the western earth snake and northern redbelly snake can be found; and in the Valley Falls area, the western earth snake is found. The habitat of both snakes is native woodland and woodland edge. Perry Lake contains considerable amounts of good quality oak woodland, particularly on north facing slopes.

Response.

In cooperation with the Kansas Biological Survey, the Corps will coordinate environmental activities in an attempt to protect the critical habitat for these threatened wildlife species. A habitat management plan for the rare and threatened species found at the project will be formulated in the Operation Management Plan (OMP).

c. The Kansas State Historical Society will comment on the archeological and historical resources that are present in the Perry Lake project area during the preparation of the Historic Properties Management Plan for Perry Lake that is currently being revised.

d. The Kansas Department of Health and Environment, Bureau of Environmental Quality was primarily concerned with issues that would relate to water supply and non-point source pollution within Perry Lake and its watershed. Their biggest concern was the high rate of non-point loading of sediment, nutrients, and pesticides from the watershed. They felt the master plan should reflect the control of non-point source pollution to the extent possible under the jurisdiction of the Corps by:

1. restricting or reducing the use of atrazine and fertilizers on Corps land leased to farmers;
2. considering the discontinuance of all cultivation of Corps land which is flooded periodically; and
3. making the control of construction run-off a high priority for any upgrading of recreational facilities at the lake.

Response.

1. Restricting or reducing the use of atrazine and fertilizers on Corps land leased to area farmers is currently being accomplished.

2. Numerous cultivation areas on highly erodible land have been discontinued and removed from the agricultural leasing program. The elimination of additional lands from cultivation practices will continue.

3. Sound soil and water conservation practices will be implemented in an attempt to control surface run-off and erosion. When practical, vegetation will be established after construction has been completed with the use of

temporary, fast growing cover crops. At major construction sites, temporary water and sediment control basins will be established immediately downstream of the construction area. Disturbance at construction sites will be limited to those areas subject to immediate construction efforts. The selection of desirable cultivation areas will be established in the Operational Management Plan.

e. The Kansas Department of Wildlife and Parks felt that the following items were pertinent to the project:

1. Emphasize coordination and collaboration with SCD (the local soil conservation district) and the Kansas Water Plan concerning the protection and/or restoration of riparian zones on and off project lands. Such efforts would do a lot to address the water quality and siltation problems now facing this project.

2. (quote) "In light of the current debate concerning navigation releases from the Missouri River mainstem reservoirs, it should be stated specifically that navigation releases from Kansas projects, particularly Perry, is not a primary function of these projects and should be treated as such. In fact it is recommended that supporting navigation flows in the Missouri River should be deleted entirely for the Perry Project. If this is not to be the case, navigation flows from Perry should be commensurate with its drainage area and storage capacity relative to the other flood control projects that contribute water to the Missouri River system. It should be further stated that for navigation purposes that releases be made only when absolutely necessary, should never exceed 750 cfs, and should be ceased or not started within 45 days of the end of the navigation season." (unquote)

3. Establish as policy the inclusion and implementation of Best Management Practices (BMP) for all habitat types on the Perry project lands under Corps management control.

4. Place special emphasis on wetlands development for the benefit of wildlife and/or wastewater treatment. Such efforts could serve as demonstration or research projects that could have application beyond project lands.

#### Response.

1. The Corps will work to expand existing riparian corridors as well as emphasize the protection and restoration of riparian zones located along Perry Lake's tributaries. These protected and restored areas will provide beneficial wildlife habitat around the lake.

2. Reservoir releases for project purposes are managed as part of the integrated basin-wide system by the Missouri River Division. During 1990, the lake elevation was drastically affected by several unforeseen events that created emergency actions. First, both Milford Lake and Tuttle Creek Lake were dewatered within weeks of each other. The outflow from these lakes, combined with Perry and others downstream, contribute to the navigational flow needed on the Missouri River. When the outflow from Milford Lake was decreased during their dewatering exercise, Perry Lake was required to make up the difference in flow at the mouth of the Kansas River. Similarly, when the outflow from Tuttle Creek Lake was stopped, Perry Lake was again required to make up the difference in flow. These two requirements occurred during a drought situation which caused additional decreases in the lake elevation. The drought resulted in decreased inflow and the two dewatering exercises created a dramatic increase in outflow which eventually resulted in extremely low lake elevations. For additional information, see paragraph 2-7, page II-10.

3. Best Management Practices (BMP) consist of natural resource management activities identified by the conservation community to be the most effective and cost efficient way to conserve and make wise use of the project's resource base. The policy of utilizing Best Management Practices (BMP) at the project is already in existence. These practices have been, and will continue to be, incorporated in the agricultural leasing program. Soil, water, and natural resource management conservation practices, such as terracing, grassed waterways, contour farming, timber stand improvements, and the creation of diverse wildlife habitat, are being implemented on project croplands, hay fields, and other habitat areas.

4. The Waterways Experiment Station (WES), Vicksburg, Mississippi, is emphasizing this concept of wetlands development for the benefit of wildlife and wastewater treatment. Its Wetland Research Program will be incorporated at numerous wetland sites at the project. Wetlands act as a natural filtration system as well as providing beneficial wildlife habitat. The Corps will continue to work with the Kansas Department of Wildlife and Parks to further develop and enhance more wetland sites. All of these activities will be consistent with the goals and objectives of the North American Waterfowl Management Plan.

#### 3-4. Organizations.

a. The Jefferson County Firefighters Association submitted three suggestions for consideration during the master planning process. All related to the safety and convenience of the visiting public, Corps personnel, and area fire departments.

1. Install compatible storm warning sirens in the most used camping areas around Perry Lake. The Office of Emergency Preparedness and the Association has developed a county wide storm watch network to alert the public to hazardous weather conditions that threaten the area.

2. Post signs on all roads leading to the Corps property stating where fire is and is not allowed.

3. The Corps brochures and maps should include the county road numbers to assist the public in finding their way around the project and county.

b. The comments and recommendations submitted by the Jefferson County Firefighters Association have been seconded by the Jefferson County Emergency Preparedness.

#### Response.

1. The Corps feels this is a valid comment and suggestion. Notification is definitely a courtesy and a safety consideration to campers and boaters in the park areas so they may prepare for bad weather.

2. Posting signs on all the roads leading to the project would not be financially feasible. The rules and regulations, as specified in Title 36, state that fires are to be confined to those areas designated by the District Engineer, and shall be confined in fireplaces, grills, or other facilities designated for this purpose. All visitors are bound by these Title 36 regulations as published in the Code of Federal Regulations. The park ranger personnel enforce this regulation as they patrol the project and attempt to educate the public of the hazards associated with uncontained fires in non-designated areas.

3. The Corps agrees that the brochures and maps should include the county road numbers to assist the public in negotiating the project; however, there is uncertainty within the county regarding the road numbering system. The Jefferson County Firefighters Association works with a road numbering system that is not officially recognized by the county. Until there is an official numbering system in the county, the lake brochures will not include the road numbers.

c. The Kansas All-Terrain Vehicle Association requested that the ATV/motorcycle trail area be expanded to attract more riders. They suggested that the area west of the current riding area be developed for an additional riding area. They also want to incorporate the ATV trail with the camping opportunities offered in the Outlet Area.

Response.

The Corps does not believe there is a need for additional acreage in the current ATV/motorcycle area. The use in the existing area is high, but not excessive. Since containment of off-road vehicles is often a problem, linking the ATV area with the camping area in the Outlet Area is not considered to be a wise management decision. The Area offers camping opportunities that are located within one-half of a mile from the ATV/motorcycle area. Users of this area have reasonable access to overnight camping facilities.

d. The Topeka Public Schools - USD 501 leases an area on the Slough Creek arm of the lake that is used for science based field study in addition to tours of study for special education groups (i.e. deaf, persons with multiple handicaps, etc.). They are anxious to see their area remain one for "wildlife education" purposes. They also complimented the Corps on the fine job of (quote) "maintaining this outstanding recreational and educational area" (unquote).

Response.

The Corps does not plan to make changes concerning the Topeka USD 501 school lease. The Corps does not "maintain" the lease area, but rather manages the area as a portion of the total project through the establishment of the lease instrument. The positive comments and feedback are appreciated.

e. The Kansas Chapter of The Wildlife Society commented and suggested the following:

1. Protect and restore riparian zones on and adjacent to project lands to help address water quality and siltation problems.

2. Make water level management for fish and wildlife a high priority on the lake. Maintaining and improving the fishery is critical to many users and water level planning plays an important part in managing this resource. Releases for navigation in the Missouri River should not be a primary function of Perry Lake and should not take precedence over approved water management plans.

3. Utilize Best Management Practices (BMP) for all habitat types on the Perry Project.

4. Utilize wetlands for wildlife and/or wastewater treatment facilities where possible. These projects can serve as educational, research, and demonstration facilities in addition to their primary function.



Response.

See responses to the Kansas Department of Wildlife and Parks, paragraph 3-3, e.

f. The Sunflower Sod Stompers of Topeka have used Perry Lake on a yearly basis for their volkswalks since 1984. Although the lake has a National Recreation Trail, the organization cannot fully utilize this trail due to the fact that their walking event routes need to be about six (6) miles in length and there are no cross-over trails and/or shorter connecting loop trails. They recommend that the Corps, and possibly the Kansas Trails Council, develop a system of 6-7 mile routes so that the walkers would not have to ask for permission to walk on private lands or use public roadways.

In connection with their volkswalks, covered shelters would be required, in addition to toilet facilities and parking areas. Facilities should be developed so as to handle any group ranging in size from 100-500 persons.

Response.

The group camp area in Longview Park, located adjacent to the National Recreation Trail, will provide a shelter, vault toilet and parking area for the participants of the volkswalks. When future conditions allow, short "spurs" will be constructed to provide walkers and hikers with shorter, circuitous routes.

g. The Kaw Valley Coachmen suggested a group camping area with hookups be developed to accommodate older campers.

Response.

The Corps agrees there is a definite need for electrical hookups in the group camp area. Electricity will be provided at the first camp area in the Old Military Trail Group Camp Area. Water hookups will also be provided to compliment the existing facilities.

h. The Kansas Trails Council, Inc. submitted the following list of recommendations:

1. establish a "hikers campground" at the picnic loop at Longview Park;
2. allow the use of mountain bikes on the Perry Lake Trail;
3. develop a new brochure which features the entire 30-mile loop trail;
4. erect large informational signs near Slough Creek and Old Military Trail in addition to signs along the trail;
5. complete the plans for the requested parking lot;
6. continue clearing and blazing several spur trails to encourage people to utilize the main trail; and
7. continue the written contracts between the Corps and the Council.

Response.

1. The future plans and proposals for Longview Park address their request for a "hiker's campground".
2. Mountain bikes are currently being used at Clinton Lake with informal agreements between the bikers and the Kansas Trails Council. After evaluating the impact the mountain bikes have on the resources at Clinton Lake, the use of mountain bikes on the Perry Lake trail will be considered.
3. An updated brochure will be developed.
4. The trail signs for the trail heads will be included in the project's entire sign plan. The back country signs should be provided by the Trails Council.
5. The parking lot has been completed.
6. These spurs will be designed to connect designated camping areas which will facilitate reaching camping areas by hikers and walkers utilizing the trail. The Corps will provide the signage at the trail head.
7. Project personnel will coordinate the written agreements between the Trails Council and the Corps.
  - i. The Lakewood Hills Board of Directors suggested that an equestrian trail be established on the east side of the lake, "perhaps [near] the abandoned Paradise Point area".

Response.

The Corps does not believe that an additional equestrian trail is required on the project. The existing equestrian trail is not utilized extensively enough to warrant the addition of another facility. The trail is meeting the current demand and provides a quality experience for equestrian riders. When the demand exceeds the capabilities of the existing trail, another trail would be considered on the east side of the lake.

- j. The Seaman Unified School District #345 requested that the Corps continue to provide lease sites to public elementary and secondary schools for educational and recreational purposes.

Response.

The Corps will continue to lease the present site to USD #345 as long as the interest is demonstrated and the land use requirements are met.

3-5. Public Workshop.

A public review of the draft Perry Lake Master Plan was held at the Community Building in Perry, Kansas on April 18, 1991. No formal presentations were made at the meeting; however, representatives from the project office and Operations Division (Kansas City District Office) were available to explain the draft text and plates. Formal and informal comments and recommendations were received. The 36 individuals that attended provided personal, agency, or organization recommendations.

During the thirty (30) days following the public workshop, additional comments, recommendations, and suggestions were received from interested individuals, organizations, and agencies. The following represents a consolidated list of these ideas and comments.

a. The City of Valley Falls proposed that a public golf course, bridle path/hiking trail, and a "reasonable air strip to accommodate the flying public" be provided for public recreation and transportation. Included in the proposal were suggested areas for each activity.

Response.

The Corps has determined that the subject lands surrounding the City of Valley Falls lease are most suitable for wildlife management and has classified the lands and undertaken an agreement with the State of Kansas to assure management to that end. The lands identified in the city's proposal for a public golf course and equestrian trail are currently included in the license held by the Kansas Department of Wildlife and Parks for wildlife management. If these activities were pursued on this land, the restrictions included in their license for the express purpose of fish and wildlife production would be negated. Also involved is mitigation land under the U.S. Fish and Wildlife Coordination Act of 1967. The suggested area for the airport is not on government land and therefore the Corps has no jurisdiction over this area.

b. Following the review of the initial proposals at the public workshop, the Parks and Public Lands Unit Supervisor and the Biologist, Fisheries & Wildlife Division from the Kansas Department of Wildlife and Parks felt that the proposed closure of park areas and roads would severely limit shoreline access and increase competition for the shoreline space that would remain available. They recommended that these areas should remain accessible to vehicular traffic. It was also their recommendation that hunting be allowed within the areas/parks proposed for closure.

Response.

Most of the parks and roads proposed for closure will not be immediately affected. The roads in most areas will continue to accommodate park visitors until they no longer can be safely traveled without costly maintenance. After camping has been eliminated in Perry Park and the northern portion of Old Town Park, limited hunting opportunities will be made available to the public.

c. Several individuals and the Jefferson County Commissioners opposed the closing of the public road in Rock Creek Park. They felt that this road provides one of the best scenic drives along the lake. Another concern was the increased traffic load that would possibly occur on County Road #427 through a semi-residential area. A petition bearing fifteen (15) names was received from this small community near Thompsonville Park. They felt that the increased traffic along the gravel Thompsonville Road would be disruptive to normal life and the proposed road closure would make this county road an "access" road to the lake.

Response.

The justifications for closing the road through Rock Creek Park remain valid -- providing extensive roadway systems for "driving for pleasure" opportunities is not cost-efficient. Also, the most secure and efficient arrangement for park

entrances is via a single point entrance. Single entrances provide better visitor control, increased security and safety for park visitors, decreased vandalism activities, and improved management of the facilities.

The 2 1/2 mile section of road, in addition to being the source of recreational management problems in the area, is expensive to maintain. A periodic asphalt overlay is required as well as day-to-day maintenance of the road surface, road shoulders and ditches, drainage structures and signs. Declining operation and maintenance budgets for lake projects require a continuing Corps effort to identify ways to use project budgets wisely.

The foundation and structural integrity of the road through Rock Creek Park is currently not in jeopardy; however, expensive maintenance activities will be required sometime in the future. Scenic drives which do not access facilities are too expensive to maintain. As with the road through Perry Park, this road will remain open to visitors until the maintenance costs prove prohibitive or the surface deteriorates and no longer provides safe access.

The provision in the master plan for closure of the segment of road in question gives the Corps the needed flexibility to operate the parks according to sound recreation practices and budget limitations.

The drive-through traffic is expected to choose the hard surfaced thoroughfares rather than the gravel surfaced Thompsonville Road. If increased traffic does occur at an unsafe or unacceptable level, closure of the road could be pursued through the Jefferson County Engineer's office.

d. One gentleman recommended that the Corps should improve the dirt boat ramp located in the Outlet by constructing a concrete ramp. He also commented that the proposed changes looked good -- the changes are things that need to be done, including closing seldom used facilities.

Response. The Corps does not believe there is a need nor popular demand for this type of facility on the outlet channel.

e. The Perry Lake Association provided the following recommendations concerning future recreation opportunities at Perry Lake:

1. recommend that the water level be held at a higher level at the beginning of the summer so that the evaporation in August does not take it below the level for good boating;
2. recommend more docking facilities made available to the housing developments around the lake;
3. recommend that gasoline be made available (to boats on the lake) at the north end of the lake (i.e. Highway 92);
4. recommend that the Corps should make an effort to clean up the areas where driftwood, tires, bottles, etc. make for unsightly areas around the shoreline (e.g., "Adopt-a-Shoreline" projects);
5. oppose the closing of the road in Longview Park;
6. oppose the closing of the road through Rock Creek Park;

7. commend the concepts of placing courtesy lights and fish cleaning stations at the boat access areas; and

8. commend the Corps and project personnel for the job they are doing.

Response.

1. In accordance with the water level plan that is prepared following coordination efforts with the Kansas State Water Office, the Kansas Department of Wildlife and Parks, and the Corps, the lake level is held two (2) feet high during the first half of the summer (April, May, and June). During the last half of the summer, the lake is slowly lowered to one (1) foot below multipurpose level to facilitate the establishment of vegetation along the shoreline for waterfowl feeding opportunities in the fall. The drought situations during 1988-1990 have resulted in the lake being lower than the multipurpose level at the beginning of the summer. A drop of even one (1) foot then makes boating and lake access more difficult.

2 - 3. The Corps provides courtesy docks at all boat access areas in the parks. Some docking facilities are found adjacent to subdivisions in conjunction with their boat ramp licenses. Providing docking facilities and selling gasoline to the public is a function that is performed by private marina concessionaires. There are no suitable areas near Highway 92 that would provide a marina concessionaire with a sheltered location. The sediment delta, which will be encroaching on the Highway 92 bridge by the year 2000, also limits the locations available for a marina at the north end of the lake.

4. The park areas are kept well maintained and free of trash and unsightly litter; however, without volunteer assistance, it is almost impossible for the project personnel to keep 160 miles of shoreline clean. If groups are interested in "adopting" a portion of the lake's shoreline, the project will assist in implementing this program. The Corps issues permits to the public for the collection and removal of driftwood from the shoreline.

5. The road in Longview Park was gated to completely separate camping activities from day use activities. Visitors can continue to drive through the camping areas without paying an entrance fee. One small road in Longview Park was closed because its integrity was being threatened by erosion and is no longer safe for park visitors to utilize.

6. See response above concerning the subject of the Rock Creek road.

7 - 8. The Corps appreciates these positive comments.

f. The comments received from the Jefferson County Extension Council Economic Development Committee were almost identical to those received from the Lake Association. They, too, appreciated the work the project personnel do around the lake and commended them for their cooperation. They felt that because the only economic facility in Jefferson County is Perry Lake, some economic value needs to be obtained from this resource.

Response.

See responses above. The Corps agrees that Perry Lake should be instrumental in providing economic value to the county and will cooperate with the local entities in their endeavors to promote the lake.

g. The comments received from one individual were again almost identical to those received from the Lake Association and the Economic Development Committee. The gentleman added these additional recommendations:

1. the Slough Creek road should be kept open and maintained; and
2. the marker buoys around the lake need to be repositioned and painted.

Response.

1. The portion of the Slough Creek road that is proposed for closure is similar to the road in Longview Park in that it is being severely threatened by erosion. The continued placement of rip-rap along the shoreline is too expensive; especially considering there are no facilities that are being threatened by the erosion. The road has already been gated (and partially closed) near the Hickory Ridge tent camping area. The entire road will be closed when it becomes unsafe for vehicular traffic.

2. The Corps agrees that the 88 navigational buoys on the lake are frequently moved out of position by wind and wave action and increased surveillance (for placement and physical condition of the buoys) will be implemented. The Corps attempts to mark the known, man-made obstructions and hazards and any obstruction that is within five (5) feet of multipurpose pool level. Navigating on a fluctuating lake involves an inherent risk that boaters must assume.

h. A petition was received from equestrian clubs and individual users of the equestrian trail. Their petition requested that a water source for their horses be provided along the trail in Rock Creek Park.

Response.

There is water available at the trail head/staging area in Perry State Park, but during the hot, summer months, a source of water is needed at the south end of the trail before they return to the State Park. There is a pond located off the trail near the south end of Rock Creek Park that will be used to water the horses. In accordance with Title 36, horses will not be allowed to cross the road into the development park and water out of the lake.

#### IV. LAND USE ALLOCATIONS AND CLASSIFICATIONS AND WATER USAGE

##### 4-1. Land Use Allocations.

All lands at Perry Lake are allocated in accordance with ER 1130-2-435 and with the authorized purpose for which they were acquired. As of January 1991, the Perry Lake project contained 42,788 acres. All lands acquired at the project are allocated to Operations -- lands acquired in accordance with the authorizing documents for operation of the project (e.g., flood control, recreation, fish and wildlife, and water supply).

##### 4-2. Land Classification.

The allocated lands have been further classified to provide for development and resource management. The classification process refines the land allocations to fully utilize project lands. Public desires, legislative authority, regional and project specific resource requirements and suitability have been considered when defining these project areas. Table IV-1 lists the individual land classifications and the acreage associated with each area at Perry Lake.

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<u>Classification</u>	<u>Acreage</u>
a) Project Operations	349
b) Recreation	5,670
c) Multiple Resource Mgmt.	
1. Recreation - Low Density	10,705
2. Wildlife Mgmt. General	10,984
d) Easement Lands	3,449
e) Water Area	11,631
	-----
Total acquisition	42,788

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The individual classification categories are defined as follows:

a. Project Operations - Lands required for the structure, operations center, administration office, maintenance compound and other areas that are used solely for project operations. One area of 349 acres is in this classification category.

b. Recreation - Land developed for intensive recreational activities by the visiting public, including developed recreation areas and areas for concession, resort, and quasi-public development. Seventeen areas of 5,670 acres are in this classification category.

c. Multiple Resource Management: Lands managed for one or more activities that are compatible with the primary allocation.

1. Recreation - Low Density: Low density recreation activities such as hiking, primitive camping, wildlife observation, hunting, or similar low density recreational activities. Eleven areas of 10,705 acres are in this classification.

2. Wildlife Management General: Lands managed for fish and wildlife management activities. Lands in this classification are licensed to the Kansas Department of Wildlife and Parks. One area of 10,984 acres is in this classification.

d. Easement Lands: All lands for which the Corps holds an easement interest but not fee title. The Corps holds flowage easement interest on 3,449 acres at Perry Lake.

The flowage easement interest estate prohibits any structures, designed for human habitation, from being constructed. The estate does recognize that a landowner, with prior written permission from the District Engineer, may place non-habitable structures on the easement area.

#### 4-3. Land Use Classification Revisions.

Several land use classifications have been revised from the 1983 Perry Lake Master Plan to meet the new ER 1130-2-435 classification system and to refine utilization. The following describes the classification revisions and justifications for these changes.

a. Administration Area (Compartment 1) - From Project Operations to Recreation; from Operations: Recreation - Low Density to Project Operations. In the 1983 master plan, and subsequent utilization reports, the acreage figure for the Administration Area was reported at 290 acres. During this master plan update, the Administration Area was re-planimetered and the acreage increased to 365 acres. This increase reflects the addition of the spillway and rim dike to the classification of Project Operations. A 16-acre portion of this compartment, located below the Administration Area, will be removed from the classification of Project Operations and added to Perry Park (Recreation). This segment contains a group picnic shelter, parking area, and playground that is currently outside the boundary of a designated park. Placing this area within the boundary of Perry Park will more closely reflect the purpose of providing recreational opportunities to visitors.

b. Rock Creek Arm (Compartment 7) - From Operations: Wildlife Management to MRM: Recreation Low Density. In 1982, this portion of the project was targeted to be turned over to the state (Kansas Fish and Game Commission) for operation and maintenance. As time passed and money and manpower in the state agency became scarce, the decision to incorporate this area (as well as the Slough Creek Arm) into their existing license was never realized. Recent discussions with the state (Kansas Department of Wildlife and Parks) have revealed that they have no future plans to increase the acreage currently under lease/license. The agriculture and wildlife management programs will continue to be implemented in this area. Re-classifying this area will broaden the scope of activities that can be accommodated by including low density recreational opportunities, such as hiking or equestrian trails.

c. Grasshopper Area (Compartment 10) - From Operations: Recreation - Intensive Use to MRM: Recreation Low Density. This recreation intensive use group camp area was closed in 1982 during the park closure and consolidation exercise. Most of the support facilities have since been removed and/or relocated to other parks. Since intensive recreational opportunities are no longer available, the classification of recreation low density reflects this change.

d. Sunset Ridge Area (Compartment 15) - From Operations: Recreation - Intensive Use to MRM: Recreation Low Density. This park was closed in 1987 due to low visitation and high cost per visitor ratio. The leading edge of the advancing delta was threatening the recreational opportunities in the area and primarily the boating and fishing access areas. Although the area no longer offers intensive recreational facilities and opportunities, it remains available to provide low density recreational opportunities for lake visitors.



e. Paradise Point Area (Compartment 18) From Operations: Recreation - Intensive Use to MRM: Recreation Low Density. Located across the lake from Sunset Ridge, this area was also closed in 1987 due to low visitation, high cost per visitor ratio, and the presence of the sediment delta. The delta obliterated the boat ramp lanes and made boat access from the ramp impossible. Because this area no longer offers intensive recreational opportunities, the area has been reclassified to recreation low density. As with Sunset Ridge, the area is still available to provide low density recreational opportunities in addition to natural resource management practices and programs.

f. Slough Creek Arm (Compartment 27) From Operations: Wildlife Management to MRM: Recreation Low Density. See Rock Creek Arm justification.

g. Kansas State University (KSU), 4-H Leasehold (Compartment 29) - From Operations: Recreation -Intensive Use to MRM: Recreation Low Density. The KSU, 4-H organization chose not to renew their lease on this area due to financial constraints. The reclassification to recreation low density will allow interested entities the opportunity to lease this area for recreational pursuits.

#### 4-4. Compartment Classification.

All project lands have been classified in one or more of four categories:

- a. Project Operations - 349 acres
- b. Recreation - 5,670 acres
- c. Multiple Resource Management - 21,689 acres
- e. Flowage easement - 3,449 acres

#### 4-5. Water Usage.

a. Water Classification. The Lake Perry Yacht & Marina and Rock Creek Marina have authorization in lease agreements to control specifically identified water acreages within the commercial concession leaseholds. The total marina water acreages contain 84-acres, as indicated in Table IV-2.

The State of Kansas currently has 150,000 acre-feet of water supply storage under contract and is planning to call into service 25,000 acre-feet in the near future.

Table IV-2. Water Acreage Designated Usage

<u>Compartment</u>	<u>Name</u>	<u>Designated Water Acreage</u>
	Waterfowl Refuge	1,298.0 (North refuge)
		3,007.0 (South refuge)
	Marinas	
	Lake Perry Yacht & Marina	29.2
	Rock Creek Marina	54.8
		-----
	Total Marina	84.0
	Project Water Acreage	11,631.0

#### 4-6. Seaplane Landing Consideration

During 1986, the Kansas City District conducted a review and re-evaluation of the seaplane policy. The review was prompted by renewed public interest. As a result of the review, ten (10) lakes will remain closed to seaplane use. The remaining eight (8) lake projects will undergo seaplane use review pending future master plan updates. Perry Lake was included in the list of ten lakes that will remain closed. The criteria used to determine which lake projects would be considered for seaplane usage includes 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. Perry Lake may be large enough to accommodate seaplanes, but the lake's usable acreage is greatly reduced by the presence of project structures, bridges, shallow water areas created by the encroaching delta, standing timber, wildlife refuges, shoreline, and public use areas. These usable acreage figures were then compared to the visitation pressure experienced on weekends. Based on the boating density calculations, it was determined that Perry Lake remain closed to seaplane use.

## V. RESOURCE PLAN

### 5-1. Compartment Classifications.

All project lands have been classified in one or more of five categories:

- a. Project Operations
- b. Recreation
- c. Environmental Sensitive Area
- d. Multiple Resource Management
- e. Flowage Easement

The classification of multiple resource management lands is further divided into subcategories:

- a. Recreation Low Density
- b. Wildlife Management General

The lands at Perry Lake have been classified in accordance with ER 1130-2-435 (Project Operation-Preparation of Master Plans) into 30 individual compartments. The names, classifications, and acreage figures are listed in Table V-1.

Table V-1. Land Classifications and Names

<u>Compartment</u>	<u>Name</u>	<u>Classification</u>	<u>Acreage</u>
1	Administration Area	Project Operations	349
2	Outlet/ATV Area	Recreation	483
3	Borrow Area	* MRM: Recreation Low Density	570
4	Thompsonville Park	Recreation	148
5	Rock Creek Park	Recreation	568
6	Perry State Park	Recreation	1,597
7	Rock Creek Arm	MRM: Recreation Low Density	1,975
8	Menninger Foundation (quasi-public lease)	Recreation	43
9	Rock Creek Marina (commercial lease)	Recreation	194
10	Grasshopper Area	MRM: Recreation Low Density	738
11	Perry Yacht Club (private lease)	Recreation	32

Table V-1. Land Classifications and Names  
(continued)

<u>Compartment</u>	<u>Name</u>	<u>Classification</u>	<u>Acreage</u>
12	USD 345 (quasi-public lease)	Recreation	104
13	Champion Tree Area	MRM: Recreation Low Density	472
14	City of Ozawkie (public park lease)	Recreation	118
15	Sunset Ridge Area	MRM: Recreation Low Density	1,130
16	Perry Wildlife Management	MRM: Wildlife Management	10,984
17	City of Valley Falls (public park lease)	Recreation	197
18	Paradise Point Area	MRM: Recreation Low Density	1,913
19	Old Town Park	Recreation	113
20	Little Slough Creek Arm	MRM: Recreation Low Density	750
21	Topeka Audubon Society (quasi-public lease)	Recreation	232
22	Old Military Trail	Recreation	121
23	Quarry Road Area	MRM: Recreation Low Density	524
24	Longview Park	Recreation	316
25	Hoover Creek Area	MRM: Recreation Low Density	737
26	Slough Creek Park	Recreation	833
27	Slough Creek Arm	MRM: Recreation Low Density	1,195
28	USD 501 (quasi-public lease)	Recreation	91
29	Evans Creek Area	MRM: Recreation Low Density	701
30	Perry Park	Recreation	480

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\* MRM - Multiple Resource Management

5-2. Compartment Descriptions with Resource Objectives.

a. Administration Area - Project Operations (Compartment 1).

Compartment Description:

This 349-acre compartment consists of the dam and spillway area, a tree nursery, two storage areas, the project maintenance compound, residences, and the administration building. The terrain in this compartment is gently rolling with some small, scattered stands of cottonwood and riparian type timber. The area is largely covered with cool season grasses, such as brome and fescue.

The resource objectives for this compartment are to:

1. maintain the integrity of the dam;
2. provide an area for the administrative facilities, maintenance, and operational structures to assure that authorized project purposes will be met;
3. interpret project structures such as the dam and control tower that are of interest to the public through displays, brochures, and slide presentations;
4. provide day use opportunities; and
5. prevent the spread of noxious weeds through chemical and physical management techniques.

b. Outlet/ATV Area - Recreation (Compartment 2).

Compartment Description:

The vegetation in the 483-acre Outlet Park area is mostly brome and fescue with a small area of riparian-type timber on the east side of the river channel. The ATV area is characterized by upland deciduous forest with some re-established prairie grasses located on the west side.

The resource use objectives for this area are to:

1. provide camping opportunities for river fishermen and lake visitors;
2. provide fishing access opportunities;
3. provide an area for off-road vehicle enthusiasts;
4. provide day use opportunities; and
5. provide a buffer between two different land uses.

c. Borrow Area - MRM: Recreation Low Density (Compartment 3).

Compartment Description:

This flat terrain is mainly re-established prairie grasses, with a relatively small area of brome grass near the river. This 570-acre area was disturbed during the construction of the dam as materials needed for construction were obtained from this area.

The resource use objectives for this area are to:

1. slow the woody invasion of old pastures;
2. improve wildlife carrying capacity;
3. provide diverse, native warm season grass stands;
4. provide valuable wetland areas; and
5. provide unstructured recreation opportunities (e.g. hunting, bird watching, fishing, trapping, etc.) in a natural environment.

d. Thompsonville Park - Recreation (Compartment 4).

Compartment Description:

Thompsonville Park is located on the west shore of the lake and borders the dam on the west side. The terrain in this 148-acre area is rugged with steep wooded slopes adjacent to the lake. This area is a fairly even mixture of warm season grasses on the hilltops and upland deciduous timber on the slopes.

The resource use objectives for this compartment are to:

1. provide an opportunity to observe and view the dam and lake;
2. provide opportunities for day use activities;
3. provide non-consumptive wildlife recreational opportunities; and
4. preserve historic properties.

e. Rock Creek Park - Recreation (Compartment 5).

Compartment Description:

Rock Creek Park is located on the west shore of the lake between Thompsonville Park and Perry State Park. The terrain in this 568-acre area varies from clear, rolling slopes near the shoreline to rugged wooded slopes near the project boundary. West of the main road through the park is extensive stands of upland deciduous timber. The open areas throughout the park are a mixture of warm season grass fields and a few cool season grass fields.

The resource use objectives for this compartment are to:

1. provide intensive structured recreation opportunities that can withstand the impact of heavy visitor use;
2. provide overnight camping opportunities for both transient and destination users;
3. provide opportunities for day use activities (e.g., fishing, boating, swimming, picnicking, hiking, playgrounds, etc.);

4. maintain the native woodland forested areas; and

5. when compatible with recreational activities, implement wildlife management practices to improve wildlife habitat as a secondary land use;

f. Perry State Park - Recreation (Compartment 6).

Compartment Description:

Perry State Park is located on the west side of the lake on the Rock Creek arm. This 1,597-acre compartment is divided into two areas by Rock Creek and both sections are licensed to the Kansas Department of Wildlife and Parks for development and operation of recreational activities. The old Delaware Area is almost completely upland deciduous timber while the Jefferson Point Area is a mixture of the same timber and cool season grass stands.

The resource use objectives for this compartment are to:

1. provide an opportunity for equestrian groups to participate in trail ride activities;
2. provide intensive structured recreational opportunities that can withstand the impact of heavy visitor use;
3. provide day use opportunities;
4. provide interpretive programs and presentations; and
5. provide diverse stands of native warm season grass fields to improve wildlife habitat and assist in the prevention of soil erosion.

g. Rock Creek Arm - MRM: Recreation Low Density (Compartment 7).

Compartment Description:

This 1,975-acre area contains a diverse array of vegetative communities. The largest component is land devoted to crop production which supports the wildlife management program. Upland deciduous forests, old fields (with woody and weedy invaders dominating the area), relatively small cool season grass fields, and some small areas with native warm season grasses characterize the area.

The resource use objectives for this area are to:

1. improve wildlife carrying capacity by maintaining extensive edge habitat;
2. prevent woody encroachment on open pastures;
3. maintain a viable deciduous forest;
4. control soil erosion by implementing specific conservation practices on highly erodible croplands;

5. increase the native warm season grass stands to improve wildlife habitat and prevent soil erosion on highly erodible lands; and

6. accommodate and support hiking, hunting, wildlife observation, fishing, trapping, photography, and/or the pursuit of peace and solitude.

h. Menninger Foundation - Recreation (Compartment 8).

Compartment Description:

Located on the Rock Creek arm of the lake, this small leased compartment (43 acres) is characterized by cool season grass fields with segments of upland deciduous woods. This area provides recreation opportunities in the form of a one (1) lane boat ramp and courtesy dock, picnic tables, grills, playground equipment, group picnic shelter with tables and grills, and convenient sanitary facilities. This area is utilized by the personnel and associates of the Menninger Foundation.

The resource use objectives for this compartment are to:

1. provide fishing access, day use opportunities, and group facilities for Menninger Foundation employees and patients.

i. DJ's Rock Creek Marina - Recreation (Compartment 9).

Compartment Description:

The Rock Creek Marina occupies 55 acres on the north side of Rock Creek on the west side of Kansas Highway 237 bridge. The marina is five (5) miles from Rock Creek Park and is adjacent to Perry State Park. The portions of the marina leasehold that are not paved or graveled are cool season grass stands or weedy invaders.

The resource use objectives for this compartment are to:

1. provide project visitors with necessary marina facilities and services;

2. provide boating access opportunities;

3. provide for outdoor activities such as boating, fishing, camping, and sailing; and

4. provide a safe and usable recreation facilities for the public.

j. Grasshopper Area - MRM: Recreation Low Density (Compartment 10).

Compartment Description:

This old group camp area (738 acres) and recreation area contains mostly upland deciduous timber with a small component of weedy, idle fields. The two roads leading to the group camping areas have been gated and closed; the only remaining road deteriorates into a gravel track that leads to the old boat ramp. Rendered unusable by severe erosion and physical damage (breaks, uplifts, cracks, shifts, etc.), the concrete boat ramp still provides a viable access for visitors to pursue shoreline fishing opportunities.



The resource objectives for this compartment are to:

1. maintain and improve plant quality and species diversity of the existing grass stands;
2. provide high energy food sources to maintain wildlife populations through the critical winter months;
3. improve wildlife carrying capacity through specific timber management practices; and
4. accommodate and support hiking, hunting, wildlife observation, fishing, trapping, photography, and/or the pursuit of peace and solitude.

k. Perry Yacht Club - Recreation (Compartment 11).

Compartment Description:

This small 32-acre private leasehold is almost totally developed; the area that is not contains fields of mixed grasses, both cool and warm season.

The resource use objectives for this compartment are to:

1. provide boat storage for members during the sailing season;
2. provide facilities for group meetings; and
3. provide for outdoor activities such as boating, sailing, and fishing.

l. Unified School District 345 - Recreation (Compartment 12).

Compartment Description:

The upland deciduous timber in this 104-acre leased compartment is the dominant community but there are areas of warm season native grass and cool season meadows. Much of the area has been invaded by Osage orange trees.

The resource use objectives for this area are to:

1. maintain the area as an environmental study area;
2. maintain native plant communities; and
3. protect the area for timber and wildlife benefits.

m. Champion Tree Area - MRM: Recreation Low Density (Compartment 13).

Compartment Description:

Home of the largest cottonwood tree in the State of Kansas, this 472-acre area is a mix of cool season meadows, upland deciduous trees, and fields in succesional transition to timber stands.

The resource use objectives for this compartment are to:

1. convert crop fields to native warm season grass stands to reduce erosion, siltation, and chemical/pesticide contamination of the lake;
2. control the woody invasion of open meadows;
3. provide wildlife habitat to insure natural propagation of game and non-game mammal and bird species;
4. accommodate and support use of the land for hiking, hunting, wildlife observation, fishing, trapping, photography, and/or the pursuit of peace and solitude;
5. increase the area's carrying capacity by providing high energy cereal grains, grass plantings, and implementing timber management practices; and
6. provide interpretive information concerning the cottonwood tree.

n. City of Ozawkie - Recreation (Compartment 14).

Compartment Description:

This 118-acre area is located around the town of Ozawkie and maintained as a city park. There is a small area of upland deciduous woods and areas of cool season grasses where mowing activity has delayed the invasion of weedy species.

The resource use objectives for this area are to:

1. provide day use opportunities for the public; and
2. provide aesthetic and intrinsic values associated with shoreline ecosystems.

o. Sunset Ridge Area - MRM: Recreation Low Density (Compartment 15).

Compartment Description:

This former park area has a small area of cropland that will be planted to native warm season grass stands. There is a mixture of upland deciduous timber and native warm season grass areas with some meadows planted to cool season grasses in this 1,130-acre area. Access to this area is limited and generally poor which severely limits the use of the resources.

The resource use objectives for this compartment are to:

1. reduce and control soil erosion in highly erodible lands with the implementation of specific conservation practices;
2. maintain the vigor and improve the species diversity of native warm season grass stands;
3. provide open fields through the control of woody species;

4. improve wildlife carrying capacity by increasing habitat diversity;
5. accommodate and support hiking, hunting, wildlife observation, fishing, trapping, photography, and/or the pursuit of peace and solitude; and
6. provide consumptive and non-consumptive wildlife recreational opportunities.

p. Perry Lake Wildlife Area - MRM: Wildlife Management (Compartment 16).

Compartment Description:

These 10,984 acres of land is managed by the Kansas Department of Wildlife and Parks under a license from the Corps. The area possesses a diverse array of vegetative communities -- upland deciduous woodlands, riparian timber, marsh areas/wetlands, lands devoted to crop production, stands of native warm season grasses, cool season meadows, and re-established areas of warm season grasses.

The resource use objectives for this compartment are to:

1. provide the Kansas Department of Wildlife and Parks a fish and wildlife management role, in accordance with the Fish and Wildlife Coordination Act (Public law 85-624);
2. maintain upland and wetland wildlife species for both consumptive and non-consumptive uses;
3. increase the area's carrying capacity by providing high energy cereal grain crops, grass plantings, and implementing timber management practices.
4. improve fishery populations and opportunities.
5. improve the marsh and wetland habitats provided within this area;  
and
6. provide hunting and fishing opportunities.

q. City of Valley Falls - Recreation (Compartment 17)

Compartment Description:

The eastern and northern sections of this 197-acre community leasehold contain "city lawn-type" grasses with a riparian corridor along the river and on the western edge of town.

The resource use objectives for this compartment are to:

1. provide day use opportunities for the public;
2. provide opportunity for organized softball and baseball programs;
3. provide primitive camping opportunities for both transient and destination users; and
4. provide safe and usable recreation facilities.

r. Paradise Point Area - MRM: Recreation Low Density (Compartment 18).

Compartment Description:

Still evident in this 1,913-acre former recreation area are the grass areas. The upland deciduous woodland dominates the area but there are scattered areas of relatively small crop fields and cool season meadows. A majority of the area is included in the agricultural leasing program and the cool season grass areas are hayed. The roads through the area, though no longer maintained, continue to provide excellent access to the area for visitors interested in fishing, hunting, hiking, or other nature/wildlife oriented activities.

The resource use objectives for this compartment are to:

1. provide unstructured recreation opportunities (e.g., hunting, bird watching, fishing, trapping, etc.) in a natural environment;
2. provide quality wildlife habitat to insure natural propagation of game and non-game mammal and bird species (e.g., northern bobwhite, Eastern cottontails, white-tailed deer, wild turkey, etc.);
3. increase the area's carrying capacity by providing additional food sources, grass plantings, and implementing timber management practices;
4. improve fishery populations and opportunities; and
5. maintain the health, vigor, and diversity of the warm season grass communities.

s. Old Town Park - Recreation (Compartment 19).

Compartment Description:

Old Town Park is located on the east shore of the lake and is divided by Highway 92. The northern half of this 113-acre park is generally rolling and partially wooded with tree cover primarily on the steeper slopes. The southern area is located on the site of the old town of Ozawie and is flat with scattered trees. Access to the area is by Highway 92. The flat grassy areas are generally dominated by cool season grasses.

The resource use objectives for this compartment are to:

1. provide overnight camping opportunities for both transient and destination users;
2. accommodate and support separate day-use opportunities for hiking, wildlife observation, photography, fishing, boating, swimming and sunbathing, picnicking for individuals and groups, hiking, and participation in playgrounds and playfields;
3. provide fishing and boating access;
4. provide quality wildlife habitat and adequate food supplies to insure successful natural wildlife propagation; and
5. provide visitor contact and assistance by project personnel.

t. Little Slough Creek Arm - MRM: Recreation Low Density (Compartment 20).

Compartment Description:

The north side of this 750-acre compartment contains mainly crop fields with a narrow riparian timber stand along the creek. There is a fairly sizable upland deciduous timber stand on the south side of the creek.

The resource use objectives for this compartment are to:

1. adequately protect highly erodible croplands;
2. maintain and improve the diversity of native warm season grass stands;
3. provide nesting and loafing cover for many types of small game and non-game species;
4. provide unstructured recreation opportunities in a natural environment;
5. provide right-of-way for the National Recreation Trail; and
6. provide wildlife benefits through the proper management of the forest resources.

u. Topeka Audubon Society - Recreation (Compartment 21).

Compartment Description:

The area along Fishpond Creek, in the northern section of this 232-acre leasehold, is almost entirely upland deciduous timber. The southern area is a mixture of that same forest, native warm season grass stands, and weedy areas where the lake floods the land. The re-establishment of native grasses to the compartment is not complete.

The resource use objectives for this area are to:

1. establish diverse wildlife habitat through the conversion of old agriculture leases to mixtures of native warm season grasses;
2. establish nature appreciation trails; and
3. maintain adequate wildlife populations through effective natural resource management practices.

v. Old Military Group Camp Area - Recreation (Compartment 22)

Compartment Description:

This 121-acre compartment and camping area is located on the south side of the Little Slough Creek arm of the lake. The terrain consists of steep slopes adjacent to the water's edge and rolling uplands. The area has good tree cover with only two small areas in the open. The area contains three prominent ridges which were developed as three separate group camping areas. The development is located in the central part of each ridge leaving the hillsides and shoreline in its natural upland deciduous wooded condition.

The resource objectives for this compartment are to:

1. provide access to the National Recreation Trail;
2. provide for family and group camping opportunities;
3. provide wildlife benefits through proper forest resource management practices; and
4. provide a peaceful and tranquil area for group campers.

w. Quarry Road Area - MRM: Recreation Low Density (Compartment 23)

Compartment Description:

With the exception of various brome fields along the edge of the Lakewood Hills residential development area, this 524-acre area is characterized by an upland deciduous timber stand.

The resource objectives for this compartment are to:

1. maintain the National Recreation Trail and provide trail access opportunities;
2. maintain the existing hay fields;
3. provide consumptive and non-consumptive wildlife recreational opportunities; and
4. provide unstructured and low density recreation opportunities in a natural environment.

x. Longview Park - Recreation (Compartment 24).

Compartment Description:

Longview Park is located on the east shore of the lake -- north of Slough Creek Park and south of Old Town Park. The terrain in this 316-acre compartment varies from open pasture to wooded slopes. The area is generally rolling with steeper slopes near the shoreline.

The resource use objectives for this compartment are to:

1. provide group camping opportunities for groups utilizing the National Recreation Trail in addition to family and group gatherings;
2. provide day use opportunities (e.g., fishing, boating, swimming, picnicking, hiking, playgrounds, etc.);
3. provide overnight camping opportunities for both transient and destination users;
4. improve wildlife habitat when compatible with recreational activities;

5. control vehicular access; and
6. control noxious weeds.

y. Hoover Creek Area - MRM: Recreation Low Density (Compartment 25).

Compartment Description:

Cool season grass stands, upland deciduous timber, and crop fields occupy this 737-acre area.

The resource use objectives for this compartment are to:

1. maintain and improve the prairie grass stands;
2. improve the area's carrying capacity by providing food plots, grass plantings, and implementing timber management practices.
3. control noxious weeds;
4. provide access for hunting and fishing opportunities; and
5. provide right-of-way for the National Recreation Trail.

z. Slough Creek Park - Recreation (Compartment 26).

Compartment Description:

This 833-acre park is a peninsula located on the east shore of the lake and on the northwest side of the Big Slough Creek. The terrain is rolling with slopes along the shoreline varying from steep to gentle and is partially wooded. The wooded areas are on the slopes and hilltops with scattered trees at lower elevations. The is an even mixture of cool season grass stands and upland deciduous timber stands.

The resource use objectives for this compartment are to:

1. provide intensive structured recreation opportunities that can withstand the impact of heavy visitor use;
2. provide access opportunities to the National Recreation Trail;
3. provide opportunities for day use activities;
4. control noxious weeds;
5. control vehicular access; and
6. provide quality wildlife habitat and food supplies to insure successful natural wildlife propagation.

aa. Slough Creek Arm - MRM: Recreation Low Density (Compartment 27).

Compartment Description:

This large 1,195-acre compartment again displays a variety of communities -- upland deciduous timber comprising the largest component, near equal amounts of crop land and cool season grass fields, and a fairly large component of idle fields being invaded by trees.

The resource use objectives for this compartment are to:

1. increase the area's carrying capacity by providing additional food sources, grass plantings, and implementing timber management practices;
2. implement soil conservation measures on highly erodible lands;
3. control noxious weeds;
4. convert erodible crop fields to native warm season grass stands;
5. accommodate and support hiking, hunting, wildlife observation, fishing, trapping, photography, and/or the pursuit of peace and solitude; and
6. maintain the native woodland forest.

bb. United School District 501 - Recreation (Compartment 28).

Compartment Description:

An extensive weedy border is located near the lake while the majority of the 91-acre leased compartment is composed of upland deciduous timber with some small grassy areas.

The resource use objectives for this compartment are to:

1. maintain a natural study area where environmental education programs can be presented by the school district;
2. maintain native plant communities; and
3. manage the area for both timber and wildlife benefits.

cc. Evans Creek Area - MRM: Recreation Low Density (Compartment 29).

Compartment Description:

There are small areas of cool season grass meadows and idle fields interspersed through this 701-acre compartment of upland deciduous timber.

The resource use objectives for this compartment are to:

1. provide wildlife habitat to insure natural propagation of game and non-game mammal and bird species;



2. increase the area's carrying capacity by providing food plots, grass plantings, and implementing timber management practices;
3. control vehicular access; and
4. maintain the native woodland forest.

dd. Perry Park - Recreation (Compartment 31).

Compartment Description:

Perry Park is located on the east shore of the lake north of the dam and administration area. The terrain in this 480-acre park is generally gently rolling with tree cover in the draws and on the steeper slopes. There is a mixture of upland deciduous forest and brome fields.

The resource use objectives for this compartment are to:

1. provide opportunities for day use activities;
2. provide for outdoor activities such as boating, fishing, swimming, picnicking, and sailing;
3. provide project visitors with necessary marina facilities and services;
4. control noxious weeds;
5. maintain the native woodland forest; and
6. develop and maintain wildlife food plots where food supplies are a limiting factor for wildlife populations.

## VI. DEVELOPMENT NEEDS

6-1. General. This section describes, analyzes and makes recommendations regarding development needs for the parks managed by the Corps of Engineers and the Kansas Department of Wildlife and Parks. Numerous factors were considered in determining the development needs at Perry Lake, such as past and existing visitation patterns, access to the park, topography, recreation trends, and natural resources within the individual areas. The future development needs for each park are explained and justified in the following paragraphs.

The Corps is constantly seeking ways to provide sustainable recreational opportunities in a cost-effective and efficient manner. Current restraints require cost-sharing for new facilities. The master plan may identify opportunities for local or state organizations, as well as private corporations, to develop new facilities. Partnerships, volunteers, licenses and outgrants may also be used to provide expanded facilities. Any development, regardless of sponsorship, must be approved in the master plan.

6-2. Longview Park (Plates 3 and 4; Compartment 24) 316 acres.

Longview Park lies on rolling terrain, primarily covered by an upland deciduous forest and open areas of lespedeza and woody invaders. The shoreline has eroded heavily due to its exposure to the main body of the lake with long stretches of fetch to both the north and south. The park is supplied with treated water from a water treatment plant located within the park.

Day use activities and overnight camping facilities are separate. There is only one entrance into the park. The road divides and one segment leads to the boat ramp and day use area while the second segment leads to the camping areas. A gate has been installed west of the boat ramp which separates camping activities from day use activities. At the Boat Access Area, a slight siltation problem makes use of the ramp somewhat limited, especially during times of low lake levels.

Random and indiscriminate camping has been allowed throughout the park -- in the picnic areas, along shorelines, and in other non-designated areas. In an effort to rectify this resource damaging practice, two camp areas with designated sites have been established along the lakeshore.

Camp Area 1 is located on a ridge in a wooded surrounding. Selective thinning of underbrush has provided a clearer view of the lake and improved the air circulation through the area. All twenty-six (26) camping units have electric hookups and are at least 60 feet long to accommodate large recreational vehicles. The water treatment plant is located in this camp area.

Camp Area 2 has been developed to alleviate the problems associated with random camping. The walk-in tent area features fifteen (15) designated tent sites, vault toilet, water spigot, and parking area. Another random camping area has been redesigned to create twenty-one (21) designated camping units. This renovation has assisted with the erosion problem that existed along the lower loop road. The road through this area was realigned to provide better access to the camping units.

The Apple Valley Farm and Playhouse is located near the entrance of the park. There exists almost a symbiotic relationship between this dinner theater and the park. As the theater draws large crowds of tourists and local community members on weekends during the recreation season, there is an increase in visitation and recreational pressures in the park. When compared with some of the other equally less developed parks, Longview Park offers the most potential for cost-efficient development.

An entrance station is located on the road leading into the camp areas and contract gate attendants control the entrance, collect user fees, and provide general lake information. A gate is in place at the entrance to the camping areas and all of the camping areas will be closed following the end of the recreation fee season. The day use area will remain open throughout the year.

b. Future. The road leading into former Camp Area 1 is being threatened by severe shoreline erosion. The road will be closed as a safety measure. A parking area for the National Hiking Trail will be established at the entrance of the road following its closure. The camping units formerly found in this area have been eliminated due to shoreline erosion. The double vault toilet in this former camp area has been relocated to provide sanitary facilities.

A fish cleaning station and courtesy light will be provided at the Boat Access Area. Five (5) designated picnicking units will also be established along the lakeshore to provide day use opportunities.

A group camp area, with a controlled and gated entrance, will be developed in the area that was formerly designated as Picnic Area 1. Electricity will be provided to the group shelter and twenty-five (25) camping units will be designated. A chip and sealed loop road provides access into the area. This group camp will provide camping opportunities for organized groups, hikers utilizing the Perry Lake Hiking Trail, the Kansas Trails Council hiking group, and will also serve as an overflow camp area on busy weekends, provided the area is not already being utilized by groups. A short spur will be constructed from the hiking trail to the group camp area. A nature trail will also be constructed in this park.

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Table VI-1. Summary of Existing and  
Future Recreation Development by Park

<u>Park (Plate)</u>	<u>Existing Facilities</u>	<u>Future Facilities</u>
<u>Longview</u> (4)	<u>Camp Area 1</u> 26 camping units (26 electrical hookups) 1 double vault toilet 2 water spigots 1 water treatment plant	1 playground

Table VI-1. Summary of Existing and  
Future Recreation Development by Park  
(continued)

<u>Park (Plate)</u>	<u>Existing Facilities</u>	<u>Future Facilities</u>
<u>Longview</u> (4)	<u>Entrance Station</u> 1 gate attendant 1 sanitary dump station 1 washhouse 1 stabilization pond	
	<u>Camp Area 2</u> 36 camping units 1 double vault toilet	3 water spigots 1 playground
	<u>Picnic Area</u> 24 picnicking units 1 group shelter 1 double vault toilet	<u>Group Camp Area</u> remove picnicking units 25 camping units 2 water spigots electricity to shelter
	<u>Boat Access Area</u> 3 lane boat ramp 1 courtesy dock 1 double vault toilet	1 courtesy light 1 fish cleaning station 5 picnicking units
	<u>Misc.</u> Perry Lake National Recreation Trail	1 nature trail

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6-3. Old Military Trail (Plates 3 and 5; Compartment 22) 121 acres.

a. Existing. The Old Military Trail group camp area is located on the south side of the Little Slough Creek arm of the lake. The terrain consists of steep slopes adjacent to the water's edge and rolling uplands. The area has good tree cover with only two small areas in the open. There are three prominent ridges which were developed as three separate group camping areas. The development is located in the central portion of each area leaving the hillsides and shoreline in its natural wooded condition.

This area is named after an old military and freight road which was opened from Ft. Leavenworth to Ft. Riley in 1854 prior to any permanent settlements in the county.

A portion of the Perry Lake Hiking Trail and a trail access point is located in this area. Access to the area is provided by the county road which serves the east side of the lake. Use of the group camping area is limited to groups on a reservation basis.

b. Future. Electricity will be installed at the shelter in the first group area (Saber Area). Individual camping units will be developed. A bulletin board will be installed in the park for the display of historical and current information about the park and lake.

Table VI-2. Summary of Existing and  
Future Recreation Development by Park

<u>Park (Plate)</u>	<u>Existing Facilities</u>	<u>Future Facilities</u>
<u>Old Military Trail</u> (5)	<u>Group Camp Areas</u> 45 camping units 1 water spigot 3 double vault toilets 3 group shelters 3 amphitheaters/camp circles	15 electrical hookups electricity to shelter designate camping units
	<u>Misc.</u> Perry Lake National Recreation Trail Access	

6-4. Old Town Park (Plates 3 and 6; Compartment 19) 113 acres.

Old Town Park is located on the east shore of the lake. Highway 92 divides the park into two sections -- north and south Old Town. The northern area is rolling and partially wooded with tree cover primarily on the steeper slopes. The southern section is located on the site of the old town of Ozawkie. The southern area is flat with scattered trees. Ozawkie has been relocated to a higher point on the west side of the lake north of Highway 92.

Laid out on the old streets of Ozawkie, Old Town South has 146 designated camping units. Since inundation is a major problem for this park, electric hookups have only been installed at sites located above elevation 910 msl. The gate attendant site at the entrance station is the only site not affected by full pool lake levels (920 msl).

A softball/baseball diamond and playground, located near the washhouse, provides additional recreational opportunities.

An old road that previously connected the day use area and the camping area has been gated and closed thus separating these two distinct activities. The parking area at the boat ramp adequately accommodates the normal boat launching pressure; however, parking becomes a bit congested during peak fishing seasons.

The group shelter in Old Town North is located on a steep bluff overlooking the lake and progressing delta. It receives only limited use during the recreation season. Old Town North functions as an overflow camp area and occasional day use area.

A contract gate attendant controls the entrance to Old Town South. Project park rangers patrol and manage Old Town North.

b. Future. The group shelter in Old Town North will be relocated to Old Town South and installed either near the ball field and playground or near the boat ramp to provide picnicking opportunities for boaters, fishermen, and lake visitors.

A fish cleaning station will also be installed at the boat ramp. A courtesy light will be installed at the boat ramp to improve security and provide increased safety measures. An expanded parking area at the boat ramp will improve the area's ability to accommodate large groups of boaters and day users.

Due to light, sporadic visitation and expensive maintenance costs, the northern section of Old Town will be closed. All recreation facilities will be relocated. The road leading into the park will remain viable to allow project personnel access to the water treatment plant.

The eight (8) tent camping units in Old Town South will be relocated due to frequent inundation and high maintenance costs. Approximately 34 camping units will be removed to relieve the congested campground and create buffer spaces between camping units. The washhouse in the campground will be upgraded in an attempt to better accommodate the campers.

A nature trail will be constructed in the park to provide additional recreational opportunities.

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Table VI-3. Summary of Existing and Future Recreation Development by Park

<u>Park (Plate)</u>	<u>Existing Facilities</u>	<u>Future Facilities</u>
<u>Old Town</u>	<u>North</u>	
(6)	1 washhouse	area to be closed; water
	1 group shelter	treatment plant will
	1 water treatment plant	remain operational.
	1 stabilization pond	relocate group shelter,
	4 picnicking sites	picnicking units, and
	1 sanitary dump station	vault toilet.
	1 double vault toilet	close dump station
	<u>South</u>	
	<u>Camp Area</u>	
	146 camping units	remove 34 camping units
	33 electrical hookups	1 nature trail
	5 water spigots	1 swimming beach
	1 washhouse	
	1 double vault toilet	
	1 stabilization pond	
	1 playground and ballfield	
	1 sanitary dump station	
	<u>Boat Access Area</u>	
	3 lane boat ramp	1 courtesy light
	1 courtesy dock	1 group shelter (relocated
	1 double vault toilet	1 fish cleaning station
		expand parking area

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6-5. Outlet (Plates 3 and 7; Compartment 2) 483 acres.

a. Existing. Located below the dam, the Outlet's terrain is flat with scattered tree cover. Appealing to the river fishermen, the area currently offers day use opportunities -- picnicking units and group shelters. Currently there are no designated camping units in the area and, similar to the other parks around the lake, camping has been conducted in a rather haphazard and random manner.

The Picnic Area has two (2) group shelters, 8 individual picnicking units, and two (2) double vault toilets.

The 150-acre Motorcycle/ATV area provides recreational opportunities for off-road vehicle enthusiasts to pursue their activities in a controlled and designated environment. The area also provides three (3) picnicking units and a double vault toilet. The Kansas All-Terrain Vehicle Association has worked, and will continue to work, closely with project personnel in maintaining and improving the riding trails, parking area, and boundary delineation. Improvements along the private/public boundary have been made in an attempt to alleviate problems associated with the all-terrain vehicle use in the area.

b. Future. Numerous segments of road will be closed and eliminated in an effort to decrease maintenance expenses, discourage discriminate driving practices and improve access to the individual facilities. Due to the intense fishing pressure in this area, a fish cleaning station will be provided.

The Camp Area will be developed to provide twenty (20) designated camping units. The area will benefit from designated units and a revised road system because of the extreme pressure this area receives from fishermen utilizing the stilling basin and river channel. A vault toilet (relocated from Grasshopper Point) and a water spigot will be added to the area to round out the amenities.

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Table VI-4. Summary of Existing and  
Future Recreation Development by Park

<u>Park (Plate)</u>	<u>Existing Facilities</u>	<u>Future Facilities</u>
<u>Outlet</u> (7)	<u>Camp Area</u> 5 camping units	15 camping units 1 double vault toilet 1 water spigot realign roads
	<u>Picnic Area</u> 8 picnicking units 2 group shelters 2 double vault toilets	1 fish cleaning station
	<u>Misc.</u> Motorcycle/ATV trail 1 double vault toilet 3 picnicking units	

6-6. Perry Park (Plates 3 and 8; Compartment 30) 480 acres.

a. Existing. This area is located on the east shore of the lake north of the dam and Administration Area. Access to this area is either through the Administration Area from the south or over a relocated county road east of the area. The terrain is generally gently rolling with tree cover in the draws and on the steeper slopes. A very scenic park, the random camping units are located beneath the trees and perched on the rocky hillsides. Although the thickly wooded hillsides and wooded steep shorelines overlooking the lake obscure views of the lake, an occasional opening offers a glimpse of the lake. The hilly topography, the dense oak/history timber association, and vegetation is reminiscent of the Missouri Ozarks. Upon entering the park, visitors are greeted by a large wooded "hill" that is surrounded by native grasses. The Delaware Indians termed this unique feature "The Tortoise". A native wildflower area trail of "the tortoise" is used as an interpretive opportunity for groups and interested visitors.

The topography of Perry Park is generally not conducive to developing level camping units with full service hookups. The rocky terrain makes the installation of electrical hookups too expensive and not cost-efficient for this seldom utilized park. The Camp Area contains twenty-six (26) camping units, one washhouse, one double vault toilet, and one sanitary dump station. The Swimming Area currently provides a beach, bathhouse, picnicking units, and sanitary facilities.

b. Future. The boundary between the Administration Area and Perry Park will be realigned so that the group picnic shelter and playground located on Dedication Point will be included in Perry Park. Currently, the group shelter is located outside of a designated park and is not eligible to be improved with the use of special recreation user fees (SRUF). With the boundary change, the group shelter will be included in Perry Park. A volleyball court and electricity to the shelter will be added to compliment the day use opportunities available at Dedication Point.

The northern camping area of Perry Park will be closed to intense recreational camping opportunities due to underutilization and costly maintenance procedures. The area will be used for diverse non-intensive recreational activities such as a walk-in primitive camp area; a hunting area for archers; an area for special hunts designed to accommodate disabled hunters; a group camp area; and a multi-use trail system as the extensive and scenic road system will easily accommodate bicycle use and hiking/walking use.

The water treatment plant in the park serves Perry Park, the Lake Perry Marina, Slough Creek Park, and the Administration Area. Access to the plant will be maintained for operational and maintenance activities.

A playground and group picnic shelter will be developed near the Swimming Area to provide additional day use and recreational opportunities. A nature trail will also be constructed for visitors to the park to enjoy.

Lake Perry Marina (Plates 3 and 8; Compartment 30).

a. Existing. The Lake Perry Marina is located in the Perry Park on the east shore of the lake just north of the Administration Area. The marina provides 262 boat moorings, gasoline, a 6-unit motel, groceries and supplies, and a snack bar.



The marina leases 45.6 acres of land and water in the park for the operation and management of a private concession. The marina is currently experiencing a shortage of parking area for customers, fishermen, and boat owners. There is also a lack of space available for boat storage. The adjacent swimming beach parking area is more than adequate to accommodate the use during the summer. If the marina concessionaire agreed to include part of this parking area in their leasehold, it would result in increased parking and storage area for the marina and less maintenance expense for the Corps. The Corps maintains the parking lots, lift station, and boat ramp located within the leasehold.

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Table VI-5. Summary of Existing and Future Recreation Development by Park

<u>Park (Plate)</u>	<u>Existing Facilities</u>	<u>Future Facilities</u>
<u>Perry</u> (8)	<u>Camp Area</u> 26 camping units 1 sanitary dump station 1 washhouse 1 double vault toilet 2 stabilization ponds 1 wildflower trail  Area is currently in the Administration Area	close 1 stabilization pond close sanitary dump station 1 nature trail realign park boundary close area to camping  <u>Dedication Point</u> 1 water spigot 1 playground 1 group shelter 1 double vault toilet 4 picnicking units 1 boat beaching area electricity to shelter  1 fish cleaning station 1 courtesy light
	<u>Boat Access Area</u> 4 lane boat ramp 1 courtesy dock 1 double vault toilet	
	<u>Swimming Area</u> 1 beach 1 bath house 1 double vault toilet 1 water spigot 10 picnicking units 1 group shelter	1 playground

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6-7. Perry State Park (Plates 3 and 9, 10; Compartment 6) 1,597 acres.

a. Existing. Perry State Park is geographically divided into two separate areas by the Rock Creek arm of the lake -- Jefferson Point Area is located on the southeast portion of the project. The terrain is rugged with partial tree cover located on the steeper slopes, in the draws, and on some of the points near the lake. The Delaware Area is situated northwest of the Jefferson Point Area on the north bank of Rock Creek. The terrain is also rugged with wooded areas on the steeper slopes and in the draws.

The Jefferson Point Area contains all the intense recreation development and provides the majority of the recreational opportunities. The Delaware Area is basically undeveloped and currently offers low density recreational opportunities such as hunting, fishing, hiking, and trail related activities. The equestrian staging area and associated trail network in the Delaware Area is no longer functional; the main equestrian trail now originates from the Jefferson Point Area. Bow hunting is allowed in the Delaware Area during appropriate seasons.

The numerous camp areas in Jefferson Point offer a variety of camping opportunities ranging from sites with electrical and water hookups to sites that are more primitive in nature. The park offers 302 individual camping units; 128 have been upgraded with electrical and water hookups while the remaining sites are unimproved.

A twenty-five (25) mile equestrian trail originates in the state park and meanders through the state park and on into Rock Creek Park. Approximately 9 miles are located within the state park boundaries and the remaining 16 miles are on Corps park land. The development and maintenance of the trail has been accomplished through the efforts of several equestrian groups and the Kansas Department of Wildlife and Parks in coordination with the Corps.

b. Future. Future plans for the state park include upgrading and improving additional camping units by installing electrical and water hookups at sites, and leveling and re-graveling sites. A gate attendant/entrance station will be installed at the entrance to the main camp areas to collect entrance and camping fees and to disseminate information to park visitors.

A three (3) loop nature and interpretive trail, approximately four (4) miles in length, is being constructed in the park. Loop 1 begins at Camp Area 4. Loop 2 will intersect with Loop 1 before connecting with the information center located on Highway 237. An interpretive center is being planned for this building which is currently vacant. The final leg of the trail, Loop 3, will traverse the southwestern edge of the park leading hikers to the site of several marsh and wetland development projects. During the initial construction of the lake, several ponds in this area were drained when the dams were destroyed. These dams are being repaired and the impoundments will once again provide valuable aquatic and wetland habitat for wildlife. This repair work on the ponds helps meet the Department's short-term goal of attaining a no-net-loss and nondegradation of wetlands and the long-term goal to increase wetland quantity and quality.

Two fish cleaning stations will be installed at both Boat Access Areas. To accommodate group and family gatherings, group camp areas will be established and developed in Camp Areas 1, 3, and 5. These designated group camp areas will be available under a reservation system.

In an effort to consolidate the Department's workforce assigned to Perry Lake, the Administration Office will be expanded to provide a central unit that will accommodate the law enforcement personnel, naturalists, parks and public lands personnel, and biologists (both fisheries and wildlife).

The equestrian trail head will be relocated to an area south of the existing site. A target shooting range is being considered for development at Perry Lake by the KDWP. Although they have not identified an actual location for the range, they

are investigating several possibilities around the project -- on their wildlife management licensed area, in abandoned Corps park areas, or on adjacent private land. The Corps has provided approved shooting range development plans to the KDWP to assist the state in their planning efforts.

Table VI-6. Summary of Existing and Future Recreation Development by Park

Table VI-6. Summary of Existing and Future Recreation Development by Park  
(continued)

<u>Park (Plate)</u>	<u>Existing Facilities</u>	<u>Future Facilities</u>
<u>Perry State Park</u> (9, 10)	<u>Camp Area 4</u> 62 camping units 62 electrical/water hookups 1 washhouse 1 sanitary dump station 1 nature/interpretive trail 1 playground	1 amphitheater 11 electrical/water hookups
	<u>Park Administration Area</u> Administration office	expand office building
	<u>Picnic Area</u> 7 individual shelters 28 picnicking units 2 water spigots	
	<u>Boat Access Area 1</u> 3 lane boat ramp 1 double vault toilet 1 courtesy dock 1 courtesy light 1 water spigot	1 fish cleaning station
	<u>Camp Area 5</u> 1 washhouse 1 equestrian trail head 30 primitive camping units 1 nature/interpretive trail head 1 stabilization pond	
	<u>Information Center</u> 1 nature/interpretive trail head	1 interpretive center 1 water spigot

6-8. Rock Creek Park (Plates 3 and 11; Compartment 5) 568 acres.

a. Existing. Rock Creek Park is located on the west shore of the lake, between Thompsonville Park and Perry State Park. The terrain in the area varies from clear, rolling slopes near the lakeshore to rugged wooded slopes. Traffic is heavy in this park partly due to the popularity of using the road across the dam and through Thompsonville Park as a scenic drive. The park offers recreational opportunities for camping, boating, fishing, and other day use activities such as picnicking, swimming, playground, and driving for pleasure.

The Boat Access Area has two courtesy docks -- one belongs to the Corps and is available for public use; the second dock belongs to the U.S. Coast Guard Auxiliary. The Coast Guard has a special permit for a boating information trailer which is located near the boat ramp and picnic shelter. The Coast Guard performs complementary boat safety inspections during the recreation season and provides boating safety information. A fish cleaning station will be added at the boat ramp.

A group picnic shelter, fourteen (14) individual picnicking units, and playground equipment provide recreational opportunities for day users at the Picnic Area.

b. Future. The boundary of Rock Creek Park will be realigned; it will be located north of the road across the dam and will include all of the camping areas, washhouses, entrance station, boat ramp, picnic area, and group camp areas. The lower road along the lakeshore, which provides for scenic drives, will remain in Thompsonville Park.

1. Camp Area 1 - Big Rocks Area. Random camping occurs in this area and the result is haphazard roads, erosion, and degraded land resources. Twelve (12) designated tent camping units and a designated parking area will be developed in this area. A vault toilet (relocated from the old Grasshopper Point Park) and a water spigot will be added.

2. Camp Area 2 - Edwardsville Area. This random camping area has been rehabilitated by the addition of twenty (20) designated walk-in tent sites. A cabled parking area has been established to help deter off-road and random driving. A security light and water spigot will be provided near the double vault toilet. A playground will also be developed.

3. Camp Area 3 - Rock Creek Campground. A contract gate attendant mans the entrance station at this newly developed 79 unit camping area. There are thirty-six (36) electrical hookups in this area and random camping is not allowed. An additional vault toilet will be relocated into the area to provide additional sanitary facilities. An amphitheater will be provided to allow for the presentation of day and evening interpretive programs. Fifteen (15) designated tent units will be developed along the lakeshore.

4. Camp Area 4 - Cove Loop Tent Area. This area has been developed into a walk-in tent camp area with seventeen (17) designated sites. Each tent unit consists of a lantern hanger, grill, and sand-filled area for the tent. Three small parking areas are provided and have been cabled off to deter off-road vehicle use. A vault toilet and water spigot are the only future facilities proposed.

One water spigot will be added near the picnic shelter in the Picnic Area.

The proposed closure of the interior park road in Rock Creek Park has been a part of the recreation master plan since 1983. The two major reasons for the closure -- security and economics -- remain valid. The need for a single entrance to a recreation area, particularly a campground, is a basic park design requirement. Although the road through the western section of Rock Creek Park and into the state park provides a scenic drive, maintaining this 2 1/2 mile section of paved road represents a potentially expensive and extensive requirement. Driving for

pleasure is a legitimate recreational pursuit; however, operation and maintenance costs must be analyzed when determining how best to provide cost-efficient recreational opportunities. Current cost estimates to completely replace and repair this stretch of road exceed \$ 125,000.

A gate and turn around will be constructed near the U.S. Coast Guard Auxiliary boat information trailer. The road beyond the gate will not be maintained and will be allowed to revert to gravel. Group camping areas will be established at the two most popular coves. Each group camp area will be developed to include fifteen (15) designated units. A vault toilet is in existence in each loop. Each group that will utilize the group area will be issued a key that will unlock the gate. Water spigots will be installed in each group camp loop area.

A nature trail will be provided in the park to provide additional recreational opportunities for park visitors.

Table VI-7. Summary of Existing and Future Recreation Development by Park

<u>Park (Plate)</u>	<u>Existing Facilities</u>	<u>Future Facilities</u>
<u>Rock Creek</u> (11)	<u>Camp Area 1</u> 12 random camping units	designate camping units 1 vault toilet 1 water spigot
	<u>Camp Area 2</u> 20 camping units 1 double vault toilet	1 security light 2 water spigots 1 playground
	<u>Camp Area 3</u> 79 camping units (36 electrical) 1 playground 1 washhouse 1 stabilization pond 1 sanitary dump station 3 water spigots 1 double vault toilet 1 gate attendant/entrance station	15 tent units 1 amphitheater 1 double vault toilet
	<u>Camp Area 4</u> 16 camping units	1 double vault toilet 1 water spigot
	<u>Entrance Station</u> (the area that was formerly part of Thompsonville Park)	1 gate attendant 1 double vault toilet 1 washhouse 4 picnicking units 1 sanitary dump station 1 stabilization pond

Table VI-7. Summary of Existing and  
Future Recreation Development by Park  
(continued)

<u>Park (Plate)</u>	<u>Existing Facilities</u>	<u>Future Facilities</u>
<u>Rock Creek</u> (11)	<u>Boat Access Area</u> 4 lane boat ramp 2 courtesy docks (1 Corps) (1 US Coast Guard) 1 double vault toilet 1 courtesy light	1 fish cleaning station
	<u>Picnic Area</u> 14 picnicking units 1 playground 1 group shelter	
	30 random camping units 2 double vault toilets	<u>Group Camp Areas (2)</u> designate camping units 2 water spigots
	<u>Misc.</u> 1 equestrian trail	1 nature trail

6-9. Slough Creek Park (Plates 3 and 12; Compartment 26) 833 acres.

a. Existing. Slough Creek Park is located on a peninsula on the east shore of the lake, on the northwest side of Big Slough Creek. The terrain is rolling with slopes along the shoreline varying from steep to gentle. The area is partially wooded. The wooded areas are on the slopes and hilltops with scattered trees at lower elevations.

This park is the most developed Corps managed area on the project with regards to camping opportunities. It consistently collects the largest percentage of recreation user fees, usually double the amount collected from Rock Creek Park. All camping is controlled by one gate attendant and entrance station. The camp areas are located in areas east of the entrance road -- on the lake side of the road. These areas are flatter than the steep hills located west of the road and were more conducive in establishing level, designated camping units.

Boat Access Area 3 has been completed and will now provide additional lake access opportunities in the area. The three lane boat ramp and large parking area will help alleviate the boat launching pressure experienced at Boat Access Area 1.

b. Future. The park boundary will be realigned to include the new boat launching facilities within the park. This small segment was removed from the park in 1983, prior to the installation of the boat access.

Camp Area 1. (a) Worthington Loop. This loop contains 88 camping units of which seventy-four (74) have been improved with electrical hookups. The remaining fourteen (14), located along the shoreline and at lower elevations, do not have electrical hookups. Five water spigots, three vault toilets, and a washhouse provide sanitary conveniences for the campers. One playground is located in this loop. An amphitheater will be provided in this large camp area for day and evening interpretive presentations. The newest camping units in this loop are located in a relatively open, flat field. An aggressive tree planting program has been implemented with trees being planted around each camping unit for screening purposes. The units located along the lakeshore are nestled among the timber. The trees provide shade to the units while the location of the unit along the lakeshore is conducive to scenic views of the lake.

(b) South Point Loop. Ninety-eight (98) camping units, seven water spigots, and three vault toilets are located in this loop. Twenty-five (25) electrical hookups will be added to the existing units. A playground will be installed to compliment the recreational opportunities.

Camp Area 2. (a) Bur Oak Loop. This loop contains forty-three (43) non-electric camping units, three water spigots, and two vault toilets. Twenty (20) camping units will be improved with the addition of electrical hookups.

(b) Locust Loop. Twenty-nine (29) camping units are in this area. Most of the camping units in this loop, as in Bur Oak Loop, are located beneath trees that offer shade or along the wooded lakeshore. Two water spigots and a vault toilet provide sanitary accommodations. Twelve (12) electrical hookups will be added to improve the camping units. One playground will be added to this area.

Camp Area 3. (a) Hickory Ridge Tent Area. Two small parking areas accommodate the walk-in campers that utilize this eighteen (18) unit camp. A gate, located west of Hickory Ridge, not only separates the camping areas from the day use area, but also prevents visitors from using the roadway which is being undermined by erosion. It has been closed as a safety precaution, as well as an attempt to reduce operational and maintenance expenses.

(b) Limestone Cove Loop. Sixteen (16) non-electric camping units, a vault toilet, and a water spigot provide camping opportunities. The graveled, level camping units are located beneath large, mature trees. One playground will be added.

The two (2) group picnic shelters, located on scenic overlook areas, will continue to accommodate individual and group picnicking opportunities. Electricity and water will be provided to improve the shelters' appeal. Selective vegetative thinning along the shoreline will improve the scenic view from the shelters as well as improve air circulation. A playground will be established near the west group shelter.

The Perry Lake Hiking Trail has a new trail head in the park that now originates near the washhouse and dump station in Picnic Area 1. Picnic Area 2, located near Boat Access Area 2, has seven (7) picnicking units. A bulletin board will be installed in the area to display information illustrating the park's unique, diverse, and interesting historical background. Although the road leading south



from Picnic Area 2 along the lakeshore is being threatened by erosion, it will remain open for visitors to use until the erosion further damages the integrity of the road.

The fishing dock, located near Camp Area 2, will be relocated and redesigned to accommodate disabled fishermen. A fish cleaning station will be installed at Boat Access Area 1. A solar-powered courtesy light has been installed at the boat ramp.

A new washhouse will be constructed to better serve the visitors utilizing the six camping areas. The existing washhouse is inadequate to accommodate the increased visitation the park experienced following the development and renovation activity.

A nature trail will be constructed to provide additional recreational opportunities.

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Table VI-8. Summary of Existing and Future Recreation Development by Park

<u>Park (Plate)</u>	<u>Existing Facilities</u>	<u>Future Facilities</u>
<u>Slough Creek</u> (12)	<u>Entrance Station</u> 1 gate attendant booth 1 sanitary dump station	
	<u>Camp Area 1</u> 186 camping units (74 electrical) 13 water hydrants 1 washhouse 6 double vault toilets 1 sanitary dump station 1 stabilization pond 1 playground	1 amphitheater 1 washhouse 1 stabilization pond 25 electrical hookups 1 playground
	<u>Camp Area 2</u> 72 camping units 5 water spigots 3 double vault toilets 1 fishing dock	1 playground 32 electrical hookups
	<u>Camp Area 3</u> 34 camping units 1 water spigot 1 double vault toilet	1 playground 1 water spigot
	<u>Boat Access Area 1</u> 3 lane boat ramp 1 courtesy dock 1 double vault toilet	
	<u>Boat Access Area 2</u> 3 lane boat ramp 1 courtesy dock 1 double vault toilet	1 courtesy light 1 water spigot

<u>Park (Plate)</u>	<u>Existing Facilities</u>	<u>Future Facilities</u>
<u>Slough Creek</u> (12)	<u>Boat Access Area 3</u> 3 lane boat ramp 1 courtesy dock 1 courtesy light 1 double vault toilet	1 fish cleaning station
	<u>Picnic Area 1</u> 2 group shelters 1 wash house 1 sanitary dump station 8 picnicking units 1 stabilization pond 2 double vault toilets	1 playground realign road 1 water spigot
	<u>Picnic Area 2</u> 7 picnicking units	
	<u>Misc.</u> Perry Lake National Recreation Trail	1 nature trail

a. Existing. Thompsonville Park is located on the west shore of the lake and borders the dam on the west side. The terrain in this area is rugged with steep wooded slopes adjacent to the lake. This park is technically a day use area with no camping opportunities provided; however, the boundary of Thompsonville Park encompasses camping units, a washhouse, a sanitary dump station in addition to picnicking units.

The scenic qualities and terrain are ideal for establishing a nature trail through the area to provide additional day use opportunities for the park visitors. The group picnic shelter at the Overlook will be relocated closer to the bluff. It is currently situated in the middle of a grassy field and provides no scenic view of the lake. Selective thinning of the shoreline vegetation will provide an improved view of the lake and also improve air circulation around the shelter.

---

Table VI-9. Summary of Existing and  
Future Recreation Development by Park

<u>Park (Plate)</u>	<u>Existing Facilities</u>	<u>Future Facilities</u>
<u>Thompsonville</u> (7)	<u>Overlook and Picnic Area</u> 2 group shelters 2 single vault toilets 2 double vault toilet	relocate 1 shelter 1 nature trail construct turnaround

---

Tables VI-10 and VI-11 illustrate the existing facilities and the proposed facility development planned for each park, respectively.

Table VI-10. Perry Lake - Existing Facilities

	Longview	Old Mil. Trail	Old Town	Outlet/ ATV	Perry	Perry St. Park	Rock Creek	Slough Creek	Thompson ville
Camping Units	62	45	146	5 (random)	26 (random)	302	157	292	0
Electric Hookups	26	0	33	0	0	106	36	74	0
Water Spigots	2	1	5	0	1	8	3	19	0
Dump Station	1	0	2	0	1	1	1	3	1
Wash House	1	0	2	0	2	4	1	2	1
Vlt. T. double	4	3	3	3	3	3	5	15	3
Boat Lanes	3	0	3	0	4	7	4	9	0
Playground	0	0	1	0	0	2	2	1	0
Beach	0	0	0	0	1	1	0	0	0
Picnic Sites	24	0	4	18	10	28	22	15	14
Group Shelters	1	3	1	2	1	7	1	2	2
Courtesy Lights	0	0	0	0	0	2	1	2	0
Docks	1	0	1	0	1	2	1	2	0
Stabl. Pond	1	0	2	0	2	4	1	2	1
Amphi- theater	0	3	0	0	0	0	0	0	0
Nature\ walking tr	1	1	0	1 ATV	0	1 Interp	0	1	0
Equestrian Trail/Head	0	0	0	0	0	2 trails 1 head	1 trail	0	0
Fish clng station	0	0	0	0	0	0	0	0	0

Table VI-11. Perry Lake - Existing and Proposed Facility Development \*

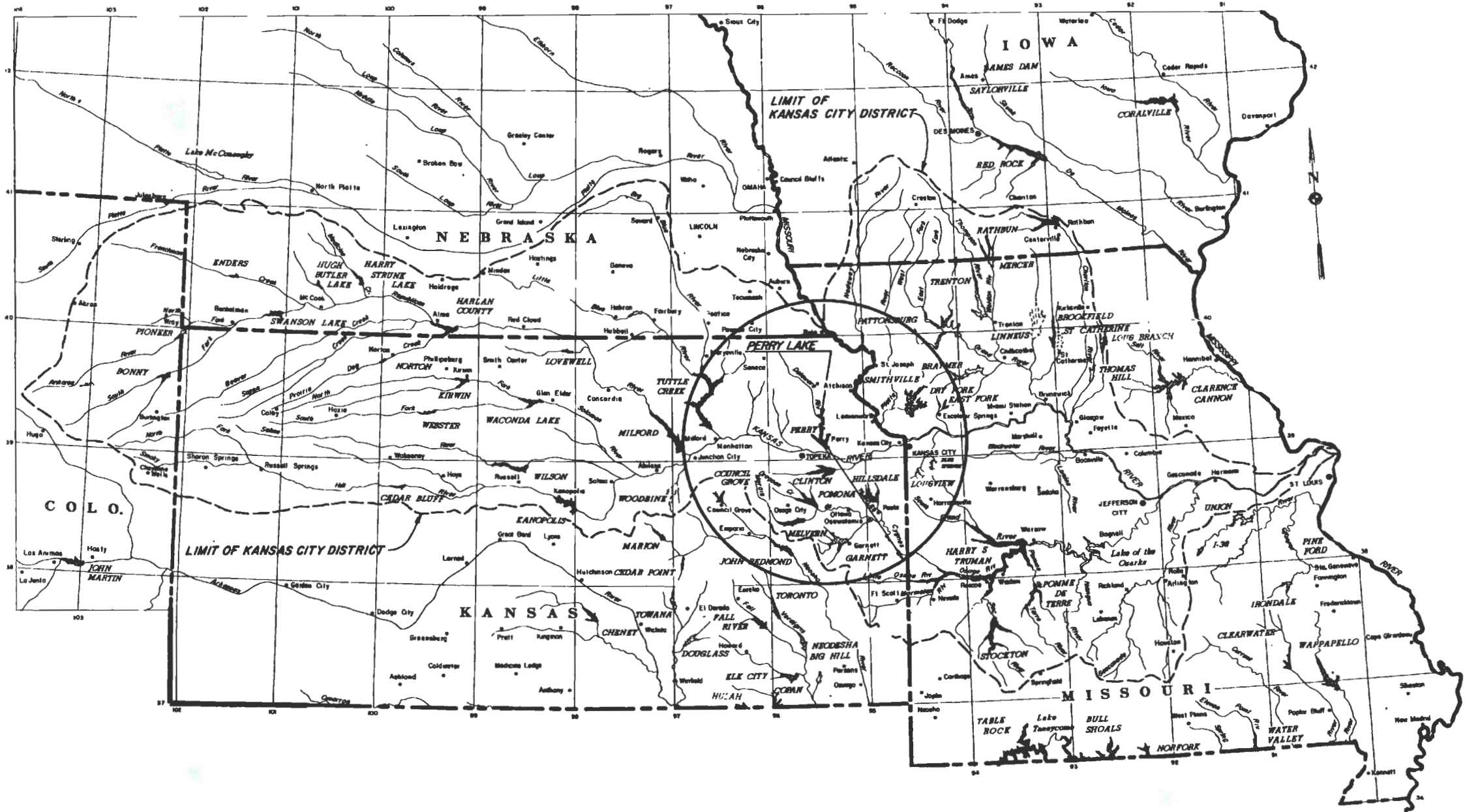
	Longview	Old Mil. Trail	Old Town	Outlet/ ATV	Perry	Perry St. Park	Rock Creek	Slough Creek	Thompson- ville
Camping Units	87 (+25)	45	112 (-34)	20 (+15)	0 (-26)	302	172 (+15)	292	0
Electric Hookups	26	15 (+15)	33	0	0	128 (+22)	36	131 (+57)	0
Water Spigots	7 (+5)	1	5	1 (+1)	2 (+1)	9 (+1)	9 (+6)	22 (+3)	0
Dump Station	1	0	1 (-1)	0	0 (-1)	1	2 (+1)	3	0 (-1)
Wash House	1	0	1 (-1)	0	1 (-1)	4	2 (+1)	3 (+1)	0 (-1)
Vlt. T. double	4	3	2 (-1)	4 (+1)	4 (+1)	3	8 (+3)	15	3
Boat Lanes	3	0	3	0	4	7	4	9	0
Playground	2 (+2)	0	1	0	2 (+2)	2	3 (+1)	5 (+4)	0
Beach	0	0	0	0	1	1	0	0	0
Picnic Sites	5 (-19)	0	4	11 (-7)	14 (+4)	28	18 (-4)	15	8 (-6)
Group Shelters	1	3	1	2	2 (+1)	7	1	2	2
Courtesy Lights	1 (+1)	0	1 (+1)	0	1 (+1)	2	1	3 (+1)	0
Docks	1	0	1	0	1	2	2	3	0
Stbl. Pond	1	0	1 (-1)	0	1 (-1)	4	2 (+1)	3 (+1)	0 (-1)
Amphi- theater	0	3	0	0	0	1 (+1)	1 (+1)	1 (+1)	0
Trails	2 (+1)	1	2 (+2)	1 ATV	2 (+2)	+ 4 miles	1 (+1)	1	0
Equestrian Trail/Head	0	0	0	0	0	2 trails 1 head	1 trail	0	0
Fish Cng Stations	1 (+1)	0	1 (+1)	1 (+1)	1 (+1)	2 (+2)	1 (+1)	3 (+3)	0

\* These numbers represent the total number of facilities in the parks following new construction, consolidations, and/or closures. The numbers in ( ) indicate the overall increase or decrease in facilities.

## VII. CONCLUSIONS

7-1. Conclusions. The lands and waters at Perry Lake have been evaluated and classified to provide for development and resource management programs that are consistent with authorized project purposes and applicable Federal laws. This plan attempts to be responsive to public input, comments and expressed needs, while remaining committed to the wisest and most appropriate management of public lands. The proposals and future developments at the project, as outlined in this updated master plan, accommodate local and Federal needs and are in accordance with project purposes. The master plan describes development and management for the use of Federally-owned lands for maximum public benefits. The plan represents the direction to be taken that will optimize benefits while assuring sound management of the resources.

This master plan is flexible in nature and is not a rigid plan of action. It deals with concepts, not in details of design or administration. Needed changes can be incorporated through approved amendments without disruption of the entire plan.



**LEGEND**  
**LAKES**

- COMPLETED
- UNDER CONSTRUCTION
- PLANNING
- AUTHORIZED
- RECOMMENDED
- OTHERS OF NOTE

SIGNATURES AFFIXED BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF DRAWINGS IN THIS SET AS INDEXED ON THIS SHEET

APPROVAL RECOMMENDED:  
MICHAEL W. CAREY  
CHIEF, PLANS & POLICIES SECTION

APPROVAL RECOMMENDED:  
RICHARD LENNING  
CHIEF, NATURAL RES. MGMT. BR.

APPROVAL RECOMMENDED:  
CARROL L. BLACKWELL  
CHIEF, OPERATIONS DIVISION

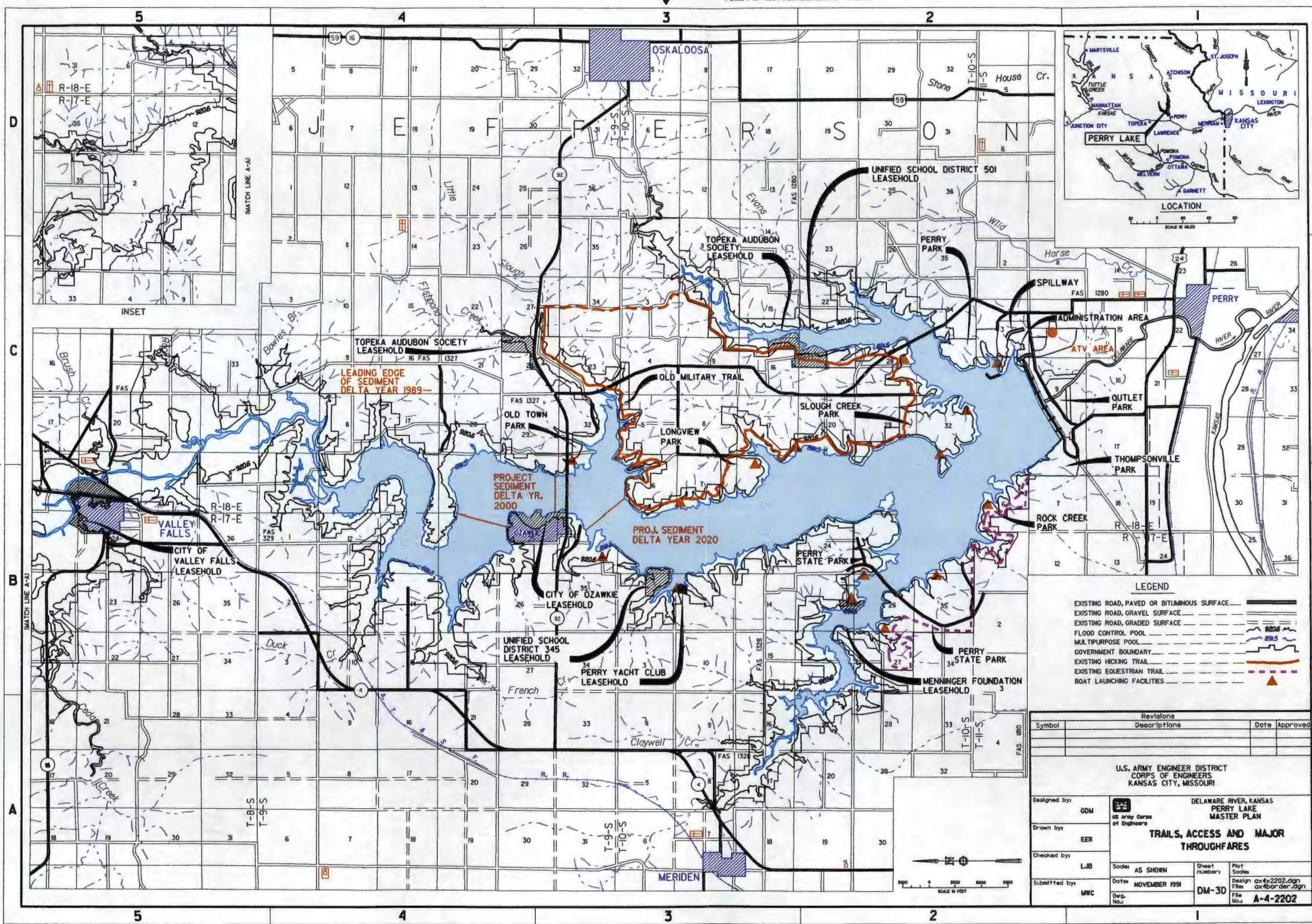
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Symbol	Descriptions	Date	Approved

**U.S. ARMY ENGINEER DISTRICT  
CORPS OF ENGINEERS  
KANSAS CITY, MISSOURI**

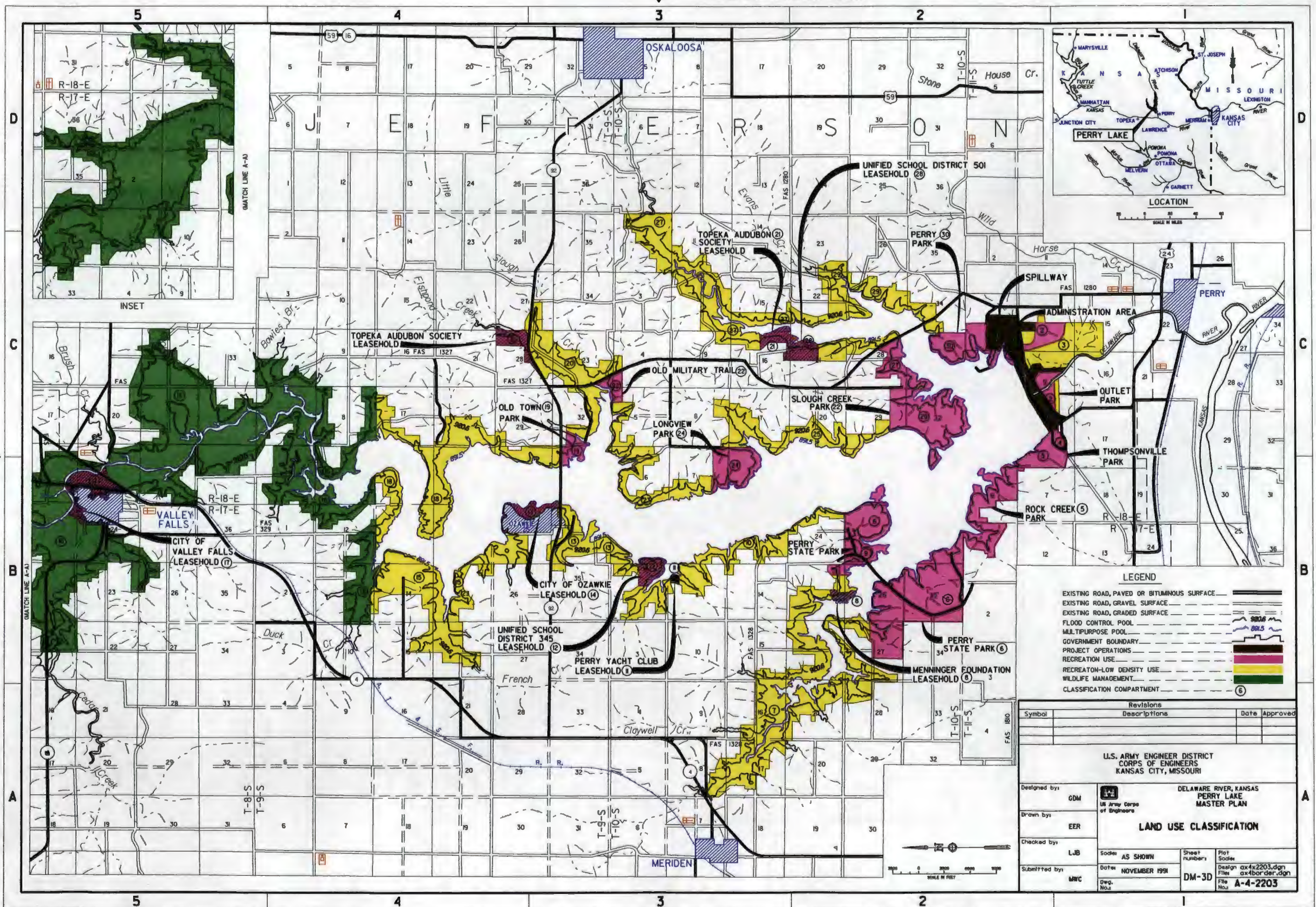
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Drawn by: EER	
Checked by: LJB	
Submitted by: MWC	

Scales: AS SHOWN	Sheet numbers: DM-3D	Plot raster data: 0x4x220Lclt
Date: NOVEMBER 1991	Design File: 0x4x220Ldgn	File No: A-4-220I

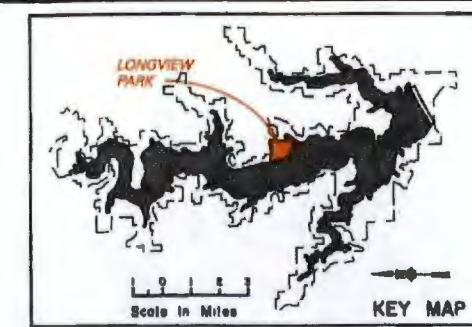












LEGEND

EXISTING FACILITIES

- Lake Pool, Elev (M S L.) 891.5
- Multipurpose Pool 890.6
- Flood Control Pool
- Wooded Area
- Roads
- Federal, State and County Route Markers
- Improved
- Government Property Line
- Public Use Area Boundary

PUBLIC USE AREA FACILITIES

- |                       | Existing | Future   |
|-----------------------|----------|----------|
| Interior Roads Gravel | [Symbol] | [Symbol] |
| Interior Roads Paved  | [Symbol] | [Symbol] |
| Parking Areas         | [Symbol] | [Symbol] |
| Water System          | [Symbol] | [Symbol] |
| Water Spigot          | [Symbol] | [Symbol] |
| Distr. System         | [Symbol] | [Symbol] |
| Electrical Lines      | [Symbol] | [Symbol] |
| Underground           | [Symbol] | [Symbol] |
| Overhead              | [Symbol] | [Symbol] |
| Sanitary Facilities   |          |          |
| Sewage Lift Station   | [Symbol] | [Symbol] |
| Well House            | [Symbol] | [Symbol] |
| Single Vault Toilet   | [Symbol] | [Symbol] |
| Double Vault Toilet   | [Symbol] | [Symbol] |
| Waterborne Toilet     | [Symbol] | [Symbol] |
| Washhouse             | [Symbol] | [Symbol] |
| Comfort Station       | [Symbol] | [Symbol] |
| Sanitary Dump Station | [Symbol] | [Symbol] |
| Stabilization Pond    | [Symbol] | [Symbol] |
| Sewer Lines           | [Symbol] | [Symbol] |
| Force Main            | [Symbol] | [Symbol] |
| Water Treatment Plant | [Symbol] | [Symbol] |
| Group Shelters        | [Symbol] | [Symbol] |
| Camping Units         | [Symbol] | [Symbol] |
| Courtesy Docks        | [Symbol] | [Symbol] |
| Fishing Docks         | [Symbol] | [Symbol] |
| Swimming Beach        | [Symbol] | [Symbol] |
| Change House          | [Symbol] | [Symbol] |
| Entrance Station      | [Symbol] | [Symbol] |
| Trails                | [Symbol] | [Symbol] |
| Nature                | [Symbol] | [Symbol] |
| Hiking                | [Symbol] | [Symbol] |
| Equestrian            | [Symbol] | [Symbol] |

FUTURE DEVELOPMENT

**PERRY LAKE**  
(MULTIPURPOSE POOL ELEV. 891.5)

**CAMP AREA 1**  
26 CAMPING UNITS  
W/ELECTRICAL HOOKUPS  
1 DOUBLE VAULT TOILET  
2 WATER SPIGOTS  
1 PLAYGROUND

**CAMP AREA 2**  
21 CAMPING UNITS  
15 TENTING UNITS  
1 VAULT TOILET  
3 WATER SPIGOTS  
1 PLAYGROUND  
1 NATURE TRAIL

**PICNIC AREA 1**  
1 DOUBLE VAULT TOILET  
1 GROUP SHELTER  
24 PICNICKING UNITS  
CONVERT TO GROUP CAMP

**GROUP CAMP**  
25 CAMPING UNITS  
2 WATER SPIGOT  
1 ELECTRICITY TO SHELTER

**BOAT ACCESS AREA**  
3 LANE BOAT RAMP  
1 COURTESY DOCK  
1 DOUBLE VAULT TOILET  
1 AREA LIGHT  
1 FISH CLEANING STATION  
5 PICNICKING UNITS

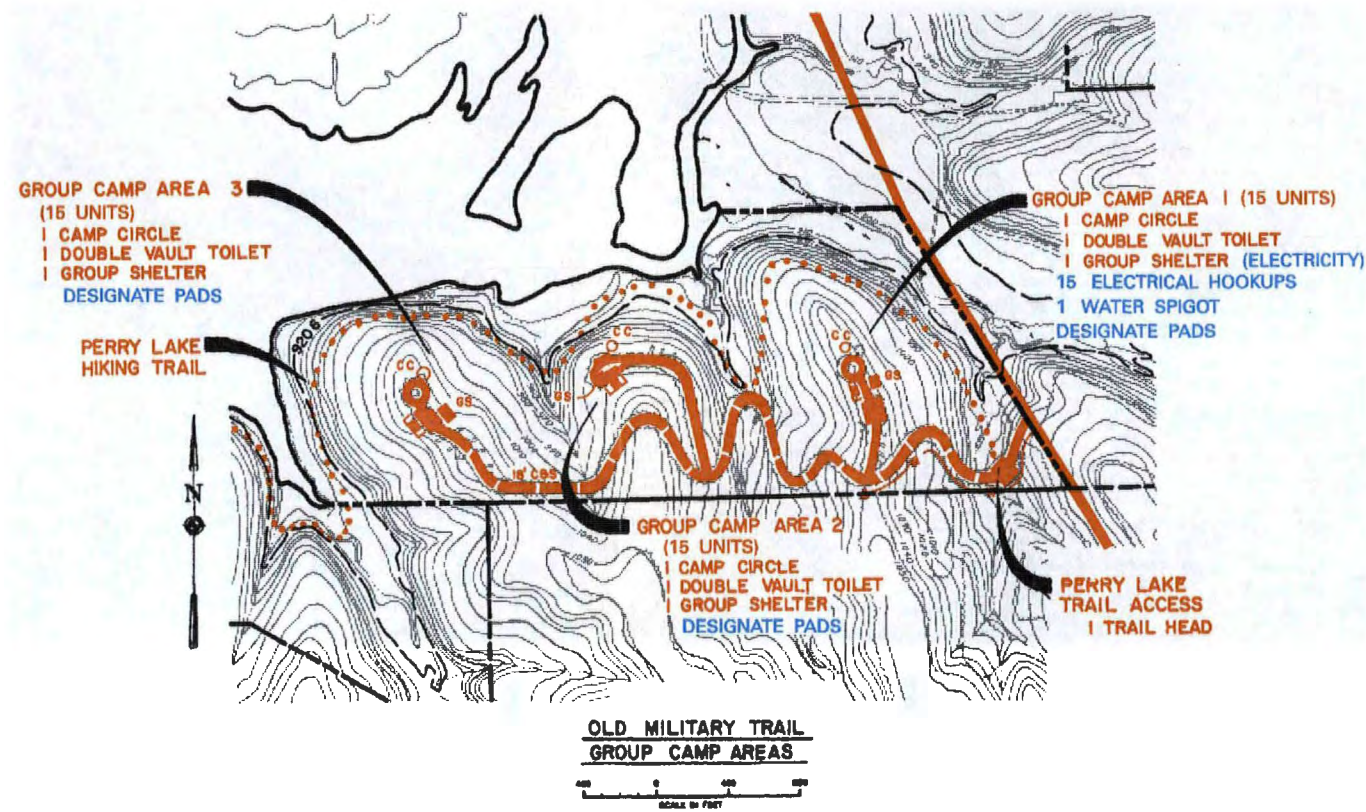
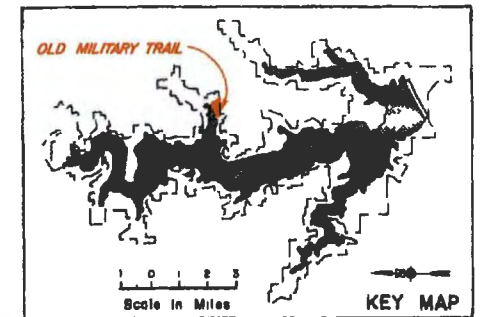
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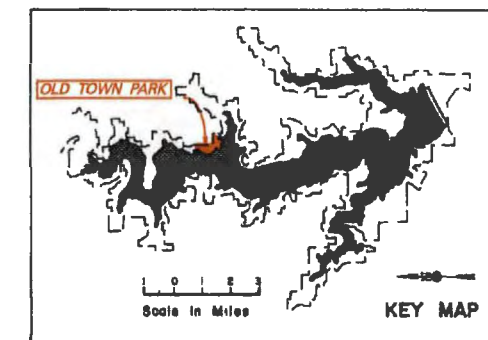




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Flood Control Pool	
Wooded Area	
Roads	
Federal, State and County Route Markers	75-2-B
Improved	
Government Property Line	
Public Use Area Boundary	
PUBLIC USE AREA FACILITIES	
	Existing Future
Interior Roads Gravel	
Interior Roads Paved	
Parking Areas	
Water System	
Water Spigot	
Distr System	
Electrical Lines	
Underground	
Overhead	
Sanitary Facilities	
Sewage Lift Station	LS
Well House	WH
Single Vault Toilet	LS
Double Vault Toilet	LS
Waterborne Toilet	LS
Washhouse	WH
Comfort Station	CS
Sanitary Dump Station	SDS
Stabilization Pond	
Sewer Lines	S
Force Main	FM
Water Treatment Plant	WTP
Group Shelters	GS
Camping Units	CU
Courtesy Docks	CD
Fishing Docks	FD
Swimming Beach	
Change House	CH
Entrance Station	
Trails	
Nature	
Hiking	
Equestrian	

Revisions			
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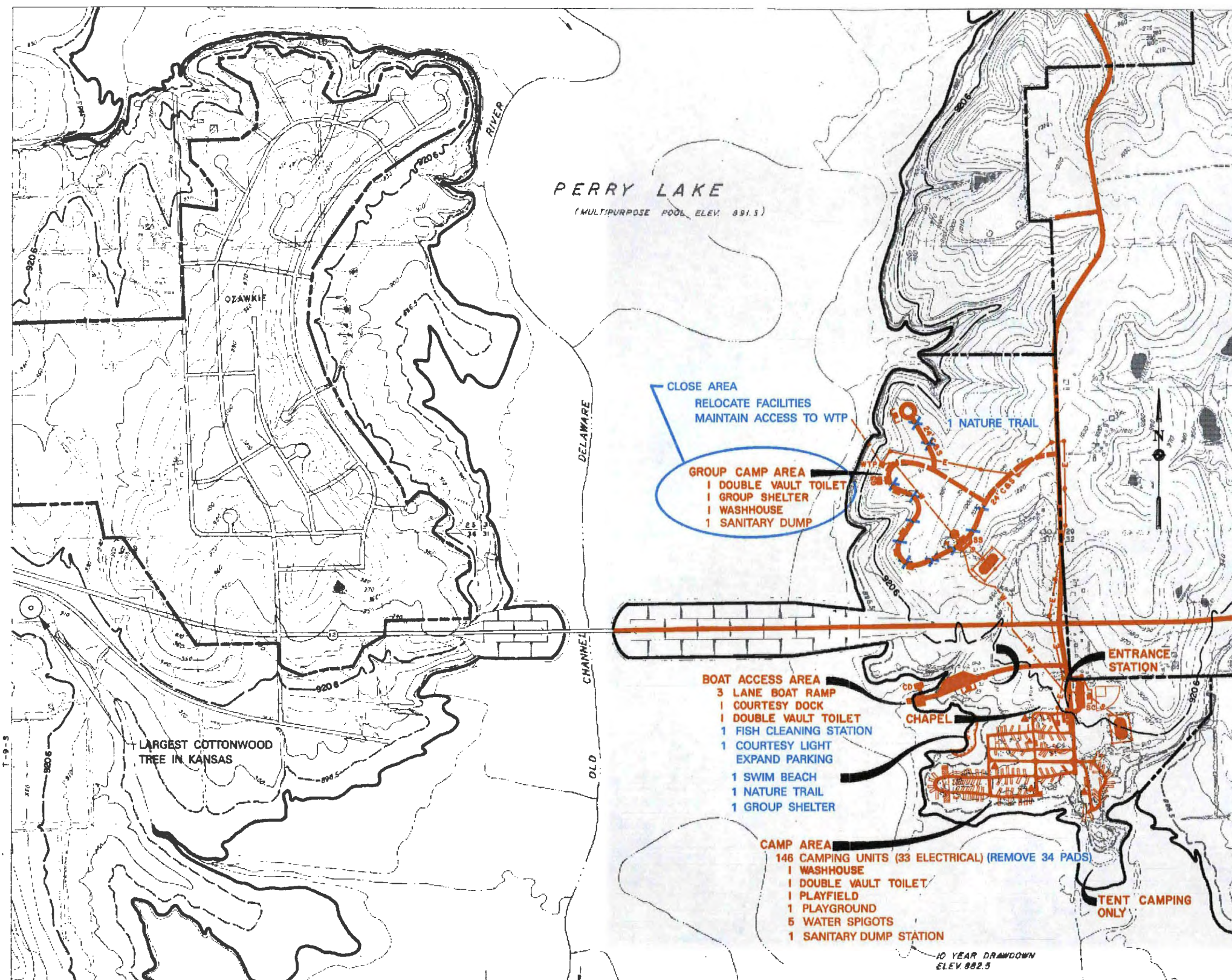
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- Lake Pool, Elev (M S L) 891.5
  - Multipurpose Pool 892.6
  - Flood Control Pool
  - Wooded Area
  - Roads
  - Federal, State and County Route Markers
  - Improved
  - Government Property Line
  - Public Use Area Boundary

### PUBLIC USE AREA FACILITIES

- |                       | Existing | Future |
|-----------------------|----------|--------|
| Interior Roads Gravel | ---      | ---    |
| Interior Roads Paved  | ---      | ---    |
| Parking Areas         | ---      | ---    |
| Water System          | ---      | ---    |
| Water Spigot          | ---      | ---    |
| Distr System          | ---      | ---    |
| Electrical Lines      | ---      | ---    |
| Underground           | ---      | ---    |
| Overhead              | ---      | ---    |
| Sanitary Facilities   |          |        |
| Sewage Lift Station   | LS       | ---    |
| Well House            | WH       | ---    |
| Single Vault Toilet   | LS       | ---    |
| Double Vault Toilet   | LS       | ---    |
| Waterborne Toilet     | LS       | ---    |
| Washhouse             | WH       | ---    |
| Comfort Station       | CS       | ---    |
| Sanitary Dump Station | SDS      | ---    |
| Stabilization Pond    | S        | ---    |
| Sewer Lines           | FM       | ---    |
| Force Main            | FM       | ---    |
| Water Treatment Plant | WTP      | ---    |
| Group Shelters        | GS       | ---    |
| Camping Units         | CU       | ---    |
| Courtesy Docks        | CD       | ---    |
| Fishing Docks         | FD       | ---    |
| Swimming Beach        | SB       | ---    |
| Change House          | CH       | ---    |
| Entrance Station      | ES       | ---    |
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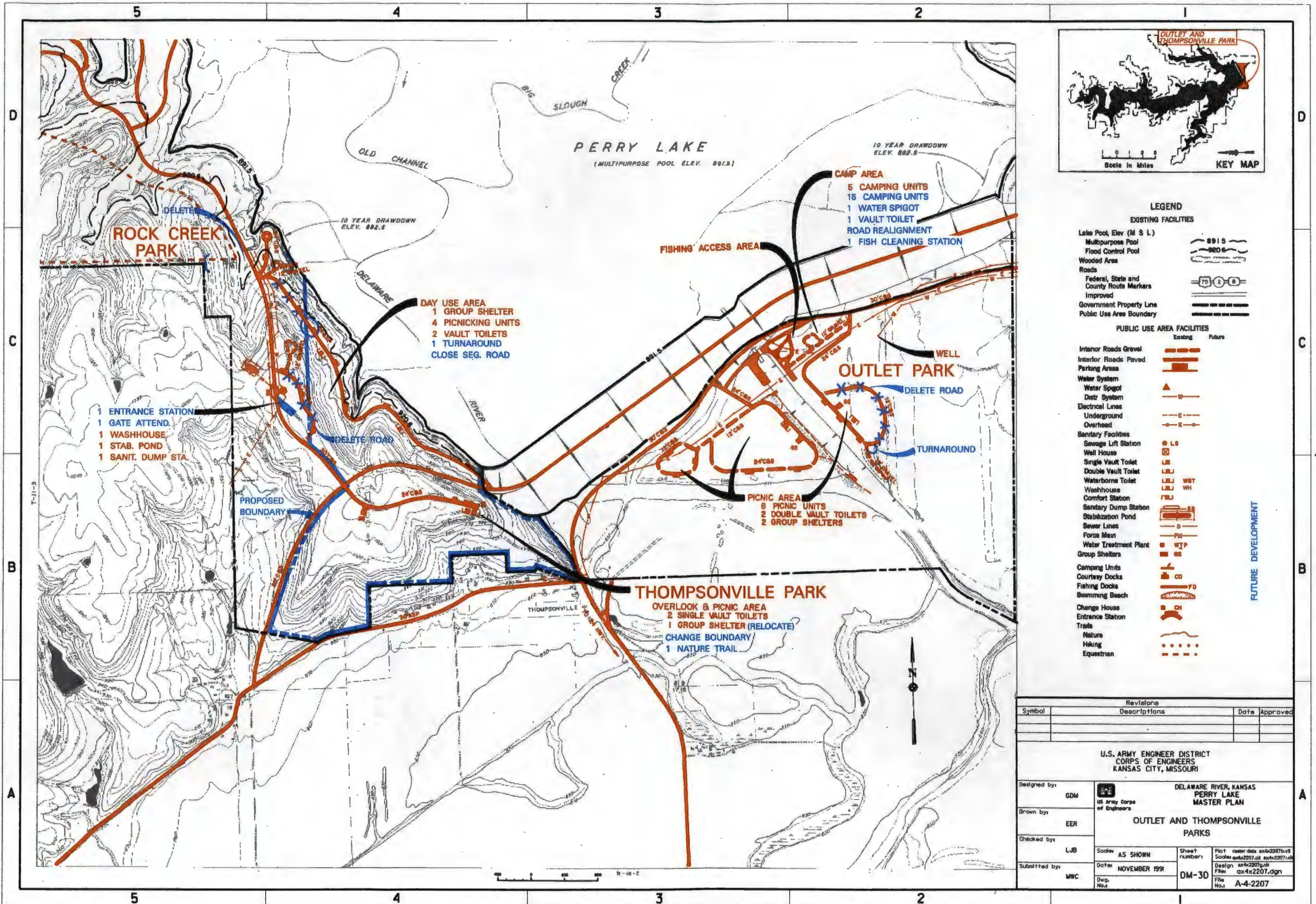
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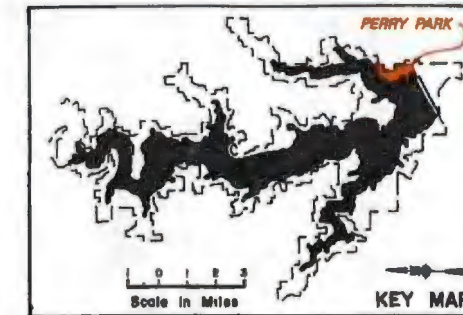


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LEGEND

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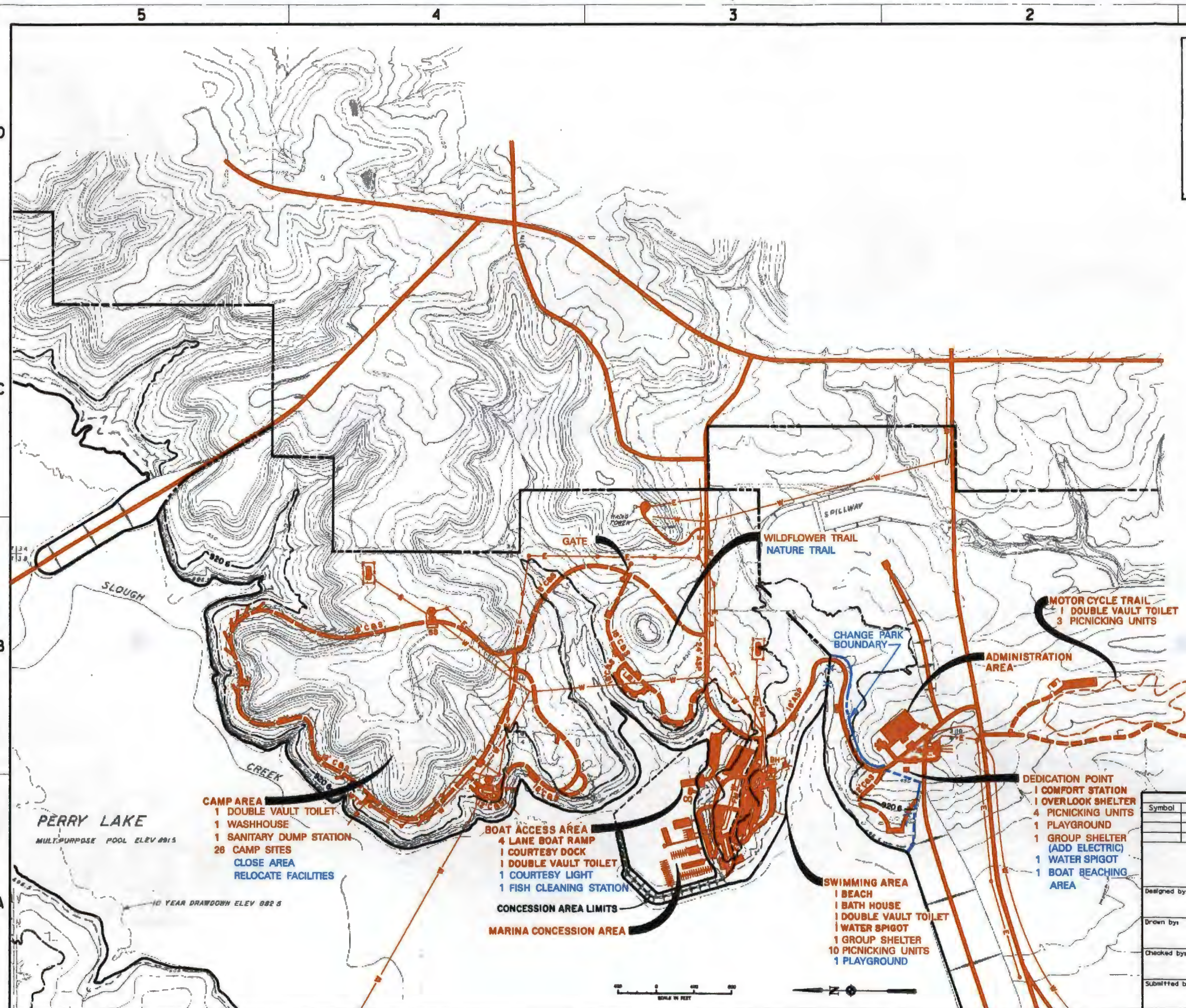
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- Multipurpose Pool 890.6
- Flood Control Pool
- Wooded Area
- Roads
- Federal, State and County Route Markers
- Improved
- Government Property Line
- Public Use Area Boundary

PUBLIC USE AREA FACILITIES

Existing Future

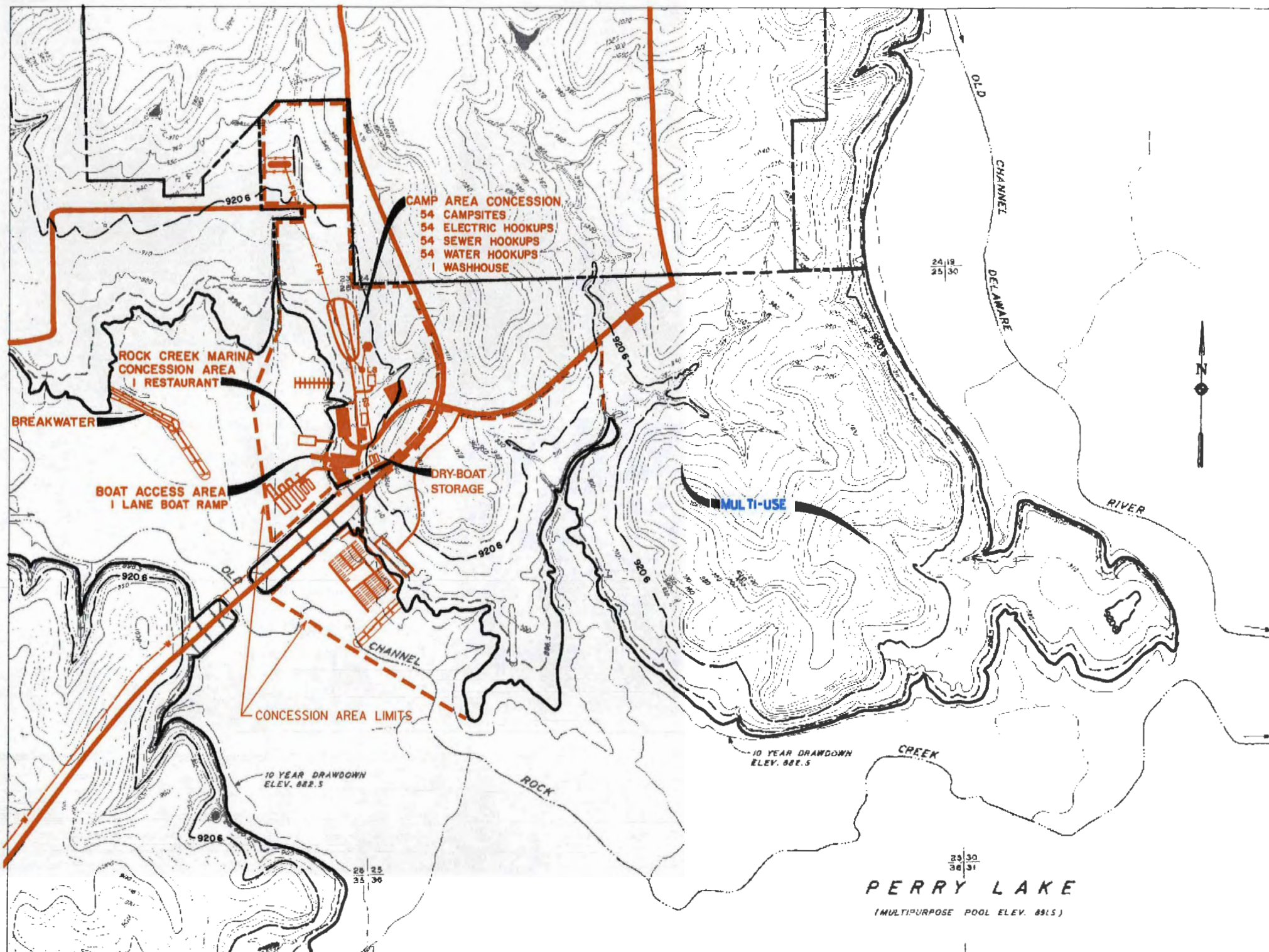
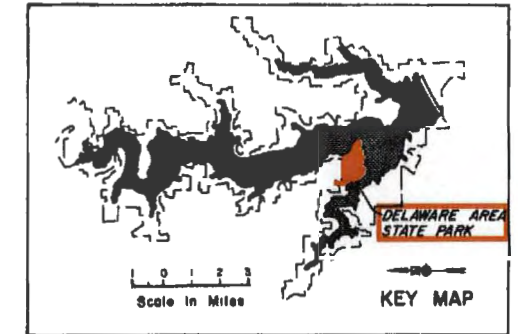
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- Water System
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- Electrical Lines
- Underground
- Overhead
- Sanitary Facilities
- Sewage Lift Station
- Well House
- Single Vault Toilet
- Double Vault Toilet
- Waterborne Toilet
- Washhouse
- Comfort Station
- Sanitary Dump Station
- Stabilization Pond
- Sewer Lines
- Force Main
- Water Treatment Plant
- Group Shelters
- Camping Units
- Courtesy Docks
- Fishing Docks
- Swimming Beach
- Change House
- Entrance Station
- Trails
- Nature
- Hiking
- Equestrian

FUTURE DEVELOPMENT



Revisions			
Symbol	Descriptions	Date	Approved
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Submitted by	MWC	Date	NOVEMBER 1991
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**LEGEND**

**EXISTING FACILITIES**

Lake Pool, Elev (M S L) 891.5

Multipurpose Pool 890.6

Flood Control Pool

Wooded Area

Roads

Federal, State and County Route Markers

Improved

Government Property Line

Public Use Area Boundary

**PUBLIC USE AREA FACILITIES**

Existing Future

Interior Roads Gravel

Interior Roads Paved

Parking Areas

Water System

Water Spot

Distr System

Electrical Lines

Underground

Overhead

Sanitary Facilities

Sewage Lift Station

Well House

Single Vault Toilet

Double Vault Toilet

Waterborne Toilet

Washhouse

Comfort Station

Sanitary Dump Station

Stabilization Pond

Sewer Lines

Force Main

Water Treatment Plant

Group Shelters

Camping Units

Courtesy Docks

Fishing Docks

Swimming Beach

Change House

Entrance Station

Trails

Nature

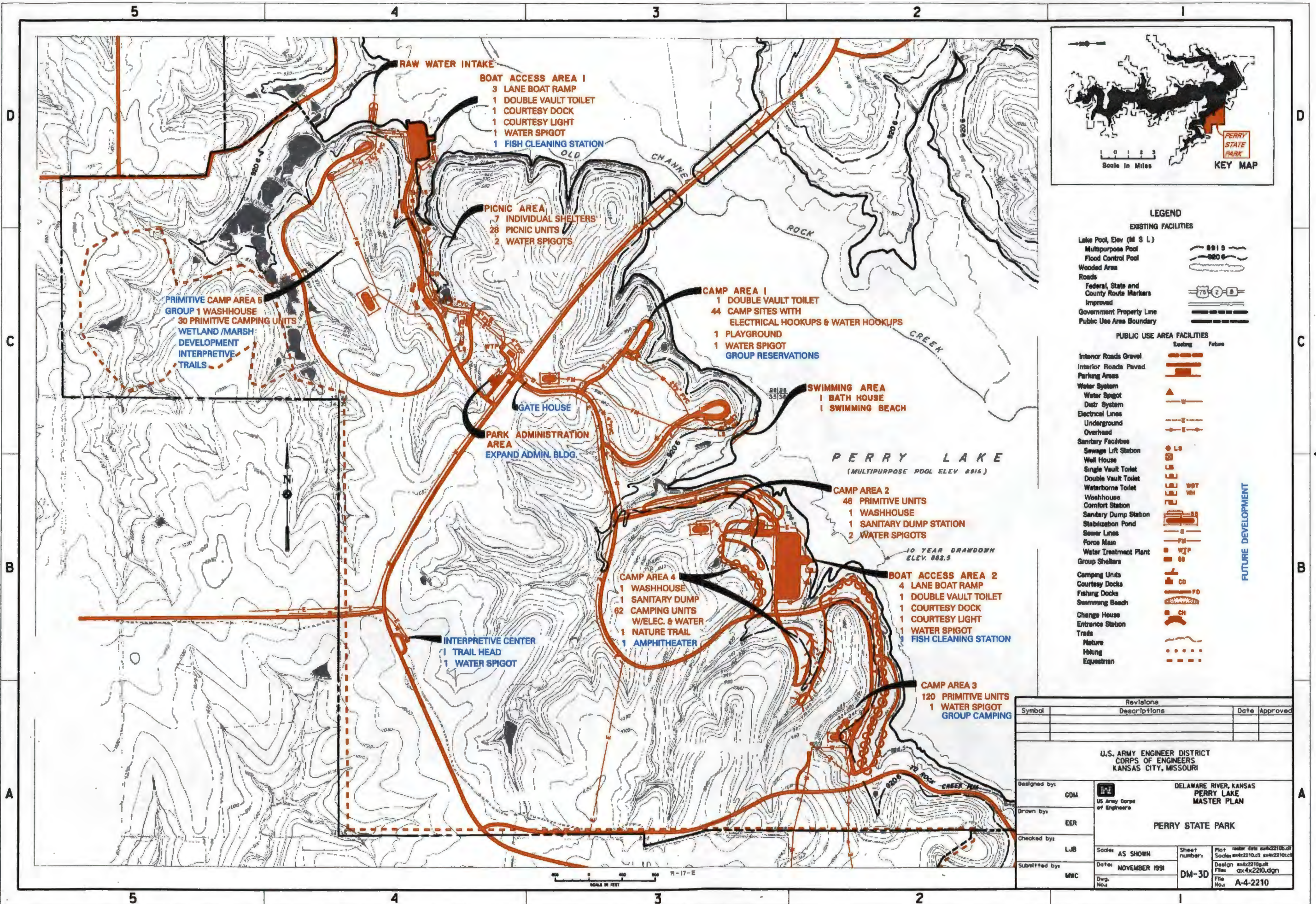
Hiking

Equestrian

**FUTURE DEVELOPMENT**

Revisions			
Symbol	Descriptions	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	GDM	DELAWARE RIVER, KANSAS PERRY LAKE MASTER PLAN	
Drawn by:	EER	PERRY STATE PARK	
Checked by:	LUB	AS SHOWN	
Submitted by:	MWC	Date: NOVEMBER 1991	DM-3D
Plot: master data ax4x2209.dgn		Design: ax4x2209.dgn	File No: A-4-2209





**LEGEND**

**EXISTING FACILITIES**

Lake Pool, Elev (M S L) 881.6  
 Multipurpose Pool 880.6  
 Flood Control Pool  
 Wooded Area  
 Roads  
 Federal, State and County Route Markers  
 Improved  
 Government Property Line  
 Public Use Area Boundary

**PUBLIC USE AREA FACILITIES**

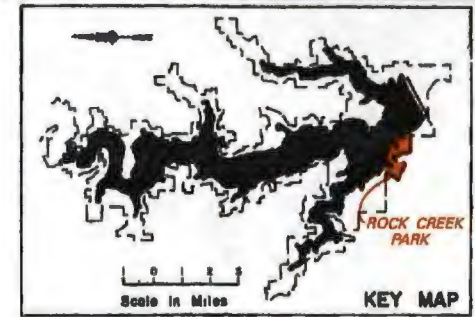
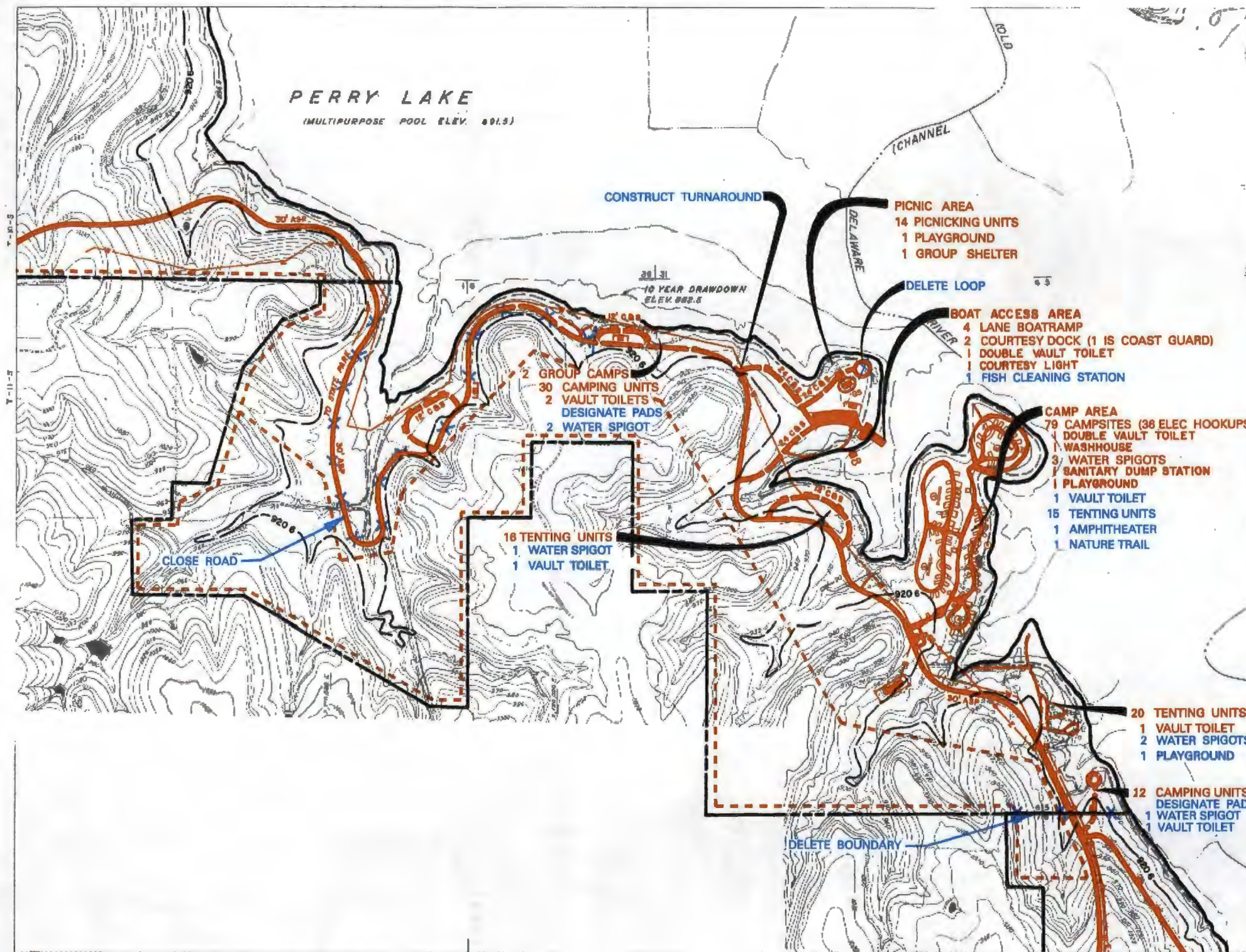
Existing Future

Interior Roads Gravel  
 Interior Roads Paved  
 Parking Areas  
 Water System  
 Water Spigot  
 Distr. System  
 Electrical Lines  
 Underground  
 Overhead  
 Sanitary Facilities  
 Sewage Lift Station  
 Well House  
 Single Vault Toilet  
 Double Vault Toilet  
 Waterborne Toilet  
 Washhouse  
 Comfort Station  
 Sanitary Dump Station  
 Stabilization Pond  
 Sewer Lines  
 Force Main  
 Water Treatment Plant  
 Group Shelters  
 Camping Units  
 Courtesy Docks  
 Fishing Docks  
 Swimming Beach  
 Change House  
 Entrance Station  
 Trails  
 Nature  
 Hiking  
 Equestrian

**FUTURE DEVELOPMENT**

Revisions			
Symbol	Descriptions	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	GDM	DELAWARE RIVER, KANSAS PERRY LAKE MASTER PLAN	
Drawn by:	EER	PERRY STATE PARK	
Checked by:	LJB	AS SHOWN	
Submitted by:	MWC	Date: NOVEMBER 1991	Sheet number: 1 of 1
Dwg. No. 4-2210		Plot: 11x17 plot	Plot: 11x17 plot
File No. A-4-2210		Design: 11x17 plot	Design: 11x17 plot



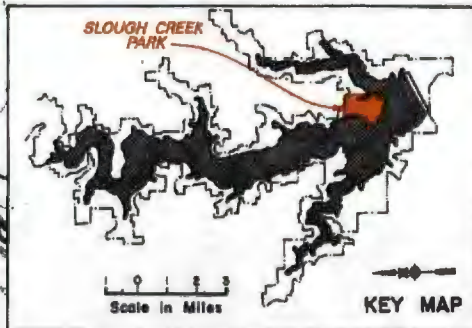
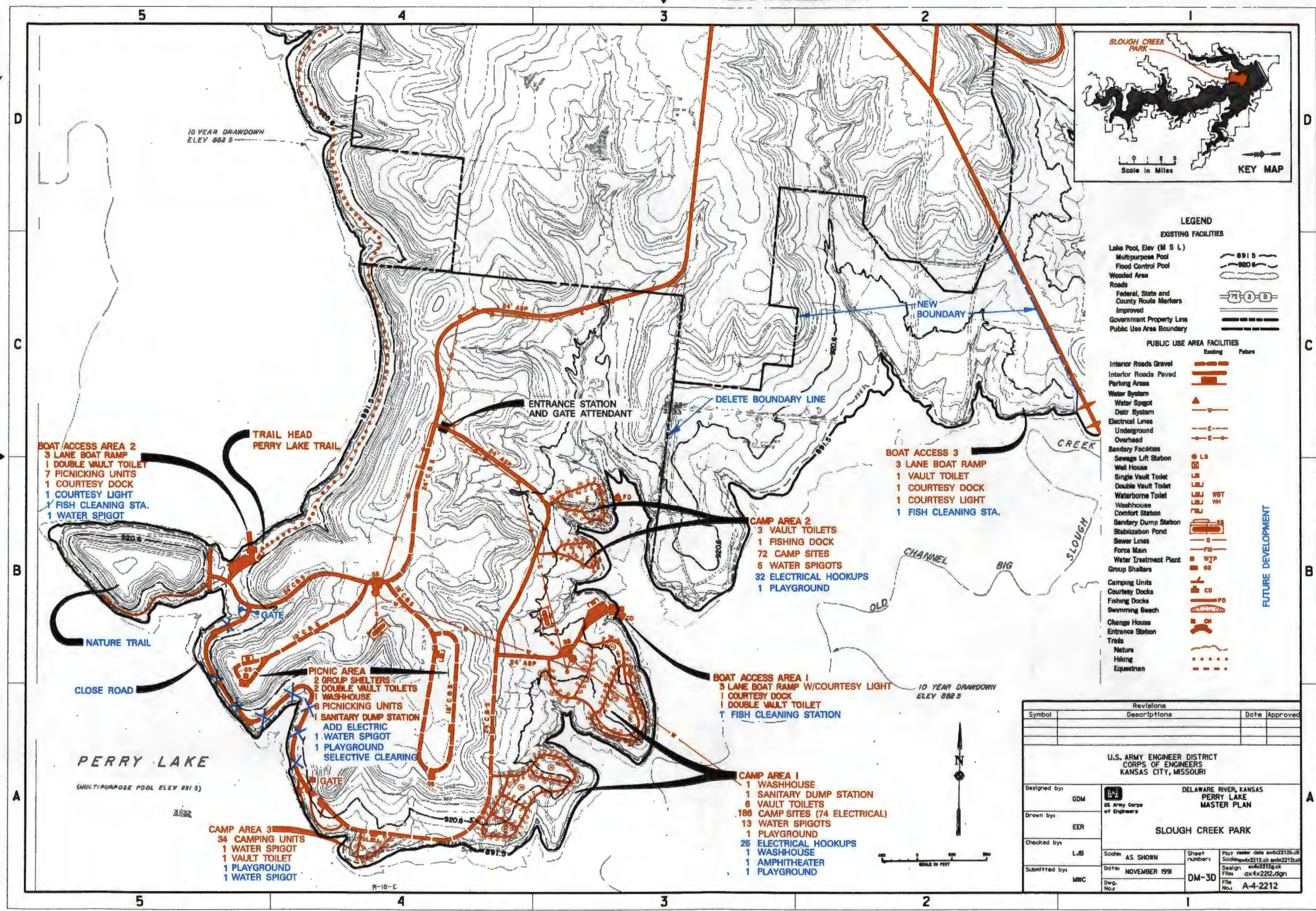


LEGEND	
EXISTING FACILITIES	
Lake Pool, Elev (M S L)	891.9
Multipurpose Pool	890.6
Flood Control Pool	
Wooded Area	
Roads	
Federal, State and County Route Markers	
Improved	
Government Property Line	
Public Use Area Boundary	
PUBLIC USE AREA FACILITIES	
Existing	Future
Interior Roads Gravel	
Interior Roads Paved	
Parking Areas	
Water System	
Water Spigot	
Distr. System	
Electrical Lines	
Underground	
Overhead	
Sanitary Facilities	
Sewage Lift Station	
Well House	
Single Vault Toilet	
Double Vault Toilet	
Waterborne Toilet	
Washhouse	
Comfort Station	
Sanitary Dump Station	
Stabilization Pond	
Sewer Lines	
Force Main	
Water Treatment Plant	
Group Shelters	
Camping Units	
Courtesy Docks	
Fishing Docks	
Swimming Beach	
Change House	
Entrance Station	
Trails	
Nature	
Hiking	
Equestrian	



Revisions			
Symbol	Descriptions	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	GDM	DELAWARE RIVER, KANSAS PERRY LAKE MASTER PLAN	
Drawn by:	EER	ROCK CREEK PARK	
Checked by:	LJB		
Submitted by:	MWC		
Scales: AS SHOWN		Sheet number:	Plot master data: arkx2211b.dgn Scales: arkx2211a.dgn, arkx2211c.dgn
Date: NOVEMBER 1991		Design: arkx2211a.dgn File: arkx2211.dgn	File No.: A-4-2211
Dwg. No.:		File No.:	





LEGEND	
EXISTING FACILITIES	
Lake Pool, Elev (M S L.)	891.5
Multipurpose Pool	892.6
Flood Control Pool	
Wooded Area	
Roads	
Federal, State and County Route Markers	
Improved	
Government Property Line	
Public Use Area Boundary	
PUBLIC USE AREA FACILITIES	
Existing	Future
Interior Roads Gravel	
Interior Roads Paved	
Parking Areas	
Water System	
Water Spigot	
Dist. System	
Electrical Lines	
Underground	
Overhead	
Sanitary Facilities	
Sewage Lift Station	LS
Well House	WH
Single Vault Toilet	LS
Double Vault Toilet	LS
Waterborne Toilet	LS WBT
Washhouse	LS WH
Comfort Station	LS
Sanitary Dump Station	LS
Stabilization Pond	LS
Sewer Lines	LS
Force Main	LS
Water Treatment Plant	WTP
Group Shelters	GS
Camping Units	CU
Courtesy Docks	CD
Fishing Docks	FD
Swimming Beach	SB
Change House	CH
Entrance Station	ES
Trails	
Nature	
Hiking	
Equestrian	

Revisions			
Symbol	Descriptions	Date	Approved
U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS KANSAS CITY, MISSOURI			
Designed by:	GDM	DELAWARE RIVER, KANSAS PERRY LAKE MASTER PLAN	
Drawn by:	EER	SLOUGH CREEK PARK	
Checked by:	LJB	Scale:	AS SHOWN
Submitted by:	MWC	Sheet number:	DM-3D
		Date:	NOVEMBER 1991
		Design:	04x2212.dgn
		File:	04x2212.dgn
		File No.:	A-4-2212