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US Army Corps
of Engineers
Kansas City District
Leaders in Customer Care

Multiple-Purpose Project
Osage River Basin
Osage River
Missouri

Harry S. Truman Dam & Reservoir

Master Plan

Design Memorandum 36A

October 1988

#14
ED-C

CEMRD-PD-R (CEMRK-DE/17 Nov 88) (1110-2-1150a) 1st End Mr. Galloway/drs/221-7280
SUBJECT: Harry S. Truman Dam and Reservoir, Missouri; Design Memorandum 36A, Master Plan

DA, Missouri River Division, Corps of Engineers, P. O. Box 103, Downtown Station, Omaha, Nebraska 68101-0103 JAN 30 1989

FOR Commander, Kansas City District, ATTN: CEMRK-DE

This plan is approved, subject to comments enclosed.

2 Encls
wd encl 1
added 1 encl
2. cmts

GEORGE T. LA BLONDE, JR.
Colonel, Corps of Engineers
Acting Commander

Review Comments

HST Master Plan, 1988

1. There is a certain amount of unfinished business which should properly have been resolved within this Master Plan. Therefore, it will be necessary to amend or supplement this Master Plan when those issues are addressed. Among the areas in this category are the following:

a. Page VI-33, paragraph d. Missouri Department of Conservation (MDC) rules allow primitive camping under limited conditions at MDC licensed areas during firearms deer and spring turkey hunting seasons. The District has sanctioned this (per 36 CFR, 327.7) on a case by case basis, but apparently has reservations about the licensee's general policy. The second full paragraph on page VI-34 states that "a consistent and workable policy should be established . . . ," but the Master Plan fails to identify conclusive reasons for unacceptability of existing state policy, or to establish an alternate policy that is acceptable. The State's license agreement provides that the licensee shall administer the licensed property in accordance with the project Master plan.

b. Page VII-1, paragraph 7.1. Problems are anticipated because of demand for additional lake access roads and launching facilities connected with active subdivision development, yet establishment of a management policy is deferred. Without clear master plan guidelines for approving such roads and access points, decisions are subject to arbitrary criteria and contention.

c. Page VII-2, paragraph 7.3. The number of boats involved in tournament activities has more than doubled in four years and a number of management problems are stated to be associated. Again, resolution of the problems is deferred and no guidelines are provided.

d. Page II-33 et seq., Section 2-13. The analysis of visitation and facilities development needs terminates in a "best guess" result. A complete reevaluation based on proposed 1989 recreation survey data and other relevant information will be necessary in order to establish supportable estimates of needs.

2. There are a number of proposals to construct facilities in order to "increase revenue" (e.g., Page VI-9, paragraph 6-5b; Page VI-16, paragraph 6-13b; Page VI-19, paragraph 6-17b). These proposals appear to ignore the distinction between "more revenue" and "feasibility", and to by-pass consideration of added cost to visitors in terms of more money or more regulation. Neither increased O&M cost nor regional

economic effect appear to be considered. In the case of Windsor Crossing Park, clear visitor preference for a free park with minimal development seems translated as an opportunity to charge user fees. Those preferring a free park will be banished to a "less popular" area. Approval of this plan should not be viewed as approval to construct facilities with a poor cost to recreation-benefit ratio, nor to sanction any sort of add-revenue-at-any-cost ethic in managing Corps' public parks. Plans for development which will result in greater costs to Park users, increased O&M costs, or have a potential effect on the regional economy should be thoroughly analyzed and justified in budget submittals.

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DEPARTMENT OF THE ARMY
KANSAS CITY DISTRICT, CORPS OF ENGINEERS
700 FEDERAL BUILDING
KANSAS CITY, MISSOURI 64106-2896

REPLY TO
ATTENTION OF:

17 NOV 1988

CEMRK-DE

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

SUBJECT: Harry S. Truman Dam and Reservoir, Missouri; Design Memorandum 36A, Master Plan

1. The Harry S. Truman Master Plan is submitted in accordance with ER 1130-2-435. The regulation is entitled "Project Operations-Preparation of Project Master Plans."

2. A draft environmental assessment and proposed Finding of No Significant Impact for the Master Plan update are in the process of being prepared pursuant to NEPA and ER 200-2-2.

3. Approval of the Master Plan is recommended as submitted.

Encl (10 cys)

JOHN H. ATKINSON
Colonel, CE
Commanding

MULTIPLE-PURPOSE PROJECT

HARRY S. TRUMAN DAM AND RESERVOIR
OSAGE RIVER BASIN
OSAGE RIVER
MISSOURI

PREVIOUS DESIGN MEMORANDA

Design Memoranda	Title	Date Submitted	Date Approved
1	Hydrology	26 Feb 62	11 May 62
2	General Project Development	26 Jun 62	7 Nov 62
	Boundary Surveys and Marking - Supplement 1	2 Aug 66	18 Oct 66
3	Preliminary Cost Allocation	13 Mar 63	3 May 63
		Rev 16 Apr 65	
		Rev 29 Jul 65	8 Dec 65
		Rev 16 Sep 66	30 Nov 66
4	Geology	23 Jul 63	8 Oct 63
5	Sources of Construction Materials	29 Jun 64	1 Sep 64
6	Hydropower Capacity	10 Mar 64	25 Jun 64
6A	Hydropower Capacity	16 Apr 65	
		Rev 2 Aug 65	5 Apr 66
7	Spillway	25 Jun 64	
		Rev 6 Jul 65	17 Sep 65
7A	Spillway	29 Dec 67	
		Rev 8 Mar 68	13 May 68
8A	Preliminary Master Plan	8 Oct 64	28 Jan 65
8A	Preliminary Master Plan - Supplement 1	14 Jun 68	30 Dec 68
8B	Development Chapter, Phase I	15 Oct 68	27 Feb 69
8B	Development Chapter, Phase II	18 Sep 69	18 Dec 69
8B	Development Chapter, Phase III	30 Dec 69	23 Apr 70
9	Access Roads	12 Aug 64	1 Oct 64
9A	Access Roads to Sterett Creek Dike	8 Jul 70	11 Aug 70

HARRY S. TRUMAN DAM AND RESERVOIR

PREVIOUS DESIGN MEMORANDA - Cont'd

Design Memoranda	Title	Date Submitted	Date Approved
10	Administrative Facilities	21 Dec 64	22 Mar 65
11	Soil Data and Embankment Design	19 Feb 65	19 Apr 65
12	Real Estate	27 Jul 65	20 Sep 65
12A	Access Road "B" Benton County	24 Nov 64	19 Jan 65
12B	Access Roads "A" and "C" and Service Road "A" Benton County	21 Mar 66	17 Jun 66
12C	Segments 17 thru 21 and Segment 39	8 Oct 65	23 Dec 65
12D	Segments 45, 46, 48, 50 thru 53	19 Nov 65	20 Jan 66
12E	Segments 7 thru 13 and Segment 16	10 Dec 65	14 Feb 66
12F	Segments 56 thru 60, Town of Osceola	25 Apr 66	30 Aug 66
12C	Segments 31 thru 37, 40 thru 44, 108 and subdivisions	29 Aug 66	30 Nov 66
12H	Segments 14, 15, 22, 23 and 24	3 Feb 67	16 May 67
12I	Segments 47, 49, 54, 55, and 61, and Tract 5951	5 Jan 67	23 May 67
12J	Sterett Creek Dike Outlet Swale (Drainage Ditch Easement)	21 Sep 66	7 Oct 66
12K	Exception to 300 foot Criteria Tract 517	18 Jul 66	30 Aug 66
12L	State and County Road Relocations	31 Aug 66	4 Nov 66
12M	St. Louis-San Francisco Railway	18 Jan 67 Rev 19 Oct 67	14 Aug 73
12N	Authority to deviate From 300-Foot Criteria	4 Aug 66	

HARRY S. TRUMAN DAM AND RESERVOIR

PREVIOUS DESIGN MEMORANDA - Cont'd

Design Memoranda	Title	Date Submitted	Date Approved
12O	Deviation from 300 foot Criteria, Segments 1 and 2	15 Aug 66	13 Oct 66
12P	Deviation from 300 foot Criteria, Segments 7 thru 13, 16, 45, 46, 48, and 50 thru 53	15 Sep 66	17 Oct 66
12Q	Segments 38, 109 thru 116	16 Jun 67	30 Oct 67
12R	Segments 62 thru 68, 71 and 76	22 Jun 67	20 Oct 67
12S	Segments 117 thru 121 and 126	28 Aug 67	29 Nov 67
12T	Landing Strip	22 Mar 67	5 Mar 68
12U	Segments 75, 80 thru 88, 90 thru 94, and 96 thru 98, North of Monegaw Springs	13 Sep 67	12 Dec 67
12X	Whiteman Cable Line Relocations	7 Jun 67	28 Nov 67
12Y	Segments 127 thru 130, 132, 135 and 136	12 Jul 68	3 Oct 69
12Z	Segments 122, 123, 125, and 134	24 Nov 67	7 May 68
12AA	Segments 25 thru 30	22 Sep 67	30 Apr 68
12BB	Tract 5951, Missouri Public Service Company	8 Feb 68	7 Jun 68
12CC	Segments 137 thru 142	27 Jul 68	17 Dec 68
12EE	Henry and St. Clair County Road Relocations	15 Dec 67	26 Mar 68
12FF	Bates and Vernon County Road Relocation	8 Aug 68	21 Jan 69
12GG	Authority to Leave in Place Cemeteries and/or Burial Plots, Above Full Pool	13 Nov 67 Rev 28 Jun 68	6 Nov 69
12JJ	Segment 15	15 Mar 68	16 May 69

HARRY S. TRUMAN DAM AND RESERVOIR

PREVIOUS DESIGN MEMORANDA - Cont'd

Design Memoranda	Title	Date Submitted	Date Approved
12KK	Portions of Segments 127, 129, and 130, and all of 131 and 133	16 Jul 71	9 Dec 71
12LL	Portions of Segments 118 and 119	16 Oct 70	
12MM	Segment 124, Town of Ladue		
12NN	Relocation of Municipal Facilities, Town of Clinton	26 Feb 74	9 Jul 74
12OO	Additional Land in Vicinity of Proposed Information Center	20 Mar 74	28 Aug 74
12PP	Relocation of Municipal Facilities, Deepwater, Missouri	16 Apr 76	5 May 76
12QQ	Relocation of Water Intake System, City of Rockville	10 May 76	
12RR	Coal Mine Leasing		
12SS	Access Roads, Park		
12TT	Access Road, Beds Cave		
12UU	Downstream Measures	23 Apr 81	
12VV	Degradation Ranges	22 Oct 82	
12WW	Access Road, Tract 1328E	11 Mar 83	
13	Sterett Creek Dike - Soil Data and Embankment Design	4 Mar 65	22 Apr 65
14	Turbine		
15	State and County Road Relocations	30 Dec 65	31 Mar 66
15A	Benton and Hickory County Road Relocations	29 Apr 66	4 Oct 66
15B	Henry and St. Clair County Road Relocations	10 May 67	6 Oct 67
15C	Bates and Vernon County Road Relocations	16 Oct 67	22 Dec 67

HARRY S. TRUMAN DAM AND RESERVOIR

PREVIOUS DESIGN MEMORANDA - Cont'd

Design Memoranda	Title	Date Submitted	Date Approved
15D	Revised Hickory County Road Relocations	12 Jan 68	24 Jul 69
15E	State Highway Relocations - Drainage Design	16 Aug 68	26 Sep 69
15F	Benton County Road Relocations Drainage Design	17 Dec 69	10 Apr 70
15G	County Road Relocations SC-31 and SC-36 and State Road No. 27	21 Jun 71	23 Nov 71
15H	Road Relocations HE-11, HE-30 and 31 Drainage Design	14 Sept 71	14 Jan 72
15I	Road Relocations, St. Clair County, SC-12, 19, 21, and 30	17 Jan 73	15 Feb 73
15J	State Road Relocation 31 Drainage Design	28 Feb 73	15 Mar 73
15K	Bates and Vernon County Road Relocations - Drainage Design	29 Nov 74	15 Jan 75
15L	Benton County Road Relocations	12 Dec 77	9 Jan 78
16	Cemetery Relocation, Plan A	14 Dec 65	11 May 65
17	Relocation of Railroad Facilities Mo-Kansas-Texas Railroad Company	8 Mar 66	7 Jun 66
17A	Mo-Kansas-Texas Railroad Relocation Drainage Design	13 Dec 72	12 Jan 73
18	Transmission Line Relocations	26 Jul 66	5 Oct 66
18A	KCPL Montrose Dam	10 Jan 67	27 Feb 67
19	Landing Strip	7 Nov 66	13 Dec 66
20	Relocation of Pipe Lines (Texaco-Cities Service Pipe Line Company)	8 Mar 67	8 Jun 67
21	Cemetery Relocation, Plan B	31 Jan 67	30 Aug 67
22	Powerline Relocations	3 May 67	7 Aug 67

HARRY S. TRUMAN DAM AND RESERVOIR

PREVIOUS DESIGN MEMORANDA - Cont'd

Design Memoranda	Title	Date Submitted	Date Approved
22A	Revised Relocations and Associated Cost Estimates	19 Dec 69	26 Jan 70
22B	Additional Cost for Facilities Abandoned and Removed	4 Oct 75	14 Jan 75
23	Telephone Line Relocations	31 Jan 68	2 May 68
23A	Revised Relocations and Associated Cost Estimate	19 Dec 69	24 Feb 69
23B	Revised Relocations and Associated Cost Estimates	19 Dec 69	26 Jan 70
23C	Additional Cost for Facilities Abandoned and Removed	4 Oct 74	20 Jan 75
24	Cemetery Relocation - Plan C	19 Dec 68 Rev 25 Jun 69	9 Jul 69
25	Relocation of Municipal Facilities, City of Osceola, Missouri	26 Jun 68	11 Oct 68
25A	City Parks, Swimming Pool and Interceptor Sewer	14 Nov 69	30 Mar 70
26	Relocation of Intersite Communications Cable System, Whiteman Air Force Base	30 Jul 68	31 Oct 68
27	Cemetery Relocation - Plan D	10 Feb 77 Rev 27 May 77	
28	Relocation of Municipal Facilities, City of Deepwater	22 Apr 70	
29	Generator - Motors	8 Jun 70	4 Aug 70
30	Pump-Turbine Governor	10 Jun 71	17 Aug 71
31	Reservoir Clearing	18 Sep 72	23 Aug 76
32	Information Center	6 Oct 71	11 Jan 73
33	Relocation of Municipal Facilities, Clinton, Missouri	20 Nov 72	25 Oct 73

HARRY S. TRUMAN DAM AND RESERVOIR

PREVIOUS DESIGN MEMORANDA - Cont'd

Design Memoranda	Title	Date Submitted	Date Approved
34	City of Rockville, Missouri, Water Intake System	27 Sep 74	30 Sep 75
35	Lake and Pumpback Determination Acoustic Velocity Meter	30 Apr 75	22 Jul 75
36	Master Plan	10 Oct 75 Rev 24 Aug 77	19 Mar 76 20 Nov 78
36	Windsor Crossing Swimming Beach Letter Memorandum, Supplement 1	8 Jul 78	11 Jul 78
36	Revised Recreational Development for Osage Bluff, Fairfield and Long Shoal Public Use Area, Supplement 2	5 Dec 78	22 Dec 78
36	Revised Land Use Allocation in the Vicinity of Roscoe, Missouri, and Pavement of Pence Avenue for Use as a Public Use Area Access Road, Supplement 3	31 Dec 79	27 Feb 81
36	Management of Vacated Public Roads Located on Project Land, Supplement 4	30 May 80	13 Feb 81
36	Requirements for Maintenance and Storage Facilities at Warsaw and Clinton, Missouri Sites, Supplement 5	25 Aug 80	
36	Revised Land Use Allocation in the Vicinity of Osceola, Missouri, for Sac-Osage Youth Fairgrounds, Supplement 6	21 Nov 80	5 Feb 81
36	Revised Land Use Allocation in the Vicinity of Clinton, Deepwater and Osceola, Supplement 7	18 Dec 81	5 Feb 82
36	Warsaw Public Golf Course, Supplement 8	9 Apr 85	26 Apr 85
36	Sewage Lagoon, Supplement 9		
37	Preliminary Design Report, Power Plant	17 Jul 75	Approval not required
38	Powerhouse, Analysis of Design		

HARRY S. TRUMAN DAM AND RESERVOIR

PREVIOUS DESIGN MEMORANDA - Cont'd

Design Memoranda	Title	Date Submitted	Date Approved
39	Interpretive Prospectus	20 May 76	15 Jul 76
40	Project Electric Power from Station Service	30 Sep 77	Not approved deleted-not going to do work
41	Relocate Water Distribution Facilities, Missouri Public Service Company	6 Jan 78	18 May 78
42	St. Clair County Jail Relocation	9 Sep 77	
43	Interpretive Plan	5 Dec 77	14 Mar 78
44	Unit Breaker Failure Scheme	8 Aug 78	17 Jan 79
45	Cemetery Relocation, Plan E	12 Feb 79	14 May 79
46	Maintenance and Storage Facilities	29 Jun 79	3 Nov 80
47	Protection of Gray Bat Critical Habitat, Beck and Blackwell Caves	6 Apr 79	10 Apr 79
48	Intrusion Detection System	28 Mar 79	5 Mar 79
49	Maintenance of Satisfactory Downstream Water Temperatures and Dissolved Oxygen Concentrations Through the Use of a Skimming Weir	27 Nov 79	18 Dec 79
50	Relocation of Municipal Facilities City of Urich, Missouri	Jul 80	5 Aug 80
51	Cemetery Fencing Plan, Plan F	2 Apr 81	26 Aug 81
52	Downstream Measures	30 Apr 81	8 Jul 81
53	Operational Management Plan	17 Sep 82	2 Nov 82
54	Additional Gates and Hoists	21 Jan 86	29 Jul 86

HARRY S. TRUMAN
MASTER PLAN
OUTLINE

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MULTIPLE-PURPOSE PROJECT

HARRY S. TRUMAN DAM AND RESERVOIR
OSAGE RIVER BASIN
OSAGE RIVER
MISSOURI

DESIGN MEMORANDUM 36A
MASTER PLAN
1988

PERTINENT DATA

GENERAL

Location of Dam	The dam is located about 1.5 miles northwest of Warsaw in Benton County, Missouri, and at mile 175 on the Osage River.
Operational and Jurisdictional Agency	Corps of Engineers, Kansas City District.
Purposes	Specific Authorities include downstream hydropower, hydropower, flood control, recreation, and fish and wildlife.
Authorization	The Flood Control Act of 1954 (Public Law 83-780) authorized the project substantially in accordance with House Document 81-549. The Flood Control Act of 1962 (Public Law 87-874) added authorized project purposes, and Public Law 91-267 changed the project's name from Kaysinger Bluff to Harry S. Truman Dam and Reservoir.
Date Construction Started	3 October 1964
Closure of Dam	21 July 1977
Date Placed in Operation	1 November 1979
Multipurpose Pool Initially Reached	29 November 1979
Project Life	100 years

PERTINENT DATA (Cont'd)

Project Cost	$500,000,000 (1985 Price Levels)
Federal	$416,283,000
Non-Federal	$133,717,000
Benefit/Cost Ratio	1.4

RIVER BASIN

Basin	Osage River Basin
Stream	Osage River
Drainage Area Above Dam	11,500 square miles of total drainage area above the dam. 7,800 square miles of uncontrolled area downstream from Melvern, Pomona, Pomme de Terre and Stockton Lakes.

LAND

Fee Land	240 acres of Bates County 56,536 acres of Benton County 61,010 acres of Henry County 6,769 acres of Hickory County 41,103 acres of St. Clair County 9 acres of Vernon County 165,667 acres of total fee land* *Includes 22 acres for municipal facilities relocation and 141 acres for downstream measures.
Flowage Easement	21,715 acres of Bates County 843 acres of Benton County 238 acres of Cedar County 29,385 acres of Henry County 162 acres of Hickory County 30,682 acres of St. Clair County 19,281 acres of Vernon County 102,846 acres of total flowage easement interest
Separable Recreation	594 acres of Benton County 15 acres of Henry County 35 acres of St. Clair County 644 acres of total separable lands
Total Acquisition	268,513 acres (as of December 1987)
Fish and Wildlife General Plan (approved 15 Nov 82)	53,800 acres

PERTINENT DATA (Cont'd)

LAKE

Water Surface Area	
Multipurpose Pool	55,600 acres (706 feet, mean sea level)
Flood Control	209,300 acres (739.6 feet, msl)
Shoreline at Multipurpose Pool	958 miles

Elevation Storage Designation	Elevations (feet, msl) From		To	Capacity (acre-feet)	Area At Top of Pool* Acres
Surcharge	751.1	-	739.6	2,910,815	297,000
Flood Control	739.6	-	706.0	4,005,949	209,250
Power	706.0	-	704.0	1,203,400	55,570
Gross Storage	739.6	-	650.0	5,209,350	
Sedimentation Reserve				--	
Annual Sediment Inflow				2,440	

*Storages and elevations are from area-capacity tables dated March 1982.

DAM AND EMBANKMENT

Type of Construction	Rolled earthfill
Fill Quantity	8,500,000 cubic yards
Top Width	35 feet
Base Width of Main Embankment	1,100 feet
Length	5,000 plus a 7,500 feet Sterett Creek dike
Height Above Streambed	126 feet
Freeboard	4.5 feet

SPILLWAY

Location	Center of dam
Type	Gated ogee overfall

PERTINENT DATA (Cont'd)

Crest Elevation	692.3 feet, msl
Width	190 feet
Discharge Capacity at Top of Surcharge Pool	284,000 cfs
Tainter Gates Number, Width and Height	Four 40 x 47.3 feet

OUTLET

Power Turbines	6 reversible pump turbines of 160,000 KW rated capacity

HYDROPOWER

Generator Turbine	6 Units
Generator Name Plate Capacity	160,000 KW
Turbine Rating	254,400 horsepower
Turbine Type	Kaplan (inclined shaft-reversible pump)
Discharges	
Maximum at Full Pool	79.2 feet (31,800 cfs)
Average at Power and Multipurpose Pool	42.5 feet (65,400 cfs)
Minimum	41.0 feet (64,800 cfs)
Reversible Pump Turbines	6 (any 5 units operating at any one time as 1 unit is required to supply the power for the pumping process).
Total Dynamic Head	50 feet
Discharge 5 Units at Maximum Head	22,500 cfs
Maximum Power Required	197,000 horsepower
Maximum Drawdown	704 feet, msl (at the end of a 5- day generation.

PREFACE

The recreation and natural resource management programs at Corps-built water resource projects have grown. They have grown from an incidental amenity to programs providing outdoor recreation opportunities for millions of Americans. Today, recreation and fish and wildlife benefits are considered major project purposes. While flood control and hydroelectric power production provide the ultimate benefits at HarryS. Truman Dam and Reservoir, it is in the enjoyment of recreation and fish and wildlife opportunities that people are more directly served at the project. The attraction of a lake as a backdrop for participation in outdoor recreation and natural resource activities is significant.

Planning for the orderly development, management and use of the resource is accomplished over time and involves coordination with different public and community elements. The document emanating from this planning process is the master plan for the project: The completion of a viable master plan required coordination and integration of efforts and action. This document established the policies, objectives and programs for the preservation, enhancement, development, administration and management of the resources and facilities at Harry S. Truman Dam and Reservoir.

SUMMARY

Harry S. Truman Dam and Reservoir is a water resource development project under the administrative jurisdiction of the Kansas City District, Corps of Engineers. The project is located in the Osage River basin of west-central Missouri. The dam creates a 55,600 acre lake at multipurpose pool elevation. The major arms of the lake are the Osage, South Grand, Pomme de Terre and Sac Rivers. The lake has about 950 miles of shoreline. The dam was closed in July 1977, and the project was placed in operation in November 1979. The multiple resource purposes of the project are for hydropower, flood control, recreation, and fish and wildlife.

This Master Plan is the basic document which guides the Kansas City District. The guidance goal is to preserve, conserve, restore, maintain, manage, and develop the project lands, waters and associated natural and man-made resources for the next 15 to 20 years. It deals in concepts and serves as a foundation for subsequent planning, development, operation, and management activities. This plan also provides a framework for continued and cooperative efforts between Federal, State, and local entities and citizens who share an interest in and responsibility for the development and management of the lands and waters at Truman.

All project lands have been allocated in accordance with authorized project purpose for which they were acquired. The allocations of all lands at Truman have been delineated into three broad categories: operations, recreation, and mitigation. Further, all lands have been classified to provide for development and resource management consistent with authorized project purposes and applicable Federal laws. The five classification categories for all lands include: project operations, recreation, mitigation, environmental sensitive and multiple resource management. In addition, resource objectives have been established for individually classified areas or compartments within the project. The written objectives provide a guide for future design, development, and management of both the natural and man-made resources at the water project.

The Corps operates and manages 16 parks or access points at Truman. These developed areas make a significant contribution to recreation and fish and wildlife resources of the State and region. The parks and access points provide the visiting public with a range of recreation facilities and opportunities. This Master Plan recommends the addition of needed facilities, improvements and renovations while supporting the goal to lower operation and maintenance costs. The separation of day use and camping facilities is proposed in some parks in order to minimize use conflicts and/or enhance user fee collection.

Diverse recreation opportunities are also provided at the project by various grantees - Missouri Department of Conservation, Missouri Department of Natural Resources, Heart of America Council - Boy Scouts, municipalities (Clinton, Deepwater, Osceola and Warsaw), marina concessionaires and non-profit corporations. It is recommended that the uses by these grantees are to be continued, and other recreation opportunities may be authorized in designated areas around the project. One definitely expressed need is to provide an area for campground development by an equestrian club or group. An area has been recommended for such development on the south side of the project next to an existing 25 mile trail constructed by a saddle club. Simarily, additional management roles have been proposed by some of these listed grantees plus other legal entities that have expressed interest and desires in managing lands and resources at Truman.

This Master Plan makes specific recommendations for 73 land classifications or compartments. The recommendations are to ensure that development and management measures, resource objectives and design criteria are adhered to and reflected in subsequent planning, development and management activities at the project.

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

MULTIPLE-PURPOSE PROJECT

HARRY S. TRUMAN DAM AND RESERVOIR
OSAGE RIVER BASIN
OSAGE RIVER
MISSOURI

DESIGN MEMORANDUM 36A
MASTER PLAN
October 1988

1-1. Project Authorization and Purposes.

a. The Harry S. Truman Dam and Reservoir was authorized by the River and Harbor Flood Control Act of 1954 (Public Law 83-780) for flood control and conservation purposes. The River and Harbor Flood Control Act of 1962 (Public Law 87-874) added hydropower, recreation, and fish and wildlife as project purposes, in accordance with the recommendation of the Chief of Engineers in House Document 578, Eighty-seventh Congress. The water resource project was named Kaysinger Bluff Dam and Reservoir at the time of authorization. It was renamed Harry S. Truman Dam and Reservoir in 1970 by Public Law 91-267.

b. Average annual benefits derived from the project have been estimated at the 1985 price level and are shown in Table I-1.

Table I-1. - Average Annual Dollar Benefits
for Harry S. Truman (1985 Price Level)

Purpose	Dollars of Annual Benefits
Flood Control	$16,420,000
Main Stream (Osage River)	(3,134,000)
Missouri River	(1,762,000)
Mississippi River	(11,524,000)
Hydropower	12,000,000
Recreation	5,129,000
Fish and Wildlife	891,000
Total	$34,440,000

c. The general authority for recreation development at flood control projects, such as Truman is in Section 4 of the Flood Control Act of 1944 (Public Law 78-534), as amended. The 1944 Act authorized the Chief of Engineers "... to construct, maintain, and operate public park and recreational facilities at water resource development projects under the control of the Department of the Army and to permit the construction, maintenance, and operation of such facilities." The Act also authorized the Secretary of the Army to grant to Federal, state or local governmental agencies the use of lands "...for the development and conservation of fish and wildlife, forests, and other natural resources...." The Federal Water Project Recreation Act of 1965 (Public Law 89-72), as amended, established development of the recreation potential at Federal water resource projects as a full project purpose. The 1965 Act also modified the Section 4 authority by imposing requirements of non-Federal public cooperation and cost sharing responsibility for recreation and fish and wildlife enhancement at projects authorized after 1 January 1965.

d. Other general authorities apply to the recreation and associated natural resource objectives at Truman. The Fish and Wildlife Coordination Act of 1958 (Public Law 85-624), as amended, provided that fish and wildlife conservation receive equal consideration and coordination with other project purposes. The Forest Cover Act (Public Law 86-717) also provided for the protection of forest cover for reservoir areas under the jurisdiction of the Secretary of the Army and the Chief of Engineers "... for conservation, recreation, and other beneficial uses."

e. Authority to prepare this updated plan is contained in an engineering regulation: ER 1130-2-435 (Project Operation-Preparation of Project Master Plans). The 1977 Master Plan, Design Memorandum 36 and supplements thereto, provided planning guidelines for initial land use allocations and recreation facilities for Truman. This planning document constitutes an update of the 1977 Master Plan by incorporating new information, guidelines , directives and by addressing additional opportunities and problems based on operational experience.

1-2. Master Plan Policy and Goals.

This updated Harry S. Truman 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 handled in the operational management plan, which translates the concepts of the master plan into implementing directives. It is the policy of the Corps that:

a. Policy.

(1) Master plans be developed and remain current for a project for which the Corps has administrative responsibility for management;

(2) The master plan be an essential element in fostering an efficient and cost-effective project natural resources management program;

(3) The master plan provide direction for project development and use and as such is a vital tool for the responsible stewardship of project resources for the benefit of present and future generations; and

(4) The master plan promote the protection, conservation and enhancement of natural, cultural, and man-made resources.

b. Goals. The primary goals of the master plan are to prescribe an overall land and water management plan, resource objectives, and associated design and management concepts, which:

(1) Reflect the best possible combination of regional needs, resource capabilities and suitabilities, and expressed public interests and desires consistent with authorized project purposes;

(2) Contributes towards providing a high degree of diversity within the region;

(3) Emphasizes the particular qualities, characteristics, and potentials of the project; and

(4) Exhibits consistency and compatibility with national objectives and other state and regional goals and programs.

1-3. Applicable Federal Laws and Regulatory Directives. Public laws and regulatory directives applicable to the Harry S. Truman Master Plan are:

a. Flood Control Act of 1944, as amended (Public Law 78-534). Section 4 of the Act authorizes the providing of facilities for public use, including recreation and conservation of fish and wildlife.

b. Forest Cover Act (Public Law 86-717). The Act 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, recreation, and other beneficial uses.

c. Federal Water Project Recreation Act, as amended (Public Law 89-72). The Act requires that full consideration be given to opportunities for recreation and fish and wildlife enhancement; that recreation planning be based on coordination of use with existing and planned Federal, State, and local recreation; and that non-Federal administration of recreation and enhancement areas be encouraged. It also requires that, without cost-sharing, no facilities for recreation and fish and wildlife enhancement be provided except those justified to serve other project purposes or as needed for public health and safety. If lands are acquired to preserve the recreation and fish and wildlife potential of the project, and if 10 years after the initial project operation there is still no local sponsor, the lands may be sold or used for other project purposes. The views of the Secretary of the Interior on the extent to which the proposed recreation and fish and wildlife development conforms to and is in accord with the state comprehensive plan shall be included in any project report.

d. Water Resources Planning Act, as amended (Public Law 89-80). The Act declares a policy of encouraging the conservation, development, and utilization of water and related land resources.

e. Fish and Wildlife Coordination Act, as amended (Public Law 85-624). 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 Fish and Wildlife Service (FWS) and the state wildlife agency; that recommendation of the FWS 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 be in accordance with a General Plan approved jointly by Army, Interior, and the State wildlife agency.

f. Endangered Species Act, as amended (Public Law 93-205). The Act requires that Federal agencies shall, in consultation with FWS, 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. A procedure of coordination, assessment, and consultation must be set up.

g. National Environmental Policy Act of 1969, as amended (Public Law 91-190). 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. An environmental assessment and Finding of No Significant Impact will be prepared for this planning update pursuant to the Act and ER 200-2-2 (see paragraph 1).

h. Archaeological and Historic Preservation Act, as amended (Reservoir Salvage Act) (Public Law 86-523). The Act provides for the preservation of historical and archeological 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 archeological data; and for expenditure of funds for recovery, protection and data preservation.

i. National Historic Preservation Act, as amended (Public Law 89-665). The Act states a policy of preserving, restoring, and maintaining cultural 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). The Act protects archeological 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 archeological resource located on public lands.

k. Water Resources Development Act of 1986 (Public Law 99-662). Non-Federal public interest cannot be required under Section 4 of the Flood Control Act of 1944 and the Federal Water Project Recreation Act to assume operation and maintenance of any recreation facility operated by the Secretary of the Army, as a condition of the construction of new recreation at the project or any other water resources project. This is provided for under Section 927 of Public Law 99-662. The Secretary of Army is authorized under Section 943 to preserve, restore, and maintain historic properties located on water resource development project lands if such properties have been entered into the Register of Historic Places.

This is provided for under

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

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

n. ER 1130-2-435. (Project Operation - Preparation of Project Master Plans.)

o. ER 1130-2-414. (Project Operation - Natural Resource Management System.)

p. ER 1105-2-20. (Planning - Project Purpose Planning Guidance.)

q. ER 1165-2-400. (Water Resource Policies and Authorities - Recreation Planning, Development, and Management Policies.)

1-4. Previously Approved and Pertinent Design Memoranda.

Previously approved recreation and natural resource planning documents and pertinent design memoranda issued or filed prior to this update are listed in Table I-2.

Table I-2. - List of Previously Approved Master Plan and Other Documents

Design Memoranda	Title	Date Submitted	Date Approved
8A	Preliminary Master Plan	8 Oct 64	28 Jan 65
8A	Preliminary Master Plan - Supplement 1	14 Jun 68	30 Dec 68
8B	Development Chapter, Phase I	15 Oct 68	27 Feb 69
8B	Development Chapter, Phase II	18 Sep 69	18 Dec 69
8B	Development Chapter, Phase III	30 Dec 69	23 Apr 70
25	Relocation of Municipal Facilities, City of Osceola, Missouri	26 Jun 68	11 Oct 68

Table I-2. (Continued) - List of Previously Approved Master Plan and Other Documents

25A	City Parks, Swimming Pool and Interceptor Sewer	14 Nov 69	30 Mar 70
33	Relocation of Municipal Facilities, Clinton, Missouri	20 Nov 72	25 Oct 73
36	Master Plan	10 Oct 75 Rev 24 Aug 77	19 Mar 76 20 Nov 78
36	Windsor Crossing Swimming Beach Letter Memorandum, Supplement 1	8 Jul 78	11 Jul 78
36	Revised Recreational Development for Osage Bluff, Fairfield and Long Shoal Public Use Area, Supplement 2	5 Dec 78	22 Dec 78
36	Revised Land Use Allocation in the Vicinity of Roscoe, Missouri, and Pavement of Pence Avenue for Use as a Public Use Area Access Road, Supplement 3	31 Dec 79	27 Feb 81
36	Management of Vacated Public Roads Located on Project Land, Supplement 4	30 May 80	13 Feb 81
36	Revised Land Use Allocation in the Vicinity of Osceola, Missouri, for Sac-Osage Youth Fairgrounds, Supplement 6	21 Nov 80	5 Feb 81
36	Revised Land Use Allocation in the Vicinity of Clinton, Deepwater and Osceola, Supplement 7	18 Dec 81	5 Feb 82
36	Warsaw Public Golf Course, Supplement 8	9 Apr 85	26 Apr 85
43	Interpretive Plan	5 Dec 77	14 Mar 78
47	Protection of Gray Bat Critical Habitat, Beck and Blackwell Caves	6 Apr 79	10 Apr 79
52	Downstream Measures	30 Apr 81	8 Jul 81
53	Operational Management Plan	17 Sep 82	2 Nov 82
	Report on Fish and Wildlife, Kaysinger Bluff Dam and Reservoir, Osage River, Missouri	26 Mar 65	9 Jun 65
	Final Harry S. Truman Dam and Reservoir Environment Statement	Filed 28 Feb 73	

1-5. Project-Wide Resource Objectives.

Resource objectives are developed to guide future design, development, and management of the resource base: natural and man-made. They are written statements specific to Truman to obtain the greatest possible benefit through meeting the needs of the public and protecting and enhancing the environmental quality. The objectives explain the attainable options for resource uses. The objectives were determined based on resource use capabilities and demonstrated or expressed public needs. An indication of various recreation needs for the planning regions surrounding Harry S. Truman Dam and Reservoir was provided in the Missouri Comprehensive Outdoor Recreation Plan (SCORP) for 1985 through 1990. The SCORP was prepared by the Missouri Department of Natural Resources in cooperation with the U.S. Department of the Interior, National Park Service.

The national popularity of a select variety of sports were presented in the SCORP. The selected sports, listed in Table I-3, relate to the outdoor recreation activities offered at the Truman project. There were minor changes in national ranking of popularity from 1979 to 1982 of the outdoor recreation or sports activities that are offered at the project.

Table I-3. National Ranking of Popularity of Participation in Sports for 1979 and 1982

Sport	Rank	
	1979	1982
Swimming	1	1
Fishing	4	3
Camping	3	4
Boating	6	5
Hunting	14	16
Water Skiing	16	19
Sailing	23	25

Source: Missouri SCORP 1985 to 1990 (prepared by the Missouri Department of Natural Resources)

The Missouri SCORP also indicated that the Truman project is in the Kaysinger Basin Planning Region. This planning region includes Benton, Henry, Hickory and St. Clair Counties as well as Bates, Cedar and Vernon Counties. Surrounding the Kaysinger Basin Planning Region are Mid America to the northwest, Show-Me to the north, Lake of the Ozark to the east and the Southwest Missouri and Ozark Gateway Regions to the south. The Kansas-Missouri line is to the immediate west of the Kaysinger Basin Planning Region.

Two of the cited planning regions - Lake of the Ozarks and Southwest Missouri - offer rather typical and competing land and water-based recreation opportunities similar to those available to the visiting public in the Kaysinger Basin Region. For these reasons, the recreation facility needs for 1985 and 1990 for these planning regions are compared to the Kaysinger Bluff area in Table I-4. There is also a significant influx of persons from the Mid- America Planning Region that visit the Truman Project. The Mid-America Planning Region contains the Kansas City metropolitan area. The recreation opportunities at Truman have and will continue to serve some of the public's demand to participate in camping, picnicking, swimming, boating, fishing, and hunting activities for all four SCORP planning regions and the State as a whole.

Project-wide resource objectives are written for the Truman project. These objectives are more general than the more individual statements written for each land-use classification or compartment. The objectives written for each classification or compartment are addressed in Section V. The project-wide objectives are listed in the following paragraphs.

a. To provide overnight camping opportunities.

Project experience and past demand indicate that there will continue to be a need to provide the public with improved camping facilities at the Truman project. Normally the Corps or other public agencies provide and administer facilities for overnight use by the camping public. Campgrounds facilities are also sometimes provided by a commercial marina concessionaire. To continue to meet this overnight camping need, natural resource disturbance would be minor since most of the required facilities would be provided in presently developed parks, and any future development would take place in these same designated park areas. The Missouri SCORP shows that the need for campsite facilities is being met in all three planning regions. The need is being met at Truman except for holidays and some normal weekend days during the peak month of visitation (See paragraphs 2-13 and 2-14). There are also problems in satisfying all camper preferences and meeting the demand for campsites close to the water's edge. There also has been dispersed and unauthorized overnight camping outside of park areas during prime fishing and hunting seasons.

b. To provide day use picnic opportunity.

Past use and future projections indicate that there will continue to be a need for picnic facilities at the Truman project. Most of the demand for these facilities is from people from local communities, sightseers, and travelers. The demand at the project is established and should increase over the next 10 to 20 years. The change is expected as more day use facilities in established parks are open to the visiting public. The SCORP indicates that the need for picnicking facilities is being met in all three planning regions. Only a need for picnic shelters in the Southwest Missouri Region has been predicted in the Missouri SCORP (See Table I-4).

c. To provide swimming beach areas.

Past use and projections indicate that there is now, and will continue to be a demand for developed swimming beach areas and support facilities. This demand for swimming beaches comes from both campers and day users. It is well established and is to remain rather stable. There has been an expressed need by residents in Lincoln and Warsaw to specifically use the beach facilities within the group

Table I-4. Recreation Needs for Planning Regions in the 1985-1990 Missouri SCORP

Region	Facility	1985 Unmet Need	1990 Unmet Need	Percent Goal Met 1985
Kaysinger Basin				
	Campsites	*	*	*
	Picnicking			
	Picnic Tables	*	*	*
	Picnic Shelters	*	*	*
	Swimming Pools (Square feet)	*	*	*
	Trail (Miles)			
	Horseback	*	*	*
	Nature	22	24	44
	Hiking	*	*	*
	Playgrounds	*	*	*
	Amphitheaters	1	1	91
Lake of the Ozarks				
	Campsites	*	*	*
	Picnicking			
	Picnic Tables	*	*	*
	Picnic Shelters	*	*	*
	Swimming Pools (Square feet)	*	*	*
	Trails (Miles)			
	Horseback	*	*	*
	Nature	29	34	43
	Hiking	*	*	*
	Playgrounds	*	*	*
	Amphitheaters	8	9	39
Southwest Missouri				
	Campsites	*	*	*
	Picnicking			
	Picnic Tables	*	*	*
	Picnic Shelters	11	29	94
	Swimming Pools (Square feet)	*	*	*
	Trails (Miles)			
	Horseback	*	*	*
	Nature	136	150	12
	Hiking	*	*	*
	Playgrounds	*	*	*
	Amphitheaters	24	27	39

*Planning goals met or exceeded.
Source: Missouri SCORP for 1985-1990, prepared by the Missouri Department of Natural Resources

campground at Thibaut Point Park. Vehicular access to this swimming beach has been permitted in the past to only group campers in the park. The operation of the Thibaut Point Park has been changed to also meet this mainly local need. The swimming beaches at Berry Bend and Bucksaw Parks are also to be opened to both campers and day users in accordance with the design changes in this master plan. Local residents have also petitioned for a swimming beach at Talley Bend Park.

d. To provide lake access.

Boating has been, and will continue to be, an integral part of the recreation scene at the Truman project. It takes place mainly in the form of pleasure boating and boating as a part of other activities such as fishing and water skiing (See paragraph 1-2g). As with other water-based recreation activities at Truman, the demand is well established. It will continue to be important to provide and maintain adequate boat ramps and related facilities (parking lots, sanitary facilities, courtesy docks, and, in some cases , security lights) to provide access to the lake. Lake access is needed in some more remote locations on this large water project.

The Missouri SCORP did not indicate a need or demand for public lake access, but the Corps experience has confirmed the need and demand for lake access and associated appurtenant structure. Presently there are 85 boat launching lanes at Truman. Some of these lanes become congested during holidays and normal weekend days especially when there are organized fishing tournaments scheduled (See paragraph 7-3). The need is further demonstrated by 9 different licensed areas around the project (See Table VI-4). The licensees have agreed to develop, operate, and maintain such public access points.

e. To provide hiking, interpretive, nature, and equestrian trails.

The demand for trails continues to increase. In fact, there has been a very strong interest by equestrian groups to develop and maintain trails for saddle clubs at Truman. The Missouri Horse Council indicates that there are 250,000 equine owners in the State of Missouri. There is also an expressed interest by residents in the town of Avery for a locally maintained hiking trail. The Missouri SCORP only indicates a need for additional mileage of nature trails. Nature trails should only be provided in connection with developed park systems where there is a concentration of the visiting public or adjacent to towns that abut project lands - e.g. Clinton, Deepwater, Osceola, and Roscoe. The Corps would be willing to consider trail development proposals by these local communities.

f. To provide hunting opportunities.

Past experience at the Truman project and other water resource projects in the Kansas City District indicates an increasing demand for both upland and waterfowl hunting opportunities. One reason for the increasing pressure is probably the closing of more and more private land to hunters. Proper management of available habitat and increased wildlife improvement programs at the Truman project by the Missouri Department of Conservation and Corps personnel have provided increased hunting opportunities and therefore interest in this recreation activity.

A General Plan was developed jointly by the Secretaries of the Army and Interior and Director of the Missouri Department of Conservation under the Fish and Wildlife Coordination Act (Public Law 85-624) as amended. The General Plan was finalized in November 1982 and is a coordination act agreement. The agreement designated 53,800 acres of project lands and waters for fish and wildlife conservation and management purposes. There were also lands identified in a March 1965 report that specifically identified lands for fee acquisition to mitigate project damages and to enhance wildlife benefits (See paragraph 4-1).

The SCORP referenced studies conducted by the Missouri Department of Conservation on hunting characteristics of Missourians. According to the cited Conservation study, hunting-related expenditures totaled $147 million in 1980, with 492,000 people hunting. About 172,000 hunters participated on public land; 90,000 on federal land, 43,900 hunters sought big game, 33,300 hunters sought small game, and 16,200 sought migratory birds. Of those surveyed, four percent of St. Louis residents, 11 percent of small city residents (cities with populations between 2,500 and 500,000 including Kansas City and Springfield) and 18 percent of town and rural residents hunted. In 1980, almost six percent of licensed hunters were non-residents. The hunting opportunities at Truman will continue to serve to meet this need for Missourians and non-residents.

g. To provide fishing opportunities.

There is a strong demand for fishing opportunities, as evidenced by past experience at Truman and other area water resource projects. This demand is well established and should remain at about the present level for a number of years if the fishery remains strong. To help insure this goal, it will be important to continue to maintain good water quality and to cooperate closely with the Missouri Department of Conservation on fisheries management.

The SCORP cited studies of the Department on fishing characteristics of Missourians. According to the studies, fishing related expenditures totaled $340 million in Missouri in 1980. More than one million people fished: about 51 percent fished man-made lakes and reservoirs of 10 acres or more; 39 percent fished man-made ponds and reservoirs of less than 10 acres; and 45 percent fished rivers and/or streams. Sixteen percent of St. Louis residents, 28 percent of small city residents (cities with populations between 2,500 and 500,000 - including Kansas City and Springfield), and 34 percent of town and rural residents fished. Twenty-three percent of the people who fished also owned boats and used them more than half the time for fishing. Thirty-nine percent of the people surveyed used their boats strictly for fishing, 43 percent used their boats for fishing occasionally, and 18 percent never used their boats for fishing. Almost 20 percent of the licensed fishermen were non-residents.

From 1982 to 1986, there were about 250 permits issued annually for organized fishing tournaments at Truman (See paragraph 7-3). This amounts to about 6,800 boats used in such tournaments each year.

h. To maintain natural resources.

The ultimate responsibility for management of the project's natural resources rests with the Corps. The Corps has a broad stewardship responsibility to manage project lands, soil resources, vegetation, and fish and wildlife resources,

including threatened and endangered species, for the general public good under a multiple purpose management program that emphasizes environmental diversity and long-term productivity of those resources. The Forest Cover Act (Public Law 86-717) directs the Chief of Engineers "...to provide for the protection and development of forest or other vegetative cover and the establishment and maintenance of other conservation measures on reservoir areas under his jurisdiction, so as to yield the maximum benefit and otherwise improve such areas. Specific plans and activities to accomplish the Corps' stewardship program are contained in the Operational Management Plan for the project. A basic policy is to provide opportunities for public use of the resources while maintaining them at an agreeable level of production capability to meet many consumptive and non-consumptive needs.

i. To provide interpretive programs and facilities.

Good interpretive programs and facilities have been found to complement nearly all phases of project management if developed and presented properly. The interpretive program consists primarily water safety programs, campground presentations, programs for community organizations, environmental and educational activities for school, and tours of the visitor center, Hooper House, powerhouse, and other project facilities. Examples of interpretive facilities that have been developed include a visitor center, Hooper House, powerhouse exhibit area, amphitheaters, bulletin boards, interpretive signing and exhibits, and a self-guided nature trail.

Special events also play an important role in the interpretive programs. Three annual programs that attract thousands of visitors to the area are the "Days of Sassafras", "Old Fashioned 4th of July" and "Heritage Days".

II. FACTORS INFLUENCING RESOURCE MANAGEMENT AND DEVELOPMENT

2-1. General

The Harry S. Truman Dam and Reservoir is located in the Osage River basin of west-central Missouri. The major arms are on the Osage, South Grand, Pomme de Terre, and Sac Rivers. The dam is on the Osage River 1.5 miles northwest of Warsaw and in the headwater area of the Lake of the Ozarks. At multipurpose pool level, the lake extends above Osceola on the Osage River and to about 4 miles west of Clinton on the South Grand River. Primary vehicular access to the project is provided by US Highways 65 and 54, and Missouri Highways 7 and 13. Major metropolitan areas within 100 miles of the dam are Kansas City (about 95 miles to the north), Springfield (about 80 miles to the south), and Jefferson City (about 95 miles to the northeast). These metropolitan areas are shown on Plate 1.

The Osage River Basin drains 15,300 square miles upstream from the dam. The basin area is roughly elliptical in shape with a length of about 250 miles and a maximum width of approximately 100 miles.

The Osage River rises on the eastern slope of the Flint Hills region of east-central Kansas. The river is known as Marais Des Cygnes in Kansas and as Osage in Missouri. It flows eastward for approximately 500 miles to its confluence with the Missouri River. The confluence is at Missouri River mile 129 near Jefferson City. The gradient of the Osage varies from 0.47 foot per mile near the mouth to 1.2 feet per mile near Osceola. It slopes steadily upward from Osceola to its origin. The principal tributaries of the Osage River are the Little Osage River from the southwest, the Sac River from the south, the Pomme de Terre River from the southeast, and the South Grand River from the northwest.

The Osage River basin can be described in three sections in terms of geologic stream development. The upper section of the basin (from the Flint Hills approximately to the Kansas-Missouri line) is geologically youthful, with a well-developed dendritic drainage pattern. The central part of the basin (from the Kansas-Missouri line to near Osceola) is more mature in stream development with floodplains of about a mile in width. Stream valleys east of Osceola are deep and narrow. This is characteristic of streams in the Ozark Plateau.

The project area is located in the climatic zone classified as humid continental, which includes most of the midwest and eastern portions of the United States. This zone is subjected to cold air masses from Canada, dry air from the western plains, and warm, moist air from the Gulf of Mexico, resulting in about 39 inches of annual precipitation (See Table II-1). Most of this precipitation occurs in the spring, early summer, and fall in the form of thunderstorms.

In general, winters are cold and summers are hot. Sudden temperature changes are common. The mean monthly temperature ranges from about 28 degrees Fahrenheit (F) in January to 78 degrees F in July, with the average date of the last freeze around mid-April. Prevailing winds are from the south-southeast.

At multipurpose pool, the project has a shoreline of about 950 miles. In general, the shoreline is pastoral in aspect in the western section, and steep and rocky further to the east.

Table II-1. Climatological Data

	Temperature(F)									Precipitation Totals (Inches)							
	Means			Extremes		Mean No. of Days							Snow		Mean Number of Days		
						Max		Min									
	Daily Max	Daily Min	Monthly	Record Height	Record Low	90 and Above	32 and Below	32 and Below	0 and Below	Mean	Greatest Monthly	Greatest Daily	Mean	Maximum Monthly	.10 or More	.50 or More	1.00 or More
Jan	38.4	17.9	28.2	74	-14	0	11	28	3	1.52	4.28	2.43	5.3	31.0	3	1	0
Feb	44.0	23.0	33.5	76	-19	0	6	23	1	1.54	3.96	1.37	4.3	16.0	3	1	0
Mar	54.1	31.4	42.8	85	-10	0	2	18	0	2.99	9.86	3.08	3.9	20.8	5	2	1
Apr	67.6	43.6	55.6	90	17	0	0	4	0	3.72	12.61	6.28	.2	3.0	6	2	1
May	76.1	53.3	64.7	93	29	0	0	0	0	4.43	7.37	2.80	.0	.0	7	3	1
Jun	84.2	62.2	73.2	102	45	7	0	0	0	4.86	16.04	3.85	.0	.0	7	3	2
Jul	89.7	66.3	78.0	115	46	16	0	0	0	4.14	9.45	4.95	.0	.0	5	3	1
Aug	88.6	64.3	76.5	108	42	15	0	0	0	3.66	13.52	9.71	.0	.0	5	2	1
Sep	81.3	56.6	69.0	102	28	6	0	0	0	4.27	9.12	5.19	.0	.0	5	3	1
Oct	70.3	45.0	57.7	96	20	1	0	3	0	3.66	9.87	5.51	.0	.0	5	2	1
Nov	55.2	33.2	44.2	82	2	0	1	15	0	2.22	5.65	2.87	1.3	10.0	3	1	0
Dec	43.6	23.9	33.8	73	-8	0	6	26	1	1.67	5.42	2.41	3.6	28.0	4	1	0
Year	66.1	43.4	54.8	115	-19	45	26	117	5	38.68	16.04	9.71	18.6	31.0	58	24	9

Source: Climatography of the United States No. 20, Climatic Summaries for Selected Sites, 1951-80, Missouri, NOAA.

The Harry S. Truman Dam and Reservoir includes a gravity-type dam and hydroelectric generating plant with pumpback capabilities. The dam consists of an earthfill embankment approximately 5,000 feet long, and a concrete spillway and powerhouse structure 964 feet long. The dam rises 126 feet above the streambed. A major dike, 7,500 feet long, extends northeast of the dam (See Plate 3).

The concrete spillway and powerhouse structure are connected to the earthfill embankment by two non-overflow bulkheads. The spillway has four tainter gates with a capacity of 275,000 cfs at maximum surcharge elevation (751.1 feet, msl). The six reversible pump turbines are rated at 160,000 kilowatts each.

2-2. Accessibility

The Harry S. Truman Dam and Reservoir is adequately served by the Federal and State highway networks. The highway networks should meet initial and future vehicular access requirements. Interstate 70 transverses Missouri from east to west. It provides access to the project from Kansas City, Columbia, and St. Louis. This interstate highway is located approximately 50 miles to the north of the project and is directly linked to the area by US 65 and State Route 13. To the south is Interstate 44 on a northeast/southwest alignment, which intersects US 65 and State 13 at Springfield, and State 7 outside of Rolla near Fort Leonard Wood. Interstates 44 and 70 are high speed, limited access, dual-lane highways, and connection routes provide vehicular access to the project from all major urban areas in the region.

Other highways in the immediate vicinity providing vehicular access to the project are US 50, 71, and 54. US 50 crosses Missouri on an east-west alignment and provides primary access from the north by way of State 13 and 127. US 65 intersects US 50 at Sedalia. US 71 crosses Missouri on a north-south alignment. It provides primary access to the western portion of the project by way of State 7, 18, and 52. US 54 crosses Missouri on a southwest/northeast alignment. It provides primary access to the southern part of the project by way of State 13, 82, and 83. US 65 provides direct access to the east portion of the project. US 50 is a multiple lane, divided, partially-controlled access highway in good condition. US 71, 65, and 54 are all two-lane asphalt and/or concrete paved highways, with sections of dual lanes, of adequate pavement width, and in good condition. US 65 and 54 are programmed for ultimate dual-lane facilities.

Secondary vehicular access is provided to the project by State Highways 7, 13, 82, and 83. These roads are, for the most part, two-lane, asphalt with adequate pavement width and in reasonably good condition. Route 7 and 13 are ultimately planned to be upgraded to dual-lane facilities (See Table III-3). Access to most areas and parks is provided through a network of minor state and county roads. They are, for the most part, two-lane bituminous paved or gravel-surfaced roads.

The 1977 Master Plan indicates that approximately 70 percent of the visitors to the project were expected to arrive by way of State Highways 7 and 13 from Kansas City. These two highways receive traffic from Highways 50 and 71. They funnel traffic into the project near Clinton, Missouri. At a point north of Clinton, Highways 13 and 7 join and diverge. Highway 13 continues south. Highway 7 goes east to the dam. Because of the dam and various recreation features in the area, Highway 7 serves a large portion of visitors. The parks in the area of the dam include Berry Bend, Shawnee Bend, Kaysinger Bluff, Bledsoe Ferry, Sterett Creek, Warsaw Harbor, Harry S. Truman State Park and Long Shoal. Long Shoal Park is bisected by Highway 7. Sparrowfoot Park is just east of Highway 13. No follow-up study or survey was done to determine the accuracy of the 1977 expectations and predictions.

US Highway 65 provides access to the eastern side of the Harry S. Truman Dam and Reservoir. It was expected in 1977 to contribute about 10 percent of annual visitor traffic. This highway provides access to the project from the Missouri cities of: Sedalia (30 miles away), Jefferson City (95 miles away), Columbia (95 miles away), and St. Louis (225 miles away). Although these cities are populous, their total visitor contribution is of a lesser magnitude than Kansas City.

Further, their closer proximity to the Lake of the Ozarks (excepting Sedalia) lessen the visitor contribution to Harry S. Truman Dam and Reservoir due to the prior effects of competition from the established uses around the Lake of the Ozarks.

Access to the project can be gained on Highway 13 from Interstate Highway 70 to the north of the project, and, to a lesser degree, on Highway 65 from Interstate 44 to the southeast of the project for those persons on major vacations and traveling long distances.

A small percent of total project visitors are expected to use secondary roads for access. These secondary routes provide access from the city of Windsor and also Whiteman Air Force Base near Knob Noster, Missouri. Although the city of Windsor is small, its citizens along with those from other communities nearby contribute a considerable portion of the visitation. There are numerous other roads which provide additional access to the project. Because of the scattered and sparse population pattern around the project, these roads play a limited role in providing access to the project.

Competition from the existing Corps of Engineers projects of Stockton and Pomme de Terre Lakes to the south lessen the amount of visitor traffic from this area of the State (See Plate 1). State Highways 13, 65, and 83 all provide access from Springfield. Highway 13 leads to the Clinton and Osceola areas. Highways 65 and 83 leads to the area of the dam.

Harry S. Truman Dam and Reservoir had been closed to seaplane usage in the past. In 1987, a trial seaplane use period was allowed by the Kansas City District on a specific body of the lake from 15 March to 31 December. One plane may have landed during the trial period. The majority of the water body remained closed to seaplane usage. The portion of the lake made available to seaplane usage during the trial period was limited to avoid disturbances and to protect both actual and potential bald eagle nesting sites. A limitation was also placed on such usage to protect other state listed rare and endangered species. Seaplane usage is recommended for authorization year round. Authorization should be restricted to the lowest end of the lake near the dam (See Plate 2 and paragraph 4-3). Such extended use period will make the project more accessible to seaplane users.

Pedestrian use is essentially from persons that own homes and resort dwellings near or adjacent to the project. Persons in the towns of Clinton, Osceola, Deepwater, Roscoe, Avery, Warsaw, and Brownington create dispersed pedestrian use of the project and water's edge.

2-3. Socioeconomic Characteristics.

Southwest Missouri was, during the 1970's, one of the more dynamic regions in the United States. Its population, both rural and metropolitan grew at a rate, well beyond the nation. The fact was mentioned in a report by the Office of Social and Economic Data Analysis, Missouri Cooperative Extension Service. The report was dated August 1982, and was entitled, "The Social and Economic Dynamics of Southwest Missouri."

Table II-2. Estimated Population Projections for Missouri SCORP Planning Regions and State

Missouri SCORP Planning Region	County	Population 1980	1990	2000
Kaysinger Basin	Bates	15,900	15,500	15,000
	Benton	12,200	14,700	15,300
	Cedar	11,900	14,400	14,900
	Henry	19,700	20,000	19,900
	Hickory	6,400	8,700	9,400
	St. Clair	8,600	9,400	9,600
	Vernon	19,800	21,500	22,700
		94,500	104,200	106,800
Percent change. 1980 to 2000 is 13.0				
Southwest Missouri	Barry	24,400	29,500	31,600
	Christian	22,400	31,800	38,300
	Dade	7,400	7,600	7,400
	Dallas	12,100	14,200	15,800
	Greene	185,300	206,900	219,800
	Lawrence	29,000	33,200	35,300
	Polk	18,800	21,400	22,800
	Stone	15,600	22,500	25,100
	Taney	20,500	29,100	32,500
	Webster	20,400	25,500	29,300
		355,900	421,700	457,900
Percent Change. 1980 to 2000 is 28.7				
Lake of Ozarks	Camden	20,000	29,100	33,800
	Laclede	24,300	28,700	30,900
	Miller	18,500	22,300	24,500
	Morgan	13,800	17,600	18,800
	Pulaski	42,000	43,600	45,600
		118,600	141,300	153,600
Percent Change. 1980 to 2000 is 29.5				
Three Region	------	569,000	667,200	718,300
Percent Change. 1980 to 2000 is 26.2				
State of Missouri	------	4,917,700	5,149,000	5,331,300
Percent Change. 1980 to 2000 is 8.4				
Census Bureau for State	------	4,917,700	------	5,080,000
Percent Change. 1980 to 2000 is 3.2				

Sources: Missouri Population Projections, College of Business and Public Administration, University of Missouri in Columbia, and telephone conversation with the Census Bureau in Kansas City

The report's analysis includes a 22-county region which comprises most of the southwest quarter of the state. It is clear that there is significant social and economic interaction within the region. Additional population data is shown in Table II-2 for the Missouri SCORP three planning regions (26.2 percent) and State of Missouri (8.4 percent and 3.2) from 1980 to the year 2000. For the same period, the Kansas City metropolitan area, which is in the Mid America Planning Region and contributes to significant visitor use of project lands, only shows a projected growth of 2.4 percent.

The 22-county southwestern region, which includes Hickory and St. Clair Counties, has a diversified economy including a variety of forms of agriculture, extensive manufacturing, mining and a sizable recreation and tourism industry. The region is well served by major highways and transportation of all forms.

All the counties in the region increased in population during the 1970's. The increase occurred largely because of extensive migration into all parts of the region. The region has been attractive to outsiders because of the growth in employment opportunities, the relatively low cost of living, the attractiveness of the area for retirement, etc. As a result of the dynamics of the region, virtually all small towns experienced increases in population during the 1970's. Even towns more remotely located generally increased in population by 15 percent of more.

a. Population.-- The Missouri Ozarks generally increased in population during the 1970's. The southwest quarter of the state increased most rapidly. Both the rural and metropolitan parts of the region showed sizable increases. The 22 counties increased in population by more than 21 percent from 1970 to 1980.

All 22 counties in the region increase in population - the increases ranging from a low of 4 percent to a high of 57 percent. The overwhelming contributor to the population increase was migration - accounting for 84 percent of the increase during the 1970's.

All counties in the region experienced a movement of more people into the county than moved out. The most significant feature of the movement into the region was that it was uniformly dispersed throughout the entire region.

The number of households increased from 1970 to 1980. All counties have a high percentage of elderly in the population as well as a rapidly increasing percentage of young adults. The large increase in the formation of new households contributed to a strong demand for housing and related consumer items.

b. Employment.--In 1980, the area had a total nonagricultural employment of about 193,000. This represented just under 10 percent of total employment for the state for 1980. For comparison, the region includes 12.5 percent of the state's population. As a consequence, the ratio of nonagricultural employment to population is below that for the remainder of the state. The single largest category of employment for the region is manufacturing with 27 percent of the total. This is followed by wholesale and retail trade with 24 percent of the total. In the metropolitan areas of the region, manufacturing and wholesale and retail trade, followed by services, were the leading source of employment. They provide more than 70 percent of nonagricultural jobs. In the nonmetropolitan

counties of the region, manufacturing is followed closely by wholesale and retail trade. Throughout the region, Government accounts for slightly more than 18 percent of total employment.

There is significant variance among the counties in the region in the extent of employment in the various sectors. Manufacturing employment, for example, ranges from a low of 5.2 percent of the labor force to a high of 46.4 percent.

There tends also to be wide variation in employment in services which are influenced by lakes and tourism. In general, the more rural counties tend to have negligible employment in construction, transportation and public utilities and finance, insurance and real estate.

c. Personal Income.--Total personal income for the region increased by nearly 80 percent between 1975 and 1980 keeping pace with both Missouri and the nation. There is some concentration of regional income in the metropolitan counties. Farming does not contribute proportionately to total personal income.

A major addition to area income has been in the form of Government payments to individuals for income supplement purposes. This includes most Social Security and military retirement. In 1980, these "transfer payments" accounted for 19 percent of total personal income in the region. This is greater than that of the state as a whole. In the years from 1970 to 1980, the area had a growth in transfer payments of 258 percent. This was more than twice as great as that of the state.

2-4. Topography and Geology.

The project has a shoreline of about 950 miles at multipurpose pool elevation. The character of the shoreline is varied. The project may be divided into three general areas in terms of shoreline configuration. The upper or western third is characterized by well-developed dendritic streams with moderate topography and gentle slopes. The topography in the middle portion increase in relative relief, and is more dissected. The shoreline is therefore more rugged, with more coves and steeper inclines. In the lower third, valleys are steep and narrow. Precipitous bluffs are a prevalent feature. In general, the shoreline topography and vista are pastoral in aspect in the western section, and steep and rocky to the east.

Three geological systems are found in the region. The area is underlain by bedrock of Pennsylvanian age from the headwaters of the Osage River watershed in the Flint Hills of Kansas to near Osceola. This bedrock is the youngest of the three systems and is composed chiefly of easily eroded shale, sandstone, and coal. To the east of this region is a band of Mississippian age limestones, dolomites, and shales, ranging from 1 to 10 miles in width. The oldest formations, to the east and south of this band of Mississippian rock, are Ordovician cherty dolomites and sandstones representing remnants of the Ozark Dome.

The principal scenic points of interest in the Osage River section of the region are the weathered bluffs and outcrops formed from the easily eroded Pennsylvanian rock. Many of the bluffs along the Osage and Sac Rivers serve as overlooks. Small streams in the region are rock-bottomed and are characterized by gravel bars and riffles. Solution cavities and small sinks are in this region and support a variety of wildlife.

The third region (Ordovician) is the most spectacular in terms of variety of exposed geologic formations. It is overlain by Mississippian age limestones which produce a series of dolomitic and sandstone glades. The area supports an uncommon variety of vegetative associations and contains bluffs, caves, sinks, rock-bottomed streams, and a group of unique spring bogs. Some of these bogs, which have been produced by poorly drained artesian springs, have been discovered to contain the most complete record of fossiliferous materials representing both Pleistocene and Holocene flora and fauna of the area. Some of the geologic formations and features are inundated by the multipurpose pool of the lake.

2-5. Scenic Qualities.

The natural environment of the South Grand-Osage River basin is characterized by variety. The project is in major physiographic regions (the Ozark Hills, and the Osage Plains). The topography of the project area varies from gently rolling prairie land in its western portion to steep wooded slopes and scenic precipitous bluffs to the south and east.

The variance in natural vegetational composition of the basin essentially corresponds to the topographic regions. The Osage Plains region (unglaciated but influenced by glaciofluvial phenomena) is largely dominated by bluestem prairie and the Ozark Hills section chiefly by oak-hickory associations. The diversity of substrate, slope, and degree of stream dissection, as well as innate characteristics of the vegetational types, results in a multitude of plant associations in the area. The plant associations are best described as "mosaics" of Great Plains and Carolinian floras.

The rugged landscape of the Ozark Hills section has remained largely in deciduous forest, with game and non-game species of wildlife plentiful. Clear, spring-fed stream abound in the area. Limestone glades are common. In these glades, a markedly different forest cover is on soils which represent vestiges of the old Ozark dome. The rapid permeability and alkalinity of these soils supports a more xerophytic type of associates, often characterized by side-oats grama, a number of annual composites, and, in later stages, eastern redcedar.

The Osage Plains section of the South Grand-Osage River Basin is maturely dissected and rolling in topographic character, with low escarpments facing eastward along the outcrop belts of limestone. Natural vegetation of the northern part of this area is largely derived from western prairie. The southern and central parts varies from true upland prairie on the drier level uplands to Ozark flora on broken rocky ground along streams. Remnants of the prairie flora of this area have been preserved. Sandstone and chert bluffs and glades in the Osage Plains section provide edaphic conditions which support a specialized floral association not found elsewhere in the state.

Even with the natural prairie vegetation, the turbidity of the water is greater in the Osage River than in the South Grand River arm. The Pomme de Terre River arm of the lake has the least turbidity.

2-6. Environmental and Historic Resources.

a. Environmental Resources. The Truman project lies within two natural physiographic divisions. The boundary between these divisions is irregular in the project area giving rise to diverse ecological habitats and much scenic diversity that is attractive to project visitors.

The Ozark Hills is characterized by thin, stony soils on steep slopes where the local relief may vary from 100 to 300 feet. Caves, springs, bluffs, massive rock outcrops and high-gradient, clear-flowing streams with entrenched meanders are characteristic features of the Ozarks. Limestone and dolomite underlie most of the Ozark Division and bedrock commonly is exposed along streams and ridges. Project lands in the Pomme de Terre River arm in Hickory County and the Osage River portion in St. Clair and Benton Counties have typical Ozark characteristics.

The Osage Plains area in the western half of St. Clair County and in Henry County is a plains region. The region is characterized by gently rolling topography and soils derived from Pennsylvania shale, sandstone and limestone or from shallow loess. Streams commonly have shallow valleys and broad floodplains with sloughs and marshes. The upper reaches of the Osage River in St. Clair County, and the western reaches of the Grand River in Henry County have these characteristics.

Vegetation in the project area is influenced by the physiography of the two natural divisions. The steep slopes and thin soils of the Ozarks area support a forest cover comprised of post oak, white oak, black oak, northern red oak, blackjack oak, shagbark hickory, elm, white ash, honeylocust, eastern redcedar, persimmon, and walnut. The diverse topography of the Ozarks area has created a variety of plant microhabitats that make it the region of greatest species diversity in Missouri with a distinct biota including many native species. Glade areas where bedrock surfaces are common as are calcareous wet meadows along streams. Both these areas contain distinctive plant communities. Trees found in the relatively narrow floodplains of the Ozarks area include sycamore, cottonwood, boxelder, willow, silver maple, green ash, bitternut and shellbark, hickory and walnut.

The rolling topography and deeper soils of the Osage Plains support grassland vegetation on upland sites and forest cover on steeper lands near rivers and on river bottoms. Some native prairie can be found in patches around the lake, but most areas were converted by former landowners to cool-season grasses, usually fescue. The native prairies consist mainly of big and little bluestems, Indian grass, switchgrass, sideoats grama and many native forbs and legumes.

Tree cover in the Osage Plains area occurs along streams and drainages, land too steep to cultivate, former home sites, and some fence lines. Major tree species include elm, honeylocust, Osage orange, post oak, white oak, black oak, shingle oak, hickory, ash, cottonwood, silver maple, and walnut. Old

home sites normally contain fruit trees and an occasional black locust, catalpa or Siberian elm. Trees found in the broad flat river bottom areas include pin oak, pecan, silver maple, cottonwood, burr oak, swamp white oak, river birch and green ash.

Old field succession is common on unused lands at the Truman project. Trees first to invade pastures and croplands include elm, honey-locust, Osage orange, persimmon, cedar, hawthorn, hickory, walnut and smooth sumac.

The diverse geologic and vegetative base that characterizes project lands supports a variety of birds, mammals, amphibians and reptiles that are listed in the Harry S. Truman Environmental Statement. The statement was filed with the President's Council on Environmental Quality on 28 February 1973. Animal and bird species of recreation interest include the whitetailed deer, cottontail rabbit, fox and grey squirrels, bobwhite quail, woodcock, and turkey. Waterfowl of interest to hunters include Canada geese, mallards, and woodducks. Many rare and endangered species of local and national interest are associated with the Truman project and are listed in Table II-3. This listing is based on the Federal list of Endangered and Threatened Wildlife and Plants of April 10, 1987 (50 Code of Federal Regulations 17.11 and 17.12). Additional information concerning species considered rare or endangered can be found in Rare and Endangered Species of Missouri 1984 (Missouri Department of Conservation) and in paragraph 3-3b and Table III-1.

Four of the Federally endangered species require special discussion. The gray bat is found in only about nine states of the southeast and south-central United States. Beck and Blackwell Caves are located on the Pomme de Terre arm of the project (See Plate 10 and Compartment 12). The caves provide habitat for gray bats and, as such, have been designated as critical habitat. Both caves are protected from human disturbances and from lake flooding by special protective measures described in the (Design Memoranda 47 and 53).

The bald eagle is a common winter migrant to the Truman project, and several times individual eagles have remained in the spring to attempt to nest. One successful nest was recorded on the South Grand River arm of the lake in 1982. Other "practice" nests have been noted in other upstream lake areas and downstream of the dam near the city of Warsaw. When eagle nesting attempts are noted, the Corps contacts the Missouri Department of Conservation and the U.S. Fish and Wildlife Service to implement a program to protect the nesting area from human disturbance.

The Niangua darter may be found in the vicinity of gravel bars in the upper reaches of the Little Pomme River in Benton County. This may involve stream segments found on project lands licensed to the Missouri Department of Conservation. Management activities by that agency will be covered in a recovery plan to avoid impacts to potential darter habitat.

The Geocarpon minimum is a succulent annual plant from 1 to 4 centimeters in height found on moist, sandy areas on exposed sandstone outcrops in Missouri or on sandy-clay prairie sites in Arkansas. Thirteen sites in Missouri support populations of the plants with two of the sites being Bona and Carry Branch Glades on lands at Stockton Lake. Similar glade sites are common on Truman project lands, but to date, no Geocarpon populations have been observed. It is probable, however, that some populations do exist in the project area.

Table II-3. Endangered, Threatened and Rare Species

Common Name	Scientific Name	Habitat	Status (Federal/State)
Mammals			
Gray bat	Myotis grisescens	Caves	Endangered (Federal/State)
Long-tailed weasel	Mustela frenata	Woodland and old fields	Rare (State)
Black-tailed jackrabbit	Lepus californicus	Grasslands	Rare (State)
Birds			
Bald eagle	Haliaeetus leucocephalus	Migrant along large streams	Endangered (Federal/State)
Osprey	Pandion hailaetus	Rare migrant along lakes and streams	Endangered (State)
Greater prairie chicken	Tympanuchus cupido	Prairie grass-lands	Rare (State)
Barn owl	Tyto alba	Old buildings	Endangered (State)
Double-crested cormorant	Phalacrocorax auritus	Migrant along rivers	Endangered (State)
Northern harrier	Cicus cyaneus	Prairies	Endangered (State)
Sharp-shinned hawk	Accipiter striatus	Migrant, or small nesting population-pine plantations	Endangered (State)
Cooper's hawk	Accipiter cooperii	Pine plantations	Endangered (State)
Upland sandpiper	Bartramia longicauda	Open native and domestic grass-lands	Rare (State)
Henslow's sparrow	Ammodraus henslowii	Prairies	Rare (State)
Red-shouldered hawk	Buteo lineatus	Riparian areas	Rare (State)
Fish			
Niangua darter	Etheostoma nianguae	Little Pomme River Benton County	Threatened (Federal) Rare (State)

Table II-3. Endangered and Threatened Species (continued)

Blacknose shiner	Notropis heterolepis	Clearn, permanent flowing streams	Endangered (State)
Amphibians and Reptiles			
Great plains skink	Eumeces obsoletus	Grasslands, woods under rocks, logs	Rare (State)
Plants			
Geocarpon	Geocarpon minimum	Moist locations in sandstone glades	Threatened (Federal) Endangered (State)

b. Historic Resources.

(1) Previous Investigation and Compliance Activities. Historic property and paleontological investigations in the Truman project have been substantial and diverse spanning the last 150 years. Although an exhaustive discussion of the work conducted during this period is beyond the scope of this section of the Master Plan, a summary of the Kansas City District's (KCD) involvement since 1974 is presented.

Prior to Corps funded investigations in the Truman area over 300 archeological sites were recorded. Since 1974, an additional 2,800 sites have been identified, including prehistoric, historic, and architectural sites by the investigations listed in Table II-4.

Table II-4 - Historic Properties Studies
Funded by the Kansas City District

Contract Title	Contract Number	End Date	Firm	Principal Investigator
Spring Bog Survey	74-C0211	1975	ISM	James King
Cultural Resources Survey (Parts 1 & 2)	75-M-1854	1975	UM-C	Raymond Wood
Cultural Resources Survey (Pomme Arm)	75-M-2065	1976	UM-C	Raymond Wood
Cultural Resources Survey (10 Volume report)	75-C-0202	1981	UM-C	Raymond Wood
Rodger's Shelter/Phillips Spring Mitigation	76-C-0011	1981	ISM	Marvin Kay

Table II-4 - Investigative Projects
Funded by the Kansas City District (continued)

Batschelette House Historic American Building Survey Study (ABS)	77-M-0090	1977	AC	John Huffman
Paleontological Mitigation	77-C-0096	1981	ISM	Jeff Saunders
Archeological Mitigation	77-C-0132	1984	UM-C	Donna Roper
Paleontological Survey	77-M-0228	1978	ISM	Jeff Saunders
Architectural Survey	Letter Agreement	1977	NPS	HABS
Architectural Photo Documentation	78-M-1162	1978		Robert Hayden
Oral History	78-C-0012	1979	HSI	Larry Sprunk
Easement Lands Architectural Inventory	Letter Agreement	1980	NPS	HAB
Easement Lands Architectural Reconnaissance (50 year pool)	79-C-0073	1980	IRI	Charles Lee Decker
Archeological	79-C-0101	1982	CAI	Dick Taylor
Archeological Sites Testing	82-M-0057	1982	SSI	William Lees
Middle Bridge HABS Study	82-M-0161	1982	GWA	R. Gail White
Cultural Resources Management Plan	85-C-0050	in progress	HPA	Tim Klinger
Archeological Reconnaissance	80-M-0280	1987	SMSU	Burt Purrington

NPS - National Park Service
ISM - Illinois State Museum
UM-C- University of Missouri - Columbia
HABS- Historic America Building Survey
CAI - Commonwealth Associates Incorporated
HSI - Historical and Archeological Surveys Incorporated
IRI - Iroquois' Research Institute
SSI - Soil Systems Incorporated
SMSU- Southwest Missouri State University
GWA - Gail White Associates
HPA - Historic Preservations Associates
AC - Architect Collaborative
BM - Burn and McDonnell Engineering Company

A list of reports resulting from these investigations and other Federally funded projects since 1965 are contained in Tables II-5 and II-6.

Table II-5. Truman Historic Properties Reports

DATE	REPORT TITLE	CONTRACTOR/ PROJECT DIRECTOR
1975	A Survey of the Pleistocene Spring Bogs of the Lower Pomme de Terre Valley, Benton and Hickory Counties, Missouri	Illinois State Museum (ISM)
1975	Cultural Resources Survey Harry S. Truman Dam and Reservoir Project: Part I, Prior Surveys; and Part II, Survey of Borrow Areas and Relocations	University of Missouri (UMC) W.R. Wood and D. Roper
1976	Cultural Resources Survey Harry S. Truman Dam and Reservoir Project: Lower Pomme de Terre Arm	UMC W.R. Wood
1977	Historical American Building Survey, Harry S. Truman Dam and Reservoir Project, Missouri	National Park Service (NPS), Office of Archeology and Historic Preservation (OAHP)
1977	Historical American Building Survey, Hall House and Batchelett House	Architects Collaborative J Huffman
1977	Paleontological Resources Survey, Tebo, South Grand and Osage Arms, Harry S. Truman Dam and Reservoir, Osage River Basin, Missouri	ISM J. Saunders
1979	Architectural Inventory on Easement Lands, Harry S. Truman Dam and Reservoir Project, Missouri	NPS, OAHP
1980	Historical Resources Mitigation Vol. I, We Remember the Rivers, an Oral History Survey of the River Valleys in the Harry S. Truman Dam and Reservoir Project, Missouri (1978-1980)	J. Sprunk Hendrickson
	Vol. II, Bridges Over the Osage, Harry S. Truman Dam and Reservoir Project, Missouri (1979)	Historical and Archeological Surveys, Incorporated R. Hayden
1980	An Archeological Reconnaissance of Proposed Levees, Water-Oriented Recreation Facilities and Borrow Areas Downstream from the Harry S. Truman Dam and Reservoir, Benton County, Missouri 1980	Southwest Missouri State State University L. Purrington

Table II-5. Truman Historic Properties Reports (continued)

DATE	REPORT TITLE	CONTRACTOR/ PROJECT DIRECTOR
1982	Holocene Adaptations Within the Lower Pomme de Terre River Valley, Missouri (1976-1978)	ISM M. Kay
1982	National Architectural and Engineering Record Documentation, Middle Bridge, Benton County, Missouri	Gail White Associates G. White
1982	National Register Testing at 23BE1007, 23BE1008, and 23BE1010, Downstream from the Harry S. Truman Dam and Reservoir, Benton County, Missouri	Soil Systems, Incorporated W. Lees
1983	Cultural Resources Survey Harry S. Truman Dam and Reservoir, Vol. 1 thru 10 (1975-1979)	UMC W.R. Wood
1983	Mitigation of the Adverse Effects Upon the Local Paleontological Resources, Vol. I and II, Harry S. Truman Dam and Reservoir, Osage River Basin, Missouri (1977-1980)	ISM J.J. Saunders
1983	Ice Age Climates, Plants and Animals of Western Missouri: A 50,000 Year Record of Change (Popular Account for above contract)	ISM J.J Saunders
1983	Phillips Springs, Missouri: Report of the 1978 Investigations	ISM M. Kay
1983	Archeological Reconnaissance in the Harry S. Truman Dam and Reservoir, 50 Year Flood Easement Lands, Osage River Basin, Missouri (1979-1981)	Iroquois Research Institute C. LeeDecker
1986	Archeological Survey and Reconnaissance Within the Ten-Year Flood Pool Harry S. Truman Dam and Reservoir (1979-1981)	Commonwealth Associates L. Taylor
Manu-script	Owen's Mill and the Alleged Civil War Site, National Register Assessment of Two Sites in Southwest Missouri (Note: Owen's Mill is not within the Truman project area.)	Historic Preservation Associates T.C. Klinger
Manu-script	A Cultural Resources Survey of Proposed Excess Tracts within the Harry S. Truman Reservoir Project, Henry, St. Clair, and Bates Counties, Missouri	BM T.C. Klinger

Table II-6. Related Reports Not Funded by the Corps

DATE	REPORT TITLE	CONTRACTOR/ PROJECT DIRECTOR	FUNDING AGENCY
1965	Preliminary Archeological Investigation in the Kaysinger Bluff Reservoir Area	University of Missouri Columbia (UMC) C.H. Chapman	National Park Service (NPS)
1966	Archeological Investigations at the Rodgers Site Kaysinger Bluff Reservoir, Missouri; The 1965 Field Season	UMC W.R. Wood and R. Bruce McMillan	NPS
1969	Archeological Salvage in the Kaysinger Bluff Reservoir, Missouri: 1969	UMC W.R. Wood and C.R. Falk	NPS
1972	Archeological Salvage in the Kaysinger Bluff Reservoir Missouri: 1969	UMC W.R. Wood and K. Lippincott	NPS
1974	Archeological Investigations in the Harry S. Truman Reservoir, Missouri: 1967-68	UMC W.R. Wood, C.R. Falk and K. Lippincott	NPS
1974	Archeological Investigations in the Harry S. Truman Reservoir Area: 1970	UMC W.R. Wood and R. Vehik	NPS
1984	An Intensive Survey of Archaeological, Historic and Historic Architectural Resources, Roscoe Park and Recreation Project, Village of Roscoe, St. Clair County, Missouri	MDNR L. Grantham	Land and Water Conservation Fund (LWCF)
1984	An Intensive Survey of Archeological, Historic and Historic Architectural Resources, Sunset Optimist BMX, City of Clinton, Henry County, Missouri	MDNR L. Grontham	LWCF
1984	An Intensive Survey of Archeological, Historic, and Historic Architectural Resources, Roscoe Park and Recreation Project, Village of Roscoe, St. Claire County, Missouri	MDNR L. Grantham	LWCF
1985	An Intensive Survey of Archeological, Historic, and Historic Architectural Resources, Warsaw Municipal Golf Course, City of Warsaw, Benton County, Missouri	NR L. Grantham	LWCF

Prior to Corps involvement in the identification mitigation, and management of historic properties on project land, one site, Rodgers Shelter was placed on the National Register of Historic Places (NRHP) in June 1968. In August 1978, the Kansas City District forwarded documentation to the NRHP to determine all historic properties located on project lands as eligible for the NR as a Multiple Resources Area.

The NR in April 1979 determined certain architectural structures as eligible, but requested additional documentation for the prehistoric sites. Subsequently, further documentation was submitted to the NRHP; however, these data were also found incomplete. To date no determination of eligibility has been made for prehistoric archeological sites located on project lands.

Three Memorandums of Agreement (MOA) and two No Adverse Effect determinations have been ratified for historic properties at Truman. These compliance agreements, obtained in consultation with the Missouri State Historic Preservation Office (MSHPO) and the Advisory Council on Historic Preservation (ACHP), are found in Table II-7.

Table II-7. Compliance Agreement List

Property	Date Agreement Ratified
Rodgers Shelter	August 1973
Middle Bridge*	January 1982
Historic Structures**	May 1982
23BE1010	August 1982
23HE448	November 1983

* This entry was removed from NRHP on 1 September 1983.
**Weinlig Store, Jones Drug Block, Hooper House, Fairfield Cabin and Batschelett House.

(2) Historic Properties Program. As a result of the work conducted at Truman during the last two decades, approximately 40 percent of project lands have been surveyed.. The work was concentrated in areas that were to be inundated and impacted by project operations. Currently there is one contract that has not been concluded. The study is the development of a Cultural Resources Management Plan (CRMP) for identified sites on project lands. Although this contract was awarded in November 1984, it is scheduled for completion in the near future.

Recommendations provided in the CRMP will serve as an outline for future management of historic properties at Truman. Projected work scheduled for the next 5 years include the testing of approximately 26 prehistoric sites for the NRHP. Sites to be tested will be based on the recommendations of the CRMP contractor and in-house expertise and priorities.

Construction General funds in the amount of $160,000 are available to conduct this work. Based on the CRMP the Operations Division Cultural Resources Specialist (Archeologist) will negotiate with the Missouri SHPO and the ACHP on Programmatic Memorandum of Agreement (PMOA) for historic properties on project lands. On the basis of this PMOA future historic property work will be scheduled.

(3) Interpretation of Historic Properties. There are presently several facilities on project lands where interpretation of historic properties occur. The Kaysinger Bluff/Visitor Center contains displays on paleontologic, prehistoric, and historic subject matters. Although there has been some changes in the displays since the center opened, it is not anticipated there will be any substantial modifications in the near future. The Hooper House complex which consists of a reconstruction of the John M. Hooper home, summer kitchen and smoke house is located near the visitor center (See Plate 19). These buildings are used to interpret lifeways characteristic of Ozark culture and serve to enhance the activities associated with the annual Heritage Days Festival. The addition of other farm structures furnishing and activity areas in conjunction with this complex is anticipated in the future.

One stipulation of the MOA for historic structures was to place a plaque at the Fairfield cabin site interpreting the cabin's history and construction. Presently, this plaque is being prepared by Planning Division and should be completed in 1988. The plaque will tell how the structures were preserved under Federal stewardship.

Future additions of interpretive historic property facilities and programs will be constructed and introduced as the need arises.

(4) Inter and Intra Office Coordination. The Operations Division archeologist will conduct and coordinate all compliance activities with the Keeper, NRHP; Director, ACHP; and the MSHPO. The Operations Division archeologist will also meet with the project's Cultural Resources Field Coordinator (CRFC) once a year to discuss and implement the historic properties program at the project.

(5) Protection of Historic Properties. Caution will be used during any project related activities to avoid alteration or destruction of any archeological/historical site, feature or object. 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, no extensive investigation will be necessary; monitoring of the work by the CRFC will suffice. An investigation of the above should cause no work changes or delays. 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 disturbance activities, such as construction or shower/latrine, beaches, sewage lagoons and boat ramps, a historic properties survey will be necessary and will be undertaken by the CRFC and Operations Division archeologist or contract labor.

2-7. Water Quality.

In a cooperative study covering the first decade of the reservoir the Corps and the State of Missouri made monthly water quality surveys at a site near the dam; one in the outlet channel; and one in the upper Lake of the Ozarks. Another

a water quality monitor, located in the outlet channel, maintains a near continuous analyses of dissolved oxygen, pH, conductance and temperature of project releases. Many other studies have been made since closure with primary emphasis on the effects of these releases in the downstream reaches extending into the Lake of the Ozarks. Biological, chemical and physical water quality data are available in the STORET System. Several technical reports have been written documenting the study data. Reports are available from the Water Control Section in the Kansas City District.

The primary water quality problems at Truman involve chemical stratification, turbidity, and suspended solids concentrations, as discussed in the 1977 master plan. Associated with these are problems of low dissolved oxygen concentrations, toxic forms of heavy metals and possible nutrient and pesticide trapping. During certain times of the year, the lake becomes thermally and chemically stratified with a deoxygenated bottom layer of water extending to within a few feet of the surface of the lake. These problems can affect recreation use of the lake, especially fishing activities. Future studies need to be made to further explain and perhaps suggest control of Truman's unusual lack, at certain times of the year, of a biologically productive water column. Current plans are for a general survey starting in 1988, but then it could be a decade before the lake is studied again. This is not sufficient.

Downstream the effects of the hydropower releases and pump back capability have received considerable effort. Decisions concerning normal operation of the powerhouse are still being developed. Possible effects on the fish community are being addressed in several studies.

Bankline erosion is surveyed. Suspending sediment samples are routinely collected downstream and upstream of the dam. Special sediment sampling, velocity measurements, and stage recordings are measured in the main channel and at selected cove inlets during generator normal peaking operation.

Information on the rate of accumulation and the location of sediment deposits within Truman are determined from surveys of 62 established degradation ranges. Ten of these ranges (five at each project) are degradation ranges below Pomme de Terre and Stockton Lake dams. Due to the comparative light sediment load carried by the Osage River, a resurvey of the ranges each 20 years has been considered adequate. Should an unusually high number of flood events occur over a short period of time, or some specific need arise for more frequent surveys, the time interval will be shortened. Reconnaissance surveys are made at selected ranges and locations following each major flood event, or every 5 years, to determine if more extensive surveying is needed. The location of ranges are shown on the classification plates.

Operational problems associated with hydropower operations have also developed including reduced to inadequate dissolved oxygen levels near the dam needed to support the resident fishery. Dissolved oxygen monitors are being used to warn power house personnel when these conditions develop in order to institute procedures to alleviate the low dissolved oxygen concentration. Recreation safety is also a concern in the downstream reaches when discharges are made. Continuation and specialized study of these problems is needed to develop water release plans which serve all the beneficial purposes of Truman Reservoir.

The Union Electric Company has maintained sediment ranges in the Lake of the Ozarks. The ranges are spaced about one mile apart in the upper end of the lake, as degradation ranges for Truman. However, due to environmental and recreation aspects in the headwaters of the Lake of the Ozarks and the downstream effects of power releases from Truman, 39 degradation ranges have been established (including 22 re-established Union Electric ranges) for the purpose of monitoring outflow events. A total of 20 additional ranges have been added in selected coves to monitor the effects of tributary inflow. Reconnaissance surveys are made at selected ranges on an annual basis to ascertain changes and to document needs for more extensive surveys.

2-8. Lake Operation. Harry S. Truman Dam and Reservoir is located on the Osage River near Warsaw. The project was constructed as a multiple-purpose project in the comprehensive plan for flood control and water resources development in the Missouri River basin. Recognition of the fact that the Osage River was a large contributor to floods on the lower Missouri River led to authorization of Truman primarily for flood control. Subsequent investigations prompted expansion of the original plan to include power generation. Truman, at its multipurpose elevation, 706 feet msl, has a shoreline of about 950 miles, a surface area of 55,600 acres, and a storage capacity of 1,203,400 acre-feet. At the top of flood pool, elevation 739.6 feet, msl, the reservoir has a surface area of 209,250 acres and a storage capacity of 5,209,350 acre-feet.

The Truman project, originally named the Kaysinger Bluff Dam and Reservoir, is the largest flood control lake in Missouri, and operates in conjunction with other lakes in the Osage River Basin to provide flood protection to the lower Osage, the lower Missouri and the middle Mississippi River floodplains.

Truman dam is a gravity-type structure with a compacted earthfill main embankment, approximately 5,000 feet long, and a concrete spillway section and powerhouse structure approximately 964 feet long. The embankment rises 126 feet above streambed and has a thickness at the crown of 35 feet and 1,100 feet at the base. A major dike, 7,500 feet long, extends to the northeast of the dam.

The spillway is a gated, concrete, overfall type with a crest elevation of 692.3 feet, msl. The spillway is located near the right abutment of the dam and adjacent to the powerhouse section. The width of the spillway crest is 160 feet. Discharge through the spillway is controlled by four 40 x 47.3 foot tainter gates. Normally, the spillway is not used for releasing water from the reservoir, except during periods of high inflow when required releases would exceed the capacity of the powerplant. The spillway is used as needed for flood control operations and to insure the safety of the dam in the event of an extreme flood with inflows in excess of the reservoir's flood control capacity.

The operation of Truman consists of the impoundment of excess runoff from the Osage River and its tributaries above Warsaw for the purpose of flood control, and the release of storage accumulations at non-damaging rates. The releases are made in accordance with plans, schedules, and ratings which have been prepared in advance to meet various conditions of inflow and demand. Electrical power, generated by the operation of six turbine-generator units in the powerhouse which is part of the dam, is marketed by Southwest Power Administration and used to meet peak electrical requirements when conventional power plants cannot fulfill the public's demand for electrical energy. Normal operation of the Truman

hydroelectric facility anticipates peaking power generation for 7 hours per day, 5 days per week, 17 weeks per year - primarily during the months of June through September - with additional generation at other times of the year as water is available and there is a need for generation to meet power demands in the system of which Truman is a part. Daily variations and adjustments in the generation schedule are made by the Southwest Power Administration, as required within limitations set by the Corps.

Evacuation of flood storage from the Truman reservoir is based on the flow in the lower Osage and Missouri Rivers. Releases are scheduled as follows:

a. When the water surface elevation of Truman reservoir is within the lower 20 percent of the flood control pool (below elevation 717.1 feet, msl) releases are limited to the amount necessary to produce a flow of 34,000 cfs at the St. Thomas gauge on the lower Osage River. This flow of 34,000 cfs is approximately the discharge required for maximum power operation at Bagnell Dam with the Lake of the Ozarks at the top of power pool, elevation 660 feet, Union Electric datum (UED).

b. When the Truman reservoir has between 20 percent and 80 percent of the flood control pool occupied (a pool elevation between 717.1 feet msl and 735.5 feet, msl), releases are limited to the amount necessary to produce a flow of 54,000 cfs at the St. Thomas gauge. Recalling that tributary inflow downstream of Truman may contribute to the flow at St. Thomas, the rate of release from either Truman or Bagnell Dam may be less than 54,000 cfs at times. However, discounting tributary inflow, a flow of 54,000 cfs at St. Thomas would indicate that the Lake of the Ozarks has filled to its maximum elevation, 660 UED, and that water being released from Truman is spilling past Bagnell Dam. With a flow of 54,000 cfs at St. Thomas, flooding of some low-lying areas, that have historically been extremely flood prone, occurs on the Osage River below Bagnell Dam.

c. When Truman reservoir has 80 percent or more of the flood control capacity occupied (but the water surface elevation has not exceeded the top of the flood control pool) releases from Truman are limited to 80,000 cfs.

d. No releases are made from Truman reservoir storage (as long as the water surface elevation is below 739.6 feet, msl, top of flood control pool) when the Missouri River flow at Hermann, Missouri is above 260,000 cfs, and rising. After the Missouri River has crested at Hermann releases are continued from Truman subject to the limitations previously outlined.

e. At very infrequent intervals, the flood control storage capacity of Truman could conceivable be exceeded. In the event this possibility does occur, releases will be made from Truman regardless of downstream conditions at rates necessary to preserve the integrity of the structure.

Curves depicting anticipated pool elevations which are expected to occur at various frequencies are shown on Figure II-1.

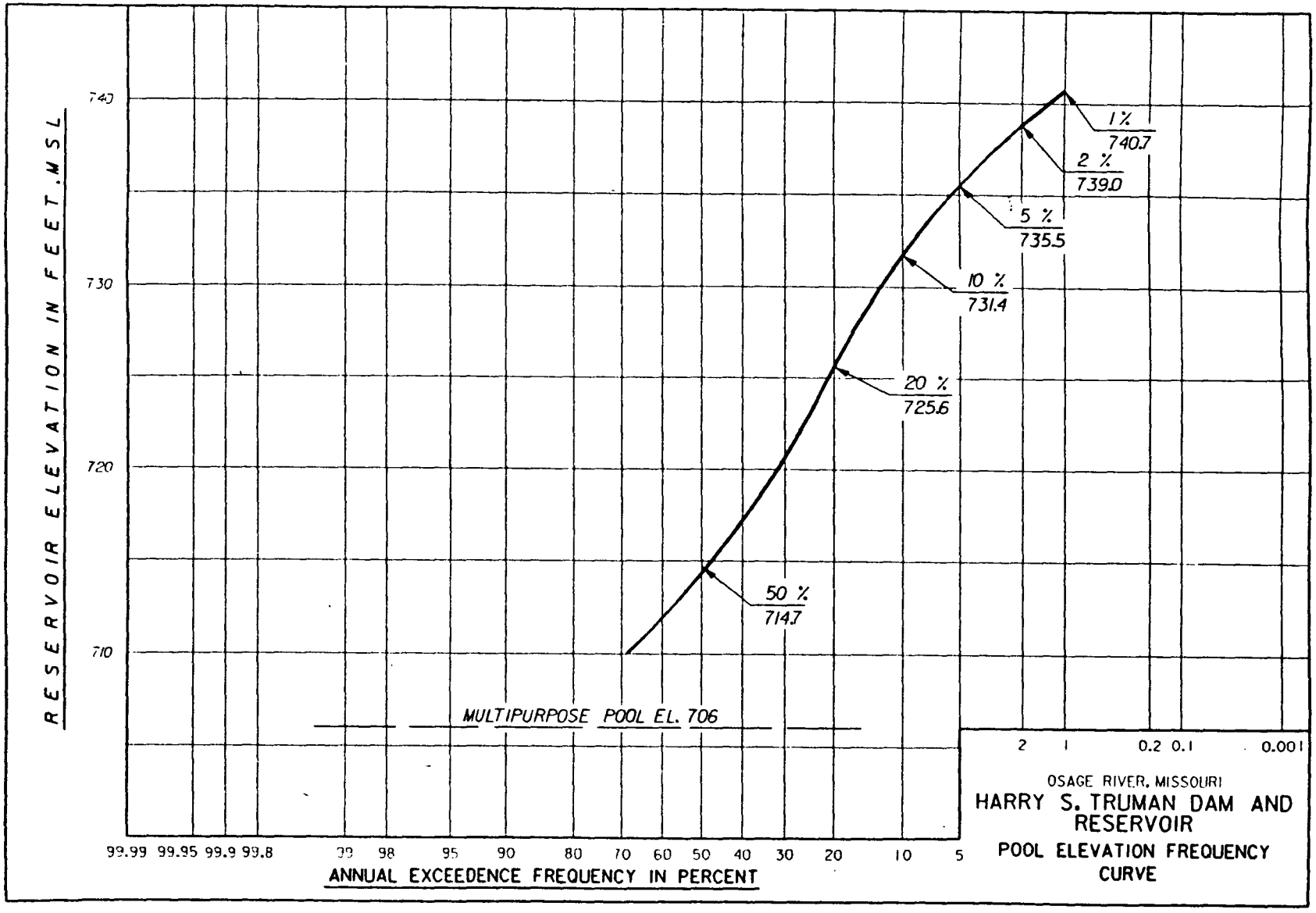

RESERVOIR ELEVATION IN FEET. MSL
740
730
720
710
1 %
740.7
2 %
739.0
5 %
735.5
10 %
731.4
20 %
725.6
50 %
714.7
MULTIPURPOSE POOL EL. 706
99.99 99.95 99.9 99.8 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0.2 0.1 0.001
ANNUAL EXCEEDENCE FREQUENCY IN PERCENT
OSAGE RIVER, MISSOURI
HARRY S. TRUMAN DAM AND RESERVOIR
POOL ELEVATION FREQUENCY CURVE

FIGURE II-1

2-9. Adaptability of Project Structures.

The Harry S. Truman Dam and Reservoir includes a gravity-type dam and hydroelectric generating plant with pumpback capabilities which are designed and adapted to fulfill project purposes. The dam consists of an earthfill embankment approximately 5,000 feet long, and a concrete spillway and powerhouse structure 964 feet in length. The dam rises 126 feet above the streambed. A major dike, 7,500 feet long, extends northeast of the dam. The dike is south of the Sterett Creek Park (See Plate 3 and Compartment 69). Table II-8 further summarizes some of the pertinent engineering data which are also provided on pages c-1 through c-5.

Table II-8. General Engineering Features

Dam	
Crest length (feet)	5,000
Height of dam above streambed (feet)	126
Thickness of dam at crown (feet)	35
Thickness of dam at base (feet)	1,100
Volume of concrete in dam (cubic yards)	327,000
Volume of earthfill, including Sterett Creek Embankment (cubic yards)	8,500,000
Spillway	
Length of spillway (feet)	190
Maximum elevation of spillway discharge (feet msl)	751.1
Control works	
Number of tainter gates in spillway	4
Size of tainter gates (feet)	40 x 47.3
Power provision	
Number of main generating units	6
Rated capacity of each unit (kilowatts)	26,667
Total rated capacity (kilowatts)	160,000
Average annual capability (kilowatts)	282,000,000
Maximum discharge capacity at full pool (cfs)	65,000
Maximum pump-back capacity (cfs)	28,000
Reservoir	
Top of flood control pool elevation (msl)	739.6
Surface area (acres)	209,250
Capacity (acre-feet) of flood control zone	4,005,949
Top of multipurpose pool (msl)	706
Surface area (acres)	55,600
Capacity (acre-feet)	1,203,400
Length of shoreline (miles)	950
Drainage area (square miles in uncontrolled area below all authorized upstream lakes)	7,856

The concrete spillway and powerhouse structure connects to the earthfill embankment by two non-overflow bulkheads. The spillway has four tainter gates with a capacity of 275,000 cfs at maximum surcharge elevation (751.1 feet msl). The six reversible pump turbines are rated at 26,667 kilowatts each.

The principal administration area is located on the right abutment of the dam (See Plates 3 and 12). Development in this area includes the operations office, maintenance buildings and storage yard, switching yard, and resident quarters (See Table II-9). Landscaping was included where necessary to provide vegetative cover. Trees and shrubs have been sited to enhance and guide views, provide buffers and shade, and to increase the aesthetic value of the area in general. Landforms with vegetative cover have been used to provide sight buffers for specific development such as the maintenance building and storage yards and to screen the resident quarters. Access to the residence is restricted to maximize privacy.

Located on the left abutment of the dam is the visitor center in the Kaysinger Bluff Park (See Plate 12). The visitor center contains interpretive facilities and exhibits relating to the operation of the project, the regional culture and history and the natural history of the area. It emphasizes the paleontological resources of the project. It also provides vistas of the dam, lower portion of the project and downstream area, and much of the surrounding landforms and vegetation. Vegetative cover was provided to enhance the aesthetic value of the site and to frame vistas.

The daily life of the early settlers of the Ozarks is also interpreted at the Hooper House complex just east of the visitor center. This historic interpretive effort at the reconstructed Hooper House fulfills the intent of a Memorandum of Understanding between the Corps, National Park Service, and the Missouri Council on Historic Preservation (See Table II-7).

In addition to the on-site interpretive exhibits and programs held at the visitor center, the story of the Corps' involvement in hydroelectric power generation is told in the Harry S. Truman Powerhouse Exhibit Area.

These other project structures and improvements, which were also designed and adapted to fulfill project purposes, are listed in Table II-9.

Table II-9. Other Project Structures and Improvements

Area	Structure
Administrative	Administrative building is 3,480 square feet which include 2,156 square feet of office space.
	Three resident quarters are 1,440 square feet each.
Project Storage	Powerhouse storage building is 5,400 square feet.
Maintenance	Maintenance building is 30,000 square feet.
Visitor Center	Center is 9,300 square feet.
Historic Complex	Hooper House is 982 square feet and includes a reconstructed summer kitchen/smokehouse of 588 square feet.

2-10. Mineral and Timber Resources.

a. Mineral Resources. The land acquisition program for Truman included the purchase of underlying mineral rights including the purchase of several limestone quarry sites. Crushed limestone rock remaining from the old quarry in the Sparrowfoot Park has been used on project roads, trails, and camp pads. Other minerals that may be found in the project area include oil and gas, coal, clay, and sand and gravel. No known mineral resources, however, are located on project lands that might merit commercial exploitation. The limestone and sand and gravel resources found on project lands are duplicated elsewhere on surrounding private lands. Local county road departments, however, in the past, have been allowed to extract gravel from former quarry areas for use on public lands serving the project.

The Department of the Interior has authority to lease lands at Truman for mining or development of oil and gas resources if the lease rights do not conflict with the use of the land and waters. It is the policy of the Corps to make civil works project lands available for oil and gas leasing to the fullest extent possible compatible with project environmental and operation and maintenance requirements. No requests have been received from the Department of the Interior for leases to explore for or to develop oil or gas resources. Current knowledge indicates that little if any oil or gas are located on project lands. If drilling requests are received in the future, the leases will contain appropriate conditions to protect the integrity of project lands.

High sulfur coal deposits occur in the southwestern portion of the Osage Basin and have been exploited for years. No known deposits of commercial value exist on project lands.

b. Timber Resources. Forests occupy the majority of project lands surrounding the lake and consist of two main types. Ridges and upper slopes are covered by upland hardwoods (oaks and hickories) while river bottoms and areas along tributary streams contain pin oak, ash, maple, and cottonwood. Most forest areas have been cut over or affected by repeated burning or livestock grazing in the past so few areas contain a mix of age classes. The condition of timber stands is also affected by limited site conditions associated with local geology and poor soils. There are no timber stands of great commercial value on project lands so timber management programs of the Corps and the Missouri Department of Conservation are oriented toward improving forest wildlife habitats through the use of firewood sales, timber salvage of valuable species, and limited timber sales. A Corps timber inventory program that has been underway for the past 3 years will eventually provide the information needed to fully integrate project forest and wildlife stewardship and management goals. The Missouri Department of Conservation has also instituted an inventory program on lands under its licensed management. The timber management scheme for Truman will be decided when the inventories are complete.

2-11. Related Recreation, Historic and Scientific Areas

The Missouri SCORP and Plate 1 show the location of major recreation lakes in the State. There are three major projects that surround Harry S. Truman Dam and Reservoir (Pomme de Terre Lake, Stockton Lake, and the Lake of the Ozarks). Pomme de Terre and Stockton Lakes are Corps managed projects. The Lake of the Ozarks is owned and operated by Union Electric. These and other major water projects within about a 100 mile radius of the Truman project are listed in Table II-10 .

About 75 miles south of Truman is Bennett Springs State Park. It contains about 1,200 acres. This is the oldest and most popular State park. For fishing enthusiasts, the park provides an excellent chance to catch rainbow trout. The spring-fed stream flows through the park and is ideal for trout, which are stocked daily during March to October. A nature center, swimming pool and campground all are located in the park. There are about 230 campsites and 80 cabins for rent in the park.

The setting of the Truman project in the vicinity of these four major recreation attractions in Missouri, seems to enhance the attraction of visitors. The visitor to the Truman project tends to appreciate it for its natural resources and beauty. The visitation at Pomme de Terre Lake is more analogous to the Lake of the Ozarks in that both projects have a high density of adjacent private property development around the lakes.

The U.S. Department of Agriculture, Forest Service, has jurisdiction on the Mark Twain National Forest. The Mark Twain National Forest contains about 1.5 million acres in 13 ranger districts in 29 southcentral Missouri counties. The Forest Service reported about 1.7 visitor days of recreation use in the districts in 1986. The forest system, like the major water projects and Bennett Springs, tend to complement each other in attracting visitors to the region.

Table II-10. Major Water Projects Within About a 100 Mile Radius of the Truman Project

Project	County (SCORP Planning Region)	Approximate Multipurpose Pool Acreage	Approximate Shoreline Miles
Bull Shoals Lake	Taney, Ozark (South Central Ozark, Southwest)	45,500	740
Harry S Truman Dam and Reservoir	Benton, Henry, Hickory, St. Clair (Kaysinger)	55,600	950
Lake of the Ozarks	Camden, Benton, Morgan (Kaysinger Basin, Lake Ozarks)	57,600	1,150
Lake Taneycomo	Taney (Southwest)	2,100	50
Pomme de Terre Lake	Hickory, Polk (Kaysinger Basin, Southwest)	7,800	110
Stockton Lake	Dade, Cedar, Polk (Kaysinger Basin, Southwest)	24,900	300
Table Rock Lake	Barry, Stone (Southwest)	43,100	750

Table Rock Lake, Lake Taneycomo, Bull Shoals Lake and Norfork Lake are competing projects for visitors from Springfield and the southern regions of the State. The same can be said of Stockton Lake. These projects have visitors that have preference of one project over the other lake. All projects, including Truman, seem to have repeat visitors.

There are numerous natural and wildlife areas within 30 miles of the Truman project (See Table II-11). The Missouri Department of Conservation manages most of these areas. The use of these areas do not adversely affect the visitation to the lake project. The same is true for designated historical sites and areas.

2-12. Recreation Trends

There are three separate reports that have analyzed recreation trends that relate to Truman. Information from these three report (The Report of the President's Commission on Americans Outdoors, Missouri Statewide Comprehensive Outdoor Recreation Plan for 1985-1990, and Summary of the 1984 Campground Receipt Study) have been summarized:

a. The Report of the President's Commission on Americans Outdoors. In January 1987, recommendations for outdoor recreation opportunities for Americans were presented to the President of the United States. The recommendations were presented in "The Report of the President's Commission on Americans Outdoors" and are supposed to be valid into the next century. The report was in four parts with several chapters within each part. Several of the chapters included recommendations which pertain to the Corps' natural resources and outdoor recreation operation and management responsibilities at Truman.

Chapter 1 of the report was entitled "Outdoor Recreation Depends on Healthy Resources." The one recommendation in this chapter was that "Strong local, state, and federal environmental quality laws, regulations and policies be strictly enforced. Recreation should be explicitly recognized as a beneficiary of clear air, clean water, pleasing landscapes, and abundant and diverse wildlife." This recommendation relates to a project-wide resource objective at Truman which is "To maintain natural resources." The chapter also indicated that the environmental quality is a key to outdoor recreation. "A quality outdoors is essential to fishing, boating, and camping; to hiking, skiing, and bicycling; to hunting and fishing and horseback riding and every other outdoor activity. There is no outdoor recreation pursuit which does not depend, directly or indirectly, on the quality of the environment. If the waters are dirty, the game sparse, or the views impaired, our outdoor experience is not everything we expect it to be".

Table II-11. Wildlife Areas and Public Access Points in the Vicinity of the Truman Project

Name	County	Nearest Town	Acreage	Principle Use
Schell-Osage Wildlife Area	Vernon-St. Clair	Schell City	8,633	Fishing & Hunting
Milo Prairie Wildlife Area	Vernon	Nevada	85	Prairie Chicken Production
Hermitage Access (Pomme de Terre River)	Hickory	Hermitage	2	Fishing
Caplinger Mills Access (Sac)	Cedar	Caplinger Mills	5	Fishing
Kings Prairie Wildlife Area	St. Clair	Osceola	160	Fishing & Hunting
Mora Prairie Wildlife Area	Benton	Cole Camp	320	Hunting & Fishing
Birdsong Wildlife Area	St. Clair	Osceola	260	Fishing & Hunting
Big Buffalo Wildlife Area	Benton-Morgan	Versailles	1,434	Fishing & Hunting
Peabody Wildlife Area	Bates	Rich Hill	300	Fishing & Hunting
Smith Bend Access	St. Clair	Osceola	2.24	Fishing & Boat Ramp
Osceola Access	St. Clair	Osceola	.76	Fishing & Boat Ramp
Scott's Camp Access	St. Clair	Osceola	.60	Fishing & Boat Ramp
Sac River Access	St. Clair	Osceola	.80	Fishing & Boat Ramp

Source: Harry S. Truman Reservoir-Wildlife Management Plan, Missouri Department of Conservation

Three of four recommendations of the Commission in Chapter 5 also relate to Truman. Chapter 5 was entitled "We Should Protect Out Investment in Public Recreation Facilities". The related recommendations were that:

(1) Local, state and federal officials plan and budget for systematic renovation and replacement of existing recreation facilities,

(2) Older facilities where practical be redesigned and adapted to allow access by people with physical disabilities, and

(3) People and private organizations that benefit from public recreation facilities be encouraged to volunteer their labor and dollars to help maintain and repair them.

Chapter 7 was entitled "We Must Protect and Enhance Recreation Opportunities on Federal Lands and Waters". Six of the 7 recommendations in the chapter pertains to the operational and management programs at Truman. The recommendations were:

(1) Federal agencies and the Congress place greater emphasis on long-term conservation of natural, cultural and historic resources and the quality of recreation opportunities and experiences. The federal multiple use agencies should assure that recreation is an equal partner with other uses in budgets, staffing and planning.

(2) Federal land management agencies embrace opportunities for partnership with other government agencies, and with for-profit businesses and not-for-profit organizations.

(3) Federal land management agencies encourage and stimulate innovation and experimentation.

(4) Congressionally-authorized land acquisitions be expedited, making full use of alternative land protection techniques, and exchange procedures be streamlined.

(5) Review of existing laws and regulations to monitor visitor needs and satisfaction; improve public participation in the planning process; effectively utilize volunteers; facilitate acceptance of donations of real property and easements; collect recreation fees; and stimulate regional ecosystem planning, and

(6) A periodic review of federal lands management.

The Report of the President's Commission on Americans Outdoors contains only recommendations until such time as they are officially provided in a Corps policy directive from Washington, D.C.

b. Missouri Statewide Comprehensive Outdoor Recreation Plan (SCORP) for 1985-1990. The Missouri SCORP listed more local changes that may affect the lives of the population and its participation in outdoor recreation within the State. Regional SCORP data is presented in paragraph 1-5. The list was in Chapter II of the SCORP entitled "Trends in Outdoor Recreation". Such characteristics as gender, income, and education level were listed in the SCORP. They can influence outdoor recreation at Truman as follows:

(1) Despite the reduction in the birth rate and talk about zero population growth, it is estimated that by the year 2000, the U.S. population will have reached approximately 260 million persons.

(2) Because fewer people were born in the generation before the post-war baby boom and because fewer are being born today, the largest group of Americans is now between the ages of 15 and 35.

(3) As population continues to grow and medical technology advances, there are more older Americans in better health who desire to participate in leisure. According to the "Third National Outdoor Recreation Plan" most workers are now covered by retirement plans that provide the elderly with more disposable income. Despite new laws allowing continued employment, workers are still retiring early, and have more free time on their hands.

(4) People are living healthier and longer lives. Life expectancy in the United States has gradually increased and now stands at 80 years for men and 85 years for women. Perhaps more importantly, a growing knowledge of geriatrics makes the aged years more pleasant and active.

(5) According to the "Third National Outdoor Recreation Plan", sex related differences appear to be diminishing rapidly. The growth in women's recreation participation parallels their expanding role in American society. Because women are become a greater part of the labor force, their disposable income is also rising. Females continue to outlive males by four-to-six years.

(6) Teens, aged, handicapped, and ethnic groups are demanding specialized services in outdoor recreation. Specialized programs that enhance self-confidence and skill levels are becoming popular recreation activities.

(7) The average size of the family is declining and there are more women "heads of household" than ever before. Single-parent families have increased, while double-parent families have decreased. It appears that more young adults are choosing careers over marriage or they are delaying marriage until later years.

(8) The employment level per capita and total personal income available, along with the amount and distribution of leisure time, generally determine the demand for leisure and recreation service. Total personal income in the United States is estimated to increase annually. Increased income generally precedes increased demand for recreation activities, both in quantity and geographical location.

(9) The distribution of time in a person's lifetime is changing. Education, work, and leisure are the three primary activities that occupy the lifetime of most people. With continued automation and other work-saving equipment, the percentage of time spent on work has declined to some degree. The amount of time spent on work has declined.

(10) This decrease in work time results in an increase in discretionary time, which may be increasingly used for leisure periods of time. Consequently, an increase is needed for workers in the leisure field by the year 2000.

(11) A variable work day and variable work weekends leave larger blocks of time distributed differently. The distribution of travel to and participation in recreation activities will be spread more evenly over the entire seven-day week, resulting in less-crowded facilities.

(12) Computers may become the leading world industry and as a result employment patterns will change. With more and more work being done by computers and computer-controlled automation, affluence may soar and increases in leisure time will occur. Vacation time will increase and retirement will be possible at an earlier age. This trend is no yet apparent.

(13) Improved planning and technology have combined to make urban environments more attractive. More emphasis is being placed on providing recreation facilities and services for specific urban population groups. In order to help accommodate the increasing numbers of leisure participants, increased use is being made of land and/or water resources that are used for recreation and at least one other purpose.

(14) With less government funding available, many outdoor recreation programs are being funded by alternative methods.

(15) Education is an important pursuit. Generally, the higher the educational level, the more affluent Americans have become. With affluency has come an emphasis on recreation and the meaningful pursuit of self-satisfying activities outside work.

(16) Physical fitness is one of the great benefits derived from many forms of outdoor recreation. Increased emphasis on physical fitness is a trend that appears to be long-lasting. Activities such as jogging, cross-country skiing, and swimming are part of this trend.

(17) The Missouri SCORP concluded that these trends indicate that more types of people are actively participating in a wider variety of recreation activities and will probably continue to do so. With an increase in population, discretionary income, and leisure time, more recreation facilities will be necessary. The conclusion also relates to the need to maintain existing facilities at Truman and to improve existing parks to meet future needs.

c. Summary of the 1984 Campground Receipt Study. The Corps of Engineers, Waterways Experiment Station in Vicksburg, Mississippi, published a Campground Receipt Study (CRS). The CRS was established to systematically collect information on visitor characteristics at Corps fee campgrounds. The 1984 publication included data on 16 CRS projects nationwide. The CRS data represents the best available nationwide sample of descriptive characteristics of visitors to Corps campgrounds. The trend analysis presented in the latest published report entitled "Summary of the 1984 Campground Receipt Study" follows:

(1) The number of permits issued in 1984 was lower than the previous 2 years.

(2) Nationwide, mean group size did not change during the years 1981, 1982 and 1983, but in 1984 it declined slightly. However, mean length of stay increased from 2.05 nights in 1981 to 2.58 nights in 1982 and held constant during 1983. In 1984 it was 2.38 nights, a slight decrease.

(3) From 1981 to 1983, there was a decrease in the percentage of campers with prior visits to the project and the percentage of campers having the project as their primary destination. The 1984 data indicate 8 of the 16 projects had increases in the numbers of camping parties who had prior project visits. In contrast, only 4 had increases in the number of camping parties with the project as their primary destination.

(4) Over the entire CRS, the percent of campers using Golden Age or Golden Access passports has for the most part increased.

(5) During 1984, there was not a significant change in the percentage of camping parties with vans while the percentage with cars decreased about 4 percent. The percentages of camping parties with trucks and motor homes both increased from the 1983 figures.

(6) The number of camping parties with cars remained about the same at all but one project. During 1984, camping parties with trucks remained rather constant. The percentage of camping parties with motor homes increased at eight of the CRS projects during 1984 after remaining somewhat constant during 1981 through 1983.

(7) The 1984 CRS data indicate a continued trend towards a more simplified camping style. The observation is based on data indicating a large percentage of camping parties with tents. The percentage of camping parties with motor homes increased while the percentage of camping parties with travel trailers, pickup campers, and pop-up trailers remained the same. At nine of the CRS projects, the percentages of camping parties with travel trailers decreased.

(8) The only piece of recreation equipment used by campers to any great extent was powerboats. The percentage of campers with powerboats has increased somewhat since 1981.

(9) There is little difference in the Golden passport and non-Golden passport group percentages of camping parties with cars, trucks, and vans. There is, however, a significant difference in the percentage of Golden passport camping parties with motorhomes (30.1 percent) and the non-Golden passport camping parties with motor homes (10.3 percent). In addition, only 5.2 percent of camping parties using Golden passports utilize tents while 47.1 percent of non-Golden passport parties utilize tents. The non-Golden passport parties (16.5 percent) bring fewer travel trailers to the CRS projects while 48.3 percent of Golden passport parties pulled travel trailers.

d. The recommendations and findings in the three cited reports indicate a rather dynamic society that can continue to be accommodated in public parks and waters at Truman for outdoor recreation pursuits. The general emphasis of the President's Commission report is to protect the Federal investment in recreation facilities and areas and to protect and enhance recreation opportunities for future generations. The recommendations and emphasis can be accomplished under the outdoor recreation trends listed in the Missouri SCORP and the Corps campground study findings.

The Kansas City District will be doing a recreation use survey in 1988 or 1989. This survey will provide additional data with which to make further and more

valid management decisions on how to improve the quality of recreation experiences at Truman. It is known however that there is a significant number of repeat visitors to certain parks and campgrounds at Truman. The use in these selected areas needs to be spread to other parks within the project (See paragraph 2-13).

2-13. Project Visitation.

a. Previous Projections. The 1977 Master Plan mentioned that there were two methods employed in estimating the annual visitation in the early stages of project planning. One method was used in 1961 that estimated the initial visitation at Truman to be 2 million recreation days of use. This figure was adjusted to 3.5 million in 1964. A recreation day is defined as a standard unit of use consisting of a visit by one individual to a park or recreation area during any reasonable portion or all of a 24-hour period.

The second method employed in 1968 yielded an estimate for initial visitation of 4 million recreation days of use. The 4 million figure was again increased in 1972 to 4,138,000. Since the latter visitation estimate represented a relative rather that an absolute indication of anticipated project usage, the 4 million figure was not adjusted. The 4 million figure was thought to have represented 2.1 million active recreationists (52 percent) and 1.9 million sightseers (48 percent).

The 2.1 million estimate of active recreationists was further broken down to overnight visitors and day users. The breakdown was based on experience at other projects in the Kansas City District in the early planning period of the Truman project. Approximately 56 percent were projected to be overnight visitors and 44 percent day users.

The 4 million initial visitation estimate was also used as a basis to determine future visitation for the twentieth year of project operation. A straight line projection had been utilized. The projection produced an estimate of 7 million recreation days, 5 million of which would be active recreationists (about 70 percent) and 2 million of which would be sightseers (about 30 percent).

Numerical values in terms of recreation days anticipated at various parks were assigned in the 1977 plan as an indication of the amount of each type of activity that each park was to receive. The subjective values were based on a number of factors: attraction of the park, the proximity of population centers, the anticipated traffic flow, physical site limitation, and proposed uses of the sites. The numerical figures are now invalid because facility development was not completed as earlier planned. For example, overnight accommodations were planned but never completed for Brush Creek, Cooper Creek, Crowe's Crossing, Fairfield, and Shawnee Bend Parks. Camping accommodations are now consolidated in 11, in lieu of 16 parks, as previously proposed.

The calculations of initial annual facility needs for the Truman project were based on the anticipation of 2.1 million recreation days of use by active recreationists. An initial need for 3,360 campsites, 360 picnic tables and 75 boat launching lanes was estimated in 1977. A comparison of these figures with existing number of facilities show a wide variance (See Table II-12).

Table II-12. - Projected Verses Existing Recreation Facilities at the Project

	1977 Master Plan	Existing Facilities (Group)
Campsites	3,360	1,771 (5)
Picnic Sites	360	192 (29)
Boat Ramp Lanes	75	85

Due to the indefinite nature of project development, the 1977 plan did not recommend any future development. Future needs were to be based on demand and not on a specific time frame.

b. Current Projections. To estimate and hopefully determine facility requirements to meet visitor demand, it was necessary to establish the monthly period in which the greatest demand occurs. Monthly project visitation figures in recreation days are presented in Table II-13. The existing data base is representative of phased recreation development since the project was placed in operation in 1979. This data may be somewhat representative of present and future visitation, but long term annual information is needed to specifically identify future trends as they develop.

An analysis of the data presented in Table II-13 shows that Truman enjoys about a 5 to 6 month recreation season. About three quarters of the total visitation occurs during a five month period (April through September). Truman's long recreation season can be attributed to its popular fishing and hunting activities. The project has relatively stable visitation levels but very diverse users. The peak month is May for camping, picnicking and boating activities, although the months of June and July are close behind. The number of peak days in May is about nine. Other factors used to compute facilities required to accommodate future demand include the results of the 1982 visitor survey.

Not all of the existing parks were developed or opened in 1982 when a survey was taken. The application of the collected survey data can however provide a general indication or estimate of facility needs and demands for the year 2000. As stated in paragraph 2-12c, another recreation use survey is scheduled for 1988 or 1989. This latter survey will provide needed recreation data to better compute facility needs at Truman.

Since the 1982 data were the only survey source of expressed need, the use values and figures were applied to show a general estimate of need. The 1982 survey indicated that 52 percent of the visitation occurs on weekends and holidays and 48 percent on weekdays. The average number of persons per group or party (load factor) was 2.64 for camping, 3.73 for picnicking and 2.60 for boating activities. By applying the survey statistics and the 1982 project visitation trends to a projected visitation of 2,750,000 recreation days of use by the year 2000, a future demand for camping, boating, and picnicking facilities were estimated. The 2,750,000 recreation days represents about a 5 percent increase in use by the year 2000 over the existing annual visitation. The 5 percent growth is comparable with

the population projections for the State by resource planners and the Census Bureau (See Table II-2).

Table II-13. Monthly Visitation in Recreation Days of Use

Month	Monthly Visitation (Percent of Total)
Jan	53,900 (2.0)
Feb	84,200 (3.2)
Mar	159,300 (6.1)
Apr	294,000 (11.2)
May	443,500 (16.9)
Jun	383,500 (14.6)
Jul	327.900 (12.5)
Aug	273,000 (10.4)
Sep	235,400 (8.9)
Oct	177,100 (6.7)
Nov	118,400 (4.5)
Dec	80,100 (3.0)
TOTAL	2,630,300 (100)

Project facility requirements are based on the following formula using the 1982 survey data:

$$\frac{\text{Annual Visitor No.}}{\text{No. of Peak Days} \times \text{No. of Persons} \times \text{Turnover Factor}} \times \%\ \text{Peak Month} \times \%\ \text{Peak Days} \times \%\ \text{Activity Use} = \text{Number of Required Facilities}$$

The following definitions apply to this formula:

Annual Visitors: Projected visitation by the year 2000 (2,750,000 recreation days

Percent Peak Month: Percent of visitation occurring during the peak visitation month of the year. At Truman this month is May. (See Table II-13).

Percent Activities Use: Percent of visitors participating in that activity was 5.9 percent for camping, 4.4 percent for picnicking, and 21.9 percent for boating activities (Taken from the 1982 visitor survey). These 1982 percentage

figures are very suspect in view of the existing demand for recreation facilities now being experienced in the existing parks and access areas. Some of the existing demand was not present or parks were not open to the public in 1982 when the survey was taken therefore the product of the calculation is rather invalid.

Number of Peak Days: Average number of weekend days and holidays that occur during the peak month. The average number is 9 (In this case, May).

Number of Persons Per Group: Obtained from the 1982 visitor survey: 2.64 for camping, 3.37 for picnicking and 2.60 for boating. Boating includes water skiing, fishing from a boat, and pleasure boating activities.

Turnover Factor: Average number of times a facility will be used during one day is 1 for camping, 2 for picnicking, and 40 for boat launching activities.

Applying this formula to the 1982 survey results for each of the recreation activities yields the following results:

Camping: $\frac{2,750,000 \times 0.169 \times 0.520 \times 0.059}{9 \times 2.64 \times 1}$ = 600 campsites or camping units

Picnicking: $\frac{2,750,000 \times 0.169 \times 0.520 \times 0.044}{9 \times 3.73 \times 2}$ = 158 picnic sites

Boating: $\frac{2,7500,000 \times 0.169 \times 0.520 \times 0.219}{9 \times 2.60 \times 40}$ = 57 boat launching lanes

The results derived from applying the 1982 survey information and population projections yield data contrary to project experience. For example, project experience would show that there is greater camping and boating activities on the lake than 5.9 and 21.9 percent, respectively. The 5.9 and 21.9 percentage figures were complied during the 1982 survey. The total number of existing camping units is about what is presently needed, but the units could be better sited in individual parks. The same is true for boat launching lanes. The public would be better served if the lanes were more dispersed around the project and at select points near marinas where tournaments frequently occur. Some existing ramps also need to be widened to satisfy facility needs.

The total number of these available recreation facilities are summarized in Table II-15. These totals can be compared with the number of projected needed recreation facilities for the year 2000 (See Table II-14).

There is a larger percentage of visitors to the project that camp on a peak day than 5.9. Likewise, more peak day visitors participate in boating activities than 21.9. Project experience indicates that about 20 and 50 percent of peak day users participate in camping and boating activities, respectively. The 20 and 50 percentage figures are not from surveyed data but from the best estimate of actual use by peak day users. When these figures are applied to other survey data, the yields would be about 2,030 camping units and 130 boat lanes would be needed by the year 2000 (See Table II-14). Since the marinas will continue to expand to

Table II-14. Available Recreation Facilities
Projected Needs (Year 2000), and Proposed Development

Recreation Facilities	Available Facilities (Group)	Projected Needs (2000)	Proposed Future Development
Campsites	1,778 (5)	2,030	350
Picnic Sites	192 (29)	158	255 (5)
Boat Ramp Lanes	85 *	120	8

*Four lanes are below the dam in the downstream area of Bledsoe Ferry and Warsaw Harbor Parks.

serve some boat water storage needs, the future demand should be achieved by providing an estimated 120 total lanes at the project by the year 2000. Day use picnicking activities are expected to increase when swimming beach and boat launching facilities inside of existing overnight areas are opened to all project visitors. The Corps proposes to meet the picnic needs in its parks by adding 143 additional units and 5 group shelters. The State agency also has determined a need for an additional 112 picnicking units for the day use areas in the Harry S. Truman State Park.

TABLE II-15. - Presently Available Facilities by Public Park or Developed Area

Park (Acres)	Campsite (Group)	Picnic Site (Group)	Boat Ramp Lanes
Berry Bend (624)	384	28 (2)	4
Bledsoe Ferry (170)	0	40 (4)	2*
Boy Scouts, H. Roe Bartle (670)	0	0	0
Brush Creek (47)	0	0	3
Bucksaw (451)	346**	0	4
Bucksaw Marina (96)	0	0	1
Clinton (1,650)	0	0	0
Cooper Creek (630)	0	0	0
Cross Timber Access (44)	0	0	2
Crowe's Crossing (70)	0	0	4

TABLE II-15. - Presently Available Facilities by Public Park or Developed Area (cont'd)

Park (Acres)	Campsite (Group)	Picnic Site (Group)	Boat Ramp Lanes
Deepwater (410)***	0	5 (2)	2
Fairfield Access (105)	0	0	2
Harry S. Truman State Park (1,440)	201	52 (1)	6
Kaysinger Bluff (150)	0	10	0
Long Shoal (350)	122	18 (1)	5
Long Shoal Marina (65)	0	0 (2)	
Osage Bluff (565)	68	6	3
Osage Bluff Marina (56)	0	0	2
Osceola (520)	45	0 (4)	2
Roscoe Access (193)	0	0 (1)	2
Sac River Access (23)	0	0	2
Shawnee Bend (540)	0	20 (2)	8
Sparrowfoot (495)	164	18 (3)	6
St. Clair County Fairground (17)	0	0	0
Sterett Creek Park and Marina (160)	100	0 (1)	4
Talley Bend (260)	221	0	2
Thibaut Point (275)	91 (5)	0 (6)	2
Warsaw Harbor (43)	0	0	2*
Windsor Crossing (125)	46	0	2
Licensees	0	0	8
TOTAL	1,788 (5)	192 (29)	85

*The Bledsoe Ferry and Warsaw Harbor boat ramp lanes (4) are below the dam and in the downstream area.

** Forty primitive camp sites will be deleted when the tent loop is converted to a day use area.

***The Deepwater boat ramp lanes are within the Cooper Creek Park.

Even though additional beach and launching facilities will be open to the public near the existing overnight areas, the objective to separate day use and camping facilities can be achieved. The separation will be achieved by providing controlled gate structures at the entrance to the individual campgrounds.

The Kansas City District will be doing a recreation use survey in 1988 and 1989. This survey will provide data to make valid management decisions on facility needs. The data will be applied when received, using the same formula, to better detail future facility needs at Truman.

2-14. Management Trends.

The management trends at the Truman project are directed toward three program objectives. They include the managing of natural resources to insure their continued availability, providing outdoor recreation opportunities on a sustained basis, and providing a safe and healthful environment for project visitors. These objectives are outlined in ER 1130-2-400 (Project Operation - Management of Natural Resources and Outdoor Recreation at Civil Works Water Resource Projects).

The ultimate responsibility for the project's natural resources rests with Operations Division within the Kansas City District. The Missouri Department of Conservation also has accepted a significant management responsibility and role on about 55,000 acres of lands that it manages for fish and wildlife purposes. The management of all natural resources at Truman is integrated with other project activities within a multiple use concept. Progressive management programs are initiated whenever feasible to maintain the natural resources in a productive state. Management techniques of natural resources are applied whenever opportunities exists to maintain vegetative conditions for wildlife, recreation, scenic value, timber, wildfire prevention, pest control, watershed protection or for other uses on the project.

Recreation opportunities are provided at the project on a first-come, first-served basis. Group camp areas and group use picnic facilities are provided on a reservation basis. In any case, the resource personnel at the project are tasked to increase the public's opportunity for a high quality recreation experience by:

a. Establishing and enforcing maximum use limitations to prevent overcrowding or site deterioration,

b. Reducing or eliminating use conflicts. Public day use activities should be separated where possible from camping areas,

c. Establishing project wide cost effective program to rehabilitate recreation facilities whenever feasible to increase visitor satisfaction while reducing operational and maintenance costs. Consolidate areas and/or close and discontinue facilities that are underutilized,

d. Implementing other approved management measures to provide for recreation use of the project by all visitors, including the handicapped, and

e. Issuing special events and use permits to serve the public need.

The recreation objectives of the Corps are also enhanced by the public facilities and services offered by grantees that have real estate rights at the Truman

project - Missouri Department of Natural Resources; the cities of Clinton, Deepwater, Osceola, Roscoe, and Warsaw, Heart of American Council-Boy Scouts of America, Golden Valley Radio Control Association, Sac-Osage Youth Fairground, Meadow Lake Golf Association, and commercial marina concessionaires.

At present, the existing park areas and facilities are generally efficiently operated and maintained with two exceptions. The exceptions are Talley Bend and Thibaut Point Parks. Talley Bend Park has not attracted the visitors that were previously estimated. There will be future management changes and incentives used to improve the visitation to this extensively developed recreation area. Likewise, the group uses at Thibaut Point Park has not materialized as previously projected. The day use facilities and one campground in this park will be opened to users on the first-come, first-served basis.

The existing park areas have sufficient acreage to allow for projected future visitation and growth. There were twelve future parks designated in the 1977 plan that contained about 4,500 acres. The previously projected future use in these twelve parks can best be served in existing development recreation areas. In essence, the change in land classification is a form of consolidation of park use. This consolidation of use will reduce future operation and maintenance cost because these parks will not be developed by the Corps without a cost-sharing sponsor. There may however be expressed interest in 2 or 3 of these future park areas - Cedar Grove or Sugarcamp Hollow by the Missouri Department of Natural Resources, and South Grand Point by Air Force-Whiteman Air Base. If either of these interest materialize, Operations Division will seek letter approval or supplement this master plan to justify the change in land classification to permit the development in these former park areas.

The proposed layout and design changes are to improve usability of facilities by visitors, improve cost effectiveness of operation and maintenance activities, and improve efficiency of user fee collection. Additional camping units will be added at existing parks where there is an existing or future demand for these, consistent with resource capability and where efficient, effective layout is possible. Where consistent with visitor preference, electric and water hookup system will be installed if capital improvement and operation and maintenance costs are recoverable. This is in accordance with existing guidance of 4 October 1984 entitled "Corps Policy on Utilization of Special Recreation User Fee (SRUF) Revenues". The policy may change at some future date, but the Kansas City District is fully supportive of the guidance and objective toward providing a quality recreation experience to the visiting public.

The above criteria for cost-effectiveness and user preference will apply to parks managed by the Corps and improvements made with Special Recreation User Fee (SRUF) funds. The guidance on utilization of SRUF revenues is detailed in a 4 October 1984 policy letter. Improvements proposed by others or proposed for Federal cost-sharing participation will be evaluated for overall consistency with the intent of the policy guidance and this plan. The District Engineer has the authority to review and approve the proposed plans of a grantee. The plan must be consistent with the purpose and intent of individual real estate grants.

2-14 Federal Cost-Sharing Requirements.

The traditional policy of the Corps has been to encourage non-Federal participation in the administration of recreation opportunities provided at Corps projects. Since 1944, the Corps has entered into leases and/or licenses which permit state and local development and administration of project areas. The policy was reaffirmed by the Congress through the passage of the Federal Water Project Recreation Act of 1965. This Act directs ". . that . . . in investigating and planning any Federal . . . water resource project, full consideration shall be given to the opportunities, if any, which the project affords for outdoor recreation." The Act further defined the basis for sharing the financial responsibilities in joint Federal and non-Federal development, enhancement, and management of recreation and fish and wildlife resources at water projects. A substantial number of parks at Truman were developed prior to administratively implementing the cost sharing principles of the 1965 Act, and these parks continue to be operated directly by the Corps or grantee.

Consistent with the Federal interest and the philosophy that direct beneficiaries should share in the recreation costs at Federal projects, Corps participation is limited to sharing the development costs of the recreation and wildlife enhancement opportunities created by its project with a non-Federal public entity. The non-Federal sponsor would be required to enter into a cost sharing contract with the Corps prior to construction and agree to assume full operation, maintenance, and replacement cost for the completed facilities. No cost sharing agreements are being negotiated or are presently in effect at Truman. In the absence of a willing qualified non-Federal cost sharing sponsor, no additional parks will be planned or developed by the Corps.

Cost sharing is not required if a non-Federal public entity wishes to assume all development, operation and maintenance cost.

III. COORDINATION WITH OTHER AGENCIES AND ENTITIES

3-1. General.

Coordination has been maintained in the planning process with those Federal, state, county and municipal entities, as well as organizations, and individuals that might have an interest in the recreation development and land use allocations and classifications at Truman. A summary of their comments and recommendations is presented in the following paragraphs of this section.

3-2. Federal Agencies.

a. U.S. Department of the Interior, Fish and Wildlife Service. The Field Supervisor from the Columbia Office responded to the Corps planning effort. He participated in a review of the updated plan for Truman held at the headquarters of the Missouri Department of Conservation in Jefferson City. The principal changes in the plan were the result of an effort to reduce the number of management units and to bring compatible uses together. If implemented, the proposed changes planned should produce both environmental benefits and savings in management costs. As presented, the updated plan would provide protection of Federally listed endangered species, migratory birds and sensitive areas at Truman.

It is the Service's understanding that certain lands at, and near, the project have been identified as possibly being excess to project needs. Some of these lands may have significant habitat values. The Service would like an opportunity to review these areas prior to their being declared surplus to Federal needs.

The Corps planning team should be complimented on its efforts to resolve and avoid resource use conflicts through this revised master planning effort.

Response: The Kansas City District appreciated the input of the Field Supervisor at the planning meeting. His involvement was beneficial for the Corps. After the meeting, a list and map of project lands determined surplus to Federal needs were sent to the Field Supervisor. The Missouri Department of Conservation, in cooperation with the Fish and Wildlife Service, has already determined that six tracts would benefit the State's wildlife management program (See paragraph 3-3a).

b. U.S. Department of the Interior, National Park Service.

The Acting Regional Director provided early coordination review of the update of the Master Plan for Truman. Based on the information and the Service's general knowledge of the area, it was concluded that the plan will not affect any unit of the National Park System.

Land and Water Conservation Fund (LWCF) assistance was involved in the development of Harry S Truman State Park under projects 29-00928, 29-00929, and 29-01169. If the proposed plan will use any land from this park, compliance with Section 4(f) of the Department of Transportation Act and with Section 6(f) of the LWCF Act must be accomplished.

The Corps should consult with the official who administers the LWCF program in the State of Missouri to determine the potential conflicts with Section

6(f)(3) of the LWCF Act (Public Law 68-578, as amended). Section 6(f)(3) of the LWCF Act states that no property acquired or developed with assistance under this section shall, without the approval of the Secretary of the Interior, be converted to other than public outdoor recreation uses. Dr. Frederick A. Brunner is the Director, Department of Natural Resources, P.O. Box 176, Jefferson City, Missouri 65102.

The Service urged that the Corps coordinate with the State Historic Preservation Officer (SHPO) to ensure compliance with all mandates pertaining to the identification and protection of cultural resources. Dr. Brunner is also the SHPO for the State of Missouri.

The comments were provided as informal technical assistance and were not intended to reflect probable response on any document which may be prepared in this matter to comply with the National Environmental Policy Act of 1969.

Response. The Kansas City District has concluded that the proposed plan will not conflict with any land development within the Harry S. Truman State Park. There will be no change in land use in the State Park. The only other areas that may have received LWCF Act assistance would not be conflicted or compromised - ballfield development in Roscoe and golf course development by the City of Warsaw in the Shawnee Bend Park. The Director of the Natural Resources will be contacted if there is any conversion being proposed for any properties developed with LWCF Act assistance.

The archeologist in the Operations Division does coordinate with the Missouri SHPO to ensure compliance with cultural resource matters. This coordination will continue as in the past.

3-3. State Agencies.

a. Missouri Department of Conservation. The Director mentioned that members of his staff worked with Corps personnel as they prepared to revise the Harry S. Truman Master Plan. The Department became aware of small parcels of land that were identified as excess to project needs and which would be disposed of by the the General Services Administration at a later date. The Department requested the Corps to reconsider disposal of six of those parcels.

Real Estate Division in the Kansas City District provided the Department with maps which showed the location and acreage of the tracts in question. The Department has examined the material and determined that six tracts would benefit the State's wildlife management program on the Truman project. The subject land is:

Tract	Acres
12302	197.1
12308	120.0
12310	42.4
13507	7.9
13510 (portion)	100.0 approximate
13513	120.27
	587.67

Proposed management on tracts 12302, 12308 and 12310 would be row cropping and warm season grass seed production. Tracts 13507, 13510 and 13513 would be developed for improved waterfowl use, dovetailing with the State's plans for the Grand River Bottoms Wildlife Area.

The Department would appreciate consideration of retaining these tracts and including them in the License DACW41-3-83-18.

Response: The Kansas City District's Real Estate Division will cooperate with the State agency on any disposal or licensing action on the subject tracts of land. The tracts in segment 123 are not contiguous to the other existing fee owned lands and may be deeded to the State for its future management endeavors. The tracts in segment 135 are contiguous to licensed lands and should be added to the State's real estate contract. The acreage in segment 135 will be added to the State's licensed lands within the Grand River Wildlife Area (Compartment 53 - Plate 9).

b. Missouri Department of Conservation. In a following letter, the Director thanked the Corps for the opportunity to be involved in the Harry S Truman Master Plan update. The staffs have always worked together to ensure that the project's resources are managed for the greatest public benefit. The revision under study will certify the continuation of that objective.

The fisheries management biologist took the opportunity to provide comments on matters other than land use allocations and classifications. This is in accord with the understanding reached at the meeting with Corps personnel. The questions and concerns of the biologist will hopefully not get lost in the shuffle of land use changes, but be taken up by the appropriate Corps staff. Not mentioned but requiring attention, is the need to provide fishing opportunities for handicapped anglers. This could be on existing marinas which already have handicapped access ramps. A specific area on the dock should be designated for such use and structures placed to enhance fish attraction.

The Department recently sent the Corps a letter regarding retention of several tracts of "excess" lands. He reiterated that request and ask that it become a part of the Department's comments (See paragraph 3-3a).

The Department appreciated being involved in this master plan update as early coordination would provide smooth implementation. The Department also asked that the following comments be considered and made a part of the planning document.

1. Fishermen Access. Access is limited to 20 parks and 12 small boat ramps and a number of abandoned roadways. The roadways are in poor condition and some of these have been closed to vehicle traffic.

(a) Lake Access - Specifically the boat ramp and parking lots at Windsor Crossing, Fairfield and Osage Bluff Park are inadequate to handle large numbers of fishermen and boaters. In addition, the Thibaut Point Park boat ramp is closed to the general public and only available for group use. These four parks need to be upgraded with additional boat ramps and parking lots.

Additional boat access is needed. Single boat ramps and small gravel parking lots would suffice. The Corps should provide these areas since they are on the lake.

(b) Stream Access - Many anglers have expressed their concern for limited bank and small boat access areas on a number of high quality streams. This opinion was expressed at a meeting held in Clinton and in several Corps public meetings. Many of these areas were formally used by the public for access to the streams prior to Truman construction. Many of these areas are located on Corps lands leased to the Department.

(1) Weaubleau Creek - Upstream of Highway 82 a suitable site is located about 7 miles downstream from Kings Prairie Access See Compartment 25).

(2) Grand River - Near old Martinville Road, the Department currently has a parking lot. A small concrete ramp should be added. On the Grand River near old or new Highway 18, a boat ramp should be constructed. Additional parking should be provided off of old Highway 18 on the east side for fishing the banks on the Grand River and tributary streams.

(3) Deepwater Creek - Off of old Highway 13 on the north side of the creek a parking lot and gravel of concrete ramp should be added (See Compartment 51).

(4) Big Tebo Creek - Either off of Highway C or old Highway C a boat ramp should be constructed. In addition a parking lot should be constructed at the next two bridges upstream which will provide bank fishing opportunities (See Compartment 62).

2. Water Quality. A water quality study of Truman Lake could be undertaken by the Corps. To date nothing has been done in this regard. Perhaps a water quality monitoring project could be considered.

3. Siltation. Siltation in the upper end of Truman appears to have been accelerated with the abnormally high rainfall which has occurred the last several years. Few sites have been sampled and there are no plans to repeat sampling the initial sites to monitor the rate of sedimentation. Specific information is needed for the upper portions of the Sac, Osage, Grand and Deepwater arms.

4. Stream Corridors. Stream corridor management guidelines should be considered on lands which border streams within the land still retained by the Corps. The Department offers stream management recommendations for currently eroding banks as the problems are identified.

5. Fish Habitat. An active fish habitat construction program should be considered. The severe clearing of timber in and around the recreation areas have created a lack of fish habitat. Volunteer programs could possible help with placement of structures. Fallen trees on the area would be used in some instance instead of the current practice of cutting and hauling of the dead trees for safety reasons.

6. Fish Opportunities. What plans are made to increase fishing opportunities at the Quarry pond located near Highway 13. The COE built a handicapped fishing area on this site. Fish habitat and possible routine stocking may be necessary (See Compartment 54).

What is the status of other impoundments on COE property? Several were identified as needing structural repairs before the Department could re-stock them.

7. Fish Hatchery. A hatchery could be developed on the two 10 acre old sewage lagoons located outside of Clinton. The bottom sediments were tested and no hazardous material was found. The ponds' sediments should probably be cleaned out and drain structures repaired before they become operable. Perhaps paddlefish or hybrid stripers could be raised to a larger size in the ponds.

8. Endangered Species and High Quality Natural Communities. A summary of these two topics is provided in Table III-1. These topics are also referred to as heritage elements.

Response: The Kansas City District appreciates the close working relationship with representatives of the Missouri Department of Conservation. This relationship may lead to the possible retention of several tracts of "excess" lands at Truman that can benefit the State's wildlife program on public lands.

1. Fishermen Access. There are numerous roadways that lead to the lake proper. Some of the roadways have been closed to vehicle traffic because of deteriorated conditions. A revised road design memorandum will be prepared to consider future road and boat access needs at the project (See paragraph 7-1).

(a) Lake Access. The Corps is proposing to improve the boat launching facilities at Windsor Crossing, Fairfield and Osage Bluff Parks. Likewise, the boat ramp in Thibaut Point has been opened to the general public. The Corps has no authority to provide additional boat access at Truman outside of existing developed parks (See paragraph 2-16). Lands can however be licensed to legal entities within the State to provide additional boat launching facilities at the project. The subject memordandum, mentioned in the previous paragraph, will also consider desirable sites for boat launching lanes.

(b) Stream Access. Areas can also be licensed to legal entities within the State for providing stream, small boat, and fishing access.

2. Water Quality. The Corps does have a responsibility for long-term and routine monitoring of water quality. Monitoring is necessary to insure adequate quality of water to accomplish project objectives. Limited routine monitoring has been accomplished in the past, and a more comprehensive survey is scheduled for summer 1988. Specific water quality studies will be undertaken to assess impacts associated with changes in hydropower operations. Unfortunately, the Corps can do little to significantly affect the overall water quality, or limnology of the 55,000 acre lake, or those natural factors that lead to low oxygen levels in the hypolimnion.

3. Siltation. Siltation will be continuing problem and concern at Truman. Siltation of shallow cove areas, and river channel areas above Highway 13 is expected to continue, although observed rates may be less than in recent years of greater than normal runoff. It is not known at this time when a formal sedimentation survey will be done at the project. Routine monitoring and survey work will depend on the availability of funds.

4. Stream Corridors. The Corps will be pleased to incorporate, where possible, the Department's suggested stream corridor management guidelines which were provided the Kansas City District.

Table III-1. Heritage Elements at Truman

Name	County (Compartment)	Protection Strategy
1. Great Blue Heron Rookery	St. Clair (29)	Protect forested habitat, no disturbance
2. Dry Sandstone Forest	St. Clair (29)	No tree cutting or grazing; consult for periodic prescribed burning
3. Great Blue Heron Rookery	St. Clair (29)	Protect forested habitat, no disturbance
4. Great Blue Heron Rookery	Henry (45)	Protect forested habitat, no disturbance
5. Bald Eagle Nest	Henry (45)	Check each year; consult if behavior is noted
6. Great Blue Heron Rookery	Benton (18)	Protect forested habitat, no disturbance
7. Great Blue Heron Rookery	Benton (18)	Protect forested habitat, no disturbance
8. Great Blue Heron Rookery	Hickory (13)	Protect forested habitat, no disturbance
9. Great Blue Heron Rookery	Hickory (13)	Protect forested habitat, no disturbance
10. Blacknose Shiner	Benton (18)	Prevent stream alteration, flooding and siltation
11. Blacknose Shiner	Benton (18)	Prevent stream alteration, flooding and siltation
12. Niangua Darter	Benton (18)	Prevent stream alteration, flooding and siltation
13. Gray Bat	Benton & Hickory (12)	Present and planned protection efforts are adequate

Source: Missouri Department of Conservation Memorandum of 16 March 1988, subject: Review of Truman Lake Lands.

5. Fish Habitat. The Corps will cooperate with the State and volunteer groups to provide such habitat but cannot program funds for these improvements.

6. Fish Opportunities. Corps management at the Quarry Pond area near Clinton includes maintenance of the road, vault toilet, and handicapped fishing facilities. Some fish habitat was placed in the pond during winter 1987-88 as part of a volunteer program. The City of Clinton has been contacted to determine its interest in assuming a greater management or development role on the Quarry Pond area.

The operational management plan contains detailed work plans for Corps managed areas, including plans to renovate project ponds in the interest of soil and water conservation. As ponds are renovated it would be desirable for the Department to stock them with fish to provide an additional recreation-fishing opportunity outside of the lake proper.

7. Fish Hatchery. The Corps would have no objection to the MDC's use of the two former sewage lagoons for fish and wildlife purposes. It is beyond the Corps' authority, however, to participate in such development.

8. Endangered Species and High Quality Natural Communities. The Department's recommendations for management of rare and threatened fish species have been noted. Efforts will be made to avoid physical disturbance of project lands adjacent to the stream habitats. It will be difficult, however, considering the flood control function of the project, to avoid periodic inundation of portions of the Little Pomme de Terre stream bottom in Benton County.

Resource objectives have been included for the various classification compartments in regard to these heritage elements at Truman. This will alert persons to the presence of the significant resource elements in the individual compartments.

c. Missouri Department of Public Safety, Headquarters Missouri National Guard. The General Staff Director of Facilities checked with the Headquarters that schedules the use of its licensed area and is very pleased with the training area just as it is. The Missouri National Guard expressed its appreciation to the Corps for allowing it to use a portion of the reservoir for training purposes. The Guard has units training there most every weekend.

If the Corps has any suggestions or comments about the National Guard's use of the area please advise.

Response: The Kansas City District will continue to make lands available for military training purposes provided there is no adverse environmental impact to the resource or the land is needed for some authorized project purpose other than flood control. If the land is needed for a recreation and/or wildlife management purpose, the Corps will attempt to find replacement property at the project for training purposes.

d. Missouri Department of Natural Resources - Division of Parks, Recreation, and Historic Preservation. The Planning Section Chief provided information requested in regard to Harry S Truman State Park. A base map showing existing facilities as well as future plans and attendance figures from the time the park opened was also provided (See Table III-2).

In a follow-up telephone conversation with the Chief, he again expressed the Department's interest in future development of the Cedar Grove or Sugarcamp Hollow areas for organized group use. The Department cannot meet its group use needs at nearby Knob Noster State Park which is about 50 miles north of the project.

Table III-2. Attendance Figures for Harry S Truman State Park for Three Year Period Ending 1987

Month	Average	(Percent)
January	7,393	(1)
February	8,162	(1)
March	23,215	(4)
April	61,881	(10)
May	98,398	(17)
June	86,326	(15)
July	94,314	(16)
August	76,258	(13)
September	59,002	(10)
October	44,752	(8)
November	18,566	(3)
December	9,470	(2)
Average Total	587,737	(100)

Response: The Kansas City District has incorporated into this document the plans for the Harry S. Truman State Park. The Cedar Grove or Sugarcamp Hollow Areas have also been reserved for future group campground use by the State agency. Future recreation areas can be reserved for subsequent use and development under the master planning regulations (ER 1130-2-435). These two future group campground areas are reserved for Compartment 43.

e. Missouri Highway and Transportation Commission. The Division Engineer of Planning indicated that he appreciated receiving the opportunity to comment on how to improve future public uses of the Truman project. The Commission has no specific recommendations but furnished a description of 26 major construction projects that are planned in the general vicinity of the project (See Table III-3). As these might affect the Corps plans or operations, the Commission wanted the Corps to be aware of its intentions. A copy of the Commission's traffic map was also provided.

Response. The Kansas City District has noted the Commission's planned construction projects and is aware of its intentions. The only major affect on this master planning effort would be the widening of Highway 13. This may, depending on alignment, impact access to Crowe's Crossing.

f. Missouri House of Representative. Mr. Delbert L. Scott of the 118th District indicated that several of his constituents in the north Benton County area have contacted him about the restrictions on the use of Thibaut Point Park. Apparently this park is designated for use by groups only. Because of the restriction, there is not a public use area or park on the north Tebo arm of Truman Lake. It also appears that the area is not utilized to any extent for group use.

He requested that the Corps evaluate the group designation with the possibility of opening the park to general use by the public. This action would give the local residents of the area the ability to use Truman for recreation purposes. If this could be done before the 1988 season, it would be of great benefit to those who would use the facility on a regular basis.

Response. The Kansas City District has reevaluated the group camping designation and made an operational change for the park. Effective 1 April 1988, the swimming beach and boat ramp areas were opened to the general public from 8 a.m. to 10 p.m. The opening will be made permanent after this plan is approved. The first campground west of the main entrance into the park has been made available, during the interim, for individual overnight use on a reservation-only basis when it is not reserved for group use. This campground will be made available to camping on a first-come-first-served basis after this plan is approved. The future changes to be made to Thibaut Point Park are explained in paragraph 6-16.

Table III-3. - Major Projects Programmed in the Truman Area by the Missouri Highway and Transportation Commission

County	Route	Length (miles)	Year	Work Programmed
Cass	7	7.5	1970	Add lanes for dual
Cass	7	6.1	Design	Add lanes for dual
Cass	7	3.3	Design	Add lanes for dual
Henry	7	1.5	1988	Urich relocation
Henry	7	1.5	Design	Add lanes
Henry	7	3.2	Design	Add lanes for dual
Henry	7	11.3	Future	Add lanes for dual
Henry	7	1.5	Future	Add lanes for dual
Henry	7	3.1	Future	Widen to four lane
Henry	13	11.2	Future	Add lanes for dual
Henry	52	0.3	Future	Replace & rehab bridges
Henry	K	0.1	Future	Replace bridge
Benton	65	4.7	Future	Add lanes for dual
Benton	65	0.3	1988	Interchange (awarded)
Benton	C	0.1	Future	Replace bridge
Bates	18	0.2	1989	Replace bridge
Cedar	32	4.9	1990	Widen & replace bridges
Cedar	54	1.1	1988	Grading, widen & traffic signal
St. Clair	13	23.7	Future	Add lanes for dual
St. Clair	54	1.0	1988	Replace bridge
St. Clair	82	0.1	Design	Replace bridge
Vernon	54	3.4	1988	Replace bridges (awarded)
Vernon	54	0.5	Design	Replace bridge
Vernon	54	1.3	Design	Replace bridge
Vernon	54	1.0	Future	Replace bridge
Hickory	54	0.8	1988	Replace bridge

3-4. Organizations.

a. Lincoln Chamber of Commerce.

The President of the Lincoln Chamber of Commerce expressed pleasure to have the opportunity to respond and share comments and interest in the Truman Lake project.

The Thibaut Point Park has been closed to the public for a number of years since it was restricted to group camping only. The restriction has been a failure, due to the low usage of the facility in relation to the total dollars expended on the project.

Approximately two years ago, the Chamber of Commerce initiated a petition drive and collected between 1,000 and 1,500 names in support of opening the Thibaut Point Park for general public use. The petition was subsequently submitted to the Corps in the spring or summer of 1987. Our organization is very much interested in eliminating the group camping only concept at Thibaut Point, due to the proximity of the park to Lincoln.

The Chamber would appreciate the Corps' interest in changing the usage of Thibaut Point. Members of the Chamber do not understand why such a minor change requires the delay necessitated by a master plan review. They would be grateful if the plan could be expedited and the area opened for public use for this 1988 recreation season. Support toward this resolution will be appreciated.

Response: The Kansas City District has modified its mode of operation of Thibaut Point Park, as explained in the response in paragraph 3-3f.

b. Missouri Chapter of the Wildlife Society.

The President of the Missouri Chapter of the Wildlife Society indicated his appreciation for the opportunity to comment and make recommendations on the Truman project. It is through this type of cooperation that the resources of the State are being managed to the benefit of the general public.

He congratulated the Corps and Missouri Department of Conservation for the excellent cooperation shown between the two agencies. The varied programs and increased public use indicate professionalism in these agencies' management personnel. He hopes this cooperative effort continues to benefit the resource and appropriate public use.

The present system of land use classifications should be revised and categorized to more closely relate to the habitat conditions that actually exist. Special considerations should include wildlife management, special features, recreation use areas or parks, and areas of restricted use.

Recommendations for improved wildlife, forestry and fisheries management should be included in the Master Plan. The needs of the public for recreation uses i.e., hunting, fishing, bird watching, etc. are increasing every year nationwide. Public use on the licensed lands and other Corps lands are becoming more intense. Improved land management on both lands is critical to the continued growth and diversity of plants and animals presently existing. Continued cooperation between the local management staffs will assure the best habitat management programs available.

The public facilities that presently exist are excellent. However, some locations throughout the reservoir are devoid of such facilities. Consideration on developing more recreation areas or allowing primitive camping outside these developed areas will be necessary to provide more complete public use facilities. Evaluations of more handicapped facilities should also be included in the discussions.

He hopes that serious consideration is given the possibility of some form of lake level management plan. Past experiences with uncontrolled water levels create serious problems in the destruction of habitat conditions and public use facilities. Cooperative efforts between Department and Corps personnel can produce a workable plan for controlled water levels that will benefit both fish and wildlife habitat in and around the reservoir. Many of the Corps water projects in Kansas have such plans. Development of a consistent plan allows management personnel the opportunity to best utilize habitat conditions and provide more recreation use to the general public. He hopes this area would be addressed in the overall Master Plan.

He thanked the Corps for the opportunity to provide comments and recommendations on the Master Plan update on Truman.

Response. The Kansas City District appreciates the positive comments from the Missouri Chapter of the Wildlife Society. Coordination with the personnel of the Missouri Department of Conservation will help ensure the protection and maintenance of the resource base at the project.

The staffs of the two agencies and the U.S. Fish and Wildlife Service have worked together to more closely relate the land classification categories to the resource base that actually exists in various areas around the project. The special resource features suggested by the President have been considered in making the land use classification changes presented in this plan. Improved management techniques to be implemented on the various classified properties will be explained in the Corps future operational management plans (OMP) for the project.

An OMP is a separate document which outlines in detail the specific operation and administration requirements for the project's natural resources. The OMP must be consistent with this approved master plan. Continued cooperation between the local management staffs will take place when the OMP for Truman is updated.

There are locations throughout the project devoid of developed recreation facilities. Consideration will be given to developing more recreation areas if there is a need and a public governmental entity or potential lessee wishes to develop an additional park at the project. The Corps cannot unilaterally develop any additional parks at the project without a commitment by a cost sharing sponsor. The sponsor would have to agree to assume all operational, maintenance and replacement cost over the life of the cost sharing and lease contracts.

Primitive camping outside of developed parks and on State licensed lands is an activity approved by the District Engineer. This rather random overnight use outside of designated park and access areas needs to be discussed with representatives of the Missouri Department of Conservation. A consistent and workable policy needs to be established for primitive camping during firearm deer and spring turkey seasons. This overnight use by hunters is difficult to differentiate and explain to fishermen that want similar camping rights in isolated portions of the project.

The Corps will also consider modification of existing designs to provide additional facilities and service for handicapped persons.

It is recognized that lake fluctuations can drastically affect a variety of natural resource management programs including recreation. The water regulation program at Truman is complicated greatly by the constraints imposed by hydropower operations and the needs of the Southwest Power Administration. The Corps, however, is ready at any time to discuss changes in lake regulation programs that might benefit project resources.

c. Missouri Sport Shooting Association.

Speaking for the Missouri Sport Shooting Association, the Assistant Education Administrator for Outdoor Skills would encourage the Corps to include in its plans possible public shooting ranges. Such facilities and the encouragement of civilian use of firearms is totally consistent with Army policy as attested to by a sister branch of the Army under the title "Director of Civilian Marksmanship" Department of the Army.

Not only would such action be addressing a long standing need of the Armed forces but would also provide your neighbors of the Truman projects with untold hours of recreation shooting.

Response: The Kansas City District supports the public's interest in providing diverse recreation opportunities at the project. There are a number of factors that must be considered in siting a shooting range on public lands at Truman. The factors are safety and supervision.

If a supervised and baffled shooting range can be designed to reduce the shotfall impact zone to a given and secured area of the project, the Corps would be willing to consider an applicant's proposal. A fully supervised and baffled range would be more expensive to construct and operate, but would require less amount of project lands for the shotfall zone. Liability is also a concern but can be reduced by meeting accepted range design criteria in regard to current safety recommendations and requirements.

A representative from the Corps will contact the Missouri Sport Shooting Association to determine if a legal entity is interested in building such a shooting range on public lands. Such a range facility would provide the public with many hours of recreation shooting opportunity.

3-5. Individuals.

a. Messrs. Fred Beaman (dba Rigby Restaurant and Truck Stop) and Buddy Eichler (dba Eichler Lumber) from Lincoln.

They expressed their feeling that Thibaut Point Park should be reopened to the public as soon as possible - March 1, 1988. There is no reason it can't be!

Built at a cost of just under $1,000,000, only thirty-eight groups in 1986 and fifty-two groups in 1987 used the entire facility. Sterett Creek boat ramp had approximately 1,460,000 man hours of use in 1987, even without a swimming beach. The next closest facility in the area was almost half of that number. This shows that the Lincoln or north side of the lake needs this facility reopened.

The once crowded beach and boat ramp are almost vacant and would be a welcome addition for the local people as well as the people coming from the north and east. It would give the men, women, and children a place to swim and relax while the others boat or fish.

They feel that part of Thibaut Point Park should remain in group camping, but not all of it. They believe that people drive into Sterett Creek boat ramp area, see the parking from our side of the lake. We need this park to ease the overcrowding.

The Corps created this problem by closing Thibaut Point Park, but they can solve it by reopening it again to the public. They, as business people, need to keep this business in our area. They see no reason not to open it now!

Response. The Kansas City District has modified its mode of operation of Thibaut Point Park, as explained in the response in paragraph 3-3f.

b. Dr. Lucy Hirsch from Smithville

Dr. Hirsch provided recommendations on establishing an equestrian overnight trail system at Truman. Her comments are similar to numerous other letters received from equestrian groups. Her comments and design recommendations are listed as follows:

(1) Designate a camping area for horse users (other campers would prefer to be separated from them)

(2) Provide room to park a minimum of 40 rigs - 60 would be better

(3) Design the road so no backing is needed. Users should be able to park on both the inside and outside of the oval. It would be graveled so vehicles do not become stuck in the mud. The entrance and turns should be smooth enough and wide enough for long rigs (50 feet). If parking pads are provided they should be for the truck only (the trailer and horses should be on the nearby grass).

(4) Provide potable water from frost proof hydrants in two or more locations in the campground (no one should have to carry buckets of water too far).

(5) Provide toilet facilities - permanent pit toilets or flush toilets. She prefers unisex toilets well spaced to his and her side by side.

(6) Provide access to lake to water horses would be nice.

(7) Create at least 25 miles of trail. Room for 50 miles would be even better!

(8) Provide maps of the horse trails with RULES written on the back so all area users know the rules (examples, no horses allowed in (blank) area; do not tie horses to trees, etc.).

(9) Provide hitching posts near sanitary facilities. She suggested vertical post well sit with or without a ring in it with at least 10' clearance 360 degree around it. The post should be at least 5 feet tall.

(10) Provide permanently marked trails - paint stripes around trees are nice.

(11) Provide vehicle access permission along the roads for safety vehicles.

(12) Establish group camping and individual camping rates.

(13) Camping be located near center of trails rather than at one end (then all trails are better utilized).

(14) Provide for emergency and management vehicles to several points along the trails when competition or large groups use the area.

(15) Provide a pavilion for meetings in the day would be wonderful.

(16) Provide garbage cans.

She provided a "wish test". The bare minimum is 25 miles of trails and a mostly flat spot where people may camp. The rest of her comments are ideas to make if comfortable and useful to a variety of horse men and saddle club members.

Response: The Kansas City District has already coordinated with numerous equestrian groups about developing a campground for riding clubs at Truman. In fact, an area containing 101 acres has been designated as an Equestrian Camp (See Compartment 20). The Corps would be willing to review for approval development plans after a lease contract is formalized with a legal entity within the State of Missouri.

3-6. Public Workshops.

Three separate public workshops were held in November 1987. They were held in order to receive advanced public input in the master planning process. The workshop meetings were held on separate days in the towns of Osceola, Clinton and Warsaw. A total of 172 persons attended the three meetings. Both verbal and written comments were received. Written comments were also received after the workshop had ended.

As could be expected, the majority of attendants at the workshops lived near the project. Most of the recommendations tended to be of local interest and concern.

Sixty-eight persons attended the workshop at Osceola. They expressed the need to improve the boating and recreation opportunities in the vicinity of the town by raising the multipurpose pool elevation of the lake from 5 to 15 feet. Dredging of the water areas next to Osceola and Crowe's Crossing Parks was also suggested. Additional recreation facilities were suggested for the Crowe's Crossing Park including a picnic area and small marina or bait shop. A small concession was recommended mainly because the lack of a fuel source and a marina on the upper Osage Arm of the lake.

Thirty seven persons attended the Clinton workshop. The majority of attendants expressed the need to retain the off-road vehicle use in the Cooper Creek Park. A small group of persons representing the Rim Benders Motorcycle Club indicated an

interest in leasing the park except for the boat ramp area. The club would have to have both managerial and financial capabilities to assume a lease contract with the Corps. A few persons recommended that a marina be advertised for the Sparrowfoot Park. The Kansas City District has advertised the site but no proposals for development were received.

There were representatives from different equestrian groups (saddle clubs) that attended the Clinton workshop. They expressed a need for two equestrian trail areas. One trail should accommodate those riding groups wishing to take a 1-day ride. They would not need camping facilities. Another trail(s) was needed next to designated camping area or park. The campground should be able to accommodate rather large equestrian groups.

A similar request for equestrian accommodations came from some of the 67 persons that attended the Warsaw workshop. They also expressed the need for trails and camping accommodations for equestrian groups. The majority of persons expressed an opinion about Thibaut Point Park near Lincoln and Warsaw. They wanted the day use facilities open to the general public. The park at that time was only open for group use.

A representative of the Missouri Department of Conservation made seven suggestions at the Clinton workshop. Most of the suggestions relate to operational and administrative decisions. The suggestions recommended that the State's plan be incorporated in this report, a decision be made on primitive or dispersed camping outside of designated parks, consideration be given to a water level fluctuation plan, an additional off-road vehicle area be designated near the dam, a wetland management plan be developed, the boundary lines be re-cleared, and the access road barricade and offsets be maintained.

Some of the other recommendations received at the three workshops are listed.

a. Representatives of the National Guard requested that a permanent site be designated for military training purposes. The Guard presently uses an area near the Little Tebo arm of the lake under a letter permit. They also wanted landing rights on the Tebo Islands which are managed by the Missouri Department of Conservation for wildlife purposes.

b. There were two requests for use of the Sac River Access. One individual requested that a courtesy dock be provided at the access point. Another individual suggested that primitive camping be allowed at the Sac River Access during the spring fish spawning and fall hunting periods.

c. Facility recommendations were received for four parks. Swimming beaches should be provided at Talley Bend and Crowe's Crossing Parks. Additional boat launching facilities are needed at Windsor Crossing and Bucksaw Parks.

d. Crowe's Crossing was recommended for camping and marina development. A campground was suggested for the west side of the Highway 13. The designated marina site in Brush Creek Park should be relocated in favor of Crowe's Crossing.

e. The group use concept in Thibaut Point Park should be retained.

f. The existing marina concessionaires should be allowed to lease boat dock spaces in satellite areas near private development around the lake.

Response: The Kansas City District investigated in the past a recommendation to raise the lake elevation. Raising the pool would significantly impact the usability of almost all developed parks on the lake by changing the chance of flooding and was found not to be economically feasible. Dredging of water areas near the town and existing parks would be a more viable and less costly alternative than raising the level of the entire lake. Dredging of cove adjacent to Osceola and Crowe's Crossing Park would improve the accessibility to the main river channel. Such work would be costly and possibly require cost sharing by a non-Federal governmental entity. The Corps does not have a solution to the problem outside of a major dredging effort.

The area within Crowe's Crossing Park had been divided in the 1977 Master Plan into day and overnight areas. The day use area had been proposed for land east of Highway 13. The western area had been proposed for camping purposes. The park was never developed as proposed due to funding limitations. The day use area of the park now contains only boat launching and sanitary facilities. The western portion was never developed.

There are a number of reasons to not pursue any additional development within Crowe's Crossing. There are existing facilities available to the public in the nearby Osceola and Talley Bend Parks. About 270 camping units and group picnic facilities are presently available in these nearby parks. The Missouri Highway and Transportation Department also has future plans to make Highway 13 a dual lane road. The widening of this highway could adversely impact Crowe's Crossing in the future, depending on the alignment. Since the Corps is to consolidate park areas and facilities and to consider future effects on other public use lands, the recommendations by locals to further improve Crowe's Crossing Park is not considered feasible.

Although local residents north of the Osage River would prefer additional recreation facilities at Crowe's Crossing, the Corps does not recommend it. Additional development would compete directly with the existing recreation facilities within nearby Osceola and Talley Bend Parks for both day and overnight users. These parks can meet additional visitor needs.

The off-road vehicle use at Cooper Creek Park will be retained because of the existing demand. If the Rim Benders Motorcycle Club has the required managerial and financial capabilities to operate the park for public recreation purposes, the Corps is willing to negotiate such leasing rights with officers of the club.

There is an existing equestrian trail for day use riders across the lake from Berry Bend Park and near the Benton-St. Clair County line. This trail was developed by volunteer labor and is proposed for retention for day rides by equestrian groups and individuals. The proposal now is to lease to a legal entity, representing equestrian groups, an area that connects the trail. The various riding clubs and groups are splintered so a recreation lease to one group for developing a campground and trail may be the most practical and acceptable to the various clubs. A non-profit corporation, Missouri Horse Council, represents 30 horse breeding organizations has been contacted. This or a local riding club may be the corporation to negotiate a lease with for equestrian campground development.

The operation of Thibaut Point has been recently changed to allow day use of the boat ramp and swimming beach. This operational change will satisfy the public's demand for use of these facilities that had been reserved exclusively for group users.

Most of the suggestions from the Missouri Department of Conservation deal with operational decisions of the project. These type of decisions are normally evaluated and reviewed in the OMP for the project. One suggestions, in regard to off-road vehicle use, has been considered in this report. A site for an additional off-road vehicle area could not be located near the dam. The riding areas in Cooper Creek Park has however been expanded to meet some of the additional demands.

The current site has been designated for military training purposes by the National Guard. Tebo Islands are licensed the Missouri Department of Conservation and should not be impacted. The islands are small in size and no escape routes for wildlife are available if military training programs were authorized on the islands. Such use would also create a use conflict with the Department's authorized use of project lands.

Sac River Access could benefit from the availability of a courtesy dock. The maintenance of such a facility in the far upper reaches of project would be cost prohibitive from a maintenance standpoint for staff located near the dam. Primitive camping has been considered for the Sac River and other access points around the project. The availability of additional free campgrounds around the lake would reduce the user fee revenues in existing parks with improved camping facilities. Such a primitive facility at the Sac River Access would also reduce visitors to both the nearby Roscoe and Osceola Parks. For the stated reasons, none of the suggested recommendations for the Sac River Access are to be implemented by the Corps.

A swimming beach is being proposed for the north side of Talley Bend Park. The Crowe's Crossing Park size is to be reduced, and a swimming beach will not be sited on the remaining park area. The expansion of the boat ramps at both Windsor Crossing and Bucksaw Parks is being proposed.

The City of Osceola has an existing improved campground across the Osage River from the Crowe's Crossing Park. Another extensively developed campground is northeast of Crowe's Crossing in Talley Bend Park. The duplication of camping facilities at Crowe's Crossing is not needed. Brush Creek Marina site is scheduled to be advertised. Another marina site across the river at Crowe's Crossing Park is not considered economically feasible.

Part of the group use concept in Thibaut Point Park will be retained.

Development of community type dock facilities by a commercial concessionaire could serve the general public needs for additional boat storage. If an existing commercial or marina concessionaire would like to provide dock facilities for persons in subdivisions around the lake, the Corps would be willing to consider such development plans and uses. Such commercial development would have to take place in areas designated for low-density use. There is a question whether isolated development may be economically feasible for a commercial concessionaire to operate and maintain.

A summary of the major coordination recommendations and proposed Corps action is listed in Table III-4.

Table III-4. Summary of Major Public Desires and Ideas Expressed at Workshops and Meetings

Public Desires/Ideas	Proposed Action in Draft Plan
Suggestion for shooting range development from the Missouri Sport Shooting Association.	Designated an area for development of a trap or skeet and consider a pistol or rifle range (See Compartment 3 - Plate 3).
Request for a pedestrian trail near Avery.	Permit construction of such a trail by Avery residents (See Compartment 10 - Plate 5).
Request for an equestrian campground.	Designated an area of about 100 acres for campground development by an equestrian group (See Compartment 20 - Plate 4).
Request for a trail to the Devil's Staircase.	Extend the Heart of America Council, Boy Scouts of America, leasehold to include the future trail area (See Compartment 24 - Plate 6).
Request for a marina fuel supply source on upper reach of the Osage River arm.	Advertised a marina site for private commercial development at Brush Creek Park (See Compartment 26 - Plate 6).
Retain the former Cedar Grove or Sugarcamp Hollow areas for group campground development by Resources.	Recommended designation of one or both areas for future public park and recreation lease to the State agency (See Compartment 43 - Plate 4).
Request from Brownington residents for an area near town for bank fishing opportunities.	Designate an area for such future use (See Compartment 46 - Plate 9).
Request by the City of Deepwater to construct a campground on a portion of Cooper Creek Park.	Negotiate a public park and recreation lease with the City so it can begin its campground construction (See Compartment 48 - Plate 9).
Request by Rim Benders All-Terrain-Vehicle Club for a lease on a portion of Cooper Creek Park.	Negotiate with officials of the club a recreation lease on a portion of the park if insurance coverage is available (See Compartment 48 - Plate 9).
Request for additional Corps property for wildlife management in the Grand River Bottoms area.	License property to the Missouri Department of Conservation for wildlife management (See Compartment 53 - Plate 9).

Table III-4. Summary of Major Public Desires and Ideas Expressed at Workshops and Meetings (cont'd)

Public Desires/Ideas	Proposed Action in Draft Plan
Request from Golden Valley Radio Control Association to use water area in a quarry pond south of Clinton.	Negotiate a supplement for the Association to use a portion of the pond for model boat floating and plane landing area (See Compartment 54 - Plate 9).
Request to reserve South Grand Point for military training purposes by the National Guard.	Continue a military training on the property until needed for other than flood control purpose - e.g. recreation or wildlife management (See Compartment 64 - Plate 3).
Request for removal of group use only policy at Thibaut Point Park	Open permanently the day use facilities (swimming beach and boat ramp) to more than group users (See Compartment 66 - Plate 3).
Designate specific areas for flora and fauna protection as recommended by the Missouri Department of Conservation.	Implement protection strategies for specific flora and fauna communities (See Compartment 9 - Plate 4, 12 - Plate 5, 13 - Plate 5, 18 - Plates 4 and 5, 29 - Plates 6 and 7, 35 - Plate 6, 37 - Plate 8, and 45 - Plates 8 and 9).
Designate lands based on project habitat and resource conditions and development.	Classified all project lands based on such factors.
Consider changes to improve use in all Corps managed parks.	Recommended numerous changes to improve future uses in all Corps management parks.

Three additional public workshops were held in June 1988. A copy of the draft plan and drawings were presented to the public at Osceola, Clinton and Warsaw. The draft plan was well received by persons attending the workshops. The basis for the positive reception to the draft plan was probably due to the Corps ability to address and/or meet most of the previous desires and ideas listed in Table III-4. A follow-up meeting was also held with Missouri Department of Conservation representatives to reach a final agreement and clarifications on lands classified for wildlife management purposes.

IV. LAND ALLOCATIONS AND CLASSIFICATIONS AND WATER USAGE

4-1. Land Allocations.

All lands have been allocated in accordance with authorized project purposes for which they were acquired. Lands for the Truman project were acquired in fee to elevation 742 feet, msl or to a line 300 feet horizontally from the 739.6 foot full pool elevation, whichever was greater. The fee acquisition guideline was blocked-out along suitable property boundaries. Consideration had been given to granting an exception to the 300 foot criteria, where such acquisition would have required the taking of highly developed areas which included subdivisions or resorts established prior to the appropriation of construction funds. Consideration had also been given to granting an exception to the 300 foot criteria on a case-by-case basis in certain steep bluff areas where the lands were well above elevation 742 feet, msl. These exceptions were not considered in those areas where there was any danger of erosion. Properties in the towns had been acquired in fee to elevation 745 feet, msl with the aforementioned block-out policy. In some instances, consideration had been given to delete from the taking certain commercial buildings where the floor or basement elevation was above elevation 742 feet, msl. Additional fee title was acquired for the construction of the dam and embankment, the operations-administration area, the public use areas, and lands required for fish and wildlife needs.

Flowage easement interests were acquired in lieu of fee title in the remote areas of the project upstream from the multipurpose pool (706 feet, msl) and upstream from the fish and wildlife lands to elevation (742 feet, msl).

Hydroelectric power generation at Truman causes downstream fluctuations in water depth of the Osage River at Warsaw. The purpose of the downstream acquisition measures was to construct protective levees and replace Warsaw's boat launching facilities. The facilities had been subject to daily fluctuation in the water level by hydropower releases and pumpback flows. About 140 acres in fee acreage have been acquired downstream for the levees and boat harbor facilities.

The real estate holding at Truman includes 165,667 acres in fee and 102,846 acres in flowage easement interest, as of December 1987. Some of the total fee acreage is noncontiguous lands to the main project area and will be disposed of at a future date.

All acquired lands are allocated as set forth in ER 1130-2-435 (Project Operations-Preparation of Master Plans). The lands are allocated in this plan in accordance with the authorized purposes for which they were acquired. The individual allocation categories and the fee acreage assigned to them are listed in Table IV-1. The definition of the individual allocation categories are as follows:

Table IV-1. - Land Allocations and Fee Acreage

Allocation Category	Fee Acres
Operations	133,026
Separable Recreation	644 - See Table IV-2
Mitigation	31,997 - See Table IV-3
Total	165,667

a. Operations Lands. These include all lands acquired in accordance with the authorizing documents for the operation of the project. They included all project lands except for the separable and mitigation properties. Information about separable and mitigation lands is provided in the following paragraphs.

b. Separable Recreation Lands. The Truman project contains a total of 644 acres of separable recreation lands (See Table IV-2). These lands were acquired specifically to preserve the recreation potential created by the project, in accordance with the Preliminary Master Plan (Design Memorandum 8A), and are identifed on Plate 2.

Six designated future park areas are no longer proposed specifically for recreation development-Brown's Ford, Little Pomme, Long Island, Rancho Point, South Grand Point, and Sugarcamp Hollow. These previously designated future park areas and separable acreages have been reclassified for a more appropriate land use classification which is consistent with authorized project purposes. The Missouri Department of Natural Resources may have future interest in developing either Cedar Grove or Sugarcamp Hollow (See Compartment 43) for a State operated group campground. If the interest materializes, one of these future park areas will be leased to the State agency for public parks and recreation purposes.

Table IV-2. - Separable Recreation Acreage and Status

Park (Compartment)	Comment	Recreation Status	Separable Acreage
Brown's Ford (35 and 36)	[1]	See Table IV-6	20
Fairfield (17)		Developed (Partial)	133
Little Pomme (18)		See Table IV-6	20
Long Island (59)		See Table IV-6	15
Long Shoal (61)	[2]	Developed	35
Osage Bluff (7)	[3]	Developed	47
Rancho Point (38 and 39)		See Table IV-6	15
South Grand Point (64)		See Table IV-6	45
Sugarcamp Hollow (43)	[4]	See Table IV-6	49
Thibaut Point (66)	[5]	Developed	20
Truman State Park (44)	[6]	Developed	245
		TOTAL	644

[1] Formerly named Log Cabin Point
[2] Formerly named Redbud Point
[3] Pomme de Terre Point had been added to this park.
[4] Formerly named Osage Point
[5] Formerly named Little Tebo Point
[6] Formerly named Paradise Point

c. Fish and Wildlife Lands. There were no separable lands acquired for fish and wildlife enhancement purposes. Lands were however acquired for wildlife mitigation, as explained in paragraph d.

d. Mitigation Lands. Twelve areas at Truman were acquired for mitigation. All twelve areas (numbered 3 through 14) were acquired to be managed for fish and wildlife purposes. The lands were acquired in accordance with a report on Fish and Wildlife of 26 March 1965. The report is entitled "Kaysinger Bluff Dam and Reservoir, Osage River Basin, Missouri, Fish and Wildlife Conservation". The mitigation areas are listed in Table IV-3. A total of 31,997 acres were acquired for mitigation. Only 29,601 acres are above the multipurpose pool elevation of 706 feet, msl.

Table IV-3. - Wildlife Mitigation Acreage and Existing Area Names

Areas Identified in 1965 Report	Acreage		Existing Name (Compartment)
	Total	Above Multipurpose Pool	
3	2,076	1,943	Upper Sac-Osage (29)
4	690	652	Upper Sac-Osage (29)
5	1,518	1,374	Upper Sac-Osage (29)
6	4,031	3,696	Upper Sac-Osage (29)
7	1,783	1,427	Corbin (25)
8	216	217	Corbin (25)
9	1,437	1,368	Wisdom/Little Pomme de Terre (18)
10	5,156	4,827	Upper Pomme de Terre (13)
11	1,537	1,259	Little Tebo Creek (65)
12	7,165	6,870	Tebo Creek (62)
13	1,436	1,356	Cooper Creek (47)
14	4,952	4,612	Deepwater Creek (51)
TOTAL	31,997	29,601*	

*Two hundred seventy five (275) acres above multipurpose pool elevation are now being used for other than wildlife mitigation purposes. The authority to use the 275 acres for other than wildlife mitigation purposes was approved in past planning documents.

Two hundred and seventy-five acres of these lands are not presently being used for wildlife mitigation purposes. Table IV-4 shows which lands have been classified for other than mitigation purposes because of their presently approved use. Paragraph 7-2 in the Special Problems and or Concerns section of this plan mentions how these uses conflict with the recommendations in the 1965 report. The Beck and Blackwell Caves (Compartment 12) are in Area 10 of the 1965 report. The biological undertaking to protect the cave's critical habitat of the gray bat is essentially a wildlife mitigation feature under the Endangered Species Act of 1973. The 140 acres in Compartment 12 were therefore not made a part of Table IV-4.

Similarly, the Cross Timbers and Sac River Access points have minimal levels of development and support wildlife oriented types of recreation activities. The mitigation allocation and recreation classifications are considered suitable uses on the mitigation lands. The recreation activities and levels of development desired by the Village of Roscoe on the 193 acres were considered acceptable in 1980 for the primary wildlife purposes of land. This acceptance lead to the issuance of a public park and recreation lease to the village.

Table IV-4. Mitigation Lands Used for Other Purposes

Area Identified in 1965 Report	Lands Used for Other Purpose Name (Compartment)	Acreage	Classification
3	Roscoe Park (31)	193	Recreation
6	Sac River Access (30)	23	Recreation
10	Cross Timbers Access (14)	44	Recreation
14	Deepwater Sewage Area (50)	15	Project Operations
	Total Acreage	275	

4-2. Land Classifications.

Project allocated lands (See paragraph 4-1) are further categorized or classified to provide for development and resource management consistent with authorized project purposes and the provisions of the National Environmental Policy Act and other Federal laws. The classification process further redefines the land allocation system based on public desires, legislative authority, regional and project specific resource requirements and suitability. The allocated uses however take precedent over the classification categories. Project maps delineating lands according to classification categories are provided in Plates 3 through 10 and are supported by narrative descriptions of the resources (See Section V). Lands are classified as set forth in ER 1130-2-435. The individual classification categories and the acreage assigned to them are listed in Table IV-5. An explanation of the classification categories follow:

a. Project Operations. This classification category includes those lands required for the structure, operational center, office, maintenance compound and other areas that are used for project operations. Four areas and 671 acres are in this classification category (See Table V-1).

b. Recreation. These are lands developed for intensive recreation activities by the visiting public, including developed park areas and lands for concession, resort, and quasi-public development. Twenty seven areas and 10,128 acres are in this category (See Table V-1).

Table IV-5. Land Classifications and Acreages

Classification Category	Acres
Project Operations	671
Recreation	10,128
Mitigation	(29,326)*
Environmental Sensitive	1,235
Multiple Resources Management	98,033
Recreation-Low Density	(15,160)
Wildlife-Management General	(81,500)*
Vegetative Management	(1,373)
Flowage Easement Lands	102,846
Water Area	55,600
Total	268,513

*Mitigation lands are within the Multiple Resource Management - Wildlife Management General acreage classification figure (See Table IV-3). The 275 acre figure was substracted from 29,601 to yield a mitigation acreage value of 29,326.

c. Mitigation. This includes land acquired or designed specifically for mitigation. Mitigation of damages caused by the inundation of about 55,600 acres within the multipurpose pool was authorized in a March 1965 document (See paragraph d). The 1965 report indicated that wildlife capabilities could be increased by proper management if an additional 28,635 acres of land were acquired in fee. The acreage was a preliminary figure in 1965. The acreage ". . . would be sufficient to mitigate the damages to the wildlife program, . . . " according to the report. The additional acres were recommended for acquisition in 12 separate parcels (identified as areas 3 through 14 in the report). The areas and locations of these 12 parcels that were acquired in fee for wildlife mitigation and enhancement purposes are listed in Table IV-3.

As shown in Table IV-3, a total of 31,997 acres were acquired for wildlife mitigation. A total of 29,601 acres are above the multipurpose pool elevation. Two hundred and seventy five acres are classified for other than mitigation purposes. The balance of the acreage, 29,326 acres (29,601 minus 275) are also classified for multiple resource management-wildlife management general, since they are licensed to the Missouri Department of Conservation.

d. Environmental Sensitive Area. This classification includes areas where scientific, ecological, cultural or aesthetic features have been identified. Sensitive areas are to not be adversely impacted. Normally limited or no development of public use is contemplated on land in this classification. No agricultural or grazing uses are permitted on land in this classification. Five areas and 1,235 acres are in this classification category (See Table V-1).

e. Multiple Resource Management. There are lands managed for one or more of, but not limited to, multiple resource activities to the extent that they are compatible with this primary classification. A total of 98,033 acres are in this broad classification category.

(1) Recreation - Low Density. These are lands classified for low density recreation activities such as hiking, primitive camping on a reservation basis, wildlife observation, hunting, or similar recreation activities. Fourteen areas or 15,160 acres are in this classification category (See Table V-1).

(2) Wildlife Management General. Fish and wildlife management activities take place on these lands. Land managed in this classification are evaluated for consideration for lease or license to the Department of the Interior or the Missouri Department of Conservation. Twenty one areas and 81,500 acres are in this classification category (See Table V-1). The Department presently licenses about 53,890 acres for fish and wildlife management purposes.

(3) Vegetative Management. Management activities on these lands are for the protection and development of forest and vegetative cover. Two areas or 1,425 acres are in this classification category (See Table V-1).

(4) Inactive and/or Future Recreation Area. These are recreation areas planned for the future or that have been temporarily closed. These lands are classified as multiple resource management in the interim. No lands have been specifically categorized under this interim classification.

In the interim, three recreation-low density compartments could be considered inactive and future recreation areas. They include both the Cedar Grove and Sugarcamp Hollow areas (See Compartment 43) that the Missouri Department of Natural Resources may have interest in developing for group camping purposes. The U.S. Air Force-Whiteman Air Base may subsequently request the use of project lands for recreation development. The South Grand Point former park area (See Compartment 64) would be best suited for such use by the U.S. Air Force. Since the Kansas City District does not have a firm or final application to lease from the State agency or military branch, these areas have been, in the interim, classified for other than an inactive or future recreation category as authorized in ER 1130-2-435 (See paragraph (4)).

f. Easement lands. This includes all lands for which the Corps holds an easement interest but not fee title. The Corps holds flowage easement interest on 102,846 acres. The flowage interest estate prohibits any structures for human habitation. The estate does recognize that a landowner, with the prior written permission of the District Engineer, may place non-habitable structures within the easement area and perform certain excavations and landfill. These may not be, however, in derogation of the estate, such as to place a landfill to raise the elevation of the land above the flowage easement contour ostensibly to remove the

area from the easement encumbrance. The easement estate is construed based upon the elevation of the land as it existed at the time of the easement acquisition. The written permission can be granted by the District Engineer to place non-habitable structures within the easement area or to perform certain excavations and landfill. They cannot be granted unless it is affirmatively determined that such structures may not interfere with or adversely impact on project operations. An important consideration in this respect is whether and to what extent the storage capacity of the reservoir would be diminished by such structure, excavation or landfill. Further, the precedent which would be established by the granting of permission also must be considered. Advance coordination is essential in making this determination. In no case is fill be permitted which equals or exceeds the project flowage contour without the prior approval of the Division Engineer.

There are about 1,480 acres of Federal fee-owned land in the easement area of Truman. The land has been approved for disposal by the Assistant Secretary of the Army. The acreage will be reported and recommended by the Kansas City District to the General Service Administration for disposal action.

The Missouri Department of Conservation and the U.S. Fish and Wildlife Service have expressed an interest in reviewing these identified excess lands within the easement area for acquisition. Some of these lands may have value and potential for wildlife management purposes. If some of these lands could be acquired by the State agency, they would be improved to reduce crop depredation on surrounding private property. Crop depredation is being caused on private lands by the waterfowl attracted to the Truman project and the nearby Montrose and Schell-Osage Wildlife Areas. These wildlife areas are in Henry and St. Clair Counties, respectively.

4-3. Land Classification Revisions

This plan classifies lands for appropriate development and management consistent with project purposes and ER 1130-2-435. Many of the previous land uses have been revised to meet the new classification system and to refine the utilization based on a number of factors. These factors include public desires, legislative authority, regional and project specific resource requirements and suitability.

The total number of revisions to the previous approved classifications are too numerous to separately mention. For this reason, only the major changes or revisions are presented and justified.

a. The previous master plan of 1977 had allocated 4,572 acres for future recreation development. The acreage was proposed for development of an additional 12 parks at the Truman project. The 12 parks and their acreages are listed in Table IV-6.

It is recommended that 9 of the future park areas be classified toward more passive recreation use or wildlife management purposes. There is no foreseeable need to develop the 9 areas, which contain acreage acquired for flood control purposes. The existing 25 developed parks at the Truman project can be further improved to increase the public's opportunity for a higher quality recreation experience without developing these 9 areas. Such consolidation of development in existing parks can take place to increase visitor satisfaction while reducing operation and maintenance costs. Therefore, the acreage in the 9 former park areas identified for future development have been classified for uses shown in Table IV-6.

TABLE IV-6. Recommended Classification Of Parks Designated For Future Use in the 1977 Master Plan

Names of Future Parks	Acreage	(Compartment)	Classification
Brown's Ford	262	(35&36)	Environmental Sensitive and Wildlife Management General
Cedar Grove [1]	345	(43)	Recreation-Low Density
Grandview Point	410	(43)	Recreation-Low Density
Hay Creek	392	(44)	Wildlife Management General
Little Pomme	350	(18)	Wildlife Management General
Long Island	290	(59)	Wildlife Management General
Prairie Creek	378	(10)	Wildlife Management General
Rancho Point	714	(38&39)	Recreation-Low Density and Vegetative Management
South Grand Point[2]	400	(64)	Recreation-Low Density
South Pomme	319	(13)	Wildlife Management General
Sugarcamp Hollow[1]	305	(43)	Recreation-Low Density
Swing Bridge	407	(19)	Recreation-Low Density
TOTAL	4,572		

[1] Possible future development by the Missouri Department of Natural Resources.
[2] Possible future development by the U.S. Air Force - Whiteman Air Base.

The Missouri Department of Natural Resources has expressed a tentative interest in leasing either the Cedar Grove or Sugarcamp Hollow area. The State agency is interested in one of these two areas for meeting organized group camping needs.

The demand for organized group camping is not presently being met with the existing facilities within Knob Noster State park. Knob Noster State Park is approximately 50 miles from the Truman project. Similar facilities at Truman in one of these areas will help meet the group camping demand. For this reason, both of these parks are classified for recreation-low density use until needed by the State agency. The selected area would then be reclassified for recreation purposes. There is presently no public access into the Cedar Grove area. This problem will be resolved before considering this area for lease.

Whiteman Air Force Base near Knob Noster, Missouri, is experiencing an increase in personnel. The base command may request in the future a lease on an area at Truman for recreation development and use. The former South Grand Point area would be best suited for recreation development if a request is received. The area is presently classified for recreation-low density use. This classification will be changed to recreation if an acceptable application for lease is received from the military command.

b. The 1977 Master Plan had also classified 14 parcels of land or about 10,200 acres as Operations: Natural Areas. Some of these parcels had been previously cropped or farmed and should not have been classified as natural areas in the 1977 plan. Some of these previous classifications have been revised to meet current specific resource requirements and suitability for the project. Only those areas that can be truly identified as an environmental sensitive property and resources have been classified as such.

c. Twelve areas were identified for acquisition for wildlife mitigation in a 1965 report. These areas were acquired specifically for wildlife mitigation purposes. They had not been classified for mitigation use in the 1977 master plan. Due to existing management by the Missouri Department of Conservation on these 12 areas, the classification for these areas have, therefore, been revised with dual zoning-mitigation and wildlife management general. Table IV-3 gives the mitigation acreage within each of these 12 areas above the multipurpose pool elevation.

d. About 30,700 acres were allocated in the 1977 Master Plan for Operations: Recreation-Low Density Use. The 30,700 acres were within 31 separate land parcels which ranged in size from 2,688 to 138 acres. Not all of these 31 areas had true low-density recreation suitability. Some of these allocations have therefore been revised to meet other future project needs and purposes and resource suitability requirements.

(5) The size of a number of existing parks contain more acreage than is needed for recreation development. The acreage within some parks have therefore been reduced. For example, the sizes of 3 parks have been reduced - Fairfield from 701 to 105 acres, Osage Bluff from 1,057 to 565 acres, and Sparrowfoot from 1,053 to 495 acres. The acreage taken out of these parks are more suitable for other classification categories and resource uses. The suitabilities are explained in Section V.

4-4. Water Classification and Seaplane Usage.

a. Water Classification. A number of grantees (Missouri Department of National Resources - Harry S. Truman State Park and Heart of America Council, Boy Scouts of America) are authorized in their contracts certain water area rights.

These grantees are authorized to mark all contiguous coves and water areas and to administer the recreation activities therein, provided the plans are approved in advance by the District Engineer.

The Corps marina lessees also have water areas within their commercial concession leaseholds. The amount of water area within each leasehold is shown in Table VI-3. These water areas are therefore allocation for commercial concession operations.

b. Seaplane Usage. In 1986, the Kansas City District conducted a review and re-evaluation of its seaplane policy as it pertains to each of the lake projects within its jurisdiction. The review was prompted by renewed public interest. Factors were considered in determining which lake projects would be evaluated in the future for seaplane usage. These included, the size and dimension of each lake; the project's proximity to metropolitan areas; actual usable water acreage; and the boating and visitation pressure experienced at each project.

Based on the criteria used, it was determined that a portion of the project's water acreage be restricted from seaplane operation. Of this acreage, boating density during peak visitation periods was calculated. It was therefore concluded that the project fell within the parameters for the lake to be considered for future seaplane operation. In fact, the Kansas City District authorized a trial seaplane use period from 15 March to 31 December 1987. The opened area is shown on Plate 2 and is still recommended for seaplane operation. The excluded areas shown on the plate will be either prohibited or restricted from seaplane operation depending on further procedural coordination. Restriction and area guidelines for seaplane use are as follows:

(1) All seaplanes operated on, or at, Corps projects are at the risk of the owner, operator and passengers.

(2) All rules, regulations, and restrictions are in addition to the rules, regulations, and prescribed standards of the Missouri Highway and Transportation Department, the Federal Aviation Administration, Coast Guard, and other appropriate Federal, State, or local authority.

(3) Aircraft taxiing on the water shall be operated in accord with the marine rules-of-the road for power boats or vessels.

(4) There are restricted areas. All shorelines for a distance of 500 feet out into the lake are restricted to taxiing and mooring of aircraft. Developed recreation areas and high hazard areas (dams, bridges, refuges, etc.) are restricted for a distance of 1,000 feet in all directions.

V. RESOURCE PLAN

5-1. Compartment Classifications.

An explanation of the individual classification categories is provided in paragraph 4-2. All project lands have been classified in one or more of these categories - project operations (671 acres), recreation (10,128 acres), mitigation (29,326 acres -included as part of the lands classified for multiple resource management-wildlife management general) - environmental sensitive (1,235 acres), multiple resource management (98,033 acres), and flowage easement lands (102,846 acres). The classification of multiple resource management is further divided into subcategories of recreation-low density, wildlife management general and vegetative management for the Truman project. There are also 55,600 acres of water area at Truman (See Table IV-5).

In the previous master plan, there were over 100 different individual land compartment at Truman. The land has been reclassified in accordance with ER 1130-2-435 into 73 individual compartments. The names, classification categories, and acreage within the 73 individual compartments are listed in Table V-1.

Table V-1. - Land Classifications and Names

	Name	CLASSIFICATIONS Classification	Acreage (Plate)
1.	Bledsoe Ferry Park	R	170 (3)
2.	Administration Area	PO	205 (3)
3.	Shawnee Bend Park	R	540 (3 & 4)
4.	Tatge Wildlife Area	WM	900 (4)
5.	Laird's Bluff	LD	185 (4)
6.	Turpin Branch Wildlife Area	WM	385 (4)
7.	Osage Bluff Park	R	565 (4)
8.	Mockingbird Hill	LD	1,010 (4)
9.	Eastern Redcedar Natural Area	ES	310 (4)
10.	Lower Pomme de Terre Wildlife Area	WM	3,965 (4 & 5)
11.	Buzzard Cave Bluff (east side) Phillips Ford (west side)	VM	1,103 (5)
12.	Beck Bat Cave (131) Blackwell Bat Cave (9)	ES	140 (5)
13.	Upper Pomme de Terre Wildlife Area	WM	5,095 (5)
14.	Cross Timbers Access	R	44 (5)
15.	Negro Springs	LD	270 (4)
16.	Fairfield Wildlife Area and Island	WM	480 (4)
17.	Fairfield Access	R	105 (4)
18.	Wisdom/Little Pomme de Terre Wildlife Area	WM	4,380 (4 & 5)
19.	Scott's Camp	LD	4,015 (4 & 5)
20.	Equestrian Camp	R	101 (4)
21.	Valhalla/Talley Bend Wildlife Area	WM	3,030 (6 & 8)
22.	Talley Bend Park	R	260 (6)
23.	Shady Grove Wildlife Area	WM	510 (6)
24.	Heart of America Council, Boy Scouts	R	670 (6)

Table V-1. - Land Classifications and Names (cont'd)

Name	Classification	Acreage (Plate)
25. Corbin Wildlife Area (also includes the Weaubleau Wildlife Area)	WM	4,585 (6)
26. Brush Creek Access	R	47 (6)
27. Osceola Park	R	520 (6)
28. Sac-Osage Youth Fairground	R	17 (6)
29. Upper Sac-Osage Wildlife Area (includes the Sac-Osage, Salt Creek, and Gallinipper Wildlife Areas)	WM	11,600 (6 & 7)
30. Sac River Access	R	23 (7)
31. Roscoe Park	R	193 (7)
32. Gallinipper Bluff	LD	130 (6)
33. Crowe's Crossing Park	R	70 (6)
34. Horseshoe Bend	LD	745 (6)
35. Turkey Hollow	ES	420 (6)
36. Muddy Creek Wildlife Area	WM	1,680 (6 & 8)
37. Buzzard's Roost	ES	180 (8)
38. Rancho Point	LD	530 (8)
39. Fox Run	VM	270 (8)
40. West Haven Wildlife Area	WM	1,300 (4 & 8)
41. Berry Bend Park	R	624 (4)
42. Berry Bend	ES	185 (4)
43. Osage/Grand River	LD	4,610 (4 & 8)
44. Harry S. Truman State Park	R	1,440 (3)
45. Mount Zion Wildlife Area	WM	4,670 (8 & 9)
46. Brownington	LD	255 (9)
47. Cooper Creek Wildlife Area (includes the Brownington Wildlife Area)	WM	1,435 (9)
48. Cooper Creek Park	R	630 (9)
49. Deepwater Park	R	410 (9)
50. Deepwater and Clinton Sewage Areas	PO	253 (9)
51. Deepwater Creek Wildlife Area	WM	6,200 (9)
52. Sparrowfoot Park	R	495 (9)
53. Grand River Bottoms Wildlife Area	WM	6,830 (9)
54. Clinton Park	R	1,650 (9)
55. Missouri Department of Conservation's Truman District Headquarters	WM	25 (9)
56. Bethlehem/Gaines Wildlife Area	WM	6,820 (8 & 9)
57. U Highway	LD	210 (8)
58. Bucksaw Park	R	451 (8)
59. Gobbler's Knob Wildlife Area and Island (includes the Cedar Creek Wildlife Area)	WM	1,560 (8)
60. Tightwad/Racket	LD	1,190 (3 & 8)
61. Long Shoal Park	R	350 (3)
62. Tebo Creek Wildlife Area (includes the Leesville, Upper Tebo, and Brush Creek Wildlife Areas)	WM	14,000 (3 & 10)
63. Windsor Crossing Park	R	125 (10)
64. South Grand Point	LD	910 (3)
65. Little Tebo Wildlife Area	WM	2,050 (3)
66. Thibaut Point Park	R	275 (3)
67. T Highway	LD	500 (3)

Table V-1. - Land Classifications and Names (cont'd)

Name	Classification	Acreage (Plate)
68. Sterett Creek Park	R	160 (3)
69. Sterett Creek Dike	PO	115 (3)
70. Dump Road	LD	600 (3)
71. Kaysinger Bluff Park	R	150 (3)
72. Levee Roads	PO	98 (3)
73. Warsaw Harbor Park	R	43
	Total	110,067

PO - Project Operations
R - Recreation
ES - Environmental Sensitive Area
LD - Multiple Resource Management: Recreation-Low Density
WM - Multiple Resource Management: Wildlife Management General
VM - Multiple Resource Management: Vegetative Management

5-2. Compartment Descriptions and Resource Objectives.

As previously stated, the lands at Truman have been classified into 73 individual compartments as listed in Table V-1. A brief description of the individual compartments and resource objectives are provided in the following paragraphs:

a. Bledsoe Ferry Park - Recreation (Compartment 1).

Bledsoe Ferry Park contains 170 acres and is located directly downstream of Truman. The dam's outlet channel bisects this compartment and the old Osage River channel extends upstream along the northeastern side. The two water bodies create a triangular shaped peninsula between the old channel and the outlet channel. Access to the south side of the compartment is from Access Road B which leads to the administration area from Highway 7. Access to the north side is from Access Road A which leads from Highway 65 to the administration area. The city of Warsaw is located about a mile downstream.

The area is relatively flat having been built up with surplus fill from dam construction. Fescue is the predominant grass cover. Block plantings of a variety of trees are located on each side of the outlet channel. Trees have been planted in close proximity to the water to provide shade for park visitors. Silver maple trees occur naturally along the old Osage River channel.

Recreation use in the park consists of fishing, picnicking, sightseeing and boat launching. Bledsoe Ferry is the most popular fishing site on the project and receives intense pressure. Handicapped fishing docks are located in both the outlet channel and old river channel. Picnic shelters, vault toilets, and a potable water supply are located on each side of the outlet channel.

Lands within this compartment aid in the successful completion and operation of authorized project purposes except for a small triangular shaped parcel of property south of Access Road B. This small parcel should be recommended for excess.

The resource objectives for the Bledsoe Ferry Park are:

1. To provide readily available bank fishing access and opportunities.

2. To provide quality picnic facilities.

3. To provide a boat launching access and opportunities.

4. To provide handicapped bank fishing accommodations.

5. To provide, in the future, overnight camping accommodations.

b. Administration Area - Project Operations (Compartment 2)

The Administration Area includes the dam spillway, and powerhouse structures, as well as the project office, maintenance building, storage yard, electrical switchyard, and project residences. Access to the 205 acre compartment is from US Highway 65 through Access Road A and from Missouri Highway 7 from Access Road B.

Kaysinger Bluff dominates the landscape on the east abutment of the dam, while project buildings occupy the gently sloping terrain on the west abutment. Ornamental grasses, shrubs, and trees have been planted around the powerhouse and project administration area, including zoysia grass, dogwood, and redbud. Native species, such as pecan, walnut, and eastern redcedar were also preserved as a part of the landscape. For aesthetic appeal, the backslope of the dam was planted to a mixture of native warm-season grasses and forbs.

All development and use of this compartment is planned to allow successful execution of the authorized project purposes.

The resource objectives for the Administration Area are:

1. To provide an area for operational structures and administrative and maintenance facilities to assure that authorized project purposes are achieved.

2. To monitor the dam, spillway, and powerhouse structures for safe operation and structural integrity.

3. To provide assistance to the public through contact with project personnel.

4. To maintain ornamental plantings and other landscape resources for aesthetic purposes.

5. To provide housing for project personnel.

c. Shawnee Bend Park-Recreation (Compartment 3).

Shawnee Bend Park contains 540 acres at multipurpose pool and is accessible from Highway 7 two miles to the south and from US Highway 65 three miles to the east. The park extends south to Highway 7 and east to Compartment 2. Topography is characterized by steep bluffs to the south and relatively level areas in the central, northern and western portions. Old fields are scattered throughout the compartment and mixtures of oak, hickory, maple, and cedar make up the vegetative cover.

Recreation development consists of a large beach with adjacent bathhouse, two picnic shelters and two boat ramps. A nine hole public golf course, constructed and operated by the City of Warsaw, is located on the southwest portion of the park. The golf course is situated on 235 acres that has been leased to the City.

Proposed future development within this compartment includes a nine hole expansion to the existing golf course, campground development, and a trap/skeet range.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Shawnee Bend Park are:

1. To provide quality day use picnic and beach facilities.

2. To provide boat launching access.

3. To provide for the continued operation of the existing public golf course by the City of Warsaw.

4. To provide an area for future expansion of the golf course.

5. To provide for development of a trap/skeet range.

6. To provide for campground development.

d. Tatge Wildlife Area - Multiple Resource Management (MRM): Wildlife Management General (Compartment 4).

This wildlife area includes 900 acres of land east of the Osage Arm between Highway 7 bridge on the north and Laird's Bluff on the south. Topography varies from steep, scenic bluffs, with deep draws and long points, on the north and south to rolling hillsides, with some terraces and old fields, in the central portion. The area is accessible only from Cold Springs Road which runs to the east. Vegetation consists of mature oak-hickory forest and eastern redcedar glades on the bluffs and ridges. The old fields are characterized by various grasses, forbs and woody invader species.

The area is used primarily for wildlife habitat and has been the focus of various wildlife management efforts, including conversion of fescue to warm-season grass and succession control. Use of the area is primarily for boat launching, bank fishing and hunting activities. The Missouri Department of Conservation recommended the construction of a single lane boat ramp at the end of the old county road which provides access to the area.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource use objectives for the Tatge Wildlife area are:

1. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

2. To protect existing wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily upland game.

3. To provide recreation opportunities and access associated with legitimate existing uses of fish and wildlife.

4. To protect known historical and archeological sites from vandalism and degradation

e. Laird's Bluff - MRM: Recreation-Low Density (Compartment 5).

This 185 acres compartment is located on the east shore of the Osage River arm, two miles north of the confluence of the Pomme de Terre and Osage Rivers. It is bordered by the Tatge Wildlife Area to the west, and a gravel road, running north and south, at the end of the Turpin Creek Cove to the east. Topography consists of two distinct areas. The western section is dominated by a mile long limestone bluff overlooking the lake. The eastern half consists of a heavily forested drainage area. Vegetation ranges from the heavy oak-hickory forest covering the eastern half to a thinner honeylocust, eastern redcedar, and osage orange canopy to the west.

The high bluff provides a panoramic view of the Pomme de Terre and Osage River arms of the lake. Turkey vultures use the bluff's southern exposure as a nesting area. The area's close proximity to Warsaw makes it a popular hunting and fishing site. It also receives substantial dispersed recreation use from adjacent property owners. This dispersed recreation use makes a classification of recreation-low density a suitable zoning.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Laird's Bluff are:

1. To provide an unstructured recreation opportunity in a natural environment.

2. To provide wildlife management, and habitat.

3. To protect the natural resources and public lands for future use.

4. To manage project lands and resources to the degree necessary to gain maximum benefits to the general public.

f. Turpin Branch Wildlife Area - MRM: Wildlife Management General (Compartment 6).

This 385 acre compartment consists of lands lying north and south of Turpin Branch and bounded on the west by Cold Springs Road extension and old Missouri Highway 83. Access is from Cold Springs Road and both old and new Missouri Highway 83.

Topography is primarily steeply dissected and timbered side slopes with thin rocky soils in the north half, interspersed with sloping old fields in the southern half. Vegetation is composed of oak-hickory and eastern redcedar on the timbered side slopes with scattered pecan, walnut, and sycamore in the draws. The

old fields are colonized by remnant warm season grasses, broomsedge, and fescue, with scattered forbs and woody invaders. The compartment has potential for wildlife management purposes with major emphasis on old field succession control and timber management.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Turpin Branch Wildlife Area are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily upland game.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

g. Osage Bluff Park - Recreation (Compartment 7).

The Osage Bluff Park contains 565 acres and is located six miles south of Warsaw. Access to the park is from State Highway 83 and a paved county road. The park is a large peninsula with Vance Branch Cove to the south and Turpin Branch Cove to the north. These two coves are major fish spawning areas on the lake and should not be adversely impacted by private sector development in the park. This concern was expressed by representatives of the Missouri Department of Conservation.

Topography consists of gentle slopes along the southeastern portion with a relatively flat ridgetop extending the length of the park east to west. Steep drainages are located to the north and south of this ridge top. Steep scenic bluffs are located to the west. Vegetation consists of oak-hickory forest interspersed with eastern redcedar. Old fields exist in the northeast and southeast portions of the compartment.

Primary recreation uses are camping and boat launching. Recreation development includes a campground, two boat ramps, a picnicking area with adjacent handicapped accessible fishing dock, and a commercial concession area consisting of a motel, floating restaurant and marina. The Missouri Department of Conservation recommended expansion of the existing boat ramps and parking lots.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Osage Bluff are:

1. To provide a quality campground.

2. To provide boat launching access.

3. To provide marina facilities and motel accommodations through a commercial concessionaire.

4. To provide a handicapped accessible fishing dock.

5. To provide picnic facilities.

6. To provide private sector development opportunities.

h. Mockingbird Hill - MRM: Recreation-Low Density (Compartment 8).

This 1,010 acre compartment lies on the eastern shore of the Pomme de Terre River arm of the project. It encompasses project lands, including those small tracts which lie on the east side of Highway 83, between the Osage Bluff Park, and the Highway 83 bridge. Access is from old county roads and a road to the Pom-O-Sa subdivision.

The area's topography consists of two large peninsulas that extend westward to the lake. The southernmost peninsula has a limestone bluff that begins at the Highway 83 bridge, and gradually slopes down to old abandoned crop fields farther north. A large cove marked by a rugged shoreline separates the two peninsulas. The northernmost peninsula begins with steep sloping hills and extends to a scenic bluff on its southern shoreline. The western and northern edges of this peninsula are characterized by the steep rocky slopes common in the Pomme de Terre River valley.

The area is covered with oak-hickory forest with the exception of the small tract separated from the compartment by Highway 83, and the old overgrown fields at the point of the southern peninsula. Old fields contain rank fescue with small locust and redcedar invaders. Hunting is the prevalent activity in the compartment. The boat ramp at Pom-O-Sa receives moderate use from the general public and adjacent subdivision owners.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Mockingbird Hill are:

1. To provide an unstructured recreation opportunity in a natural environment.

2. To provide wildlife management and habitat.

3. To protect the natural resources, and public lands for future use.

4. To manage project lands and resources to the degree necessary to gain maximum benefits to the general public.

i. Eastern Redcedar Natural Area - Environmental Sensitive Area (Compartment 9).

The Eastern Redcedar Natural Area occurs on the right bank of Whig Creek near its confluence with the Pomme de Terre River. The 310 acre compartment is bounded on the north by Highway 83 and Compartment 10 to the south.

The area is forested, except for a few old fields located near the multipurpose pool shoreline. Due to an extensive stand of nearly 100 percent eastern redcedar cover, the area has received the Society of American Foresters recognition as a natural area. A narrow buffer strip composed of a mixed cedar-hardwood or hardwoods surrounds the Eastern Redcedar Natural Area.

Topographically the area is characterized by steep, rugged hills separated by deep ravines. Shallow, rocky soils and limestone outcrops coupled with dry, hot summers favor the more drought resistant eastern redcedar. The lower north facing ridge slopes and cove sites create more favorable growing conditions for oaks and hickories.

Access is provided by an old county road running through the north third of the area. This road has been closed off to public vehicular access to help protect the resources in the site. Two known archeological sites exist on the area. Protection of these sites is afforded by the limited vehicular public access.

Management of the designated natural area emphasizes the maintenance and protection of the eastern redcedar stand. No disruptive activities will be allowed inside the eastern redcedar stand. Signing of the area's boundary and limited vegetative management around the buffer strip is required.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Eastern Redcedar Natural Area are:

1. To continue to manage the area in order to provide aesthetic and intrinsic values associated with this timbered ecosystem.

2. To protect archeological sites from vandalism and degradation.

3. To protect the integrity of the nationally recognized example of a specific forest type.

j. Lower Pomme de Terre Wildlife Area - MRM: Wildlife Management General (Compartment 10)

The Lower Pomme de Terre Wildlife Area consists of two separate zones of similar character on the east and west sides of the Pomme de Terre Arm. The east zone is bounded on the north end by the eastern redcedar environmentally sensitive area (Compartment 9) and by the old Avery Bridge Road on the south. The west zone is bounded on the north by a recreation-low density area (Compartment 15) near Fairfield Woods subdivision and by the old Phillip's Ford Road on the south. Access to the east zone is by Highway CC and the adjoining county road network. Access to the west zone is from Highway K and B. The total acreage within the two zones is 3,965.

Topography of the east zone is largely composed of gradual side slopes and includes the Whig and Prairie Creek drainage areas. Some narrow ridgetops and steep bluffs are also present along with cropfields, old fields, and hay meadows. Topography of the west zone is similar to the east zone, except that steep bluffs, and relatively flat crop and hay fields occur at greater frequency.

Vegetation in both zones is mostly the oak-hickory-eastern redcedar complex, with native grass and forb communities frequent on the limestone glades and ridgetops. Grasslands are predominantly fescue invaded by broomsedge on the poorer sites. Some native prairie remnants remain mostly in old fields and along rocky bluffs and ridges.

Management of this compartment is centered on wildlife management, emphasizing forest and upland wildlife with some opportunity for waterfowl management and bank fishing and boat launching access. Numerous historic and archeological sites are located in this compartment and should be protected.

Unique features about this area include the town site of Avery, which was a thriving community in the early part of the 20th century. Built above a fertile cutoff meander of the Pomme de Terre River, this settlement has a rich history. Several important archeological sites are also located in this vicinity. Boating access is provided by the Avery-Breshears Valley Community boat ramp at Phillip's Ford and also by an undeveloped access point north of the old Avery Bridge site.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Lower Pomme de Terre Wildlife Area are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily upland game.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

k. Buzzard Cave Bluff and Phillips Ford - MRM: Vegetative Management (Compartment 11)

This vegetative management compartment is divided into two zones. Buzzard Cave Bluff on the east and Phillips Ford on the west. The compartment contains 1,103 acres.

The Buzzard Cave Bluff Vegetative Management Area runs along the right bank of the Pomme de Terre River arm between Bell Branch and the old Avery-Fristoe road. Topographically the area is characterized, as is most of the Pomme de Terre River valley, by steep river ravines dissecting rugged limestone, dolomite, and flint hills. The most distinctive topographical feature on the area is the spectacular Buzzard Cave bluffs. These bluffs rise up to 200 feet above the multipurpose pool elevation. Vegetation is primarily oak-hickory forests with interspersed eastern redcedar and mixed cedar glades. A few small old fields and open native grass glades exist but are widely scattered.

Public access is difficult. The only public road to the area is the old Avery-Fristoe road which forms the west end boundary. Essentially the only access to or on the area is by foot or boat.

Numerous archeological sites, including the Rodgers Shelter, exist in the area. The Rodgers Shelter site is inundated and has been mitigated. Protection of these sites is a resource objective that is aided by the inaccessibility of the area.

Management activities emphasize the aesthetic vegetative and wildlife resources of the compartment. Manipulation of the forest resources will be the primary management objective. Protection of the fragile bluff and glade sites along with maintaining the visual aesthetics will be targeted. Limited trail construction to facilitate management activities is required.

The Phillips Ford Vegetative Management Area runs along the left bank of the Pomme de Terre River arm between Round Bottom ford and Pipens cemetery. The area is topographically characterized by steep river hills deeply dissected by high gradient intermittent stream drainages. Several high river bluffs exist that now drop into the lake. Public access is extremely poor, limited to two old county roads on the north end. This limits potential management activities.

Vegetation is primarily oak-hickory forests with interspersed cedar glades. A few natural glade opening and old fields are scattered along flatter ridge slopes and stream bottoms.

Several archeological sites exist along the slope bottoms (upper stream terraces) of the Pomme de Terre River which are at or near the multipurpose pool elevation. Protection of these sites is pretty much self enforcing due to limited access. Management activities are tailored to protect the sites.

Management of the area emphasizes the vegetative resources to improve the timber and maintain the visual aesthetics. Protection of the bluffs and fragile glade sites will be targeted. Limited trail construction to facilitate management activities will be required.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Buzzard Cave Bluff and Phillips Ford areas are:

1. To provide aesthetic and intrinsic values associated with this timbered ecosystem.

2. To maintain the forest resources for both timber and wildlife benefits

3. To protect archeological sites from vandalism and degradation.

4. To improve and protect project natural resources, particularly timber for future generations.

5. To maintain and foster successful regeneration of the native forest areas.

1. Beck and Blackwell Bat Caves - Environmental Sensitive Areas (Compartment 12)

This compartment consists of two zones and contains 140 acres. The zones are designated an environmental sensitive areas because they constitue critical habitat for the gray bat (Myotis grisescens). Beck and Blackwell Caves are used as maternity roosts by the endangered gray bat. Beck Cave area contains 131 acres and is located on Bell Branch near its confluence with Truman lake. Its zone is bounded on the north and south of Bell Branch by two small unnamed coves. Blackwell Cave contains 9 acres and is located on the upper Pomme de Terre River arm north of Hermitage. Its portion of this compartment is bounded on the north and south by Compartment 13. No improved access exists across Federal property to either site.

Topography at Beck Cave consists of a timbered ridgetop sloping sharply to Bell Branch. At Blackwell Cave, the land form is a steep limestone bluff above wide floodplain crop fields. Beck Cave lies within the Truman lake flood pool. Blackwell Cave does not.

Vegetation at both sites is primarily oak-hickory with associated eastern redcedar, walnut, ash, and sycamore. The Beck location contains a native limestone glade west of the cave vegetated by the bluestems and indiangrass.

The compartment zones are sized to buffer human activity around both caves and to restrict disturbance of nesting bats. Positive deterrents in the form, of gates and signs are maintained to discourage entry to the caves. A levee system with pumping capability is maintained at Beck Cave to preclude impact to the site by flood waters.

The Beck Cave is a relatively small chamber with one natural entrance created by a partial roof collapse. A natural spring exits at the cave entrance. Blackwell Cave is a much larger and sounder chamber and monitored extensively by Federal and State wildlife agencies.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Beck and Blackwell Caves are:

1. To protect the critical habitat of the Federally endangered species from the impacts of flood control operations and human distrubance.

2. To protect natural maternity roosts and their ecosystems.

m. Upper Pomme de Terre Wildlife Area - MRM: Wildlife Management General (Compartment 13)

This wildlife management area is composed of 5,095 acres of project lands on the upper Pomme de Terre Arm. The area lying south of Compartment 12 on the east side and south of Round Bottom Ford on the west side, excluding Cross Timbers Access. Vehicular access is by Highway U from the east, US Highway 54 from the south, and Missouri Highway Y from the west, along with county road networks. Access from the east bank to the west is by the US Highway 54 bridge and the Rough Hollow bridge.

Topography is characterized by long dissected ridges and steep bluffs on the outside bends of the old river channel. Soils are thin and rocky with numerous limestone outcrops. The inside river bends are largely wide and flat alluvial floodplains with deep, well-drained soils.

Vegetation consists of moderate oak-hickory forest cover on the ridges and hollows with prominent glade-openings colonized by native prairie grasses and forbs and eastern redcedar. The floodplain and associated gentle side slopes are used for crop, hay meadows, or have become early successional old fields.

Wildlife management is the primary use of this compartment emphasizing forest species, with some opportunities available for upland wildlife management. All lands are presently under license to the Missouri Department of Conservation for wildlife management purposes. The Department has identified two great blue heron rookeries in forest habitat that need protection from disturbance.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Upper Pomme de Terre Wildlife Area are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily forest species.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

5. To protect great blue heron rookeries from disturbance.

6. To mitigate previously identified damages caused by water inundation through the proper implementation of a wildlife program on designated acreage.

n. Cross Timbers Access - Recreation (Compartment 14).

The Cross Timbers Access is located in the headwaters of the Pomme de Terre arm of the lake approximately 17 miles south of Warsaw. Vehicular access to the compartment is by a gravel road leading from State Routes Y and U. This compartment contains 44 acres at multipurpose pool and is relatively flat with sparse tree cover. Development includes a two lane boat ramp with adjacent gravel parking area and vault toilet. The access is used primarily as a take-out point for canoers floating the Pomme de Terre River. Two major problems make the access undesirable for boaters: a siltation problem exists at the ramp making it almost impossible to launch without high water and at elevation 706 feet msl shallow riffles are located just upstream and just downstream of the access making it almost impossible to leave the pool in which the boat ramp is located.

The Cross Timber Access is operated and maintained by the Missouri Department of Conservation under a public park and recreation lease agreement.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Cross Timbers Access are:

1. To provide a take-out point for persons that float the Pomme de Terre River.

2. To provide a boat launching access during times of high water.

3. To provide the State game agency recreation and management roles on the project.

o. Negro Springs - MRM: Recreation-Low Density (Compartment 15).

This compartment is composed of 270 acres of lands on the west side of the Pomme de Terre River arm between the Highway 83 bridge on the north and wildlife management Compartment 10 on the south. Access is limited to old trails crossing private property. The compartment's most unique feature were the large springs that are now inundated. The springs were owned by the first free black settlers in the Pomme de Terre valley. The springs and the immediate area were used as commercial fishing camps until the lands were acquired for the project.

Topography consist of a series of ridgetops, and steep slopes dissected by small coves. The compartment is covered by a oak-hickory forest with scattered eastern redcedar stands. Hunting is a primary recreation activity, but a substantial amount of bank fishing occurs near the Highway 83 bridge.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Negro Springs are:

1. To provide an unstructured recreation opportunity in a natural environment.

2. To protect natural resources and public lands for future use.

3. To manage project lands and resources to the degree necessary to gain maximum benefit to the general public

p. Fairfield Wildlife Area and Island - MRM: Wildlife Management General (Compartment 16).

This wildlife management area encompasses 480 acres of land on the west side of the lower Pomme de Terre arm from the Missouri Highway 83 bridge northwest to Fairfield Access. The compartment also includes Indian Island at the confluence of Pomme de Terre and Little Pomme de Terre Rivers. Access is from Missouri Highway 83 and State Route O to the Fairfield access road.

Topography consists of narrow ridges sloping sharply to gentler gradients nearer the former floodplain. Soils are thin and rocky along the ridges and draws becoming deeper and more fertile on the lower slopes.

Vegetation ranges from eastern redcedar limestone glades on the ridgetops to oak-hickory forest on the upper slopes. Walnut, sycamore and ash are common on the lower slopes. Native warm season grasses and forb communities are prevalent on the glades and in parts of the old fields on the lower slopes. Other old fescue fields are succeeding to invasion by honey locust and osage orange.

Use of this compartment is directed toward wildlife management with upland and forest wildlife receiving nearly equal attention. Indian Island has little management potential because of rugged topography and inaccessibility. The inaccessibility makes the island rather ideal as an isolated bird roosting or nesting area.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Fairfield Area and Island are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily upland and forest species.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

q. Fairfield Access - Recreation (Compartment 17).

The Fairfield Access is located approximately nine miles south of Warsaw on the Pomme de Terre River arm of the lake. The site is accessible from Highway 83 over State Route O one mile to the south. The site contains 105 acres at multipurpose pool and development consists of a two lane boat ramp with adjacent parking lot and vault toilet. The access road leading to the boat ramp bisects the compartment. The topography consists of steep rugged forest terrain to the west of the access road and a gently sloping old field to the east.

Primary recreation use are boat launching and bank fishing. The Missouri Department of Conservation recommended expansion of the existing boat ramp and parking lot.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Fairfield Access are:

1. To provide a boat launching access.

2. To provide access to the water for bank fishing.

r. Wisdom/Little Pomme de Terre Wildlife Area - MRM: Wildlife Management General (Compartment 18)

This 4,380 acre wildlife area is composed of all project lands on both sides of the Little Pomme de Terre River arm and lands along the south side of the lower Osage River Arm, including the Hogles Creek drainage. Fairfield Access is the eastern boundary of this unit, the western terminus of which is a steep rock bluff 1 mile west of the Benton-St. Clair county line. Access to the Little Pomme de Terre area is from Missouri Highways 83 and EE. The western portion of the area can be reached from Highways EE and ZZ. Several county roads also serve this compartment.

Topography of this management area is variable owing to its large size. The south portion consists of narrow ridgetops with thin soils sloping sharply to a wide flat floodplain in the Pomme de Terre River bottom. Lands surrounding the Hogles Creek area are similar, but the ridgetops are flatter, the side slopes less severe. The western third of the unit is characterized by a number of old fields and open glades. The ridges are wide and flat with steeply dissected side slopes and thin rocky soils.

Vegetation is also variable on the unit ranging from heavy oak-hickory forest to areas of thinner forest canopy to dense stands of eastern redcedar. The old fields are succeeding to woody invasion by honey locust, coralberry, eastern redcedar and other species. The open glades are colonized primarily by native plant communities composed of warm season prairie grasses, native forbs, and, to a lesser extent, eastern redcedar.

A progressive program for the conservation of wildlife resources is a management goal. Since most of the compartment is heavily timbered, management will be directed toward forest species. Old field management holds possibilities for upland game.

Management lands on the upper Little Pomme de Terre River are licensed to the Missouri Department of Conservation for wildlife purposes. The north boundary of this license is near the old Fairfield-Wisdom Road on the west side of the arm and at the Fairfield Access on the east side. The Department listed Compartment 18 as containing heritage elements or high quality natural communities at the project. The communities include two great blue heron rookeries, and two blacknose shiner and one Niangua darter sites in the adjacent water body of the lake. Protection of these sites from disturbance was recommended by the Department.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Wisdom/Little Pomme de Terre Wildlife Areas are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily forest species.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

5. To protect great blue heron rookeries, and blacknose shiner and Niangua darter sites from disturbance.

6. To mitigate previously identified damages by the proper implementation of a wildlife program on designated acreage.

s. Scott's Camp - MRM: Recreation-Low Density (Compartment 19).

With the exception of the Equestrian Camp (Compartment 20) this compartment includes all lands on the south side of the Osage Arm from the Highway ZZ bridge, north and east to the western boundary of the Wisdom/Little Pomme de Terre Wildlife Area. Access is from 3 county roads that run through the area.

This area forms a large peninsula. It is surrounded on three sides by the Osage River arm of the lake. Topography of this compartment is variable owing to its large size. Limestone bluffs overlook the Osage River arm from the Highway ZZ bridge to the old Scott's Camp area. The northern portion of the peninsula consists of old fields that slope gently into the old floodplain, and gradually changes to deep draws and ridges farther east. The eastern side of the peninsula changes from old fields to the north to deep draws, and limestone bluffs farther south.

The bluffs and higher terrain are timbered in oak, hickory, and eastern redcedar. The gentler slopes and old fields are covered with fescue and traces of native grasses.

This compartment is extensively used for boat launching and horseback riding on the 18 to 25 miles of trail in the Scott's Camp area. The entire 4,015 acre compartment is utilized for turkey, deer, and waterfowl hunting. Residents of the Homona subdivision use the county roads on the units eastern shore to launch boats and bank fish. The compartment contains several recorded archeological sites.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Scott's Camp Area are:

1. To provide an unstructured recreation opportunity in a natural environment.

2. To permit boat launching and bank fishing access to the lake.

3. To protect archeological sites from vandalism and degradation.

4. To protect the natural resources and public lands for future use.

5. To manage project lands and resources to the degree necessary to gain maximum benefit to the general public.

6. To permit trail riding by equestrian groups.

t. Equestrian Camp - Recreation (Compartment 20).

The Equestrian Camp contains 101 acres at multipurpose pool and is located approximately twelve miles north of Iconium. Access to the park from Highway 13

over State Route Z, State Route ZZ to the first county gravel road on the east side of the County Line Bridge, then north to a "T" intersection, then east one mile to the camp entrance.

Topography consists of a relatively level ridgetop running east and west with steep slopes to the shoreline to the north and more gradual slopes to the south. Vegetation on the compartment varies from old fields on the central and southeast portion of the compartment to dense oak-hickory forest to the southwest and scattered oak, hickory, and cedar forest to the north. Scattered mature walnut trees are located in old fields on the southeast portion of the compartment.

An 18 to 25 mile long looped equestrian trail beginning at the area commonly known as Scott's Camp, runs through the compartment. Compartment 20 is located at approximately the halfway point of this trail. There is no recreation development other than the equestrian trail on this compartment at the present time, however members of various riding clubs have expressed an interest in leasing this area for development as a future equestrian camp. Corps representatives have been negotiating with officials of various clubs in order to lease the 101 acre compartment for campground development.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Equestrian Camp are:

1. To provide a location for an equestrian campground where the riding trail exists.

2. To provide an opportunity for development of this camp by a not-for-profit organization.

3. To manage a heavy stand of native timber.

u. Valhalla/Talley Bend Wildlife Area - MRM: Wildlife Management General (Compartment 21).

The Valhalla/Talley Bend Wildlife Area is a large area (3,030 acres) along the right bank of the mid Osage River arm. It stretches from Talley Bend Park on the south border to Highway ZZ bridge on the north.

Management of the area is presently divided between the Corps and the Missouri Department of Conservation. The Department manages the portion between Highway ZZ and Wrights Creek arm as Valhalla Wildlife Management Area. The Department recommended the development of a boat launching access at the east abutment of the Highway ZZ bridge. The project staff manages the remainder as the Talley Bend Wildlife Area.

Topography and vegetation of the area can be broken into two distinct zones that align closely to the management boundaries. The area between Wrights Creek and Highway ZZ is characterized by steep, narrow ridges and valleys with nearly 100 percent forest cover. The forest cover is primarily oak-hickory with small interspersed glade openings and eastern redcedar thickets. Access is difficult with public roads available only on the north and south ends.

The Talley Bend Wildlife area is more varied in both topography and vegetative cover. The north and south borders contain steep topography and heavily forested cover. The middle portion is gently sloping which permitted agricultural use, as a management tool, at the area. As a result the vegetative cover is open fields (both row crop and grass) interspersed with timbered fence rows and wood lots. Access is provided over Highway HH and a gravelled county road.

The present use and management of the area is geared toward wildlife management. The Valhalla portion emphasizes forest wildlife, primarily deer and turkey. Forest management work has created suitable habitat for the re-introduction of the ruffed grouse. The re-introduction is being considered. The Talley Bend portion emphasizes management for upland wildlife species with incidental forest and waterfowl management potential. Several archeological sites are located in the Talley Bend portion. Care will be exercised to prevent any damage to these sites.

The predominate unique feature of the compartment is the rugged inaccessibility of the Valhalla area. These features make it ideal for walk in and boat in hunting related activities. Management activities designed to protect this unique recreation opportunity will need careful planning and execution to insure the integrity of the area.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Valhalla/Talley Bend Wildlife Area are

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily forest and upland game species.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

v. Talley Bend Park - Recreation (Compartment 22).

The Talley Bend Park contains 60 acres at multipurpose pool and is located 6 miles east of Lowry City on State Route C. Route C bisects the park with the boat ramp to the north off Highway HH and the campground to the south.

The topography of the park is rolling to steep with a series of draws dissecting the southern portion. Vegetative cover consists primarily of scattered oak-hickory forest with the area nearer the water being more open.

Primary recreation uses are boat launching and camping. The campground was opened to the public in the spring of 1986 and since that time the campground has been underutilized. There are no indications that usage of the campground will significantly increase in the foreseeable future. Underutilization of the campground can be attributed to several factors; i.e. water quality due to

turbidity, large amount of floating drift, and remoteness of the park. Operation Division is considering various alternatives to increase the overnight use in this park.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Talley Bend Park are:

1. To provide park facilities and services which will accommodate visitor use.

2. To provide visitor contact and assistance by project resource personnel.

3. To provide boat launching access.

4. To provide a quality campground.

5. To provide, in the future, a small swimming beach even though the water quality factor is somewhat negative from an aesthetic standpoint.

6. To provide, in the future, picnicking facilities.

w. Shady Grove Wildlife Area - MRM: Wildlife Management General (Compartment 22).

This wildlife area is located on the east side of the Osage River arm and is bounded by Talley Bend Park on the north and Moore Hollow on the south. Access to this 510 acre area is from Missouri Highway C.

Topography consists of moderately west sloping terrain with wide flat ridgetops in the north half , while the south half slopes much more severely to Moore's Hollow on the east. Soils are thin and rocky throughout.

This area is heavily timbered by oak-hickory forest with the exception of a large old field central to the northern boundary. The openings are populated by native prairie grasses and forbs but are succumbing to woody invasion. The large old field is characterized by bluegrass, woody invaders and mature timbers.

Use of these lands is for wildlife management purposes, but will be limited in scope because of inaccessibility. Forest wildlife will be the targeted species.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Shady Grove Wildlife Area are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily forest species.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

x. Heart of America Council, Boy Scouts - Recreation (Compartment 24).

The Heart of America Council, H. Roe Bartle Scout Reservation, exists on the right bank of the Osage River arm between Briley Creek and Moore Hollow. It historically composed the outside arc of the old horseshoe bend stretch of the Osage River. The Heart of America Council presently leases 597 acres of the 670 acre compartment. The scouts use at Truman is in keeping with a Corps directive entitled "Catch the Scouting Spirit and Take Pride in America - Guide and Resource Book".

Topographically the area is comprised of rugged river hills dissected by small permanent and intermittent streams. Several high bluff areas (Cedar Point, Lookout Point, Devil's Staircase, etc.) are carved from the rugged rocky ridges by the Osage River. The area is entirely forested except for a few small old fields in the stream bottoms. The timber is primarily oak-hickory with scattered cedar glades on the south facing slopes. The area is transected by several roads and trails that are used by members and participants of the quasi-public scout reservation. Old Highway ZZ is the primary public access through the area.

Numerous archeological sites exist on the area confined primarily to the high points overlooking the river and stream bottoms. Conditions 8 and 26 of the lease agreement with the Council require protection of these sites.

Recreation and management activities are performed by the Council in conjunction with its use of the adjoining lands within the H. Roe Bartle Scout Reservation.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Heart of America, Boy Scouts Area are:

1. To provide organized group recreation day use, camp and educational opportunities on project lands through a lease agreement with a non-profit organization.

2. To provide water-based recreation opportunities and facilities through a non-profit organization.

3. To protect known historical and archeological sites from vandalism and degradation.

y. Corbin Wildlife Area - MRM: Wildlife Management General (Compartment 25).

This 4,585 acre wildlife compartment consists of lands lying on both sides of the upper Osage River arm, including the Weaubleau Wildlife Area which is licensed to Missouri Department of Conservation for wildlife management purposes. The zone

south of the Osage River arm is bounded by Briley Branch on the east and by old Highway 82 west of Brush Creek on the west. The zone north of the Osage Arm is bounded by the county road east of Walnut Hollow on the east and by Slough Branch on the west. Access to the south part of this unit is from Missouri Highways 13 and 82 and the segments of old Highway 82 and Highway Z. The north part of the unit may be reached from Highway CC and the associated county roads.

Topography consists of areas of very steeply dissected ridges and bluffs that alternate with expanses of rolling terrain sloping gently to small drainages and the lake . Wide flat floodplains appear in the Weaubleau and Bear Creek bottoms. Soils vary according to terrain with the better soils on the gentler slopes and the poorer ones associated with the steeper areas and bluffs.

Most of the gentler slopes consist of old fields and hay meadows and are vegetated by native and introduced grasses, as well as woody invader species. The steeper areas, bluffs, and drainages are heavily timbered in oak, hickory, eastern redcedar, and walnut. Pecan, sycamore, ash, and walnut are very common on the lower slopes and on the floodplain. Bottomland fields are sometimes used for crop production.

The primary use of this diverse area is for wildlife management. Emphasis is placed on old field management for upland game and on timber management for forest species. Because of the wide expanses of mudflats and other low lying areas, this compartment provides significant potential for waterfowl management. The Missouri Department of Conservation has recommended the development of a lake access on Weaubleau Creek south of highway 82.

Reports of nesting bald eagles, as yet unconfirmed, occur in this area. With the continuing eagle release program at the Department's Schell-Osage Wildlife Area 20 miles upriver, it is quite possible that these birds may attempt to nest in this compartment. This possibility will be closely monitored.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Corbin Wildlife Area are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily forest and upland game species.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

5. To monitor possible nesting activity by bald eagles.

6. To mitigate previously identified damages caused by water inundation through the proper implementation of a wildlife program on designated acreage.

z. Brush Creek Access Recreation (Compartment 26).

The Brush Creek Access was originally designed to accommodate a marina concession. The concession contains 47 acres and 19 acres of water at multipurpose pool elevation. It is located in St. Clair County one mile east of Osceola. This compartment is located on the south side of the Osage River channel and access is over a gravel county road from State Route 13 one mile to the west.

Topography consists of a ridge extending to the northwest on which the recreation facilities are located. This ridge slopes to the east toward Brush Creek Cove and to the west toward a much smaller or cove. Tree cover is sparse. A line of hardwood trees is scattered along the southeastern portion of the compartment. Fescue and annual weeds are the predominant ground cover.

Use of the area has been primarily boat launching and bank fishing activities.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Brush Creek Access are:

1. To provide boat launching access.

2. To provide bank fishing access.

3. To provide, in the future, a minor marina concession development through the private sector.

aa. Osceola Park - Recreation (Compartment 27).

The Osceola City Park, containing 520 acres of project owned land, is located adjacent to and within the corporate limits of the city of Osceola. The compartment is between Brush Creek Access and the Sac-Osage Youth Fairgrounds. A significant portion of the total acreage is presently leased to the city.

The park is operated and maintained by the City of Osceola for recreation purposes. Facilities located on project lands which were built as a part of a relocations contract include a boat ramp, shelter houses, parking lots, picnic grills, and park roads. City developed facilities include a campground with shower building, ball field, playground, golf course, and picnic sites. The golf course is subleased as the Osage Valley Municipal Golf Course, Inc. and is not, currently, being maintained.

The current lease includes two existing Federally owned buildings. One is used as a park administration office and the other as a senior citizen meeting facility. Several archeological sites are located in the park.

The majority of use, with the exception of the campground in the park, is from local residents.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Osceola Park are:

1. To provide boat launching access.

2. To provide bank fishing access.

3. To provide camping opportunities.

4. To provide picnicking opportunities.

5. To provide a building for senior citizens recreation activities.

6. To protect known archeological sites from vandalism and degradation.

bb. Sac-Osage Youth Fairground - Recreation (Compartment 28).

The Upper Sac-Osage Wildlife Management Area and the Osceola City Park separate the Sac-Osage Youth Fairground. The fairground contains 17 acres on the right bank of the upper Osage River arm. The area is leased to the St. Clair County Court who sublease it to the Sac-Osage Youth Fair, Inc. Access to the site is provided by old Highway 82.

Facilities existing on the area include a parking area, a pole barn, two exhibit sheds, and a well. Future development includes a show arena. The primary use of the leasehold is to house the annual three day Youth Fair of 4-H exhibits.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Sac-Osage Youth Fairground are:

1. To provide an organized group the opportunity to develop project lands for recreation and educational purposes.

2. To provide exhibit facilities for organized group fairground uses.

cc. Upper Sac-Osage Wildlife Management General (Compartment 29)

This wildlife management compartment contains three wildlife management areas, as identified by the Missouri Department of Conservation. The 11,600 acres are under license to the Department. The three wildlife management areas are: Sac-Osage Wildlife Area, Salt Creek Wildlife Area and Gallinipper Wildlife Area. The three units, which contains 11,600 acres, have been renamed the Upper Sac-Osage Wildlife Area.

The Sac-Osage Wildlife Area encompasses, except for the Sac River Access, all projects lands on the Sac River Arm and on the right bank of the Osage River east of Highway E at Roscoe to its confluence with the Sac River. The topography is diverse, ranging from limestone bluffs overlooking the Sac River, to the rugged river hill of the Osage and flat prairies in between. Vegetation is correspondingly varied. The river hills are cloaked in dense oak-hickory forests. The unformed portions of the bottomlands grow tall stands of pecan, willow, sycamore, and cottonwood. The bluffs and rock outcrops are characterized by lichen glades and stunted, nearly bonsai in appearance, stands of blackjack and post oaks. The flat historic prairie areas have been broken into tracts of row

crops and grass. Unique features of the area would have to include the Sac River bluffs just upstream from the Sac River Access and an area of small bluffs on the lower Osage.

Archeological sites are present along the major drainages on elevated terraces. Access is good along the Sac River and lower Osage but limited on the remainder of the Osage.

Wildlife populations are good. Management activities stress upland game in the prairie and farmed bottomland areas. Deer and turkey are emphasized in the heavily timbered sites. The Department has identified a great blue heron rookery in this area.

The Salt Creek Wildlife Area is a large area on the upper Osage arm. Most of the area exists on the left bank of the Osage from Red Rock Bluff upstream to the project boundary and then across to the right bank and the Coon Creek drainage east to Roscoe.

Access is, in general, mediocre, but the prime management areas are well served. The area is a mixture of heavily timbered river hills interspersed with large historic prairie flats that are presently under agricultural permit for row crops and hay production. Wildlife populations are good with management stressing upland game. Unique features include the Rock of Ages Bluff at Red Bluff Camp, Magnolia Sulfur Spring cave area on Salt Creek, and the Dry Sandstone Forest located on Salt Creek south of Highway B. Archeological sites are numerous along the elevated terraces of the Osage River and up the permanent tributaries.

The Gallinipper Creek Wildlife Area stretches along the left bank of the Osage from Red Rock Bluff to Gallinipper Bluff (Compartment 32). Major tributary drainages include Gallinipper and Turkey Creeks.

Topography consists of rugged heavily timbered hills to open row-cropped bottomlands. The timber is primarily oak-hickory and bottomland forests. Archeological sites are numerous along elevated terraces and knobs of the Osage River as well as up the creek bottoms. Access is mediocre to fair with the best serving the agricultural managed areas. An abandoned limestone quarry cave constitutes a unique feature of the area. Once serving as a designated bomb shelter, the cave is now filled with water from high lake elevations.

Management benefits upland game, deer, turkey, and limited waterfowl. Some timber management in the form of a wood cutting area to benefit forest wildlife particularly the extirpated ruffed grouse has occurred on the Gallinipper Creek arm. The Department has identified a great blue heron rookery in this area.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Upper Sac-Osage Wildlife Area are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily upland game.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

5. To protect the great blue heron rookeries and Dry Sandstone Forest (See Table III-1) from disturbance.

6. To mitigate previously identified damages caused by the water inundation through the proper implementation of a wildlife program on designated acreage.

dd. Sac River Access - Recreation (Compartment 30).

This area contains 23 acres and was developed to provide a local access point on the Sac River off of Highway 82. Facilities include a boat ramp, vault toilet, and a gravel access road with parking lot. Future development includes one overflow parking lot. Use of the area fluctuates seasonally in rhythm with the prime fishing seasons.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Sac River Access are:

1. To provide boat access on a popular upper lake tributary.

2. To provide bank fishing access.

3. To recognize the wildlife mitigation classification on the acreage.

ee. Roscoe Park - Recreation (Compartment 31).

This 193 acre compartment is located on the Osage River arm off old Highway E north of Village of Roscoe. The area is under lease to the Village. Corps constructed facilities include a boat ramp, vault toilet, and access road with parking lot. The Village has constructed a picnic shelter, primitive campground, interpretive trail, courtesy dock and ball field. The public park and recreation lease also includes a project acquired house which is used by the Board of Aldermen for functions and civic meetings. The Weinlig Store and Jones Drug block foundations are also leased to the Village for interpretive purposes.

Under the terms of the lease the Village operates and maintains the leasehold except for the dredging of accumulated silt from the ramp and the pump out of the vault toilet which are project responsibilities.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Roscoe Park are:

1. To provide boat access on the popular upper lake tributaries.

2. To provide picnic opportunities.

3. To protect and interpret historic sites (Weinlig Store and Jones Drug Store foundations).

4. To provide primitive camping opportunities.

5. To provide an area for a diversity of recreation events and community activities such as the Annual Craft Festival, Civil War battle re-enactments etc.

6. To provide play field activities.

7. To recognize the wildlife mitigation classification on the acreage.

ff. Gallinipper Bluff - MRM: Recreation-Low Density (Compartment 32).

This 130 acre compartment is located on the north shore of the Osage arm, and encompasses lands that are between the Highway 13 bridge at Osceola and the mouth of Gallinipper Creek. Access is limited to foot traffic off of Highways 13 and B.

Topography consist of one limestone bluff that runs the entire length of the southern boundary, and two steep hills running north from the bluff to Highway B. The western half of the compartment is covered by a heavy oak-hickory forest. The remaining portion of the unit is sparsely covered with hardwoods and red-cedars.

Bank fishing and hunting activities are the main use in the compartment. Additional dispersed recreation use is anticipated in this compartment as the adjacent private property across from Osceola is developed. There are recorded archeological sites in the compartment.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Gallinipper Bluff are:

1. To provide an unstructured recreation opportunity in an natural environment.

2. To provide quality wildlife habitat.

3. To protect the natural resources and public lands for future use.

4. To protect known archaeological sites from vandalism and degradation.

5. To permit fishing and hunting activities.

gg. Crowe's Crossing Park - Recreation (Compartment 33).

The Crowe's Crossing Park contains 70 acres at multipurpose elevation and is located one mile north of Osceola. Access is provided by State Highway 13 which borders the park on the west.

Oak-hickory forest is the predominant vegetation covering the entire compartment. topography consists of a series of draws and ridges bisecting the compartment north to south.

Recreation development includes a boat launching ramp, large open parking area and vault toilet. The primary recreation use of this area consists of boat launching. Because of its proximity to Highway 13 the park is also used as a rest stop by passing motorist. Since Highway 13 may be widened in the future, the park is not recommended for any additional development. Local representatives have however suggested that the park area be improved - small bait or concession site and picnicking area. The Corps would consider advertising the park for such development if a marina proposal is not received on the Brush Creek Access. The future widening of Highway 13 may subsequently adversely impact any development efforts in this park.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Crowe's Crossing Park are:

1. To provide boat launching access.

2. To provide bank fishing access.

3. To provide, in the possible future, a small boat shop and picnicking area by a private concessionaire.

hh. Horseshoe Bend - MRM: Recreation-Low Density (Compartment 34).

This 745 acre area is located about 7 miles east of Highway 13 at the end of Highway CC and across the lake from the H. Roe Bartle Reservation. It encompasses all project lands between Wolf Creek Cove and Corbin Wildlife Area (Compartment 24).

Topography varies due to this area's large size. The southern portion is characterized by a large flat floodplain on the western edge of the lake. There are several agricultural leaseholds in this area. Osage orange and honey locust trees line the fence rows and drainage ditches. A large stand of pecan trees occur on the higher ground. The center portion of the compartment forms a narrow peninsula. It is covered with oak, hickory, and eastern redcedar. The remaining portion is made up of steep rocky hills broken by deep ravines. This area is covered by a dense mature hardwood forest.

The compartments most unique feature is the Horseshoe Bend peninsula. It is possible to launch a small boat at several points on the peninsula, and the area is also used for bank fishing and hunting activities. Dispersed recreation use is anticipated as development takes place on private adjacent land. The area has several recorded archaeological resource sites in its northern sector. The Missouri Department of Conservation has recommended the development of a lake access off old Highway C.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Horseshoe Bend area are:

1. To provide an unstructured recreation opportunity in a natural environment.

2. To provide wildlife management and habitat.

3. To protect the natural resources and public lands for future use.

4. To manage project lands and resources to the degree necessary to gain maximum benefits to the general public.

5. To provide boat launching and bank fishing access.

6. To protect known archeological sites from vandalism and degradation.

ii. Turkey Hollow-Environmental Sensitive Area (Compartment 35).

The Turkey Hollow Environmental Sensitive Area contains 420 acres and is located on the left bank of the middle Osage River arm between Wolf Creek road and Highway C. This area is characterized by rugged, heavily timbered river hills. The timber is primarily oak-hickory with a scattering of eastern redcedar on the drier sites. The area received it's designation due to a stand of large old growth oaks that are located nearly in the center of the tract along a north facing ridge slope. Old growth oak stands (100 plus years old) are rare on project lands and provide valuable habitat for specialized wildlife species such as pileated woodpeckers.

Public vehicular access to the area is limited to Wolf Creek road on the south and Highway C on the north. The rugged inaccessibility of the property surrounding old growth stand is perfectly suited for a protective buffer. The area has a few scattered archeological sites that are naturally protected by their inaccessibility. Protection of these sites will be included in any resource management plan for the area.

Any management activities will be confined to the buffer areas away from the old growth stand. Management will be confined to protecting wildlife habitat and timber resources. No activities in or near the old growth stand will be permitted. The Missouri Department of Conservation has identified a bald eagle nest in the area.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Turkey Hollow Environmental Sensitive Area are:

1. To protect a unique and rare vegetative resource.

2. To maintain a rare habitat for specialized forest avian species.

3. To protect known archeological sites from vandalism and degradation.

4. To protect bald eagle nest site and monitor annually at end of March for incubation activity.

jj. Muddy Creek Wildlife Area - MRM: Wildlife Management General (Compartment 36)

The Muddy Creek Wildlife Area encompasses 1,680 acres of land west of the Osage River arm between Highway C on the south and an environmentally sensitive

Compartment 36 (Buzzard's Roost) on the north. Good access to south half of the compartment is from Highway C, but access to the north half from Highway JJ is somewhat limited.

The dominant topographic feature of this unit is the Muddy Creek drainage area. The creek bottom is buffered by steeply dissected ridgetops. Soils are generally thin and rocky, although some soil types nearer the lake will support agricultural crops.

The Muddy Creek Area is primarily vegetated by oak-hickory forest, although numerous fields occur along the creek channel and at elevations near the lake. Most of the fields have access and flooding problems. They are reverting to old field succession. Remnant native grass communities are common in old fields and forest openings.

This compartment is used primarily for wildlife management, and emphasis is on fauna forest species. Access limitations to the northern half of this compartment complicate management efforts in this region.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Muddy Creek Wildlife Area are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily forest species.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

kk. Buzzard's Roost - Environmental Sensitive Area (Compartment 37)

This environmentally sensitive area is located on the north side of the Osage River arm one half mile west of the Ninnescah Park subdivision. This 180 acre compartment is between the Muddy Creek Wildlife Area and the Ninnescah Park subdivision. Trails that cross the area's northern boundary, provide the only vehicle access to the compartment.

Topography is made up of one single bluff 150 feet high running east to west for approximately three quarters of a mile. Soils on the bluff top are very thin and rocky. With the exception of the southern face of the bluff the area is covered by a heavy oak-hickory forest. The area on top of the bluff is dotted with eastern redcedar stands, cactus, and lichen glades. There are scattered patches of native grasses remaining on the bluff. The area offers a panoramic view of the Osage Valley, and Truman lake and is used primarily for hunting. The most unique features of the compartment are the turkey vulture nesting sites located on the face of the bluff and the panoramic view from the highest points.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Buzzard's Roost Environmental Sensitive Area are:

1. To protect the turkey vulture nesting and roosting sites from man-made disturbances.

2. To prevent visual and physical encroachments upon the environmental sensitive area.

11. Rancho Point - MRM Recreation-Low Density Use (Compartment 38).

This compartment consist of two separate zones of similar character situated on the north shore of the Osage River arm. The western zone is bounded on its west border by the Buzzard's Roost Environmental Sensitive Area, and Compartment 39 on the east. The eastern zone stretches from the opposite side of Compartment 39 north to the southern edge of the West Haven Wildlife Area (Compartment 40). Access to the western zone is limited to one private road belonging to the Ninnescah Park Association, and a dry weather trail crossing private property. The eastern zone has four old county roads leading to the water's edge, and encompasses the Fox Run licensed boat ramp. The compartment contains 530 acres.

Topography of the west zone is largely steep ridges, and small limestone bluffs around the lake shoreline. There is one large overgrown field in the middle of the zone covered with woody invasion. The ridgetops are covered with a mature oak-hickory forest. The eastern zone is made up of old crop fields and timbered fence lines. The soils are conducive to wildlife food plots, and several exist in the area north of Highway ZZ. There is a small rugged area that is covered by a mature oak-hickory forest at the western end of the Highway ZZ bridge.

Use includes upland game and waterfowl hunting, bank fishing, and boat launching at the Fox Run ramp. There are several archeological sites located on the compartment. There is also dispersed recreation use from persons that own adjacent or nearby private property. The Missouri Department of Conservation has recommended the development of an improved boat launching access off old Highway ZZ where it enters the lake.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Ranch Point area are:

1. To provide an unstructured recreation opportunity in natural environment.

2. To provide boat and bank fishing access.

3. To provide wildlife food plots and habitat.

4. To protect known archeological sites from vandalism and degradation.

5. To manage project lands and resources to the degree necessary to gain maximum benefits to the general public.

mm. Fox Run - MRM: Vegetative Management (Compartment 39).

The Fox Run Vegetative Management Area is located along the western bank of the Rancho Point peninsula on the northern shore of the Osage River arm. This compartment encompasses 270 acres of project lands between the Fox Run licensed boat ramp, and a gravelled county road two miles to the north. Vehicular access is limited to two county roads on the compartment's north and south borders, and a private road utilized by the residents of Fox Run.

Topographically the area consist of one limestone bluff running north and south for the entire length of the unit. The scenic bluff rises 200 feet above the multipurpose elevation, Fox Run subdivision is situated on it's highest point. Vegetation consist of a mature oak-hickory forest on the narrow plateau between the rim of the bluff and private adjacent property. Large eastern redcedar stands exist on the rim and in the crevices of the bluff.

The bluff, with its fragile forest cover and turkey vulture roosting sites, is the area's most unique feature. Sightseeing and hiking are the area's most popular activities. Some small game hunting occurs, but on limited basis due to the compartment's small size. Management of the area emphasizes the vegetative resources to improve the timber and maintain the visual aesthetics. Protection of the turkey vulture roosting and nesting sites is required.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Fox Run area are:

1. To continue to manage the area to provide aesthetic and intrinsic values associated with this timbered ecosystem.

2. To protect the forest resources for both timber and wildlife benefits.

3. To protect the turkey vulture roosting and nesting sites.

4. To maintain and protect project natural resources, particularly timber for future generations.

5. To maintain and foster successful regeneration of the native forest areas.

6. To manage project lands and resources to the degree necessary to gain maximum benefits to the general public.

nn. West Haven Wildlife Area - MRM: Wildlife Management General (Compartment 40).

The 1,300 acre area is along the left bank of the Osage River Arm and is bordered on the east by Berry Bend Park and by old Highway ZZ on the west. The area is characterized by steep heavily timbered river hills and hollows with scattered old fields. The timber is characteristically oak-hickory with scattered cedar thickets and glades. The stream bottoms and upper cove sites contain stands of walnut and pecan. The old fields, scattered throughout the stream bottom and

gentler slopes, are heavily overgrown and inaccessible to vehicles. Access to the area is difficult, with old Highway ZZ, West Haven Road, and an abandoned county road providing only limited public availability.

Management activities emphasize forest wildlife, especially deer and turkey. The numerous wooded streams have the potential to provide outstanding habitat for the ruffed grouse should it be reintroduced.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Muddy Creek Wildlife Area are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

oo. Berry Bend Park - Recreation (Compartment 41).

The Berry Bend Park contains 624 acres at multipurpose pool elevation and is essentially a peninsula in a bend of the Osage River with scenic bluffs on the west and gradual slopes to the east. The park is located nine miles west of Warsaw and is accessible over a paved county road two miles south of State Road Z. This compartment has very interesting topography and natural beauty. Vegetation is primarily oak-hickory forest. The park is divided into two nearly equal halves by a causeway with a large campground, swimming beach and amphitheater located south of the causeway and picnic shelters, a boat launching ramp and a smaller campground located north of the causeway.

A site for a future marina has been identified near the boat ramp. Other proposed changes to the park include moving the existing entry station to the road leading to two loops. A second booth is to be constructed at the entrance to the other loop. This realignment of facilities would allow greater utilization of the park facilities.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Berry Bend Park are:

1. To provide boat launching access.

2. To provide a quality campground.

3. To provide picnic facilities.

4. To provide a swimming beach

5. To provide a minor marina through a commercial concession lease agreement.

pp. Berry Bend - Environmental Sensitive Area (Compartment 42).

This 185 acre compartment is located on the northern shore of the Osage River arm and abuts the eastern boundary of the Berry Bend Park. The eastern boundary is marked by a large cove and the western boundary by Compartment 43. Vehicular traffic to the area is limited to one rugged trail crossing private property.

Topography of the area consist of scenic bluff which follows the old river channel as it changes direction from north to east. The limestone bluffs rises 150 feet above the multipurpose pool elevation and gradually tapers off at its east and west boundaries. The bluff contains one small cave, and has large limestone outcroppings on the southern exposure. The higher ground is covered by an immature oak-hickory forest. Eastern redcedar and patches of remnant prairie grasses grow sporadically on the bluff's face and top.

The scenic view from the bluff is one of the finest on Truman lake, but the area's archeological sites are its most unique feature. Several archaeological sites are located within the compartment, and local historians claim the area's first white settler lived in the cave on the bluff's eastern exposure. The compartment is primarily used for hunting and sightseeing.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Berry Bend Environmental Sensitive Area are:

1. To protect known archeological sites from vandalism and degradation.

2. To provide an unstructured recreation opportunity in a natural environment.

3. To provide quality wildlife habitat.

4. To protect the natural resources and public lands for future use.

qq. Osage/Grand Rivers - MRM: Recreation Low Density (Compartment 43).

This very large compartment (4,610 acres) is more easily described if divided into two separate zones. The first zone lies on the north shore of the Osage River arm and encompasses project lands between the eastern edge of the Berry Bend Environmentally Sensitive Area (Compartment 42) and State Highway UU south of the Harry S. Truman State Park. The second zone stretches from Highway UU westward to the Mount Zion Wildlife Area (Compartment 45) on the south side of the Grand River arm.

The terrain consist of rolling hills and long coves. There are two large scenic bluffs located on the compartment. One overlooks the Grand River arm at the historic Cow Ford Crossing. The other bluff overlooks the Osage River arm from

the western shore, approximately 1 mile south of the mile long bridge. The majority of the compartment is covered in oak-hickory forest with heavy cedar growth at the southern edge of the Highway 7 bridge on the Grand River arm. There are some large overgrown hay fields in the vicinity of the Finey Community boat ramp.

There are two licensed boat ramps in the compartment. One is located near the end of KK Highway at the Lay's Valley View subdivision. The other is located north of Highway Z at the Finey Community licensed area. These facilities create dispersed recreation uses in the compartment. Hunting and bank fishing are also popular recreation activities.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Osage/Grand Rivers Areas are:

1. To provide an unstructured recreation opportunity in a natural environment.

2. To provide boat and bank fishing access.

3. To protect the natural resources and public lands for future use.

4. To prohibit the use of unauthorized vehicles in the area.

5. To provide wildlife management and habitat.

6. To manage project lands and resources to the degree necessary to gain maximum benefits to the general public.

rr. Harry S. Truman State Park - Recreation (Compartment 44).

The Harry S. Truman State park contains 1,440 acres at multipurpose pool elevation and is located approximately 7 miles northwest of Warsaw. The park is accessible over State Route UU from Highway 7. The park is triangularly shape and is located at the confluence of Little Tebo Creek, the South Grand River, and the Osage/Pomme de Terre River systems. Topography consists of relatively steep slopes and narrow ridges except for the northeastern portion which has more moderate slopes. Bluffs bound the eastern side of the compartment and portions of the northern side. Vegetation is primarily oak-hickory forest.

The Harry S. Truman State Park is leased to the Missouri Department of Natural Resources, Division of Parks and Historic Preservation, for public park and recreation purposes. The State administers, operates and maintains the park and all facilities. Recreation development includes a full service marina, a large campground, a boat launching ramp adjacent to the marina, a boat ramp adjoining the campground, swimming beaches, and a picnic area.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Harry S. Truman State Park are:

1. To provide recreation opportunities by means of a lease agreement with the Missouri Department of Natural Resources.

2. To provide an intensive structured recreation opportunity by providing a concentration of park facilities that can withstand the impact of heavy visitor use.

3. To provide overnight camping facilities.

4. To provide day use and picnic opportunities.

5. To provide fishing and boating access.

6. To provide swimming beaches.

7. To provide marina facilities and services.

8. To provide intensive visitor contact and assistance by State park personnel.

9. To provide, in the future, a lodge/resort complex.

10. To provide in the future, a visitor center and trail systems.

11. To maintain project natural resources and public lands for future generations.

ss. Mount Zion Wildlife Area - MRM: Wildlife Management General (Compartment 45).

The Mount Zion Wildlife Area is composed of project lands on the south side of the Grand River arm and is bounded on the east by the old French Bridge Road and on the west by the county road running east from Brownington. These lands are accessible from Highways Z and U and their connecting gravel roads. The compartment contains 4,670 acres.

Topography, soils and vegetation of this compartment are all typical of the Ozark border ecotone with the steeply dissected and timbered hills of the east grading into the more open, rolling prairie-like terrain of the western half. Limestone bluffs characterize the outside bends of the old river channel on the steep eastern portion and open fields with timbered edges and draws dominate the western portion. Oak-hickory is the primary forest type while native prairie grasses, forbs, and fescue dominate the grasslands. The western two-thirds has suitable soils for crop production, but many abandoned crop fields are subject to vegetation succession.

This compartment is managed primarily for wildlife purposes, because of its vegetation diversity. Nearly all classes of indigenous wildlife are in the compartment including non-game species. Limited access to some portions, however, will make management difficult or impossible. The Missouri Department of Conservation has recommended development of a boat access on a vacated road.

The compartment has the only known successful bald eagle hatch site on Truman. The site is near the middle of the compartment. This nest will be monitored for continuing eagle activity. There is also a great blue heron rookery site in this compartment

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Mount Zion Wildlife Area are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily upland game.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

5. To protect bald eagle nest site and monitor annually in March for incubation activity.

6. To protect great blue heron rookery from disturbance.

tt. Brownington - MRM: Recreation-Low Density (Compartment 46).

This 255 acre compartment is 2 miles east of the junction of Highways 13 and Z. It forms the northern limit of the Village of Brownington. An abandoned railroad line forms the western boundary, and the Mount Zion Wildlife Area (Compartment 45) borders on the east. Vehicle access is available from Highways Z and BB.

Topography consist of the gradual sloping fields turning from Brownington to the shoreline on the southern side of the Grand River arm. Soils are suitable for farming. Fescue is the primary grass in the old fields but woody invasion species are scattered through the area. Osage orange and honey locust are the prevalent trees in the fence lines and drainage ditches. There are remnant apple orchards, pecan trees, and walnut trees located on project lands that was the former Village of Brownington.

The area is used by waterfowl hunters and bank fishermen from the local community. The area has recorded historical sites.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Brownington Area are:

1. To provide an unstructured recreation opportunity in a natural environment.

2. To provide wildlife management and habitat.

3. To protect the natural resources and public lands for future use.

4. To permit dispersed recreation activities by persons in the local community.

uu. Cooper Creek Wildlife Area - MRM: Wildlife Management General (Compartment 47).

The Cooper Creek Wildlife Management Area, which includes the Brownington Wildlife Area which is licensed to the Missouri Department of Conservation, is located on both sides of the Cooper Creek arm of the lake. It is bounded on the east by the old county road north of Brownington and on the west by the abandoned St. Louis and San Francisco Railroad track. The compartment can be reached from Missouri Highway 13 and Highway BB, as well as both old and new Highway Z. The compartment contains 1,435 acres.

The terrain on this area consists of moderately sloping hillsides dissected by shallow draws and by Cooper Creek. Abandoned strip pits and quarries are prominent. Wide flat floodplain fields dominate the locations nearer the lake.

Typical vegetation consists of oak-hickory, elm, sycamore, and walnut timber on the rocky hilltops, mine spoil areas, and drainages. Open fields are mostly in crop production and have woody edges and borders. Many old fields are also present and are populated by a mixture of fescue, remnant native prairie grasses, forbs, and woody invaders.

The lands are managed for upland wildlife. Forest species, such as whitetailed deer, wild turkey, fox squirrel, and raccoon are common. Because of the wide expanses of floodplain fields, significant potential exists for waterfowl management, as well.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Cooper Creek Wildlife Area are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily upland game.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

5. To mitigate previously identified damages by the proper implementation of a wildlife program on designated acreage.

vv. Cooper Creek Park - Recreation (Compartment 48).

This area contains 630 acres and is located between the Brownington Wildlife Area and the City of Deepwater Park. It is at the confluence of the South Grand River, Deepwater Creek, and Cooper Creek arms of the lake. Past clay and coal mining activities in conjunction with a large borrow area for relocated Highway 13 created a landscape featuring broken topography. These features are ideally suited to operation of off-road vehicles (ORV). A large portion of this park have been dedicated to ORV operation. Use of the area by ORV enthusiasts continue to increase each year. Current facilities include two parking lots with vault toilets, bulletin boards and boundary signs.

The park's location at the confluence of three arms of the lake make it an ideal site for a boat launching access. The City of Deepwater has leased a small portion of the park (16 acres) and constructed a boat ramp, parking lot and vault toilet. A primitive campground is a future development possibility in the city. Use of this facility by boaters, fishermen, and hunters rivals that of a nearby Corps constructed ramp. Access to the area is provided by State Highway 13 and a well maintained county road.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Cooper Creek Park are:

1. To provide boat launching access to the lake.

2. To provide for a ORV area which add to the diversity of recreation opportunities around the lake and consolidated the use.

3. To provide bank fishing access.

4. To protect known archaeological sites from vandalism and degradation.

ww. Deepwater Park - Recreation (Compartment 49).

The City of Deepwater is located in south-central Henry County about 8 miles south of Clinton. Access is provided by Highways 13 and 52. The population of the city, which has been falling since 1940, seems to have now bottomed out at around 550 residents. Small population gains can be anticipated due to the influence of the lake and new rural water district.

Located within Deepwater, the park contains approximately 30 acres composed of former city lots. Although no Corps constructed recreation facilities were built, a relocation contract provided for construction of a ballfield. City constructed facilities include a multipurpose recreation building, a playground, two picnic shelters, and a horse arena. An equipment shed, former dwelling, and an old block building are also part of the leasehold improvements. The entire park area contains 410 acres.

The primary use of the park is by local residents on a year round basis. Heavy use is also experienced during annual Labor Day weekend picnics which draw thousands of visitors to the area.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Deepwater Park are:

1. To provide day use recreation opportunities for local residents and project visitors.

2. To provide an economical and quality program which will afford the public a diversity of recreation opportunities.

3. To provide picnic facilities.

4. To provide a riding arena.

xx. Deepwater and Clinton Sewage Areas - Project Operations (Compartment 50).

Sewage treatment facilities serving the cities of Deepwater and Clinton existed below the 742 foot, msl, acquisition elevation. Relocation of these facilities to higher elevations was the most economical method of addressing the sewage disposal situation.

A wastewater treatment lagoon system with a new trunk sewer, collector lagoon, lift station, and force main was constructed in the Deepwater Area. Lagoon sizing was based on needs of 1,000 equivalent population. The lagoons are located outside the northwest corner of the city. Operation and maintenance of the lagoon system is the responsibility of the city.

An oxidation-ditch treatment facility with lift stations was constructed near the southeast corner of Clinton. This facility replaced two old gravity flow sewer lagoons located in the southwest and southeast corners of the city. The replacement facilities were sized based on a population equivalent of 15,000.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Deepwater and Clinton Sewage Areas are:

1. To provide an area for treatment of municipal sewage in a manner which does not adversely affect public health or the environment of the project.

2. To assist in protecting the water quality of the lake.

yy. Deepwater Creek Wildlife Area - MRM: Wildlife Management General (Compartment 51).

The Deepwater Wildlife Area is under license to the Missouri Department of Conservation. The 6,200 acre compartment encompasses project lands west of Highway 13 on the Deepwater-Marshall Creek arms of the lake.

Varied in both topography and vegetation, this area is rich in wildlife and archeological resources. Large expanses of bottomland and adjacent mudflats

provide ideal management potential for waterfowl. Timbered bluffs and wood lots interspersed with small grain and grass fields are ideal for upland game as well as deer and turkey management. Several old coal strip mine areas exist on the far east side of the compartment. The area abounds in archeological sites.

Access is served by a network of gravelled county roads running through and along side the area. The old Highway 13 bridge abutment on Deepwater Creek provides an outstanding bank fishing and small boat access point.

The most outstanding feature is an unusually high bluff over looking Deepwater Creek. The top of the bluff has a lichen glade surrounded by stunted blackjack-post oak timber. One large and several small tracts of virgin grass prairies exists on the area. The strip mined areas contain several deep, water filled pits that provide small water fishing opportunities. A large man-made pond, locally known as Whitaker Lake, was created by damming a meander channel of Deepwater Creek. Containing 20 surface acres, this shallow pond has been proposed as a rearing site for lake spawning walleye fry to be subsequently stocked into Truman lake. The Department recommended development of a boat launching access on a vacated road where it enters the lake. The Deepwater Wildlife Management Area is rich and varied in wildlife management potential.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Deepwater Wildlife Area are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily upland game.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

5. To mitigate previously identified damages caused by the water inundation through the proper implementation of a wildlife program on designated acreage.

6. To provide a fish rearing site.

zz. Sparrowfoot Park - Recreation (Compartment 52).

The Sparrowfoot Park which contains 495 acres is located 5 miles south of Clinton and about 1 mile east of Highway 13 on the South Grand River arm of the project. Primary access to the park from Highway 13 is over a paved county road.

The topography of the park is generally flat with a large underground limestone rock quarry located on the northeast side. A small portion of this quarry has been fenced and placed off limits to protect the public from any danger of collapse. Tree cover is sparse and is dominated by silver maple and pin oaks. Native warm season grass plantings are scattered throughout the compartment. The remaining vegetative cover consists of cool season grasses and annual weeds.

Development includes a campground, picnic shelters, boat ramps, swimming beach, and an excavated harbor area.

Primary recreation uses are boat launching, swimming, picnicking, and camping activities.

An invitation for proposals for a marina concession was advertised in 1988, but no proposals were received. The lack of interest can be attributed to exposure of the site to wind and overall shallow water levels in the South Grand River arm of the lake.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Sparrowfoot Park are:

1. To provide a quality campground.

2. To provide a quality swimming beach.

3. To provide picnic facilities.

4. To provide a boat launching access.

5. To provide bank fishing opportunities along the excavated harbor area.

6. To provide a quality recreation programs which will afford the public a diversity of park opportunities in harmony with the use of natural resources.

7. To provide visitor contact and assistance by project resource personnel and park attendants.

aaa. Grand River Bottoms Wildlife Area - MRM: Wildlife Management General (Compartment 53).

The Grand River Bottoms Wildlife Area is an productive and diverse management compartment under license to the Missouri Department of Conservation. Located on the upper Grand River Arm of the lake, it extends from Sparrowfoot Park on the south side to Clinton city limits on the north side. The Corps presently manages land on the eastern ends that adjoins the Sparrowfoot Park and the City of Clinton. This large 6,830 acre area is accessible from Missouri Highways 13 and 18 and Highway T. Martinville Road also serves the interior.

Topography consists almost entirely of expansive floodplain fields with little variation in elevation. Only two zones of appreciable vertical relief exist in the northwest and south central portions. The soils on this area are generally deep and fertile, and, although erosive, are prime farmland. The timbered draws and bottomlands are populated by such moist soil species as pecan, silver maple, pin oak, sycamore, and green ash. Osage orange, willows, buttonbush, and other species of oak are common. Although few in number, the uplands provide important diversity and are colonized by native and tame grasses, forbs, and shrubs. Some of these lands are used for crop production and provide the backbone of the resource management effort.

Wildlife management is the best use because of this stable food and cover source and the vegetative diversity. Wildlife is abound on this area. Any management effort is bound to protect more than one species. The Department has recommended the development of two boat launching ramps and parking lots to provide better boat access in this area.

Of particular note is the Grand River Bottomlands Waterfowl Refuge, which is closed to the public from 1 December through 15 March each year. Operation of the refuge is designated to reduce depredation of private croplands by wintering ducks and geese. Depredation is reduced on private property by luring waterfowl to feeding areas on public lands. Also of significant interest is a portion of the Grand River Bottoms Area which is being managed for the benefit of the greater prairie chicken. Once numerous throughout Missouri, this bird has been extirpated from much of its former range and now exists only in localized populations.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Grand River Bottoms Wildlife Area are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily upland game.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

5. To maintain operation of a waterfowl refuge to reduce crop depredation and provide a resting and feeding areas for migrating waterfowl.

bbb. Clinton Park - Recreation (Compartment 54).

This compartment encompasses 1,650 acres on the north side of the Grand River arm of the lake between Highway 13 and the Grand River Bottoms Wildlife Area. Portions are within the municipal limits of the City of Clinton, and several parcels of project land are leased to the city. The Missouri Department of Conservation also leases project lands (Compartment 55) adjacent to this area.

The terrain on this compartment is composed of large flat crop fields broken up by timbered fence rows. The fields in the southern most areas are dissected by timbered drainages and slope gently down to the multipurpose pool elevation. There are remnant strip pits and borrow areas remaining in the shoreline area between old and new Highway 13. One of these, Blue Pit, has filled with water and become a popular fishing spot. The Corps constructed a handicapped accessible fishing pier, vault toilet and two parking lots in this area in 1987. The Department has recommended the development of a boat launching access at the north end of the Highway 13 bridge.

One large city park and several smaller leased areas exist in this compartment. The city park includes Artesian Park, a BMX bicycle track, archery range, and several pocket neighborhood playgrounds. The Golden Valley Radio Control Association has a lease within the compartment. The Association operates a flying field for radio controlled model airplanes. The Meadow Lake Country Club also has a lease for a portion of the Meadow Lake Golf Course which occurs on 44 acres of the compartment. Access to this compartment is by both old and new Highway 13, numerous city street and old Martinville Road. The area receives heavy bank fishing use especially in the spring and fall. Waterfowl hunters also use the vacated roads to launch their boats.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Clinton City Park are:

1. To provide economical and quality recreation facilities offering a wide diversity of recreation opportunities.

2. To provide unstructured recreation opportunities in a natural environment.

3. To provide wildlife management, and habitat.

4. To provide boat launching access.

5. To provide bank fishing access and handicapped fishing facilities.

6. To provide an area for expansion of a public golf course.

7. To provide remote control model airplane and boat opportunities by a local organization.

ccc. Missouri Department of Conservation's Truman District Headquarters - MRM: Wildlife Management General (Compartment 55).

The Missouri Department of Conservation maintains its headquarters for the Truman District on property just south of Clinton on the 2nd St. Extension (old Highway 13). This facility consists of an office, maintenance compound, and storage buildings. It serves the District's wildlife, forestry and enforcement staffs. This compartment is bounded by old Highway 13 on the west, the project boundary on the north, and by Compartment 54 on the south and east.

The area surrounding this facility is mostly level terrain and slopes to a small drainage east of the compound. Soils are mostly deep and well-drained. Vegetation on the site is a mixture of hardwood bottom trees composed of pin oak, pecan and sycamore. Several of the open fields around the headquarters have been planted to native warm season grasses as well as ornamental trees and shrubs.

The compartment continues to be used as the base of operations for the Department's wildlife, forestry, and enforcement activities in the Truman District. Because the office building is located within the Truman lake flood pool, steps may have to be taken to prevent basement flooding during high water periods.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Missouri Department of Conservation's Truman District Headquarters are:

1. To maintain the area and facilities for use by the Missouri Department of Conservation as a District Headquarters for forestry, wildlife, and enforcement functions.

2. To provide facilities for headquarters's administration, maintenance and operation.

3. To provide a center for dissemination of resource management information to the visiting public.

ddd. Bethlehem/Gaines Wildlife Area - MRM: Wildlife Management General (Compartment 56)

This large 6,820 acre wildlife management area is located on the north side of the middle Grand River arm. It consists of the Bethlehem and Gouge Eye Areas which are managed by Missouri Department of Conservation on land between Sparrowfoot and Pretty Bob Creeks. The compartment is bounded on the west by Deer and Coal Creeks and on the east by Missouri Highway U. Access is from Missouri Highways 7, AA, W, and U and the associated county road network.

Topography of the zone is fairly uniform throughout and consists of deep, well-drained, erosive soils in rolling hills and fields. A transition toward poorer soils and steeper terrain begins in the extreme eastern portion. Vegetation is also characteristic of this transition from old fields and meadows populated by native and tame grasses and forbs on the west to oak-hickory forest on the east. Much of the land in the western half produces crops for management and wildlife purposes.

Some of the best wildlife lands on the project are located in this area because of the soils and the vegetative diversity. Management efforts are directed toward upland game, especially bobwhite quail, although collateral benefits to other game and non-game species are also gained.

This compartment is an excellent example of the Ozark border ecotone where the oak-hickory forests and poorer soils of the Ozark Hills to the east grade subtly into the tallgrass prairies, open fields, and richer soils of the prairie region to the west. Species richness and diversity, both plant and animal, are characteristic of these ecologically invaluable areas. A community boat ramp is provided at the Knisley Access, a facility licensed and maintained by Bethlehem Township.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Bethlehem/Gaines Wildlife Area are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily upland game.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

5. To provide boating access.

6. To manage a bobwhite quail populations.

eee. U Highway - MRM: Recreation Low Density (Compartment 57).

This 210 acre area encompasses lands between the western edge of the Bucksaw Park and U Highway on the north side of the Grand River arm. Access is from Highway U, and a county road which runs through the middle of the compartment.

Topography consist of moderately sloping fields in the western half of the unit, and steeper hardwood covered ridges on the remaining half. The old fields are predominately covered with rank fescue and small invading cedars and locust. Hunting is a main recreation activity with some bank fishing taking place. There are also dispersed recreation use by adjacent private property owners.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives in the U Highway Area are:

1. To provide an unstructured recreation opportunity in a natural environment.

2. To provide quality wildlife habitat.

3. To protect the natural resources and public lands for future use.

4. To manage project lands and resources to the degree necessary to gain maximum benefits to the general public.

fff. Bucksaw Park - Recreation (Compartment 58).

The Bucksaw Park contains 451 acres at multipurpose pool elevation. The park is accessible over State Route U which connects with Highway 7 three miles to the north. The site is a peninsula in the South Grand River arm of the lake with the northern and western portions characterized by rolling-to-steep topography, shallow, stony soils, and oak-hickory forest cover. The southern and eastern portions are flatter, with deeper clay soils and contain a vegetative mixture of old fescue fields, native grasses, and scattered trees and shrubs.

The northern portion of the park has been leased to a concessionaire. Recreation development on the northern portion includes a boat launching ramp, floating marina and restaurant, land-based motel and rental cabins, swimming pool, open air pavilion and boat sales and service buildings. The southern portion of the park is managed by the Corps and contains a large campground, amphitheater, and swimming beach. Bucksaw Park receives heavy usage.

Future development will include moving the existing park attendant booth to the entrance road leading to A and B camping loops and construction of a second booth at the entrance to camping loop C. This would allow more efficient management of the park by operating C loop only during the peak recreation season (Memorial Day through Labor Day). Camping area D which is now underutilized would be converted into a day use picnic area. This realignment of activities would segregate day users from campers and allow better overall utilization of the existing recreation facilities.

Parking at the boat launching ramp is inadequate and future expansion could be enabled by supplementing the concessionaires lease to increase the lease acreage.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Bucksaw Park are:

1. To provide a quality campground.

2. To provide a quality day use beach and picnic facilities.

3. To provide adequate boating access.

4. To provide marina facilities and services and related accommodations through a commercial concession.

5. To separate day from camp users.

ggg.. Gobbler's Knob Wildlife Area and Island - MRM: Wildlife Management General (Compartment 59).

This wildlife management area contains 1,590 acres. It is composed of lands lying north of the middle Grand River arm and is bounded by Bucksaw Park on the west and by a large unnamed cove on the east. This cove is also the western terminus of Compartment 60. Access is very limited as only one county road, known as French Bridge Road, serves the area. The bridge can be reached from Missouri Highway 7.

Topography consists of wide, irregular, and relatively flat ridgetops with very steep valley slopes. The outside bends of the old river channel are characterized by sheer limestone bluffs. Soils on the unit are generally poor and rocky with numerous outcrops. Areas of better soils occur on the ridgetops.

Vegetation is mostly oak-hickory forest with openings on the ridgetops. These openings had once been cleared fields on the more fertile locations, but succession to woody vegetation is now occurring in most of them. Native prairie grasses and forbs are common in the old fields, and, along with eastern redcedar, along the bluffs and outcrop areas.

Use is directed toward wildlife management, with primary emphasis on forest species. The western third is under license to Missouri Department of Conservation and comprises the Cedar Creek Wildlife Area. Management efforts are complicated by the limited access.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Gobbler's Knob Wildlife Area and Island are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily forest species.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

hhh. Tightwad/Racket - MRM: Recreation-Low Density (Compartment 60).

This 1,190 acre area is located on the northern shore of the Grand River Arm. It includes project lands excluding Long Shoal Park between the Gobbler's Knob and the Tebo Creek Wildlife Areas. Vehicle access is from county roads running north and south from State Highway 7.

The western portion is characterized by a series of north-south ridges bisected by coves. One large bluff exists at the Benton and Henry County line and has the Sky Village Development atop it. The remaining area north of Long Shoal Park has gentler slopes covered with subdivisions on the adjoining private property.

Vegetation consists of a mature hardwood forest with the exception of a series of fescue fields directly east of Sky Village. The area receives substantial day use from residents living in the five subdivisions whose boundaries adjoining project land. Activities include hunting, fishing, hiking, and boat launching from the Sky Village's licensed boat ramp and road.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Tightwad/Racket Area are:

1. To provide an unstructured recreation opportunity in a natural environment.

2. To provide wildlife management and habitat.

3. To protect the natural resources and public lands for future use.

4. To manage project lands and resources to the degree necessary to gain maximum benefits to the general public.

5. To provide boat launching access.

iii. Long Shoal Park – Recreation (Compartment 61)

The Long Shoal Park contains 350 acres and is located approximately 5 miles west of Warsaw on the north side of the Grand River arm of the lake. Access is provided by Highway 7 which bisects the park with the campground, marina, and boat ramp located on the east and the swimming beach and picnic facilities located on the west.

Topography varies with bluffs occurring along the western shore and more gradual slopes to the east. The predominant vegetative cover is the oak-hickory forests association; however, old fields are located in the southern and western portions of this compartment.

Recreation development includes a full service marina, a large campground, a swimming beach, picnic facilities, and a boat launching access.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Long Shoal Park are:

1. To provide a quality campground.

2. To provide a swimming beach and picnic facilities.

3. To provide boat launching access.

4. To provide marina facilities and services and accommodations through a commercial concessionaire.

jjj. Tebo Creek Wildlife Area - MRM: Wildlife Management General (Compartment 62).

This compartment contains three wildlife management areas under license to the Missouri Department of Conservation. The three licensed areas are: Upper Tebo, Leesville and Brush Creek Wildlife Management Areas. The compartment contains 14,000 acres.

The Upper Tebo Wildlife Management Area includes all the Tebo Creek arm from about half a mile west of Highway PP to the project boundary. This area clearly lies on the transition zone between the Ozark Highlands to east and south and the tallgrass prairies to the north and west. The numerous forks and branches of Tebo Creek are typically steep and heavily forested, characteristics of the Ozarks. Elevated flat to gently rolling plateaus, historically vegetated in tall warm season grasses, dominate the area between drainages. The main Tebo drainage itself exhibits the same transition characteristics: having a narrow steep sided floodplain on the eastern edge of the area that gradually widens into a more prairie like stream on the western side.

Because of its position on the transition zone this area is rich in wildlife and archeological resources. Managed for upland game as well as deer and turkey, existing wildlife populations are outstanding. The numerous archeological sites are within this portion of the compartment.

Unique features on the area include an old limestone quarry that poses management problems from a public safety standpoint. Across the lake from the quarry is a limestone-dolomite ridge which creates a narrow hair pin bend in, historically, Tebo Creek and, presently, the lake. A narrow cave within this ridge was, according to legend, used as a secret Civil War site to store gun powder and make lead bullets.

Most of the western half of the area has good public access over a network of county roads. The eastern half has much more restricted access. The Department recommended development of a boat ramp and two bank fishing parking lots to improve this situation.

The Leesville Wildlife Management Area is bordered on the west by the Windsor Crossing Park (Compartment 63) and the Bell Slough Road on the east. The area runs along the right bank of the Tebo Creek arm from Leesville to Racket. The area is physiographically characterized as Ozark Highlands. Drainage is provided by a series of heavily forested steep sided hollows that enter directly into Tebo Creek. No permanent streams exist due to the narrowness of the plateau separating the stretch of Tebo Creek from the nearby Grand River drainage. Access is very limited. Management activities are primarily restricted to passive favoring of forest wildlife. Little active management is possible due to the limited access and rough terrain. Archeological sites are limited due to the lack of permanent side streams.

The Brush Creek Wildlife Management Area is bordered by Highway PP on the west and Compartment 64 to the east. This area runs along the left bank of the Middle Tebo Creek arm including the lower Brush and Clear Creek drainages. Topographically and vegetatively the area can be classified as typically Ozark Highlands. The stream drainages are characteristically narrow with steep heavily forest slopes. Heavily timbered steep sided hollows dominate the tributary drainage pattern. Numerous archeological sites are present. Public access is very limited except for by foot or boat.

The area is managed for upland game and forest wildlife. However, the permittee farmer approach utilized by the Department for upland game management is limited to the Upper Brush Creek arm. The remainder of the area is inaccessible or unusable for this type of management.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Tebo Creek Wildlife Area are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily upland game.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

5. To mitigate previously identified damages caused by the water inundation through the proper implementation of a wildlife program on designated acreage.

kkk. Windsor Crossing Park - Recreation (Compartment 63).

The Windsor Crossing Park contains 125 acres and is located about a half a mile north of Leesville. Access is provided by State Route PP which bisects the compartment. The developed recreation facilities, a boat launching ramp, beach, and campground are located on the east side of State Route PP with future development proposed for the west side of the highway. The campground, beach and boat ramp areas all receive substantial use.

This compartment has sparse tree cover with flat to gently rolling topography. Cool season grasses have been seeded within the developed portion of the park. Trees and shrubs have been planted to provide shade and beautification. The vegetation to the west of State Route PP is a mixture of old fields, crop fields, native warm season grass plantings and wooded draws and fence rows.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Windsor Crossing Park are:

1. To provide a quality camping area.

2. To provide a swimming beach and picnic facilities.

3. To provide a boat launching access.

4. To provide bank fishing access.

111. South Grand Point - MRM: Recreation-Low Density (Compartment 64)

The South Grand Point area lies on a peninsula northwest of Warsaw on the north shore of the Grand River arm. The area encompasses 910 acres between the western edge of the Tebo Creek Wildlife Area. Access is from county roads running south off TT Highway.

Topographically, the area is a series of north-south ridges bordered on the east by the creek. The area has a island off its southern tip. Vegetation cover consist of hardwood timber and eastern redcedar over the majority of the area.

The area is used by the Missouri National Guard which has licensed the eastern sector and by Macks Camp Association which has licensed a parking lot in conjunction with a boat ramp on county road 7-9. The area is also a popular hunting and bank fishing area. The area contains several recorded archaeological resource sites.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for South Grand Point are:

1. To provide an unstructured recreation opportunity in a natural environment, i.e. boat launching and bank fishing.

2. To provide wildlife management and habitat.

3. To protect the natural resources and public lands for future use.

4. To manage project lands and resources to the degree necessary to gain maximum benefits to the general public.

5. To protect known archaeological sites for vandalism and degradation.

6. To provide a State agency a military training area until needed for recreation and/or wildlife management purposes.

7. To consider for future park development by the U.S. Air Force.

mmm. Little Tebo Wildlife Area - MRM: Wildlife Management General (Compartment 65)

The Little Tebo Wildlife Area is licensed to the Missouri Department of Conservation and encompasses most of the Little Tebo Arm of the lake. It runs

from the Thibaut Point Park completely around the arm to compartment 64. The compartment contains 2,050 acres.

Steep, deeply ravined, heavily timbered hills surround a gently sloping floodplain. The timber is a mixture of oak-hickory, oak-hickory-cedar, and cedar glade subtypes. The floodplain vegetation is a combination of row crop and native grass fields separated by woody draws and fence rows.

The area has a fair to good public access except for the extreme north end. Several archeological sites exist up and down the valley, normally on elevated humps in the floodplain. The Department has recommended the development of a boat launching ramp on vacated road 7-12 where it enters the lake.

Wildlife populations are fair with the main thrust of the management toward upland game with some waterfowl management possibility. Scenic cedar glade covered ridges are most striking and unique feature of the area.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Little Tebo Wildlife Area are:

1. To provide quality wildlife habitat by maintaining the vegetative diversity favored by various classes of wildlife, primarily upland game.

2. To provide recreation opportunities and access associated with legitimate uses of fish and wildlife.

3. To conserve soil, vegetative, fish and wildlife resources for use by future generations.

4. To protect known historical and archeological sites from vandalism and degradation.

nnn. Thibaut Point Park - Recreation (Compartment 66).

The Thibaut Point Park contains 275 acres at multipurpose pool elevation and is located eight miles north of Warsaw. The park is accessible over a county gravel road and State Route T to US Highway 65. This gravel road is about three quarters of a mile long.

Essentially, the site consists of a series of finger-like forest covered ridges. Vegetation is primarily oak-hickory forest association but some old fields are located on the eastern portion of the compartment.

Recreation development includes a boat launching ramp, developed camping loops, group shelters and a swimming beach.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Thibaut Point Park are:

1. To provide a quality campground.

2. To provide boating access.

3. To provide a quality swimming beach.

4. To provide designated group camping areas.

ooo. T Highway - MRM: Recreation-Low Density (Compartment 67).

This 500 acre compartment is located on the north shore of the Sterett Creek arm and lies between the Sterett Creek and Thibaut Point Parks. Access is by foot from the parks or from adjacent private properties. The acreage provides an excellent buffer between the two parks.

Topography is primarily rolling hills bisected by a large bottom land. Vegetation consists of oak-hickory forest on the higher areas with a mature sycamore grove in the bottomland. The area is used for hunting and dispersed recreation activities.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the T Highway Area are:

1. To provide an unstructured recreation opportunity in a natural environment.

2. To provide wildlife habitat and management.

3. To protect the natural resources and public lands for future use.

4. To provide a buffer between two developed parks.

5. To manage project lands and resources to the degree necessary to gain maximum benefits to the general public.

ppp. Sterett Creek Park - Recreation (Compartment 68).

The Sterett Creek Park contains 160 acres at multipurpose pool elevation and is located about 5 miles north of Warsaw. Access to the park is over a paved road leading from U.S. Highway 65.

Topography varies from flat at the southern end to gently rolling at the north, to a steep ridge at the northwestern end. Tree cover is sparse with a few scattered hardwoods. Old fields are located throughout the compartment some with honey locust invasion. A mixture of native warm season grasses, fescue, and annual weeds is the predominant vegetative cover.

Recreation development includes a full service marina, a boat launching ramp, land based restaurants, a motel and a campground. The Sterett Creek Park is leased to a concessionaire who operates and manages the entire park. Use of the Sterett Creek Park is intensive.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Sterett Creek Park are:

1. To provide marina facilities, and motel and camping accommodations through a commercial concession.

2. To provide a boating launching access.

qqq. Sterett Creek Dike - Project Operations (Compartment 69).

The Sterett Creek Dike is located parallel to U.S. Highway 65 and is approximately 2 miles north of Warsaw. The dike was constructed to prevent flood waters from escaping through a cut off meander of the Osage River. This compartment encompasses the dike structures and the adjacent lands upstream and downstream to US Highway 65.

Terrain consists of a relatively wide flat valley floor supporting the embankment. The embankment rises gradually on the north end of the dike and abruptly on the south end. The dike and adjacent land are primarily covered by fescue sod, although remnant native prairie grasses have persisted on the site and are readily apparent on the downstream and northern portions of the unit. Several woody fence rows also exist. The remaining areas are limestone riprap.

The use of the compartment is crucial to the flood control operation of the lake and remains as the primary benefit. The adjacent lands will be managed through the use of hay and agricultural leases. Such interim use provides no conflict with the integrity of the dike structure or its operation.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Sterett Creek Dike are:

1. To provide flood control protection for low lying areas east of US Highway 65.

2. To monitor the dike structure for safe operation and structural integrity.

3. To manage adjacent lands for fish and wildlife benefits through limited agricultural practices.

rrr. Dump Road - MRM: Recreation-Low Density (Compartment 70).

This 600 acre compartment comprises project lands between the Kaysinger Bluff Park, and the southern tip of the Sterett Creek Dike. A county road in the southern half of the compartment provides the only vehicle access.

Topography is mostly heavily timbered slopes into the lake. The extreme southern edge forms half of a large cove with steeper rock covered ridges. Approximately three-fourths of the compartment is covered by oak-hickory forest. Some unauthorized target practice and plinking takes place along the old roadway. There is dispersed recreation use in the compartment. The compartment contains recorded archaeological resource sites.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for Dump Road are:

1. To provide an unstructured recreation opportunity in a natural environment.

2. To provide wildlife habitat.

3. To protect the natural resources and public lands for future use.

4. To manage project lands and resources to the degree necessary to gain maximum benefits to the general public.

5. To protect all known archaeological sites from vandalism and degradation.

sss. Kaysinger Bluff Park - Recreation (Compartment 71).

The Kaysinger Bluff Park contains 150 acres at multipurpose pool elevation and is located approximately one mile west of Warsaw. Access to the park is provided by paved access roads leading from US Highway 65 one mile to the east and Highway 7 approximately three miles to the southwest.

The park is heavily timbered with oak-hickory forest interspersed with cedar glades. The topography varies from steep bluffs on the west to a series of more gradual sloping ridges in the central and northern portions of the compartment.

Recreation development centers around the Harry S. Truman Visitor Center which is located atop Kaysinger Bluff. The bluff overlooks the Truman dam and reservoir and the upper Lake of the Ozarks. Additional development includes the Hooper House, a reconstructed historic building, and the Kaysinger Bluff Nature Trail.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Kaysinger Bluff Park are:

1. To provide information and interpretive facilities to assist visitor understanding and appreciation of project features and resources.

2. To enhance the public's understanding of the role of the Army and the Corps of Engineers in the development and administration of water resource projects.

3. To provide an historical interpretive facility.

ttt. Levee Roads - Project Operations (Compartment 72).

The levees are located downstream of the dam. The right and left bank levee's were constructed to contain flood and power releases from the dam. The right bank levee begins at the south end of the Bledsoe Ferry Park and extends downstream where it joins Cold Springs Road. The left bank levee begins within the Warsaw Harbor Park and extends downstream to a point just below the US Highway 65 Bridge.

There are three different ways to access the right bank levee. Access to the northern portion of the levee is from Highway 7 over Access Road B through Bledsoe Ferry West. Access to the central portion is from Highway 7 over Access Road B to Old Highway 7. Access to the southern end of the right bank levee is from Highway 7 over Cold Springs Road to the levee access road. Access to the left bank levee is from Highway 7 over Warsaw's Main Street to the Warsaw Harbor Road leading to the fisherman access parking lot.

The levees were constructed of compacted fill with a service road along their entire length. The lakeward sides of the levees are riprapped. Between the riprapped slope and the lakeshore a variety of softwood trees occurs naturally. The backslopes of the levees were seeded to cool season grasses. For a distance of approximately 50 feet from the toe of the backslope, native warm season grasses were planted. A variety of tree and shrub seedlings were then planted.

Bank fishing access is the primary recreation use along the levee systems. The right bank levee road, between the southern end of the Bledsoe Ferry Park West and Old Highway 7, is normally open to the public for vehicular use. This road is closed during times of high discharge when the levee could become saturated. A vault toilet and adjacent parking lot have been constructed approximately 1,800 feet south of the southern end of the Bledsoe Ferry Park West. A second parking area is located at the intersection of Old Highway 7 and the levee. This parking lot provides access for bank fishermen as well as providing access to the Old Swinging Bridge, a historical structure that is now open to foot traffic only.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Levee Roads Area are:

1. To provide protection for private property during periods of high discharge from the flood control pool.

2. To provide bank fishing access.

3. To provide access to the Old Swinging Bridge.

uuu. Warsaw Harbor Park - Recreation (Compartment 73).

The Warsaw Harbor Park contains 43 acres and is located adjacent to the Warsaw business district to the north and the Lake of the Ozarks to the south. The harbor park was constructed by the Corps to replace the former boat launching access. A main component of the park is an excavated harbor containing a three lane boat launching ramp with adjacent parking lot and flush toilet. Level grassed areas are located to the northwest and southeast of the launching ramp. These level areas were built with dredged material during construction of the harbor. A variety of trees and shrubs were planted on the level areas to beautify the area and provide shade. Fescue is the predominant grass. Riprap has been placed on the lakeside of this entire compartment to provide protection during power and flood releases. The park is within the city limits of Warsaw and is leased to the City for public park and recreation purposes. A fisherman access parking lot is located on the southeastern most portion of the compartment providing access to the left bank levee.

Access to the boat launching ramp from Highway 7 one mile to the west is Benton street over Main Street. Access to the fisherman parking area from Highway 7 is provided by Main Street.

Use of this park has been primarily boat launching and bank fishing. The City of Warsaw is in the process of developing a general plan of development which will show additional future uses.

There are no lands within this compartment that do not aid in the successful completion and operation of authorized project purposes.

The resource objectives for the Warsaw Harbor Park are:

1. To provide a downstream boat launching access.

2. To provide downstream fishing access.

3. To provide a protected harbor for a future marina concession.

VI. DEVELOPMENT NEEDS

6-1. General. This section describes, analyzes and makes recommendations regarding development needs for Corps managed parks and compartments. Numerous factors were considered in determining the development needs at Truman. The factors included, among other, existing visitation and uses, access, topography, recreation trends, and natural resources within the individual areas. The existing parks and recreation areas are listed in Table VI-1. The future development needs for individual managed Corps parks are explained and justified.

The proposed development for Corps administered parks is based on the consolidation and/or relocation of existing facilities rather than an expansion of recreation areas or structures. The purpose is to provide quality recreation experience for the visiting public while reducing the operation and maintenance expenses through cost efficient measures and/or increased user fee collection. This is the reason many of the formerly designated future park areas have been classified for other uses.

Table VI-1 - Existing Park and Recreation Areas

Park/Recreation Area (Operating Agency)	Acres	(Compartment)	Nearest Town (Road Miles and Direction)
Berry Bend Park (Corps)	624	(41)	Warsaw (9 SW)
Bledsoe Ferry Park (Corps)	170	(1)	Warsaw (1 W)
Boy Scouts, H. Roe Bartle (Heart of America Council)	670	(24)	Lowry City (13 SE)
Brush Creek Access (Corps)	47	(26)	Osceola (1 E)
Bucksaw Park* (Corps)	451	(58)	Coal (3 S)
Clinton Park** (City)	1,650	(54)	Clinton (0)
Cooper Creek Park (Corps)	630	(48)	Clinton (6 S) Deepwater (1 E)
Cross Timbers Access Point (MO Dept. of Conservation)	44	(14)	Cross Timbers (6 SW)
Crowe's Crossing Park (Corps)	70	(33)	Osceola (1 N)
Deepwater Park (City)	410	(49)	Deepwater (0)

Table VI-1 - Existing Park and Recreation Areas (cont'd)

Park/Recreation Area (Operating Agency)	Acres	(Compartment)	Nearest Town (Road Miles and Direction)
Fairfield Access (Corps)	105	(17)	Warsaw (9 S)
Harry S. Truman State Park* (MO Dept. of Natural Resources)	1,440	(44)	Warsaw (7 W)
Kaysinger Bluff Park (Corps)	150	(71)	Warsaw (2 NW)
Long Shoal Park* (Corps)	350	(61)	Racket (2 SE)
Osage Bluff Park* (Corps)	565	(7)	Warsaw (6 S)
Osceola Park (City)	520	(27)	Osceola (0)
Roscoe Park (City)	193	(31)	Roscoe (0)
Sac River Access (Corps)	23	(30)	Osceola (4 SW)
Shawnee Bend Park*** (Corps and City)	540	(3)	Warsaw (2 W)
Sparrowfoot Park* (Corps)	495	(52)	Clinton (6 S)
Sterett Creek Park* (Concessionaire)	160	(68)	Warsaw (4 N)
Talley Bend Park (Corps)	260	(22)	Lowry City (6 E)
Thibaut Point Park (Corps)	275	(66)	Warsaw (7 N)
Warsaw Harbor (City)	43	(73)	Warsaw (0)
Windsor Crossing Park (Corps)	125	(63)	Leesville (1 N)

*A marina concessionaire operates within the park (See Table IV-3).
**The park contains the 40 acre Golden Valley Radio Control field and Meadow Lake Golf Course.
***The park contains a 235-acre public golf course operated by the city of Warsaw. The 9-hole golf course is within the Shawnee Bend Park.

6-2. Berry Bend Park. (Plate 11 and Compartment 41).

Berry Bend Park is located approximately nine miles southwest of Warsaw. It is two miles south of County Highway Z on the Osage arm of the lake. This park contains 624 acres.

The park area is essentially a peninsula in a bend of the Osage River with scenic bluffs on the west and nearly level areas on the east. About 80 percent of this area is timbered. The steep bluff area along the west shoreline has very shallow soil over limestone bedrock. This area supports vegetation normally found on glades. The tree species include eastern redcedar, chinkapin oak, hickory, ash, elm, and buckthorn. The upper slopes, especially those facing north, contain stands of white oak, red oak, black oak, hickory, ash, and walnut. The lower slopes and drainage areas are the best timber growing sites. These sites support white oak, red oak, hickory, walnut, ash, elm, and sycamore. Some of these areas contain sawlog size trees.

The open area had been used for pasture or hay production. The fields had improved cool season grasses containing fescue, bromegrass, timothy, and orchard grass. Most of the pasture land contained a wide variety of native grasses, weeds, and wildflowers. Some of these areas also contained scattered clumps of native prairie grasses such as big bluestem, little bluestem, Indian grass, and sideoats grama.

a. Existing. At multipurpose pool elevation, the park is divided into two nearly equal halves. Access is by paved road and a causeway which connects the two halves of the park. The Berry Bend north campground is located on a woody hillside sloping to the southeast. The road into the campground leads to an entrance station or fee booth. This portion of the park contains a 89 unit campground with support facilities - washhouse, vault toilets and water supply, and playground.

On the southwest slope leading to the causeway is an 8 unit picnic area and group shelter. A water supply source is also available.

A four lane boat ramp and associated parking area are located just northeast of the causeway. A vault toilet and water spigot are next to the ramp.

There are two campgrounds south of the causeway. The immediate campground contains two separate areas which have been identified as loops A and B. The loops contain a total of 182 camping units (105 plus 77). Support facilities in these loops include sanitary accommodations, water supply and playgrounds.

Further south is a 113 unit campground with electric hookups. The campground has been identified as loop C. Six tenting units are in this campground along with support sanitary and water facilities. An amphitheater, playground, change houses, and swimming beach are located at the end of the entrance road leading to the southern most campground. An entrance station presently serves loops A, B, and C. The three loops contain a total of 289 camping and 6 tent units. The day use facilities (swimming beach and amphitheater) are sited within the gate attended campground.

Future. There is a definite need expressed by day users to avail themself to the isolated swimming beach and amphitheater in the park. These facilities are presently available only to campers and overnight users that pass through the attendant or entrance station. A policy of the Corps is to minimize use conflicts by separating day use and overnight camping accommodations. For this reason, the existing station or park attendant site will be relocated from the entrance road south of the causeway (See Table VI-2). It will be relocated to specifically serve the 182 unit campground (loops A and C). Likewise, an entrance station is proposed for the southernmost campground or loop C. These two changes will then open up the swimming beach and amphitheater to day users as well as campers, as recommended in master plan public workshop meetings.. The swimming beach and parking lot will need to be enlarged to accommodate the additional visitation by day users as well as campers.

Table VI-2 - Summary of Future Recreation Development by Park

Park (Plate)	Future Facilities	
Berry Bend (11)	Picnic Area 1 hiking trail 20 picnicking units Boat Access 4 lane boat ramp Swimming Area enlarge beach enlarge parking	Camping Areas 2 entrance stations potential group area relocate park attendant site Miscellaneous future marina development
Bledsoe Ferry (12)	Fishing Area 4 fishing docks 2 group shelters Proposed Day Use Area 2 sport fields	Miscellaneous parking area recommended for disposal
Brush Creek Area (13)	Park Area future marina development	
Bucksaw (14)	Picnic Area 15 picnicking units 1 vault toilet Former Tent Area convert to picnicking (40 units) 2 group shelters 1 playground Swimming Beach enlarge parking	Camping Area 4 gates relocate entrance station entrance station 1 playground 1 fishing dock Marina Area enlarge parking lot enlarge boat ramp (additional lane)
Cooper Creek (15)	Proposed Camp Area 50 camping units 5 water spigots sanitary facilities	Boat Access 1 vault toilet 1 water spigot Miscellaneous

Table VI-2 - Summary of Future Recreation Development by Park (cont'd)

Park (Plate)	Future Facilities	
	South Riding Area 15 picnicking units bike washing facilities 1 water spigot	Miscellaneous future riding area
Crowe's Crossing (17)	Boat Access 10 picnicking units 1 water supply 1 courtesy dock 1 minor concession	
Fairfield Access (18)	Boat Area 1 courtesy light expand parking 2 lane ramp	
Kaysinger Bluff (12)	Miscellaneous 1 group shelter road realignment 1 flush toilet additional historical improvements	
Long Shoal (20)	Picnic Area 1 fishing dock	Marina Area lodging facilities
Osage Bluff (21)	Camp Area 50 camping units (25 electrical hookups) 2 vault toilets 10 water spigots	Miscellaneous private sector recreation development
Shawnee Bend (12)	Proposed Camp Area 150 camping units (50 electrical) 1 washhouse 1 playground 15 water spigots 2 flush toilets 1 sanitary dump station 1 entrance station	Miscellaneous trap/skeet range golf course expansion
Sparrowfoot (23)	Marina Area 1 satellite bait/boat storage concession	
Talley Bend (26)	Day Use Area 10 picnicking units 1 swimming beach 1 changehouse	

Table VI-2 - Summary of Future Recreation Development by Park (cont'd)

Park (Plate)	Future Facilities	
Thibaut Point (27)	Camp Area 50 electrical hookups relocate 2 shelters	Swimming Beach enlarge parking area 18 picnicking units playground
Windsor Crossing (28)	Boat Access enlarge parking enlarge ramp Day Use Area 15 picnicking units 1 water spigot	Proposed Camp Area 100 camping units (50 electrical hookups) 1 washhouse 10 water spigots 1 playground 1 entrance station 1 sanitary dump station 1 stabilization pond

Substantial resort type development has occurred outside Berry Bend Park, and there is a definite need for a small marina with fuel facilities on the Osage River arm of the lake. The area south of the boat ramp could accommodate a minor marina complex. The cove is rather small.

The picnic area on the west side of the entrance road has not been used much in the past. In the future, however, additional picnicking facilities may be needed as the popularity of the park increases when the swimming beach and amphitheater are opened for day use. An additional 20 picnicking units are proposed for the future as well as an adjoining hiking trail. If this demand does not materialize in the future, the additional units will not be built.

Berry Bend north campground has been used in the past mainly as an overflow area. It is less popular due to the lack of a nearby swimming beach. If there is a future need at Truman for additional group campgrounds, the northern portion of the park may be converted to accommodate additional group overnight demand at the project. An alternative would be to convert the 91 unit campground to a day use area by relocating the existing beach and amphitheater. It would not be economically feasible to forego the substantial investment in the campground and to rebuild existing nonrevenue producing day use facilities.

6-3. Bledsoe Ferry Park (See Plate 12 and Compartment 1)

The Bledsoe Ferry Park is located in the outlet area of the dam. Access to the south side of the site is off the existing road leading to the administration area. The north access is off the road leading to the east side of the spillway. Warsaw is approximately 1 mile east of the park.

This park site is divided by the outlet channel of the dam. The northern portion is flat and devoid of natural vegetative cover except for land next to the old river channel. The northern portion was built up with surplus fill from the dam construction. The southern portion is gently sloping with sparse vegetative

cover. Soils on the southern half are silty loams. Both portions have been improved with landscape plantings. The entire park site contains 170 acres.

The usage of the park is attributed to two major factors. First, the proximity of the park to the dam makes it an excellent vantage point for sightseers. Second and foremost, the two portions of the park offer excellent downstream fishing opportunities in the tailwater of the dam. It is the most popular fishing site on the project and one of the most popular in the State.

a. Existing. The park contains four group picnic shelters, gravel parking lots, vault toilets, a two-lane boat ramp and two docks. The fishing dock is accessible to handicapped persons. The dock and boat ramp are located in the old Osage River channel to take advantage of the still water. The ramp was sited to accommodate launchings for downstream fishing purposes into the former channel. The city of Warsaw also has public launch lanes downstream of Bledsoe Ferry Park in Warsaw Harbor Park (See Compartment 73). In conjunction with the launch ramp, a vault toilet and parking lot are provided.

Development of the north half of the site consists of a loop road extending into the point between the outlet channel and old Osage River channel. The road provides access to picnic units, the boat launching ramp, and tie-up spaces for boats. The picnic units are located at the southwestern end of this portion next to the outlet channel. The units are situated to provide an excellent view of the spillway. The adjoining parking lot and vault toilet serve both the picnic area and fishing walkway. Due to the lack of vegetation cover on the site, four group shelters are provided. A natural fishing vantage point is provided by ledge rock, extending along both sides of the outlet channel approximately 900 feet downstream from the dam. Steps are provided to the ledges and also to the water downstream of the ledges on both sides of the channel to accommodate persons fishing.

Development on the southern portion of Bledsoe Ferry Park consists of an access road extending to about the first bend in the outlet channel. Parking facilities are provided along the road for persons involved in fishing and sightseeing activities. These are the main activities on this portion of the park. At the end of the road are picnic shelters.

b. Future. There is a definite need for additional parking facilities and spaces in the north portion of the park. Adequate vehicle spaces are not available to accommodate persons fishing and sightseeing, especially on peak weekends and during prime fishing seasons. The same parking problem occurs in the south portion of the park. Therefore, additional car/trailer parking spaces are proposed for development to accommodate the need (See Table VI-2).

Four additional fishing docks are needed to accommodate persons fishing in the old river channel. These additional fishing facilities will relieve most of the pressure at the existing handicapped accessible dock. Two group shelters are needed near the old river channel because of prolonged recreation use in this area of the park.

Community representatives from the City of Warsaw have indicated an interest in developing the area south of the access road that runs parallel to the outlet channel. The city wants to develop the area with sports fields. Such development would add recreation diversity to the park.

A small triangular shaped parcel of land south of the entrance road to the administrative area is recommended for disposal. The parcel had previously been a part of the park area. This small property is no longer needed or required for project purposes and is isolated by an existing roadway.

6-4. Brush Creek Access (See Plate 13 and Compartment 26).

Brush Creek Access is about 1 mile east of Osceola in St. Clair County. The site is on the south side of the Osage River channel at the confluence with Brush Creek. Access is over a relocated gravel road from State Highway 13 which is one mile to the west.

The park consists of a north-south ridge, with flat slopes on the west and a steep slope on the east. Vegetation cover is moderate, consisting of hardwood timber on the steeper slopes. A protected cove is to the east. The park comprises 47 acres above multipurpose pool elevation. The area was located because of its location to Osceola and Highway 13 on the Osage River arm of the lake.

a. Existing. The area is more of a boat launching access point than a park site. The access point had been planned for marina development. The site includes a 3-lane boat ramp, 2 parking lots, and flush toilet accommodations. Locals have expressed the desire to site a small concession for serving the public's need for marina facilities on the Osage River arm of the lake.

b. Future. In July 1988, the 47 acre access site and 19 acres of adjoining water area were advertised for commercial concession development by the private sector. Hopefully, an acceptable development plan on the land and adjacent water area can be implemented at Brush Creek as proposed in this and the previous master plan. The Kansas City District has a proposal from an individual to develop the site which was declared economically feasible for leasing for marina development in 1979. Hopefully, the site can be developed because it contains an excavated harbor area for the marina concessionaire's use. If a lease is not awarded for marina development, the area will be maintained by the Corps as an access point.

6-5. Bucksaw Park. (See Plate 14 and Compartment 58).

Bucksaw Park is located about 3 miles from Coal in Henry County. Access to the park is from State Route U. State Route U connects with Highway 7 about 3 miles to the north. The site is a peninsula on the South Grand River arm of the project. Vegetation in the park consists of hardwood timber on the northern and western parts and prairie grass and forbs on the southern and eastern parts.

The northern and western parts of the park are characterized by rolling-to-steep topography, shallow and stony soils, and hardwood timber cover. The southern and eastern portions are flatter, with deeper clayey soils and grassland cover. The site is 451 acres in size when the lake is at multipurpose pool elevation.

a. Existing. The southern half of the park is developed for camping, with an access road serving the four loop camping areas. The first loop is located on the west side of the access road on the high wooded terrain. This area is mainly for tent campers. This camp loop is gravel surfaced with parking. No individual camp pads are provided. Two flush toilets serve the area.

The next two camping loops are located just east of the first tent loop. These two loops are on the open gradual eastern-facing slopes. This area contains a common shower building located between the two loops, single and multifamily camping units, a comfort station in each loop, and flush toilets. A swimming beach with change houses, vault toilet, a playground, and parking lot are located south and adjacent to this area on the eastern shore.

The fourth camping loop is in the southern end of the area which contains single family camping with a washhouse, a comfort station, a flush toilet, a vault toilet, and a play area. There are 346 tent and camping units in this park.

A boat ramp and a car/trailer parking lot are located to the east of the main access road at the base of a ridge in the east-central portion of the site. A flush toilet is provided in this area.

Bucksaw Marina is to the north of the boat ramp at the terminus of the main access road. Both the marina and the boat ramp are located on the west side of the South Grand River channel (See paragraph 6-18i(1)). The marina operator has requested the Corps to enlarge both the boat ramp and parking lot that are in his leasehold. The Corps is precluded, however, from funding commercial concession development. The marina operator is not presently willing to enlarge the ramp or parking lot which would mainly benefit the marina business.

b. Future. This park presently has day use facilities (swimming beach, change houses and sanitary accommodations) within the designated camping area which is secured by a park attendant. There is a specific demand by day use visitors to avail themselves of the swimming beach facilities.

A major planning objective at Corps managed lakes is to separate day use and camping facilities. The swimming beach area should be opened to day users because of the demand. The opening of the beach area will necessitate an enlargement of the parking lot to accommodate the additional visitors and the placement of gates at the two major camping loops. The loop with 170 camping units needs a playground in conjunction with the overnight facilities. The 136 unit campground already has a playground. A fishing dock is also recommended next to the 136 unit area since this campground is used extensively by persons that fish and boat on this popular upper arm of the lake.

Operational cost effectiveness is best at a campground with about 150 units. There are a total of 307 camping units with loops containing 172 and 135 sites at Bucksaw Park. A second park attendant station will reduce the total units for each contractor to oversee. An additional attendant will improve distribution of visitor information and assistance, surveillance, security and fee collection. After the two campgrounds are secured by a park attendant, the former 40 unit tent area will be converted for day use activities. The conversion of the area for picnicking activities is proposed to satisfy the need at this popular park which is extensively used by residents in the vicinity of Clinton. Two group shelters and a playground are also proposed. The construction of group facilities will result in an increase in user fee revenues. Likewise, picnicking units are proposed for the overlook area at the entrance road into the park. A vault toilet is also recommended at this picnic area.

6-6. Cooper Creek Park (See Plate 15 and Compartment 48)

Cooper Creek Park is located about a mile east of Deepwater and 6 miles south of Clinton. Access is from Highway 13 and a county road that leads to and from Deepwater. The park contains 630 acres at multipurpose pool elevation. Sixteen of the acres within the park are leased to the City of Deepwater. The city had developed the acreage as a boat launching access.

The park is a former strip-mined site. The topography is for the most part extremely rugged and erratic. This is particularly true in the southern and eastern portions. The northeast portion of the site, most of which hasn't been mined, contains gentle slopes and some relatively level areas. The soil, because of the past strip-mining activity, is heterogeneous in composition. The vegetation on the site consists predominantly of bunch grasses and of woody plants. The southern portion of the site, which contains considerable tree and shrub growth, appears to have been mined many years ago. The special use activities outside the 16 acres leased to the City of Deepwater are for off-road-vehicle (ORV) and/or motorbike riding. The only facilities are the access road, vault toilets, and gravel parking area.

a. Existing. Disturbed acreage is available for ORV riding. Within the acreage is a 16 acre boat launching area leased to the City of Deepwater.

b. Future. The City of Deepwater has a lease on the 16 acre boat ramp area within the Cooper Creek Park. Future development needs at the ramp area are a vault toilet and water spigot. Plans of the proposed vault toilet have been approved for construction by the District Engineer.

The Rim Benders, which is a local riding club in Clinton, had previously requested a recreation lease on the balance of park land outside of the boat ramp area which is licensed to the City of Deepwater. After checking with a local insurance agency, officials of the club determined that the membership could not purchase insurance coverage to operate and manage the ORV area. The request for a lease on the ORV area was temporarily withdrawn by the membership in the July 1988 workshop meeting in Clinton.

A small day use area away from the proposed campground would be recommended on the south riding area. Fifteen picnicking units, bike washing facilities and water supply source are recommended.

The expressed need of bikers or riders for additional trail space can be accommodated on the southeastern portion of the park. The enlargement of the riding area will meet some of the expressed need for additional ORV acreage at Truman.

Representatives from Deepwater expressed the desire to develop a campground of about 50 units near the city's boat ramp. Development would occur in the same area as proposed in the 1977 master plan. Sanitary facilities and a water supply source will also be developed within the campground. The Kansas City District will support the communities development interest.

6-7. Crowe's Crossing Park. (See Plate 17 and Compartment 70).

The Crowe's Crossing Park is located about 1 mile north of Osceola in St. Clair County. It is east of State Highway 13 and on the north side of the Osage River area. The site contains 70 acres at multipurpose pool elevation.

The topography is steep and the soils are erodible and stony. In the lowland portions of the site, the soils are thin with many limestone outcroppings. All of the soils have low fertility for vegetative plantings. The tree cover of the area is oak-hickory with some cedars on the lowland areas where there are thinner soils.

The facilities provided at the site are minimal because of the recreation development at the nearby Osceola City and Talley Bend Parks. The Osceola and Talley Bend Parks have improved camping facilities. The visitation to Crowe's Crossing Park is comprised principally of local residents and from person traveling Highway 13 or proposing to launch a boat and fish. The major facility provided at the Crowe's Crossing Park is a boat launch ramp.

a. Existing. Recreation facilities include a 4 lane boat launching ramp, parking lot, vault toilet and courtesy docks.

b. Future. The size of Crowe's Crossing Park has been reduced from 334 to 70 acres. The reduction in size is because many of the needed overnight and day use facilities now exist at other nearby parks (Osceola, Brush Creek and Talley Bend Parks). The former park acreage west of Highway 13 has therefore been classified for other project purposes.

Crowe's Crossing can be improved by providing needed picnicking facilities and general marina supplies. If a lease is not awarded for development of a minor marina concession site in Brush Creek Park, a similar type site at Crowe's Crossing Park could be developed by local community interest. The accessibility to this park is superior to the Brush Creek site, but Brush Creek has existing and needed facilities that could be utilized by a potential marina lessee. The terrain is also steep in Crowe's Crossing and will be difficult to contour in order to accommodate a small marina and picnic site. There has however been local interest expressed in developing a small bait shop at the site if a contract is not let on the nearby Brush Creek Access. The person, expressing local interest, has an existing bait shop just outside the Crowe's Crossing entrance road. He expressed preference for being nearer the lake.

The development of a small picnicking area with 10 units would attract travelers from Highway 13 to the concession leasehold. A water supply source is also needed in this park along with a courtesy dock near the boat ramp.

6-8. Fairfield Access (See Plate 18 and Compartment 17).

Fairfield Access is located in Benton County about 9 miles south of Warsaw. Access is 1 mile to the south on State Route O from relocated State Highway 83.

The park is between the Pomme de Terre and Little Pomme de Terre River arms. About 60 percent of adjacent Corps property is well forested. Soils on the site are developed from cherty dolomite, limestone, and sandstone. Loess deposits, approximately 3 feet or less in thickness, occur on ridgetops. Ridgetops are moderately well-drained. The ridgetops have dense fragipans which limit root

penetration. Most vegetation is scrubby. On steep slopes, the soil is stony and subject to erosion and droughtiness.

a. Existing. The park has limit development potential because of the terrain. Improvements in the park include boat launching facilities. Launching facilities include a two lane boat ramp, gravel parking lot, courtesy dock, vault toilet, and an asphalt access road. The location between the two river arms provide an excellent boat launching site.

b. Future. The park originally contained 701 acres. The park has been reduced to 105 acres and is now classified as a boat launching access site. Since the area is used predominantly as an access point for launching boats between the Pomme de Terre and Little Pomme de Terre River arm of the lake, a courtesy light and enlarged parking lot are recommended for this popular launching area. Two additional boat ramp lanes are needed to serve the future demand for launching facilities in this park

Indian Hill Island to the west of the boat launching facilities had formerly been part of the park. This unique land feature is more appropriately classified for other than recreation purposes.

6-9. Kaysinger Bluff Park. (See Plate 12 and Compartment 71).

Kaysinger Bluff Park is located about 2 miles northwest of Warsaw. Access is off US Highway 65. The highway is 1 mile to the east.

The site is heavily timbered. More than half of this timber is mature oak-hickory. The topography of the southern half varies from steep bluffs on the west to a ridge in the central portion. Surface soils on steeply sloping parts of the site are high in stone content with large chert particles. The soils are susceptible to both erosion and seasonal droughtiness. Ridgetop soils have more weathered topsoil which is more consolidated and has better drainage characteristics. The site contains 150 acres at multipurpose pool elevation.

a. Existing. The Class A visitor center is located on a high bluff. The siting of the building and overlook provides visitors an excellent panoramic view of the lake, dam, downstream area, and ongoing water-based activities. The building contains an informational desk, 67-seat auditorium, archeological and paleontological displays, historical time line, observation desk, and paintings of the area prior to construction of the dam. Interpretive programs which explain the area's history are presented to visitors. Other facilities include an asphalt parking lot and access road, comfort station with two waterborne toilet facilities, ten picnicking units, and a hiking trail. Primary visitor use is sightseeing. However, many special programs and meetings are held at the center.

A short walk from the parking lot takes visitors to the reconstructed Hooper House. The Hooper House was determined eligible for the National Register of Historic Places in 1979. The eligibility was based on its unique roof construction (front and back porches are under the main gable rather than under separate roofs) and interior and exterior decorative trim and molding. The Corps entered into an agreement with the Advisory Council on Historic Preservation and the Missouri Department of Natural Resources to either preserve the Hooper House on its remote site or relocate the damaged structure in a managed area.

It was decided to relocated and reconstruct the Hooper House near the visitor center in the Kaysinger Bluff Park where it would be more secure and accessible to the public. The reconstruction work began in July 1984 and included the incorporation of as many architecturally significant items as possible into the new structure. Details of the house were duplicated. Each of the five rooms and two porches has a different ceiling height. The upstairs rooms also have different floor elevations. The foundation of the house was constructed using limestone quarried near the original site. All original usable doors, windows, casings, interior and exterior trim, porch posts, and the complete north wall were incorporated into the reconstructed house.

Many items had to be specially ordered to duplicate the original construction. The tongue and groove drop siding, flooring and ceiling materials, door and window units, and some porch posts are reproduced from samples or patterns used in the original construction. The brick in the chimney was reused, as well as the large native limestone front stoop.

b. Future. Kaysinger Bluff Park previously contained 437 acres. The park size has been reduced to 150 acres. The smaller acreage will serve the park's designated recreation purpose. The reduction in size will not adversely affect the existing and future recreation and visitation.

The service road leading to the picnic area and water treatment plant bisects the walkway leading to the Hooper House. This service road should be realigned so this conflict and safety hazard can be resolved.

A picnic area had been proposed in the 1977 Master Plan at the northern-most tip of the park and near the treatment plant. The area was never developed for its intended purpose. The overlook at the tip is very scenic and does lend itself as a group picnic site near the visitor center. A group shelter will provide an excellent recreation assembly area for visitors that come to the park for picnicking, meetings and interpretative programs. The shelter will be reserved in order to increase user fee revenue. A small flush toilet at the picnic area will improve the use of the site.

Available donated historic improvements from the region will be relocated to the Hooper House complex. The improvements will have to be commensurate with the time and age of the existing development and improve the interpretative potential and historic value within the existing complex.

6-10. Long Shoal Park. (See Plate 20 and Compartment 61).

The Long Shoal Park is located approximately 2 miles southeast of Racket and 6 miles west of Warsaw. The park is bisected by Missouri Highway 7 and contains 350 acres.

a. Existing. The park can be divided into three separate use parcels - campground, day use area, and marina concession site. The day use area is west of Missouri Highway 7. It includes a swimming beach, change houses and a vault toilet. Just north of the swimming beach is a picnic area. The picnic area contains a shelter, playground and vault toilet.

The northern most road on the east side of Highway 7 leads to a 4 lane boat ramp and large parking lot. South of the boat launching facilities is a full service marina. A one lane boat launching ramp is in the marina leasehold. Information about the marina concession can be found in paragraph 6-18i(3).

A very popular campground is south of the marina. The campground contains 122 units with tables, grills and gravel pads. Electric service is provided at 97 of these camping units. Entrance into the campground is through a park attendant booth. A washhouse, flush toilets, trailer dump station and water supply are provided in the campground

Visitors to Long Shoal Park use the popular facilities for camping, picnicking, swimming and boat launching activities. The marina facilities and services complement the other uses in the park.

b. Future. This park is very well designed, operated and managed. The location of a fishing dock near the picnic area would be an additional attraction to potential users. Additional reserved use of the picnic facilities would increase fee revenues. Lodging facilities may be considered in the future at the marina concession site.

6-11. Osage Bluff Park. (See Plate 21 and Compartment 7).

Osage Bluff Park is located six miles south of Warsaw and west of relocated Missouri Highway 83. It is just north of the point where the Pomme de Terre and Osage arm joins. It contains a total of 565 acres.

The area is generally divided by Turpin Branch and Vance Branch Coves. Topography consists of gentle slopes on the southeastern side with rugged hills in the central portion, and steep scenic bluffs on the west. Topsoil cover is relatively thin, with numerous limestone outcroppings. The vegetation is predominantly post oak-hickory forest with eastern redcedar occurring on the bluff and glade areas. Most of the acreage in the park is forested.

a. Existing. Osage Bluff Park contains a campground, day use area, and full-service marina. The camping area includes 68 units with gravel pads, tables, and grills. Other facilities include a washhouse, vault toilets and trailer dump station. The small day use area is south of the campground. It contains adjacent picnic and boat launching areas. A handicapped accessible dock is located east of the boat ramp and immediately north of the picnic grounds.

A full-service marina adds an additional attraction to visitors to the park. There is a motel complex. More information about the marina and facilities within the concession area are mentioned in paragraph 6-18i(4).

Osage Bluff Park is popular, but it receives less visitation due to its size and distance from a major highway. The campground site in itself is very popular to persons that are familiar with the park.

b. Future. There are only 68 units in this popular and secured campground at Osage Bluff Park. The number of units in this campground should be increased by 50. The additional camping units would aid in meeting existing and future overnight demand in this park and would improve the operational cost effectiveness with the collection of more user fees. The optimum number of camping units in a campground is approximately 150 for operational cost effectiveness. Half of the 50 units would be improved by including electrical hookups which would create a popular adjunct to this park. Sanitary and water facilities will also be required with the additional camping units.

A large bluff area next to the confluence of the Osage and Pomme de Terre Rivers and between Turpin and Vance Branch coves is recommended for private sector recreation development. The area had been recommended and approved in the 1977 Master Plan for a concession resort complex. The development of a resort complex is less likely now since there is a motel which exists at the marina and a resort complex proposed in the State park. The area does still have development potential by the private sector due to its location and excellent scenic setting. The type of development will depend upon future recreation interest from the private sector.

The Missouri Department of Conservation considers the two coves next to the park as significant fish spawning areas on the lake. Any private sector development in Osage Bluff Park should not impact these spawning areas.

The Missouri Sport Shooting Association have expressed a desire to include a public shooting range on Truman. The area between the two coves may lend itself to siting a shooting range that has baffles and security of operation and use. Attempts have been made to find an acceptable range design for this portion of the park. A baffled range on a smaller portion of land built under accepted design standards will be easier to monitor and secure.

6-12. Sac River Access (See Plate 16 and Compartment 30).

Sac River Access is located on Osage River in St. Clair County. The access point contains 23 acres and is about 4 miles southwest of Osceola and east of Roscoe. The developed access is within wildlife mitigation acreage of Area 6. Soils are sandstone derived silt loams.

a. Existing. The area was developed chiefly to provide water access from Highway 82. The small access site is managed by the Corps and contains a one-lane boat ramp, gravel parking lot, access road, and a vault toilet.

b. Future. There are no plans to further improve the access site which is within wildlife mitigation acreage.

6-13. Shawnee Bend Park. (See Plate 12 and Compartment 3).

The park contains 540 acres at multipurpose pool elevation. It is located 2 miles west of Warsaw in Benton County. Access is provided from Highway 7 by the road leading to the administration area. Access is also available from a road across the dam from the east. Topography within the park is characterized by steep bluffs on the southern end and relatively level areas in the central, northern, and western portions. Vegetation cover is moderate with hardwood timber scattered over the site, except for a 9-hole golf course area.

a. Existing. The facilities in Shawnee Bend Park include two four-lane boat launching ramps, an asphalt parking lot, courtesy docks, a swimming beach, four vault toilets, and a paved access road. Visitor use of Shawnee Bend Park is primarily for boat launching, picnicking and swimming activities. The picnicking facilities include two group shelters and twenty units.

Some hiking and sightseeing occurs because of the wildlife and very scenic bluffs which are located on the south side of the park. Shawnee Bend provides access to a large expanse of open water near the dam. This is ideal for boaters, water-

skiers, and fishermen. The park was originally 536 acres in size. The size was expanded to accommodate the construction of a 9-hole golf course. The course was built by the City of Warsaw. A portion of the park is tentatively committed for future expansion of the Shawnee Bend Golf Course to 18-holes. Golfing activities are another primary use within the park. Information on the expansion of the park to accommodate the golf course is provided in Supplement 8 to Design Memorandum 36. The supplement is entitled "Warsaw Public Golf Course."

b. Future. The park lends itself to the goal of separating overnight and day use activities. A future campground of 150 units is proposed for the portion of the park west of the day use area which contains a nearby picnicking and swimming facilities. Fifty electrical units are proposed in the campground. A playground and water and sanitary facilities are also proposed. An entrance station will be sited at the road so the park attendant can assist visitors, assign camp sites, and/or collect user fees. A sanitary dump station is proposed so the campground will have a higher user fee classification. The development of the additional campground on the lake will take some of the future pressure off Long Shoal Park.

Warsaw is noted for the production of gun stocks made of walnut. Representatives of one of the companies indicated in the past a desire to develop an area at the project as a trap/skeet range. If the desire is again expressed and an entity has managerial and financial capabilities to develop such a facility, a range is proposed to be sited within the Shawnee Bend Park. This will make an additional attraction to this already popular park near the dam.

Similarly, the existing Shawnee Bend Golf Course may be expanded to 18-holes. The probability of such an expansion effort is unknown. The southern most portion of the golf course leasehold is south of Highway 7 and in Compartment 4. Compartment 4 is named the Tatge Wildlife Area (See Plate 4). This small parcel should be taken out of the golf course leasehold since the property across the highway is not usable for development for recreation purposes.

6-14. Sparrowfoot Park. (See Plate 22 and Compartment 52).

Sparrowfoot Park is about 6 miles south of Clinton in Henry County. Primary access is provided by about a mile of improved road to State Highway 13. The park is on the South Grand River arm of the project and north of and directly across the lake from Cooper Creek Park.

The area is generally flat with sparse tree cover and contains an underground quarried area in the northeast extremities. The small quarried area does not present any hazardous factor to the public. Soils on the site were formed under prairie vegetation from acid micaceous shales. Ponding occurs in the spring months in low lying areas which have claypan subsoils. The more gently sloping areas are underlain by silty clays and present less wetness problems. The Sparrowfoot Park comprises 495 acres above multipurpose pool elevation. In the previous master plan, the park contained 1,053 acres.

a. Existing. The northern portion and day use area of the Sparrowfoot Park comprises a swimming beach, picnic area, boat launch ramp, and a designated marina concession site. The swimming beach is located north of the camping area and adjacent to the southeast edge of the picnic areas. Access is provided by a paved road

with parking. The parking area is split into two sections. The beach location, which is adjacent to the picnic area, was chosen because of slope suitability. Two small islands nearby afford wave protection.

A picnic area is northwest of the beach and southeast of the boat ramp. Access is provided over the same road. There are picnic shelters, playground, and a vault toilet provided in conjunction with the picnic units. The slope of the picnic area is gentle (5 percent and less) with a northeast exposure in a wooded and open area. The site has good visual and physical relation to the water and is close to the other day use facilities.

The boat ramp area is northwest of the picnic area. It is comprised of a launch ramp and a car/trailer parking area. Access to the area is provided over a paved road with a turnaround at the top of the launch lanes.

A marina concession site is located to the north and adjacent to the launch area. Access to the marina site is provided by the same roadway serving the launch lanes. The site was advertised in 1987 for lease, but no proposals were received. The entrance to a gravel parking lot for the marina is located so as to create minimal vehicular congestion with the boat ramp area. Any marina at the site will have to be principally a land based operation because of expected wind and wave conditions.

The southern portion of the park contains a campground with 164 units. The campground is separated from the day use area. An entrance station is sited in the road leading to the 4 loop campground. The campground was opened in 1987. A sanitary dump station is between the first and second loop. A shower facility and vaults are also available in the overnight area of the park.

b. Future. Sparrowfoot Park previously contained 1,053 acres. A significant portion of the land is no longer needed for park development purposes and has been reclassified for a more appropriate resource use (See Compartment 51). Only 495 acres are now classified for park or recreation use.

The marina site on the north end of the park had been advertised in 1987 for commercial concession purposes. The Corps did not receive any proposal from the private sector to develop the site. The site still has some potential as a small satellite bait/boat storage concession. For this reason, this type of concession operation is proposed for future development.

6-15. Talley Bend Park. (See Plate 24 and Compartment 22).

The park is located about 6 miles east of Lowry City on State Route C. State Route C bisects the park's day and overnight areas. The park is situated on the east side of the Osage River channel and contains 260 acres. The topography of the park is rolling to steep with a series of draws dissecting its southern portion. Vegetative cover consists of scattered hardwood timber on the east with the area nearer the water being open. Several cedar groves are on the extreme southern end.

b. Existing. A campground on the south side of Route C contains 221 units. The campground contains 4 designated loops and was opened for use in 1987. There is a park attendant's booth at the entrance road into the campground. A shower and waterborne sanitary facility are available in the park, as well as two playgrounds.

A two-lane boat ramp and launching facility are on the north side of State Route C. Access of Highway HH leads to launching area.

b. Future. The previously approved master plan had proposed a picnic area and a small swimming beach in the day use area next to the boat ramp. These day use facilities are still needed to attract visitors to the park and Class A campground. A changehouse is also needed next to the proposed beach area. A petition was given to Corps representatives during a June 1988 public workshop. The petition supported the plan for a swimming beach at Talley Bend Park.

6-16. Thibaut Point Park. (See Plate 25 Compartment 66).

Thibaut Point Park is located about 7 miles north of Warsaw. The park is accessible from a gravel road and State Route T east to US Highway 65. Vegetation is extensive in terms of cover and varied ecotype. There is a mixture of oak-hickory forest and cedar glades.

The site consists of a series of finger-like ridges with steep side slopes. Most of the ridgetops are narrow, with a prominent knoll on the west part of the site and a larger level area in the south-central portion. Soils on the site are chiefly stony loams on sideslopes and cherty loams with lower stone content on the more level areas. The site consists of 275 acres at multipurpose pool elevation.

This park contains the only group camping area on the project. Group use has been permitted on a reservation basis only. There were five separate group areas within the park which contain a total of 91 camping units.

a. Existing. Thibaut Point Park previously was operated as a recreation area with 5 separate group camping sites. The first 3 group sites near the park entrance road had been designed to accommodate trailer-type campers. The 2 sites west of the boat ramp and north of the beach were designed for primitive camping activities. Other facilities within the park and available to group users are a boat launching ramp (two-lanes), courtesy dock, swimming beach, change house, 9 vault toilets, and a shower building. Many local residents objected to the group concept which precluded individual use of the park. They petitioned the Corps to open the day use facilities (boat ramp and swimming beach area) to the general visiting public.

Effective 1 April 1988, individual uses of the swimming beach and boat ramp facilities were permitted. The campground west of the main entrance road was opened to individual overnight use on a reservation-only basis. This campground was only open when it was not reserved for group use.

b. Future. The campground immediately west of the entrance road will be operated in a manner similar to other Corps managed campgrounds on the project-first come, first served basis. A park attendant will collect fees for use of both the individual and group camping facilities within the park. The 2 gated group camping areas from the entrance road will be available on a reservation basis only as in the past. Groups reserving these areas can be enter and exit at will, but these gated areas will remain segregated from other areas of the park.

There has been a demand for electrical hookups in these campgrounds. The addition of 50 electrical hookups will attract more people to the park and increase user fee collection by the park attendant.

The small point west of the boat ramp will remain a primitive group camping area. The area will remain available only on a reservation basis.

The former primitive group campground just north of the swimming beach will be converted to a picnicking area. A group shelter is already sited in this portion of the park. Two additional group shelters will be relocated outside the first campground area which is west of the entrance road to accommodate day use needs. These picnicking facilities will receive more use if one was relocated near the swimming beach and another close to the boat ramp.

The swimming beach parking lot will be enlarged. It needs to be enlarged to accommodate the additional visitors to the park that will take advantage of the opening of the beach for both individual and group users. A playground is needed as an integral part of the day use area.

6-17. Windsor Crossing Park. (See Plate 27 and Compartment 63).

The park is located about 1 mile north of Leesville in Henry County. Access is provided by State Route PP which bisects the park. The site is on the Tebo Creek arm of the lake. It is less than 20 percent timbered, with flat to gently rolling topography. The soils are principally silty clay loam. The level areas near Tebo Creek are underlain with claypans which have restrictive permeability and contribute to wetness during the spring months. The site contains 125 acres of land area at multipurpose pool elevation. The park contained 800 acres in the previous master plan.

a. Existing. Windsor Crossing contains the only free camping area at the Truman project. The free campground consists of 46 units, 2 change houses and swimming beach, 2 lane boat ramp and 4 vault toilets. There is no separation of day use and camping activities in this park.

b. Future. Windsor Crossing is a very popular park at the project. The use and demand for recreation facilities are significant. The boat ramp should be enlarged to accommodate the numerous persons that fish and boat the Tebo River arm of the lake.

Picnic facilities are also needed for persons that utilize the swimming beach. Fifteen picnicking units and a water supply source are proposed to accommodate this need near the beach.

An additional campground is proposed for development on the west side of State Route PP. The inclusion of additional overnight and support facilities would upgrade the campground in the park to a higher use fee classification (Class A) with electrical hookups. If this needed campground is built and fees collected, another non-fee campground will be provided on the project. An alternative non-fee campground area would more than likely be at one of the camping loops in Talley Bend Park. Talley Bend is less popular that Windsor Crossing Park. The upgrading of Windsor Crossing camping facilities will generate additional fee revenues.

6-18. Additional Recreation and Concession Areas.

An objective of the Corps is to afford the visiting public a diversity of recreation opportunities in consonance with the wise use of the natural resources. Diversity of recreation opportunities has been accommodated by authorizing both local governmental entities and profit and non-profit corporations the right to

serve the public's needs at Truman. The following paragraphs provide an overview of local governmental and public entities managing existing resources and development at Truman for recreation purposes.

a. Boy Scouts of America, Heart of America Council (See Plate 6 and Compartment 24).

The Council leases 597 acres of project lands at the Truman project for park and recreation purposes. The land is contiguous to the 3,200 acres of H. Roe Bartle Scout Reservation in St. Clair County. The council is a non-profit organization operated by an Executive Board comprised of key community leaders in the Metropolitan Kansas City Area. The Executive Board employs a full time staff of professional scouters who are charged with implementing quality scout training. Corps guidance supporting the scouting effort is in a booklet entitled "Catch the Scouting Spirit and Take Pride in America - Guide and Resource Book".

(1) Existing. The scouts use project lands for hikes, and nature and conservation studies, and the water areas for rowing, motorboating, fishing and sailing activities. There are three separate camps within the H. Roe Bartle Reservation-Frontier, Long Star and Sawmill. Each long term camp is complete with spacious troop and patrol campsites, dining lodge, olympic sized swimming pool, rifle and archery range, handicraft and nature center as well as various experience centers designed to give each scout an opportunity to gain proficiency in several merit badge subjects. The camps are operated with the express purpose of helping to provide scouts with the personal skills needed to be a useful contributing member of society, their home, their community and their country.

The Council has a Honor Camping Program. The reservation is the center of operations for the Tribe of Mic-O-Say. Scouts may be elected by their troop to become a Foxman, Brave, or a Warrior. Additional recognition may be awarded in the form of paint which is worn on the plastic Eagle Claws. A tribal feast is held once a year installing a new Chieftain.

(2) Future. A parcel of land on the northwest side of the Council's leasehold contains an area locally referred to as the Devil's Staircase. There has been expressed interest in the past by scouts to utilize this area for hiking purposes. Such use would meet project objectives of improving the recreation opportunities available to the scouts. The area west to Moore Hollow is recommended for lease to the Council (See Plate 6). The addition of this parcel would increase the leasehold acreage.

Similarly, the Council has a lease on a small parcel of land south of old State Route Z and northeast of Briley Creek. This parcel should be taken out of the scout's leasehold and reclassified for general wildlife management since it has limited usability to the scouts. The existing roadbed could then be a definitive southern boundary of the scout's leasehold instead of the creek bed. The riparian parcel could then be managed for wildlife habitat.

b. Clinton Park (See Plate 9 and Compartment 54).

Clinton Park is partially within the corporate boundary of the city and contains 1,650 acres. Only a small portion of the park is leased and developed at this time.

(1) Existing. The park contains remnant strip pits and borrow areas remaining in the shoreline area between old and new Highway 13. Blue Pit has filled with water and has become a popular fishing spot. A handicapped accessible fishing pier, vault toilet and two parking lots were constructed in this area in 1987.

One large city park and several smaller leased areas exist in this compartment. The city park includes Artesian Park, a BMX bicycle track, archery range, golf driving range, and several pocket neighborhood playgrounds. The Golden Valley Radio Control Association has a lease within the compartment. The association operates a flying field for radio controlled model airplanes. The Meadowlake Properties also has a lease for a portion of the Meadow Lake Golf Course which occurs on 44 acres of Compartment 54.

(2) Future. There has been no expressed interest by the City of Clinton to further develop the compartment. Golden Valley Radio Control Association has however expressed an interest in expanding its leasehold so members can use a portion of the Blue Pit. Members want to land radio control seaplanes on the pond or pit. If a lease supplement can be negotiated with officials of the association and the use does not conflict with handicapped fishing opportunities in the pond, additional lands will be added to radio control clubs leasehold.

c. Cross Timbers Access (See Plates 5 and 16 and Compartment 14).

The developed water access point is located about 6 miles southwest of Cross Timbers in Hickory County. It is in the headwaters of the Pomme de Terre River arm and adjacent to a large wildlife management area. The site contains 44 acres above the multipurpose pool elevation. The area is relatively flat with sparse tree cover. Access is provided off State Route Y. The area is leased to the Missouri Department of Conservation for public park and recreation purposes.

(1) Existing. The access point was built by the Corps and leased to the Department. Facilities managed by the State agency include a 2 lane boat launching ramp, vault toilet and gravel parking lot and access road. Visitation has been minimal due to the remoteness of the site, limited facilities, and shallow water depth. Use of the area is generally confined to launching of small craft for floating, fishing, or trapping activities.

(2) Future. There are no known future plans for development of the access point by the Missouri Department of Conservation. If Outlet Park at the Pomme de Terre Lake project ever becomes a significant canoe put-in point, Cross Timbers Access could become a major take-out for persons that float the river.

d. Deepwater Park (See Plate 9 and Compartment 49).

Although no Corps constructed recreational facilities were built, a relocation contract provided for the construction of a ballfield.

(1) Existing. City constructed facilities include a multi-purpose recreation building, a playground, two picnic shelters, and a horse arena. An equipment shed, 1800 square foot dwelling, and an old block building are also part of the leasehold improvements. The entire park area contains 410 acres.

The primary use of the park is by local city residents on a year round basis. Heavy use is also experienced during annual labor day weekend picnic which draws thousands of visitors to the area.

(2) Future. The city has requested and received recent approval to provide additional facilities to the leasehold. They include a patio and basketball court. City representatives came to the June 1988 workshop and expressed a desire to develop a campground in the Cooper Creek Park area shown in the 1977 master plan. They are proposing a 50 unit campground with a water supply source and sanitary facilities for Cooper Creek Park.

e. Harry S. Truman State Park. (See Plates 3 and 19 and Compartment 44).

The park contains 1,440 acres and is located 7 miles northwest of Warsaw. Vehicular access is available from State Route UU off State Highway 7.

The park is surrounded by water on three sides and located on a triangular-shaped peninsula. This offers easy access to the lake while providing a scenic, wooded setting for other activities. The park's natural environment exhibits a diversity of natural landscape features. This rich landscape results from the park's location in a transition area where the prairies of the Osage plains meet the forests of the rugged Ozark hills, which were carved by the Osage River.

Most of the park is covered by Ozark forest characteristic of limestone and chert soils. Dominant trees include white oak, shagbark hickory, northern red oak, and sugar maple. The influence of prairies can be seen on south- and west-facing slopes where prairielike openings called savannas occur. A savanna is characterized by sparsely scattered trees, no understory, and prairie ground cover. In pre-settlement times, natural fires maintained the savanna, which today is more densely forested because of fire suppression.

The forest and prairie serve as the home for abundant wildlife, including fox, coyote, deer, wild turkey, beaver, and pileated woodpecker.

(1) Existing. Harry S. Truman State Park is located on a peninsula geographically divided into two sections. The western section has been developed for campers, and the eastern section is designed as a day-use area.

The western section has 201 campsites scattered throughout the forest and near the shore. There are 151 basic and primitive campsites, and 50 sites with electrical hookups. Double campsites are available. Facilities in the campground include sanitary dumping stations, hot showers, modern restrooms, and laundry facilities. Campsites are available on a first-come, first-served basis. Located near the campground is a two-lane boat ramp for easy assess to the lake. There is also a swimming beach in the park.

The day use area, located on the eastern section, was developed for use by the general public. Seventy-five picnic sites are located in this area, along with a picnic shelter, modern restrooms, and playground equipment. Picnickers can view the lake from the gentle shores on one side or from a scenic overlook on the other side. A sand beach is located on a section of the lake set aside for swimming. The swimming area has a change house, hot showers, and modern restrooms.

A fully equipped marina and four-lane boat ramp make it easy to take advantage of the excellent fishing on the lake or just enjoy the scenery. Boat rental and supplies are available at the marina, as well as courtesy docks. A large parking area adjacent to the marina offers plenty of space for cars and boat trailers.

A storage and maintenance building is located on the southwest portion of the park. The building also serves as a project office. The office is near the park superintendent's house.

(2) Future. The Missouri Department of Natural Resources is proposing a lodge/resort complex, visitor center and three trail areas for the park. A day use area west of the complex was also proposed for the park. The Kansas City District has been supportive of the efforts of the State agency to find a developer for the lodge/resort complex. A visitor center at the entrance into the park is also being considered.

Further improvements are proposed for the popular campground. Fifty three electrical hookups are to be added to the overnight area which is secured by an entrance station attendant.

A significant improvement is proposed for the day use area. An additional 100 picnicking units and support facilities are recommended for development by the State agency. An additional 12 picnicking units have been proposed for another day use and overlook area west of the lodge resort complex area.

Two additional trails are to be located north and east of the proposed resort complex.

f. Osceola City Park. (See Plate 6 and Compartment 27).

Osceola City Park contains 415 acres which are leased to the municipality for public park and recreation purposes. The leasehold acreage is located in and adjacent to the corporate limits of the city. The topography within the leasehold slopes rather gently to the Osage River. Vegetative cover remains from the former home sites that were acquired in the town. Vehicular access is from State Highways 13 and 82.

(1) Existing. The area was developed by the city of Osceola. The Corps, however, replaces former recreation facilities under a relocation contract. There is a diversity of recreation facilities within the park. They include a two-lane boat ramp, two picnic shelters, ball park, visitor information booth, park administration and senior citizen buildings, and a 45-unit campground. A former golf course, which had been built east of Highway 13, is now closed. The former marina relocated a number of years ago to Osage Bluff Park near the dam.

Adjacent to the designated park area is the 17 acre Sac-Osage Youth Fairground (See Compartment 28).

(2) Future. There are no known future plans to provide additional recreation facilities in the compartment or the fairground area.

g. Roscoe Park. (See Plate 16 and Compartment 31).

Roscoe Park is adjacent to State Highways 82 and E. The original area contained 13 acres at multipurpose pool elevation. The 13 acres access point is now within

the 193 acres leased to the Village of Roscoe for public parking and recreation purposes. Numerous resort and residential homes are adjacent to the 193 acres. The bluffs and creek bottoms are heavily timbered. Soils are of forest sandstone origin.

(1) Existing. Recreation facilities in the leasehold contain a two-lane boat ramp, courtesy dock, group picnic area, ball field, vault toilet, and nature trail. The water access is used for boat launching by fishermen and is popular in the spring. Although the Village of Roscoe manages the leasehold and improvements, the Corps is responsible for pumping waste from the vault toilet and the removal of accumulated sediment from the boat ramp.

There is a Memorandum of Agreement on lease improvements identified as the Weinlig Store and Jones Drug Block. The Agreement was signed by the Executive Director of the Advisory Council on Historic Preservation, Kansas City District Engineer, and the Missouri State Historic Preservation Officer. The agreement allowed the Village to sublease the Weinlig Store to the Roscoe Community Historical Society (RCHS). The architectural elements from the Jones Drug Block were provided to the RCHS for its duration or use.

The leased lands around Roscoe were intended from the outset to be acquired in fee and managed for wildlife purposes as project mitigation. In view of the housing development in the community at the time of Federal acquisition, the Corps and Missouri Department of Conservation agreed to exclude the acreage from the wildlife mitigation program. The public park and recreation uses on the 193 acres do not hinder the wildlife mitigation program on these lands, even though they were specifically identified in the 1965 report entitled "Kaysinger Bluff Dam and Reservoir - Fish and Wildlife Conservation" for wildlife mitigation. The acreage is identified as Fish and Wildlife Area 3 in the 1965 report.

(2) Future. During a public workshop meeting in 1987, representatives from the Village of Roscoe expressed a desire to further improve the park. They would like to improve a small bluff area overlooking Coon Creek. Picnic facilities are proposed for the bluff area. There is a demand for a fuel supply source on this upper reach of the project fee lands. The village has recently proposed a small marina in the 193 acre park.

h. Warsaw City Harbor Park. (See Plates 3 and 26 and Compartment 73).

The Warsaw City Harbor Park was constructed as part of a 1980 plan. The plan was recommended as part of a document entitled "Final Report and Final Supplemental Environmental Impact Statement II for Downstream Measures at Harry S. Truman Dam and Reservoir". The former water-oriented and recreation facilities were relocated to this park site riverward of the Warsaw Community Building. The site is identified as the Warsaw City Harbor Park. The park was constructed by the Corps and is managed by the City of Warsaw under a public park and recreation lease agreement.

(1) Existing. The 43 acre park is downstream of the dam and is protected by riprap along the edge of the water. The site contains a 2 lane boat ramp in a dredged and protected cove. There is also flush sanitary facilities and a 120 car and trailer parking lot on the leasehold. The west portion of the

leasehold is a rather flat and large area developed with borrow material. Landscape plantings have been sited in the park to improve the aesthetics of the park.

(2) Future. There are no known future plans to develop this park, except for a ball field(s).

i. Marina Concessions.

There are 5 existing major concessions at Truman serving the public with needed marina facilities and service. Four of the concessions are within parks managed by the Corps. The other marina is in the Harry S. Truman State Park. A minor concession was advertised for lease and development in the Sparrowfoot Park in 1987 and Brush Creek Access in July 1988. No proposals were received on Sparrowfoot and the site was not readvertised. A general description of all of these concession sites and operations are provided in the following paragraphs.

(1) Bucksaw Point Marina. This concession area contains 96 acres and is in the Bucksaw Park on the Grand River Arm of the lake (See Table VI-3). The marina portion of the concession has 156 and 36 covered and open slips, respectively. The slips are sited next to a large floating sales and service building which contains a restaurant. Just north of the marina facilities and parking lot is a resort area. The resort area contains a 40 unit motel and 6 kitchenette cabins. There is also a floating bunkhouse which can serve 50 guest with minimum lodging accommodations. The marina operator requested the Corps to enlarge the parking lot and boat ramp in his leasehold, but the Corps is precluded from funding commercial concession development.

(2) Harry S. Truman State Park Marina. This marina is operated through a concession agreement between the Missouri Department of Natural Resources and Curt and Flo Steenburgen and Sons. The marina has 120 covered and 47 open slips and a sales-service building. It mainly serves the needs of persons visiting the Harry S. Truman State Park and the nearby campground.

(3) Long Shoal Marina. The marina site in Long Shoal Park contains 65 acres. There are 55 acres of land and 10 acres of water at the site. The marina contains a floating restaurant, and 138 covered and 42 open slips.

(4) Osage Bluff Marina. The marina site contains 33 acres of land and 23 acres of water area. The marina includes 109 covered and 10 open slips, floating restaurant and lodge complex. The lodge complex is operated through a sublease agreement. The lodge complex has 40 rental units and a 80 unit clubhouse. A swimming pool is also available.

(5) Sparrowfoot Marina. The Corps sought in 1987 offers for proposals for a minor concession operation on this 19 acre site. The site has only 15 acres of land and 4 acres of water. The site is on the upper South Grand River arm of the lake and has limitations for development. The major limitation to any future developer will be water depth in the vicinity of the site. The marina is expected to mainly serve fishermen and hunters in lieu of recreation boaters.

(6) Sterett Creek Marina. This marina site contains 214 acres. One hundred thirty-six acres are land and 19 acres are water area. The 224 covered and 50 open slips are sited in the water area. The lessee operates the marina and park under a commercial concession lease agreement with the Corps. The marina

also includes a 40 unit motel and a restaurant which are operated through a sublease agreement. A 100 unit campground in the park serves the visiting public with full hookups.

Table VI-3. Marina Concessions

Marina Concessionaire	Park Location (Compartment)	Acreage Land	Water	Total
Brush Creek*	Brush Creek Access (26)	47	19	66
Bucksaw Point	Bucksaw (58)	64	32	96
Harry S. Truman	Truman State Park (44)	**	**	**
Long Shoal	Long Shoal (61)	55	10	65
Osage Bluff	Osage Bluff (7)	33	23	56
Sterett Creek	Sterett Creek (68)	136	78	214
Sparrowfoot***	Sparrowfoot (52)	15	4	19

* Advertised for lease in July 1988.
** The marina site is operated through a concession agreement with the Missouri Department of Natural Resources. Land and water areas in the concession area are not specifically identified by acreage figures.
***The marina site was advertised for development in 1987, but no proposals were received.

j. Public Access Points.

There are ten existing public access points on the lake that are licensed. They are licensed to legal entities within the State of Missouri for serving recreation needs of the visiting public at Truman. A list of the licensees that are providing public access is provided in Table VI-4. The City of Deepwater also has constructed a boat ramp and parking lot on 16 acres in the Cooper Creek Park. The city operates its access point under a public park and recreation lease agreement.

6-19. Wildlife Management by the Missouri Department of Conservation.

The Missouri Department of Conservation has a fish and wildlife management role under a license agreement on about 53,890 acres of project lands. The management role and objectives were summarized in the Department's report entitled "Harry S. Truman Reservoir - Wildlife Management Area Plan." The report is dated 8 June 1987.

Table VI-4 - Licensees of Public Access Points

Licensee	Location (Compartment)	Boat Ramp
Avery and Breashears Valley Citizens Committee	Pomme de Terre River Arm (11 - west side)	yes
Bethlehem Township	South Grand River Arm (56)	yes
County Line Access Road	South Grand River Arm (60)	yes
Cross Timbers Lions Club (ka Sapps Landing)	Pomme de Terre River (13)	yes
Finey Community Homeowners Association	Osage River Arm (43)	yes
Fox Run Access Road	Osage River Arm (39)	yes
Lay's Valley View Cooperation	Confluence of Osage and Pomme de Terre Rivers (43)	yes
Macks Grand River Camp Association	Confluence of South Grand and Tebo Rivers (64)	yes
Pom-O-Sa Heights Landowner's Association	Pomme de Terre River Arm (8)	yes
Village of Tightwad	South Grand River Arm (60)	no *

*A boat ramp was initially proposed by the Village but was never constructed. Boats are launched from a former road.

The Department has 18 designated management areas in Benton, Henry, Hickory and St. Clair Counties. The areas and acreages on the wildlife management acreage are listed in Table VI-5. The areas are subdivided into five resource management units. Within these units are 16 ponds, totaling about 59 acres, and 16 and 61 miles of intermittent and permanent streams, respectively.

The management objectives on these units and for the resources are to develop an effective and time efficient fish and wildlife program, provide outdoor recreation opportunities, emphasize the preservation of resource values, and to implement management plans for each designated unit.

The management objectives for wildlife, fishery, and forestry resources from the report are summarized in Table VI-6. The implementation of these objectives are to allow certain recreation uses of wildlife managed lands. These include:

hunting, fishing and trapping under statewide regulations; primitive camping during the fall, firearms, deer and spring turkey seasons; picnicking, hiking, nature study with no facilities provided; and horseback riding and field trails by area special use permit.

Table VI-5. Missouri Department of Conservation Land Management Units and Acreage

Land Management Units	Acreage (Compartment)
Sac Osage, Salt Creek	
Galliniper Creek	10,740 (29)
Grant River Bottoms, Bethlehem,	
Deepwater Creek, Brownington	15,203 (47, 51, 53 and 56)
Upper Tebo Creek, Tebo Islands,	
Leesville, Brush Creek,	
Little Tebo Creek	14,794 (62 and 65)
Cross Timbers*	4,911 (13 and 14)
Valhalla, Weaubleau Creek	
Gouge Eye, Cedar Creek,	
Little Pomme de Terre	8,249 (13, 21, 25 56 and 59)
Total	53,894

*Forty-four acres within Cross Timbers are leased to the Department for public parks and recreation purposes. The area is a fishing access point on the Pomme de Terre River area.

Access is also allowed in accordance with guidance addressed in the Corps' Operational Management Plan.

The priority of development on the licensed lands includes the establishment and development of warm-season grass plantings, development of a system of controlled water marshes, emphasize timber-wildlife management, expand personnel staff and budget, intensify the wildlife management program, and expand island and glade management.

In regard to personnel, there exists a Wildlife District Supervisor, Wildlife Area Manager II, two Wildlife Area Assistant Managers, full time temporary labor, and two seasonal laborers. The department has proposed to hire two Area Assistants, seasonal labor personnel, clerk/typist, and a part-time clerical assistant.

Table VI-6. Wildlife Management Objectives of the Missouri Department of Conservation

Item	Resource Objective
Wildlife	
	- Develop and implement soil conservation plans
	- Plan and develop several wetland areas in suitable sites
	- Manage croplands for an interspersion of food and cover
	- Manage open, noncropped areas for diversity
	- Develop a water level management plan for the reservoir to maintain and enhance waterfowl and shorebird habitat
	- Evaluate wildlife habitat and population responses to management
Forestry	
	- Inventory timber stands
	- Develop multiple use forest resource management plan
	- Institute forest management on wildlife units
	- Protect areas from destructive wildlife and insect and disease outbreaks
Fisheries	
	- Manage eight ponds for fishing potential
	- Manage river and stream corridors with woody vegetation
	- Stabilize riparian corridor with vegetative plantings
	- Develop a water level management plan for the reservoir to maintain and enhance sport and prey fish populations
	- Continue efforts to develop a nursery pond on the reservoir

a. Wildlife Resources. Resident game and non-game species are abundant on the wildlife management lands. Population densities fluctuate depending upon management practices employed, weather, depredation, and poaching pressure. Suitable habitat for nesting, resting and protection occurs throughout the areas.

Historically, the lands in the transition zone between tallgrass prairie and Ozark timber supported a large population of prairie chickens. Due to habitat destruction and the introduction of fescue, the prairie chicken became rather limited and was isolated to a few areas on private land. Management practices are designed to improve prairie chicken habitat.

The lands provide seasonal habitat for migratory wildlife. The lands are used by geese, dabbling and diving duck species during spring and fall migrations. Shorebirds such as greater yellowlege, avocets, snipes, sandpipers, egrets and herons are attracted in large concentrations to the shallow water areas created by the water level fluctuation of the lake. Wood ducks, mallards and several species of shorebirds nest on and around the areas. Seasonal uses by ospreys, white pelicans, trumpeter swans, bald eagles and golden eagles have also been determined.

The first authenticated bald eagle nest in Missouri in 40 years occurred on Truman Reservoir in June of 1982. This nest was built in a dead tree along the Grand River channel in the Bucksaw Park area. One egg was laid and hatched. The young eaglet was raised almost to flight stage by the mother. However, the mother abandoned the eaglet. This eaglet was hacked and released at the Mingo National Wildlife Refuge in Southeast Missouri.

The primary management goal is to provide high quality wildlife habitat offering the diversity required by wildlife species indigenous to the area surrounding the Truman project. Manipulation of the habitat by using wildlife practices such as sharecroping, food plots, prescribed burns, mowing, disc, warm-season grass planting, tree and shrub planting, and timber management. These are to create and preserve suitable herbaceous cover favored by wildlife populations.

The primary purpose of these wildlife management lands is to provide hunting and outdoor recreation opportunities for the general public. All of the lands are open to public hunting with special restrictions applying to the waterfowl management zone. All species of game are hunted on the lands and waters in accordance with statewide regulations. Presently, there are no deer or turkey refuges. A waterfowl management zone is in effect on a portion of the Grand River Bottoms Wildlife Area in Henry County (See Compartment 53).

In an effort to provide wildlife with high energy cereal grains and better vegetative conditions, the wildlife assistant managers write sharecropping and hay permits with local farmers on approximately 7,000 acres scattered throughout the licensed lands. In accordance with the assistant manager's recommendations, the farmers planted various cereal grains, sunflowers, millet, legumes and hay crops. They are planted in such a way that wildlife populations are enhanced. A crop rotation is used to provide not only desired wildlife habitat but also to improve soil fertility and prevent soil erosion. The farmer's share of the crop is retained for compensation for his efforts. The Department's share of the crop may partially be harvested or left standing for wildlife use depending upon the recommendations of the District Supervisor.

A warm-season grass mixture of big bluestem, indiangrass, little bluestem, sideoats grama, ashy sunflower, gayfeather and Illinois bundle flower has been seeded. This was done to enhance vegetative cover, correct soil erosion problems, decrease field size and improve habitat conditions for the prairie chicken and quail. Many of these plantings were incorporated into existing agricultural crop fields on the Grand River Bottoms, Bethlehem, Sac-Osage, Upper Tebo Creek, Deepwater Creek and Weaubleau Creek Wildlife Areas. Approximately 90-100 acres of warm season grass and forbs are planned to be planted for the upcoming year. These plantings will be scattered throughout the licensed areas. Special consideration will be given towards improving quail habitat. Seed production will depend on the flood damage from last falls high lake elevation.

Food plots are planted in some of the small isolated fields that are impractical to sharecrop. The food plots provided a supplemental food source for species of wildlife, including songbirds and assured a good supply of high energy food during severe winter weather. About 220 acres are planned as food plots to be planted in small fields that are not sharecropped by local farmers. An additional 300 acres of wheat seeding is scheduled this fall in the waterfowl management zone on the Grand River Bottoms Wildlife Area and Bethlehem and Deepwater Creek Wildlife Areas.

In an effort to maintain the current fields in a productive stage, crop acreage is soil tested and limed at recommended rates. The soil testing program is the preliminary step in determining the needs of crop fields and feasibility of lime. The basic operational plan is using a lime rotation of 5 years.

In fields where it was neither practical to sharecrop nor establish food plots, techniques such as prescribed burning, disking and mowing are initiated. These techniques are used to maintain fields in an early stage of vegetative succession. Old fields, virgin prairies, prairie remnants and warm-season grass plantings are control burned under favorable weather conditions. Prescribed burns are planned in an effort to control invading woody vegetation, produce favorable forb and grass composition, and improve the quality of the native grass plantings. All burning will be done with qualified and trained Missouri Department of Conservation personnel.

Mowing, disking and legume seeding is accomplished to improve quail habitat. This reduces the woody invasion and helps return the habitat to a primary succession condition which is utilized by many species of wildlife.

Firelanes around many of the warm-season grass plantings have been seeded with legumes and cool-season species. Clover, lespedeza, orchardgrass and timothy are utilized as a mixture to provide additional habitat diversity and act as a firebreak during prescribed burning. The lanes are maintained and rejuvenated regularly.

The statewide prairie chicken restoration plan identified a portion of the Grant River Bottoms Wildlife Area as having potential as prairie chicken habitat. The area has been extensively developed for better quality habitat and chicken utilization. The plantings are interspersed within the permittee farming acreage for control of soil erosion. Some trees and shrubs need replanting due to normal mortality and flooding conditions. The intensive habitat development is benefiting the prairie chicken and is being highly utilized by quail, rabbits and deer.

The bobwhite quail is considered to be the symbol of wildlife abundance. Hunting for this species is a popular recreation activity throughout the licensed areas. With this in mind, funding for quail related habitat management on several wildlife areas has been expanded. The Bethlehem Wildlife Area is selected as a statewide intensive quail management area. Quail habitat has been enhanced in the area. Habitat development included fescue conversion; controlled burns; old field renovations; food plots incorporation; and grass seed work.

Waterfowl management zones (refuges) are effective and are an important part of an overall wetland management program. Ducks and geese wintered on the Truman project and the Schell Osage and Montrose Wildlife Areas. The Schell Osage and Montrose Wildlife Areas are west of the project. The population spreads out to more feeding areas and are beginning to create some row crop depredation problems in the Truman basin vicinity. In an effort to ease problems on private land, the waterfowl refuge was established in the Grand River Bottoms Wildlife Area. The main objective is to provide more grain crops for these wintering populations on management lands and hopefully reduce the depredation of crops on adjacent private land.

The refuge area on project lands encompasses approximately 2,600 acres of row crops (See Plate 9). The area is bounded by old 18 Highway on the north, Martinville and the old blacktop road past the Grand River bridge on the south and by the Federal boundary on the east and west sides. The area is closed to all public activity and disturbance from December 1 through March 15 of each year.

Soil erosion is a major concern throughout Missouri and can be serious in areas of concentrated agricultural activities without physical controls. Local soil conservation technicians have completed soil and water conservation plans on the Upper Tebo Creek, Bethlehem, and Brownington Wildlife Areas. Plans are being developed on the Sac-Osage and Cross Timbers Wildlife Areas. The main erosion areas are being seeded to a permanent vegetative cover.

b. Forestry Resource. An extensive expanse of forest occurs on the management lands. This resource consists of two main types. The ridges and upper slopes are primarily upland hardwoods of the oak-hickory type. The river bottoms, lower elevations and stream beds of the tributaries are primarily pin oak, ash, maple and cottonwood. Pecan and walnut are scattered throughout the district and are valuable as a lumber source and for nut production.

Most of the forest has been cut over with only a few areas containing a mix of age classes. Because of repeated burning, coordination of timber and wildlife resources will be particularly challenging. Limited access in some areas will also preclude some management options.

The forest inventory process has been initiated on Gallinipper, Gouge Eye and Brush Creek Wildlife Areas as established in the Compartment Inventory Procedure (Missouri Department of Conservation 1973). Agricultural Handbook 355 (Roach and Gingrich 1968) is used to analyze basal area, tree count and percent stocking.

The concept of multiple use is now in effect as explained in the Forest Land Management Guide (Missouri Department of Conservation 1986). The overall inventory process and silvicultural practices remain the same, however, management objectives and goals established before the inventory will dictate the intensity of management.

The forested acreage in the Truman District has been divided into compartments of approximately 1,000 acres each. Each compartment is scheduled for inventory with re-entry every 10th year. Silvicultural practices such as intermediate cuts or regeneration cuts are based on inventory data.

In addition to the ongoing inventory procedure, a by-permit-only fuelwood harvesting program is implemented for residential use. The unit(s) are inventoried, marked and numbered into approximately three cord units. The stands are marked to provide fuelwood for residential use while leaving the quality trees to grow. The thinning procedure by the public is successful. Permit compliance checks are needed at various times to insure proper implementation of the thinning.

c. Fisheries Resource. The 55,000 acres of surface water provide one of the largest fisheries in the west central portion of the state. Numerous small lakes and ponds also provide important impoundment fisheries.

Preimpoundment stockings were done in several of the low lying lakes. These lakes became inundated, thus boosting the present species population in the reservoir. The lake contains all the native lake fish species as well as exotics such as tiger muskies, hybrid stripers and striped bass.

Most of the small lakes and ponds on wildlife management lands contain bass, bluegill, green sunfish, crappie, channel catfish and bullheads. Some of these ponds and lakes have been overfished in the past and reproduction is low or nonexistent. In these ponds and lakes, reproduction and recruitment of most fish species is occurring but the standing crop of fish is low.

d. Public Use Facilities. Department personnel and equipment were used to construct and maintain parking lots and field access trails. This involved the use of road rock and periodic blading and mowing. Litter pickup and spraying are accomplished to improve the appearance of these parking lots. These areas are used mainly during the hunting and fishing seasons.

Major rebuilding and repair to access roads have been needed to provide better surfaces or accesses. Total cost of the project was $37,000.

Camping is popular each year in connection with outdoor recreation. Adherence to the following guidelines will eliminate the need for tighter restrictions and closure of some areas in the future. The aim of the Department of Conservation is to provide a quality experience, but in a safe and reasonable fashion. Effort is being made to provide safe recreation opportunities that are compatible with various public uses and the natural resources.

(1) Primitive camping is allowed by the Department only during the firearms deer and spring turkey seasons on the wildlife management areas. Camping activities not during these seasons are restricted to developed recreation use areas.

(2) Camping is allowed in the parking lots and within 50 feet of old county roads.

(3) Camping is prohibited in areas closed by posting or by gates on the road or trail.

(4) Blockage of roads and trails by vehicles or camping equipment is prohibited.

(5) Campers are required to keep the campsites free of trash and litter during the period of occupancy and clean up the campsite and remove all personal equipment, poles, lines, etc. upon departure.

(6) Cutting of standing trees for firewood and lodge poles is prohibited.

(7) All fire pits must be filled and the area returned to a natural condition upon departure.

Part 327 of Title 36 is entitled "Rules and Regulations Governing Public Use of Corps of Engineers Water Resources Development Projects". Section 327.7 is under the heading of "Camping". This section permits camping only at sites and/or areas designated by the District Engineer. The District Engineer has permitted primitive camping in the past on State managed wildlife lands during the firearms deer and spring turkey seasons.

This rather random overnight use outside of designated parks needs to be discussed with the Missouri Department of Conservation. A consistent and workable policy should be established to preclude public confusion on camping rights outside of designated parks during specific seasons. Fishermen also have difficulty understanding why they cannot also camp in isolated areas of the project similar to hunters.

The boundary is posted with standard wildlife management signs informing the public that the areas are open to public use and informing users of the area's boundaries. Wording adjacent to private property indicates "End of Public Use Area" to avoid trespass on private lands. With approximately 1,000 miles of exterior boundary to post and 300 miles of interior roads, boundary posting is a continuing process. An effort is made before the major hunting seasons each year to post the interior and some exterior boundaries to create a public awareness of huntable land. Special regulations apply to the waterfowl management zone on the Grand River Bottoms Wildlife Area. This zone is signed along the boundary with the following wording "Waterfowl Refuge, No Trespassing from December 1 to March 15." The signs are prepared by the Department sign shop.

Within the authority of the Department, patrolling and policing of the licensed lands, including water areas, is carried out by the Conservation Agents and Department personnel assigned to the area.

VII. SPECIAL PROBLEMS AND/OR CONCERNS

7-1. Management of Public Roads Located on Project Land. A plan was approved to utilize selected public roads vacated on lands at Truman for authorized project purposes (Design Memorandum 36, Master Plan, Supplement 4 entitled "Management of Vacated Public Roads Located on Project Lands"). Only 13 vacated roads outside the parks were judged in the plan as suitable to provide public access to project lands and waters.

According to the plan, access to the lake is currently provided on the average of once every 6 miles in the lower portion of the project. A 10 to 12 mile interval is available in the upper reaches of the lake. These 13 vacated roads should be reopened to provide access between boat ramps in the existing parks and licensed areas. The roads should be reopened only at the request of a local entity which must agree to various license requirements.

There are presently 85 boat ramp lanes open to the public at the Truman project. Eight of these lanes are provided by local entities under a license agreement (See Table VI-4). As subdivisions are continuously being platted around the project there will be additional demand by developers and adjacent property owners for public and water access. The problem foreseen is the proliferation of request for licensing action based mainly on the location of the nearby development. A management policy will be considered in a separate design memorandum or the forthcoming operational management plan to handle the anticipated requests while meeting valid access needs around the project. Suitable sites for access and not just the location of subdivisions should be the criteria for licensing action to provide additional needed boat launching facilities around the project. Vehicular access should be permitted only on suitable sites, provided aesthetic, environmental and natural resource values are not compromised or destroyed.

7-2. Wildlife Mitigation Lands and Other Uses. There were previously approved land classification that have conflicted with the fish and wildlife mitigation report of 26 March 1965. The report is entitled "Kaysinger Bluff Dam and Reservoir, Osage River Basin, Missouri, Fish and Wildlife Conservation". Twelve areas were identified from the outset to be managed for fish and wildlife purposes as project mitigation.

A 15 acre sewage treatment facility for the City of Deepwater was developed on mitigation lands and conflicts with the objective of the acquisition. The acreage is shown as Compartment 50. This is a use conflict with the mitigation designation.

Other existing uses on areas designated to offset wildlife losses are of less conflict with the mitigation designation because they promote fishing opportunities. The Sac River Access is in the upper reaches of the project (Compartment 30). The water access point is managed by the Corps and is surrounded by lands licensed for fish and wildlife management purposes by Missouri Department of Conservation. The Department also manages the 44-acre Cross Timbers Access for public park and recreation purposes on the Pomme de Terre River arm (Compartment 14). The agency manages the surrounding property for related fish and wildlife purposes.

The Village of Roscoe manages 193 acres under a lease agreement for public parks and recreation purposes. The lands in the upper Osage River reach near the Village had been identified however for mitigation in the 1965 report. The lands were subsequently leased to the community after coordination with the Missouri Department of Conservation. The Department indicated that leasing the area in the platted village would reduce the potential for future conflict between fishermen and hunters and local residents and resort owners.

The problem is that there are existing use conflicts on wildlife mitigation lands. Some however help to serve a fish and wildlife purpose by providing needed access facilities. Any future consideration to dispose of or use these lands for other than wildlife mitigation purposes must first be coordinated with the Fish and Wildlife Service and Missouri Department of Conservation. The mitigation allocation should hold precedent over any contrary use to the designated purpose of the land acquisition.

7-3. Tournament Usage. Numerous permits are issued each year for tournament activities at the Truman project (See Table VII-1).

Table VII-1 - Tournament Activities at Truman

Year	Permits Issues	Estimated Number of Boats
1982	199	3,797
1983	202	5,995
1984	294	8,179
1985	286	7,892
1986	249	8,013

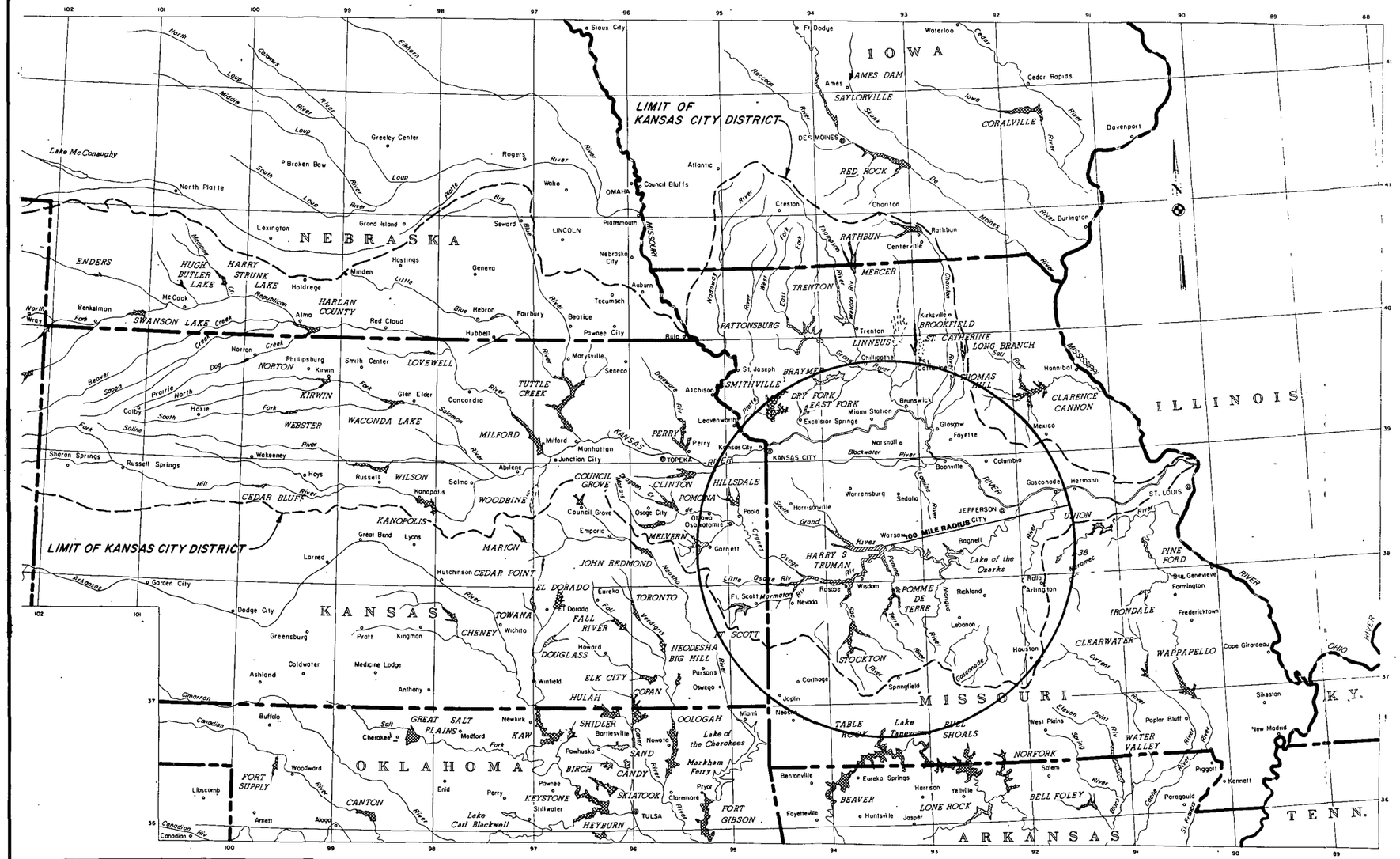
Source: Missouri State Water Patrol in Jefferson City, Missouri

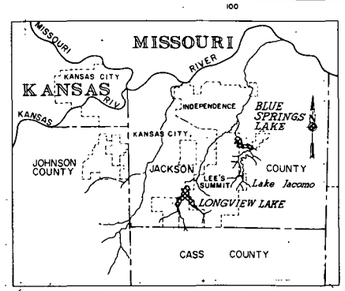
Almost all of these tournaments are held on weekends. The organized tournament activities inhibit other boat launching efforts at water access points. Normally the preferred boat ramp by tournaments organizers is in a popular park and/or near a marina. Such use creates an excessive demand for boat launching facilities at a designated time which is mainly on weekends. Operations Division will attempt to find a solution to overcrowding problem within preferred boat launching areas around the lake on weekends.

VIII. Conclusion

8-1. Conclusion

This Master Plan for Truman establishes guidelines which will be applied in the future management of the project. The plan is not a rigid plan of action. It is, rather, a set of guidelines which have been developed through a study of the influencing factors presently known, with their appropriate application to the planned management and development of the project. This Master Plan describes development and management for the use of Federally-owned lands for maximum public benefit. This plan has been developed so that it is flexible, and needed changes can be incorporated through approved amendments without disruption of the entire plan.





VICINITY OF KANSAS CITY

LEGEND

LAKES

- Completed
- Under Construction
- Planning
- Authorized
- Recommended
- Others of Note

Scale in Miles: 0, 25, 50, 75, 100

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

APPROVAL RECOMMENDED:
CHIEF, PLANS & POLICIES SECT., NAT. RES. MGMT. BR.

APPROVAL RECOMMENDED:
CHIEF, NATURAL RESOURCE MGMT. BR.

APPROVED:
CHIEF, OPERATIONS DIVISION

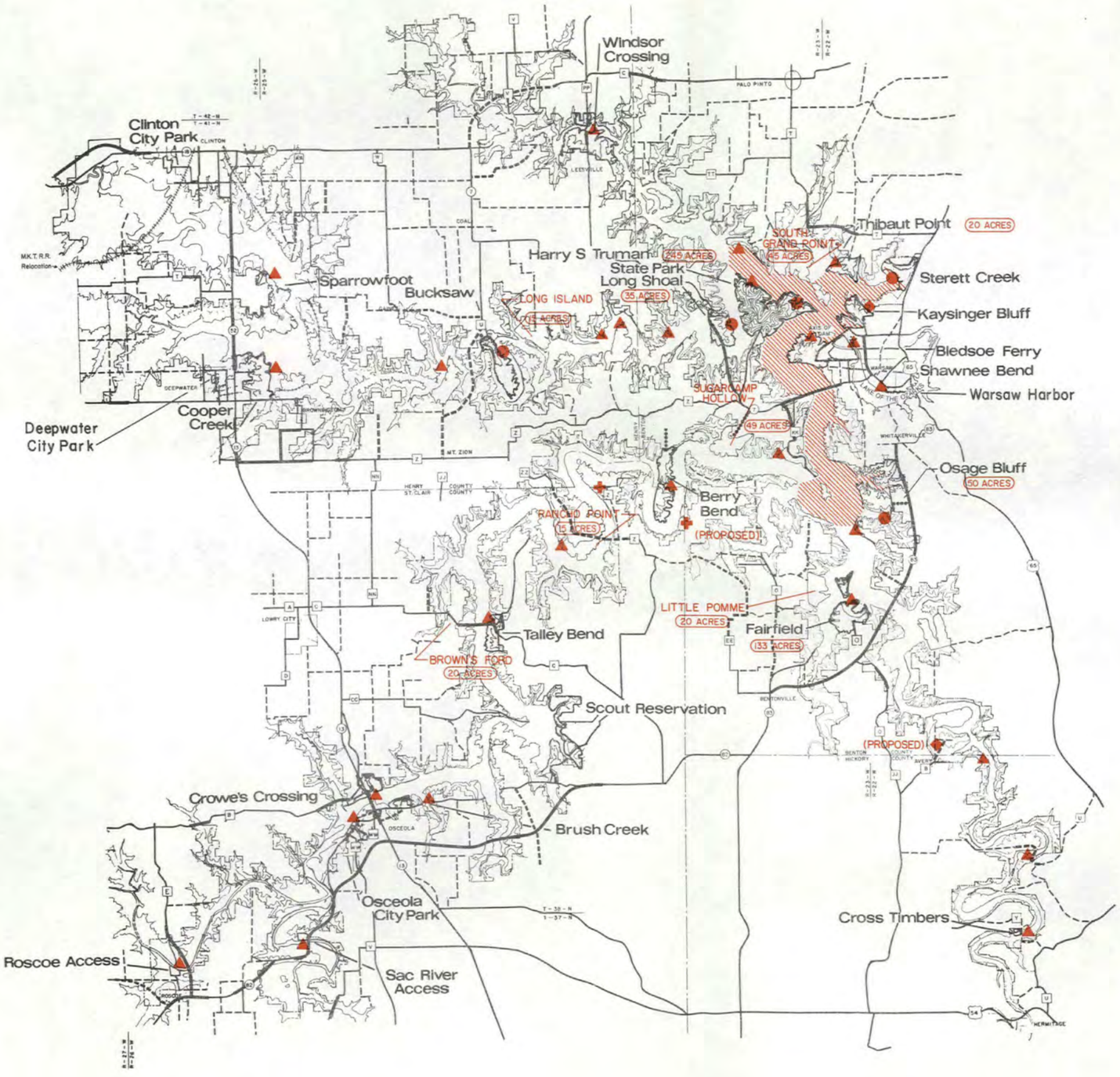
Revisions			
Symbol	Descriptions	Date	Approved

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

Designed by: G.D.M.	US Army Corps of Engineers
Drawn by: T.W.L.	OSAGE RIVER, MISSOURI HARRY S. TRUMAN DAM & RESERVOIR MASTER PLAN
Checked by: R.L.B.	AREA OF INFLUENCE
Submitted by: M.W.C.	Scale:
	Date: OCTOBER 1988
	Dwg. No.: 36A
	Dist number: 0-12-10451

PLATE 1

#14
ED-C
Record Copy



LEGEND

RECREATION AREAS
Recreation – Intensive Use (Initial)

POOL ELEVATION
~706~ Multipurpose Pool
--739.6-- Flood Pool

Project Boundary
County Boundary

Hiking Trail
Equestrian Trail
Marina & Boat Ramp
Boat Ramp
Seaplane Landing Area
(20 ACRES) Separable Recreation Lands (See Table IV-2)

Scale in Feet
0 8000 16000 24000 32000

Revisions			
Sym.	Description	Date	App'd

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

Designed by: G.D.M.	OSAGE RIVER, MISSOURI HARRY S. TRUMAN DAM & RESERVOIR MASTER PLAN
Drawn by: T.W.L.	COMPOSITE MAP AND MISCELLANEOUS FEATURES
Checked by: R.L.B.	Scale:
Submitted by: M.W.C.	Date: OCTOBER 1988
	Dwg. No.: 36A
	DM number: 0-12-10452

SEE SHEET 8

SEE SHEET 6

SEE SHEET 2

SEE SHEET 2

SEE INSET DOWNSTREAM AREA

FEWELL CEMETERY

PALO PINTO

Brush Creek

Brush Creek Wildlife Area

62

Cedar Cr.

Ditler Branch

Flemming Branch

R-23-W

R-22-W

TINDLE CEMETERY

TEBO ISLANDS

CEMETERY

Little Tebo Creek Wildlife Area

65

SUGAR CAMP HOLLOW

KENNEDY CEMETERY

HENRY COUNTY

BENTON COUNTY

POE CEMETERY

CRAWFISH HOLLOW

MACK'S GRAND RIVER RAMP

64

South Grand Point

Thibaut Point Park

66

T Highway

67

E. OF DIKE

Tebo Creek Wildlife Area

7

RACKET

60

Tightwad/Racket

Harry S. Truman State Park

44

SOUTH GRAND ISLAND

Sterett Creek

Sterett Creek Park

68

69

Sterett Creek Dike

70

Dump Road

Kaysinger Bluff Park

71

FINEY COMMUNITY RAMP

COUNTY LINE RAMP

Long Shoal Park

61

Osage/Grand River

43

Shawnee Bend Park

3

Administration Area

2

Bledsoe Ferry Park

1

WARSAW

WARSAW GOLF COURSE

LAKE of the OZARKS

739.6

706

11

T

TT

INSET

HARRY S. TRUMAN DAM

Downstream Fee Lands

Warsaw Harbor Park

72

73

N

KEY MAP

Clinton City Park

Windsor Crossing

Long Shoal

H.S.T. State Park

Bucksaw

Thibaut Point

Sterett Creek

Kaysinger Bluff

Bledsoe Ferry

Shawnee Bend

Warsaw Harbor

Osage Bluff

Sparrowfoot

Deepwater Park

Cooper Creek

Berry Bend

Talley Bend

Crowe's Crossing

Fairfield Access

Scout Reservation

Brush Creek

Osceola City Park

Soc River Access

Cross Timbers Access

Roscoe Park

LEGEND

LAND CLASSIFICATIONS
- PROJECT OPERATIONS
- RECREATION
- NONE — ENVIRONMENTAL SENSITIVE

MULTIPLE RESOURCE MANAGEMENT
- WILDLIFE MANAGEMENT GENERAL
- RECREATION-LOW DENSITY
- NONE — VEGETATIVE MANAGEMENT

MITIGATION 5

POOL ELEVATION
- —706— Multipurpose Pool
- —739.6— Flood Pool

ROAD FACILITIES
- (65) (7) Federal and State Road Markers
- Paved Road
- Gravel Road
- Unpaved Road
- Trail
- Project Boundary

EXISTING FACILITIES
- Electric Transmission Lines
- Missile Cable
- Petroleum Pipe Line
- Railroad
- Cemetery (As Named)
- School
- House
- Mine
- Church

Scale in Feet: 0 2000 4000 6000 8000

Revisions			
Symbol	Descriptions	Date	Approved

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

Designed by: G.D.M.
Drawn by: T.W.L.
Checked by: R.L.B.
Submitted by: M.W.C.

US Army Corps of Engineers

OSAGE RIVER, MISSOURI
HARRY S. TRUMAN DAM & RESERVOIR
MASTER PLAN

LAND CLASSIFICATIONS

Scale:
Date: OCTOBER 1988
Sheet number: 1
DM number: 36A
Dwg. No.: 0-12-10453

PLATE 3

SEE SHEET 1

SEE SHEET 6

SEE SHEET 4

SEE SHEET 3

WARSAW GOLF COURSE

LAKE OF THE OZARKS

West Haven Wildlife Area

Berry Bend Park

Berry Bend

Osage/Grand River

Cedar Grove

Sugarcamp Hollow

COBB BLUFF

LAY'S VALLEY VIEW RAMP

Highway KK Island

Tatge Wildlife Area

WHITAKERVILLE

Laird's Bluff

Turpin Branch Wildlife Area

Osage Bluff Park

Equestrian Camp

HENRY CO
BENTON CO
R-24-W
R-23-W

ST. CLAIR COUNTY
BENTON COUNTY

T-40-N
T-39-N

VANCE CEMETERY

VANCE BRANCH

POM-OSA HEIGHT RAMP

CEMETERY

CRABTREE CEMETERY

Mockingbird Hill

Indian Hill Island

Eastern Redcedar Natural Area

WHIG CREEK

HOGLES CREEK

Scott's Camp

Tebbetts Hill

CAMPBELL CEMETERY

Fairfield Wildlife Area

Fairfield Access Point

Negro Springs

Wisdom / Little Pomme De Terre Wildlife Area

Lower Pomme De Terre Wildlife Area

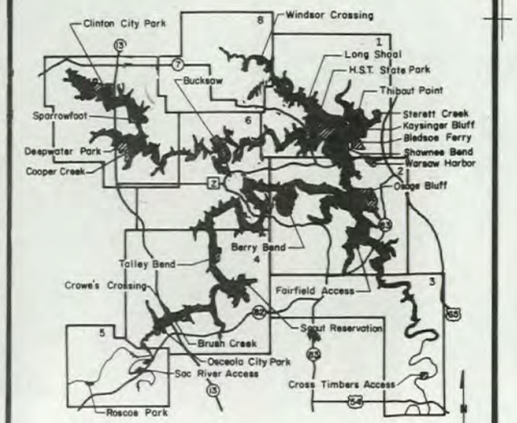
HUMPER CEMETERY

JOPLIN CEMETERY

Prairie Creek

739.6

706



KEY MAP

LEGEND

LAND CLASSIFICATIONS
- NONE — PROJECT OPERATIONS
- RECREATION
- ENVIRONMENTAL SENSITIVE

MULTIPLE RESOURCE MANAGEMENT
- WILDLIFE MANAGEMENT GENERAL
- RECREATION – LOW DENSITY
- NONE — VEGETATIVE MANAGEMENT

MITIGATION 5

POOL ELEVATION
- 706 — Multipurpose Pool
- 739.6 — Flood Pool

ROAD FACILITIES
- 65 (7) Federal and State Road Markers
- Paved Road
- Gravel Road
- Unpaved Road
- Trail
- Project Boundary

EXISTING FACILITIES
- Electric Transmission Lines
- Missile Cable
- Petroleum Pipe Line
- Railroad
- Cemetery (As Named)
- School
- House
- Mirie
- Church

Scale in Feet: 0 2000 4000 6000 8000

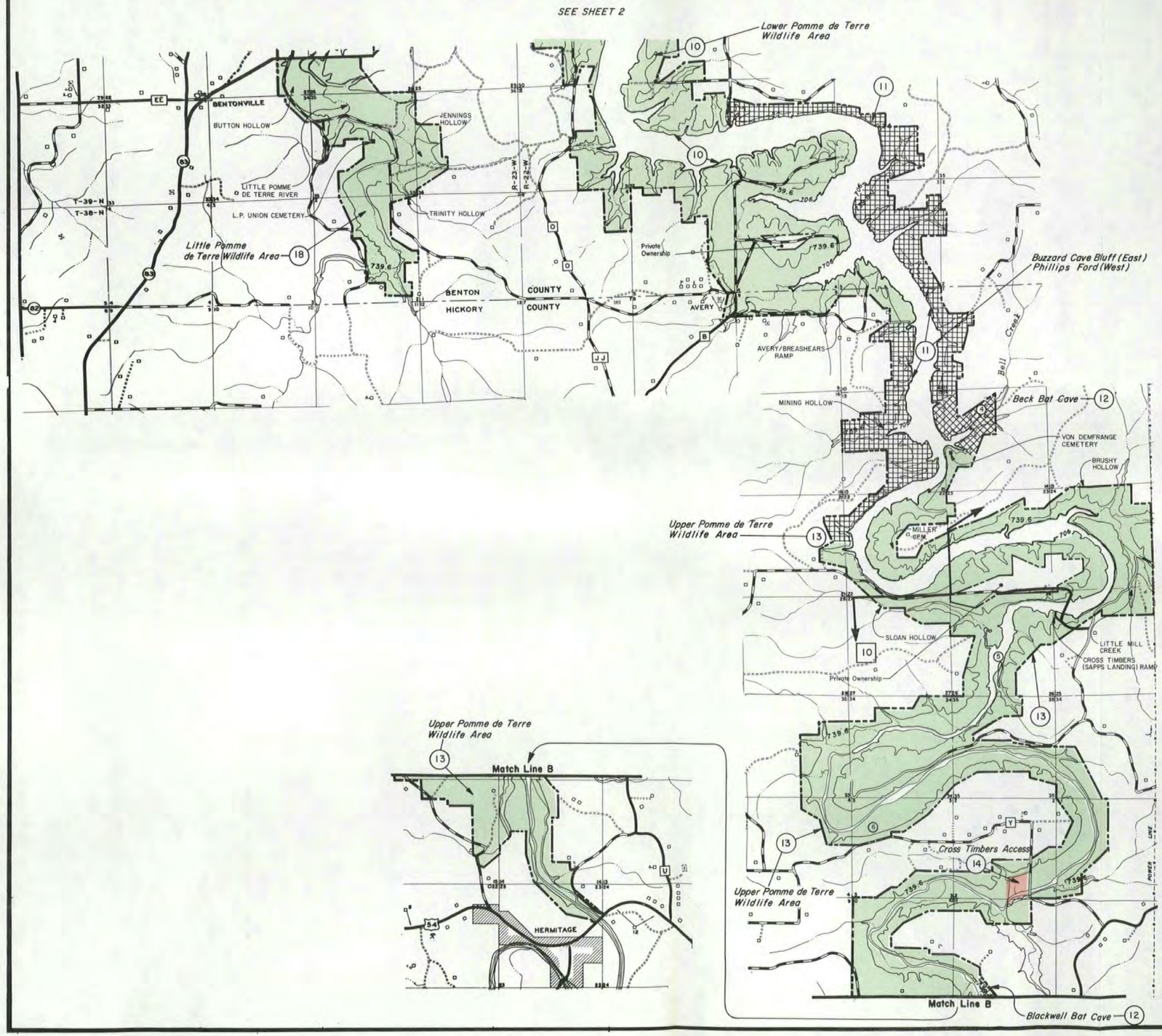
north

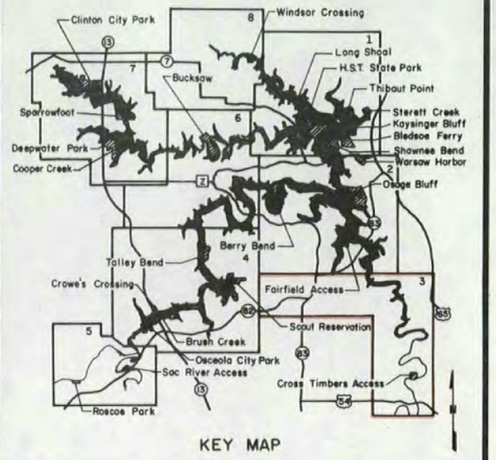
Revisions			
Symbol	Descriptions	Date	Approved

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

Designed by: G.D.M.	OSAGE RIVER, MISSOURI HARRY S. TRUMAN DAM & RESERVOIR MASTER PLAN
Drawn by: T.W.L.	LAND CLASSIFICATIONS
Checked by: R.L.B.	Scale:
Submitted by: M.W.C.	Date: OCTOBER 1988
	Sheet number: 2
	DM number: 36A
	Dwg. No.: 0-12-10454

PLATE 4





KEY MAP

LEGEND

LAND CLASSIFICATIONS

- NONE — PROJECT OPERATIONS
- RECREATION
- ENVIRONMENTAL SENSITIVE

MULTIPLE RESOURCE MANAGEMENT

- WILDLIFE MANAGEMENT
- NONE — RECREATION–LOW DENSITY
- VEGETATIVE MANAGEMENT

MITIGATION 5

POOL ELEVATION

- —706— Multipurpose Pool
- —739.6— Flood Pool

ROAD FACILITIES

- 65 (7) Federal and State Road Markers
- Paved Road
- Gravel Road
- Unpaved Road
- Trail
- Project Boundary

EXISTING FACILITIES

- Electric Transmission Lines
- Missile Cable
- Petroleum Pipe Line
- Railroad
- Cemetery (As Named)
- School
- House
- Mine
- Church

Scale in Feet: 0 2000 4000 6000 8000

NORTH

Revisions			
Symbol	Descriptions	Date	Approved

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

Designed by: G.D.M.	OSAGE RIVER, MISSOURI HARRY S. TRUMAN DAM & RESERVOIR MASTER PLAN
Drawn by: T.W.L.	LAND CLASSIFICATIONS
Checked by: R.L.B.	Scale:
Submitted by: M.W.C.	Date: OCTOBER 1988
	Sheet number: 3
	DM number: 36A
	Dwg. No.: 0-12-10455

US Army Corps of Engineers

SEE SHEET 6

Muddy Creek Wildlife Area — 36

LOWRY CITY

Big Muddy Creek

Turkey Hollow — 35

DAMASCUS

Wolf Creek

50 YEAR DELTA

Horseshoe Bend — 34

Corbin Wildlife Area (North) — 25

SLOUGH BRANCH

WALNUT HOLLOW

PEEBLY CEMETERY

Crowe's Crossing Park — 33

Gallinipper Wildlife Area — 29

Osceola City Park — 27

OSCEOLA

Sac-Osage Youth Fairground — 28

Brush Creek Access — 26

WISNER I CEMETERY

WISNER II CEMETERY

Brush Creek

Corbin Wildlife Area (South) — 25

Weaubleau Creek

Bear Creek

BRILEY CREEK

Talley Bend Park — 22

JOHNSON CEMETERY

Valhalla / Talley Wildlife Area — 21

HAPPY HOLLOW

Shady Grove Wildlife Area — 23

MOORE HOLLOW

SUTTON HOLLOW

BLALOCK HOLLOW

ICONIUM

Heart of America Council Scout Reservation — 24

R-25-W
R-24-W
R-26-W
R-25-W

SEE SHEET 5

KEY MAP

LEGEND

LAND CLASSIFICATIONS
- NONE — PROJECT OPERATIONS
- RECREATION
- ENVIRONMENTAL SENSITIVE

MULTIPLE RESOURCE MANAGEMENT
- WILDLIFE MANAGEMENT GENERAL
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Scale in Feet: 0 2000 4000 6000 8000

North

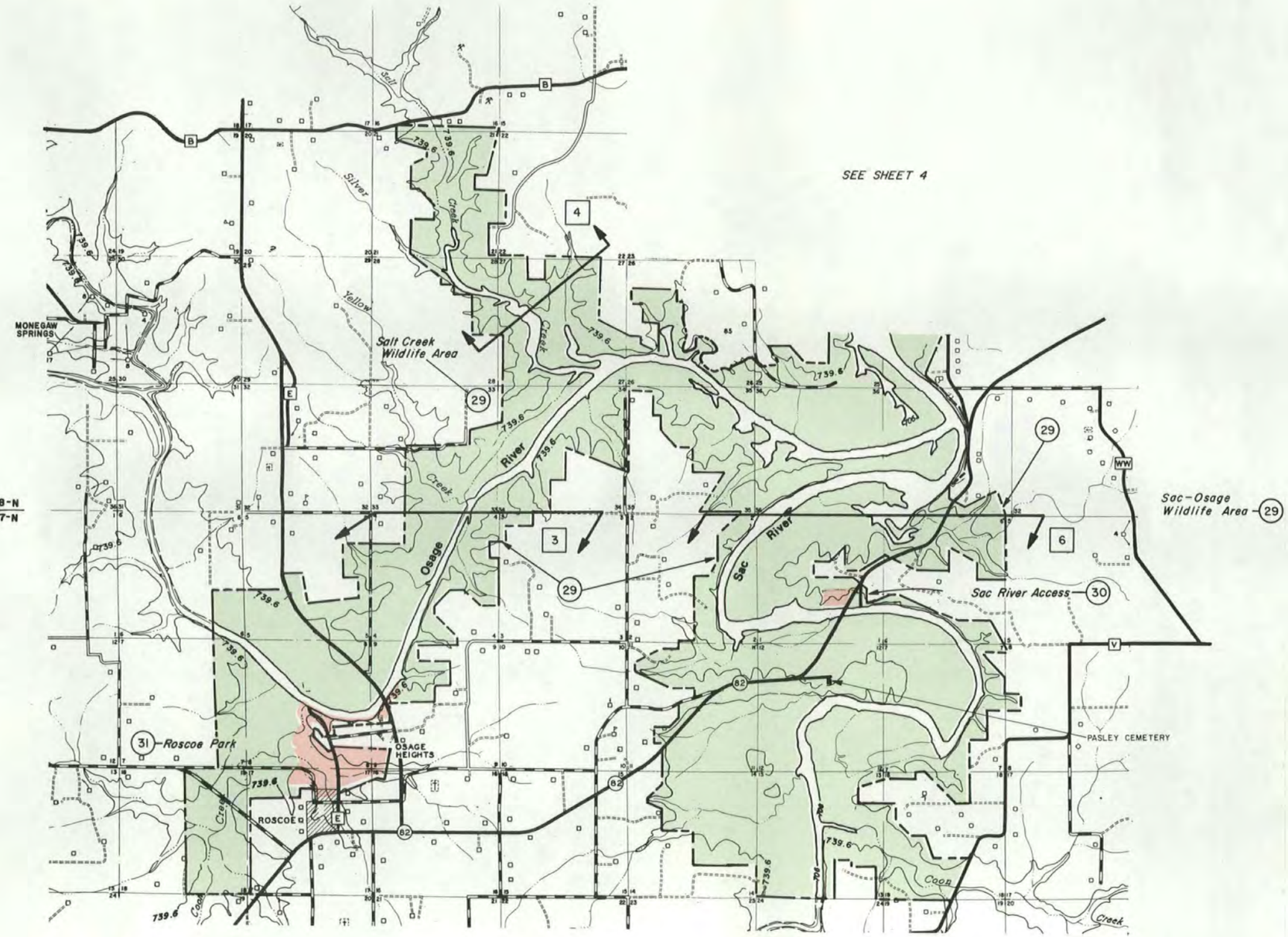
Revisions			
Symbol	Descriptions	Date	Approved

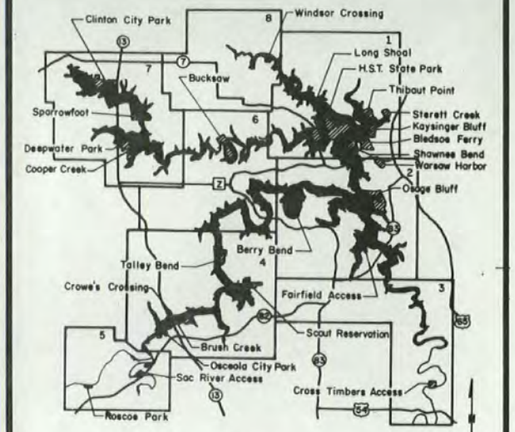
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: G.D.M.	OSAGE RIVER, MISSOURI HARRY S. TRUMAN DAM & RESERVOIR MASTER PLAN
Drawn by: T.W.L.	LAND CLASSIFICATIONS
Checked by: R.L.B.	Scale: — Sheet number: 4
Submitted by: M.W.C.	Date: OCTOBER 1988 — DM number: 36A
	Dwg. No.: 0-12-10456

US Army Corps of Engineers

PLATE 6





KEY MAP

LEGEND

LAND CLASSIFICATIONS
- NONE — PROJECT OPERATIONS
- RECREATION
- NONE — ENVIRONMENTAL SENSITIVE

MULTIPLE RESOURCE MANAGEMENT
- WILDLIFE MANAGEMENT GENERAL
- NONE — RECREATION—LOW DENSITY
- NONE — VEGETATIVE MANAGEMENT

MITIGATION 5

POOL ELEVATION
- —706— Multipurpose Pool
- —739.6— Flood Pool

ROAD FACILITIES
- Federal and State Road Markers
- Paved Road
- Gravel Road
- Unpaved Road
- Trail
- Project Boundary

EXISTING FACILITIES
- Electric Transmission Lines
- Missile Cable
- Petroleum Pipe Line
- Railroad
- Cemetery (As Named)
- School
- House
- Mine
- Church

Scale in Feet: 0 2000 4000 6000 8000 (north)

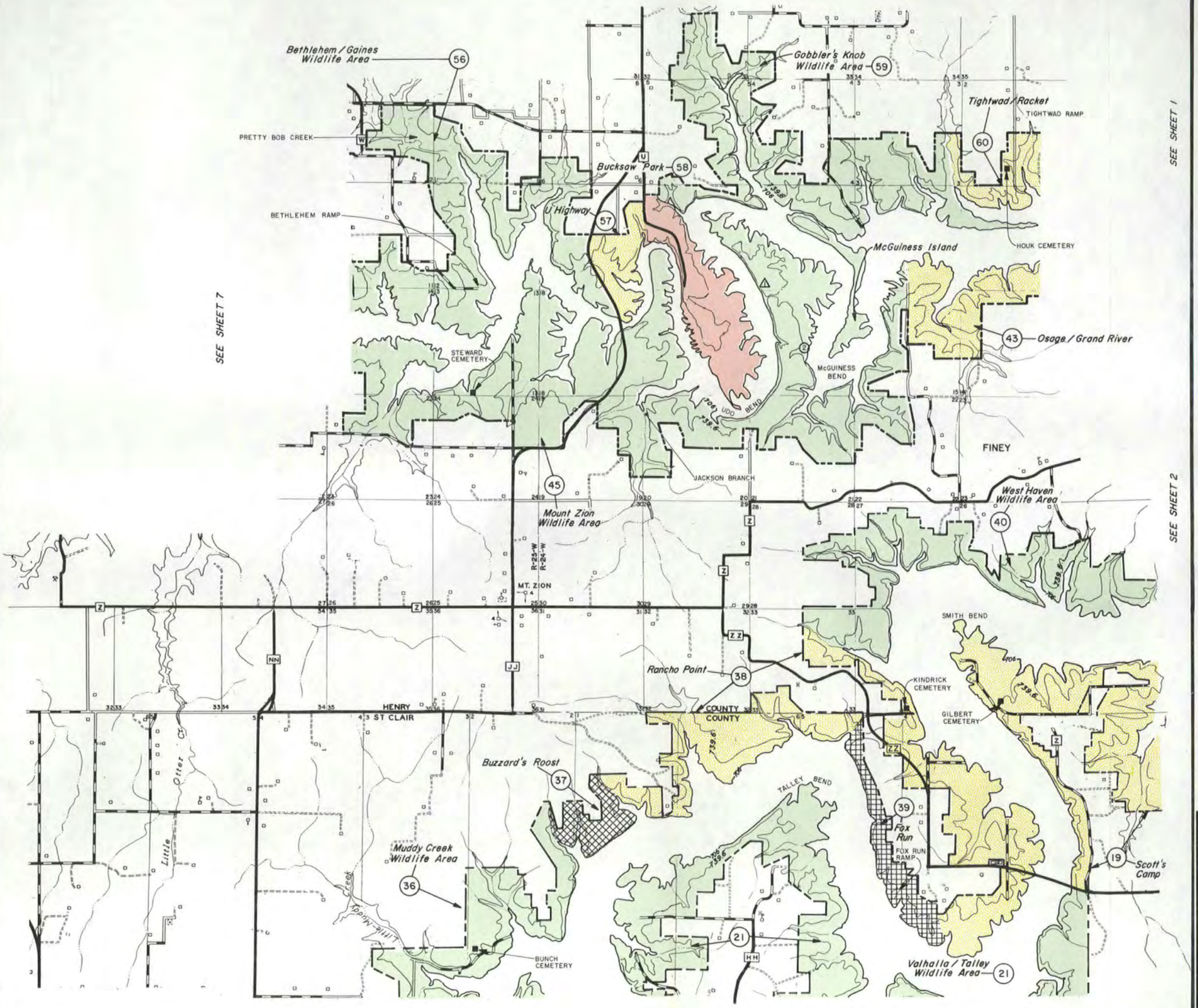
Revisions			
Symbol	Descriptions	Date	Approved

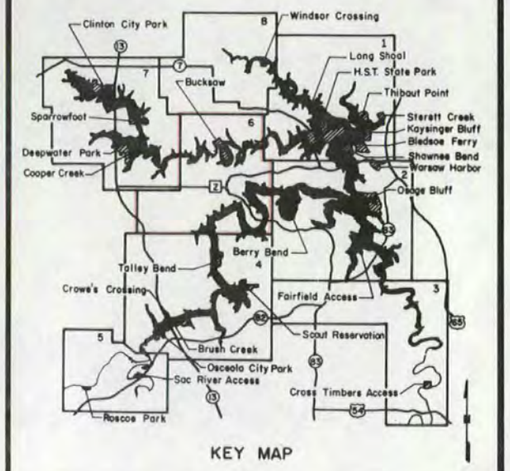
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: G.D.M.	OSAGE RIVER, MISSOURI HARRY S. TRUMAN DAM & RESERVOIR MASTER PLAN
Drawn by: T.W.L.	LAND CLASSIFICATIONS
Checked by: R.L.B.	Scale: — Sheet number: 5
Submitted by: M.W.C.	Date: OCTOBER 1988 — DM number: 36A
	Dwg. No.: 0-12-10457

US Army Corps of Engineers

PLATE 7





LEGEND

LAND CLASSIFICATIONS
- NONE — PROJECT OPERATIONS
- RECREATION
- ENVIRONMENTAL SENSITIVE

MULTIPLE RESOURCE MANAGEMENT
- WILDLIFE MANAGEMENT GENERAL
- RECREATION – LOW DENSITY
- VEGETATIVE MANAGEMENT

MITIGATION 5

POOL ELEVATION
- 706 — Multipurpose Pool
- 739.6 — Flood Pool

ROAD FACILITIES
- Federal and State Road Markers
- Paved Road
- Gravel Road
- Unpaved Road
- Trail
- Project Boundary

EXISTING FACILITIES
- Electric Transmission Lines
- Missile Cable
- Petroleum Pipe Line
- Railroad
- Cemetery
- School
- House
- Mine
- Church

Scale in Feet: 0 2000 4000 6000 8000

Revisions			
Symbol	Descriptions	Date	Approved

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

Designed by: G.D.M.
Drawn by: T.W.L.
Checked by: R.L.B.
Submitted by: M.W.C.

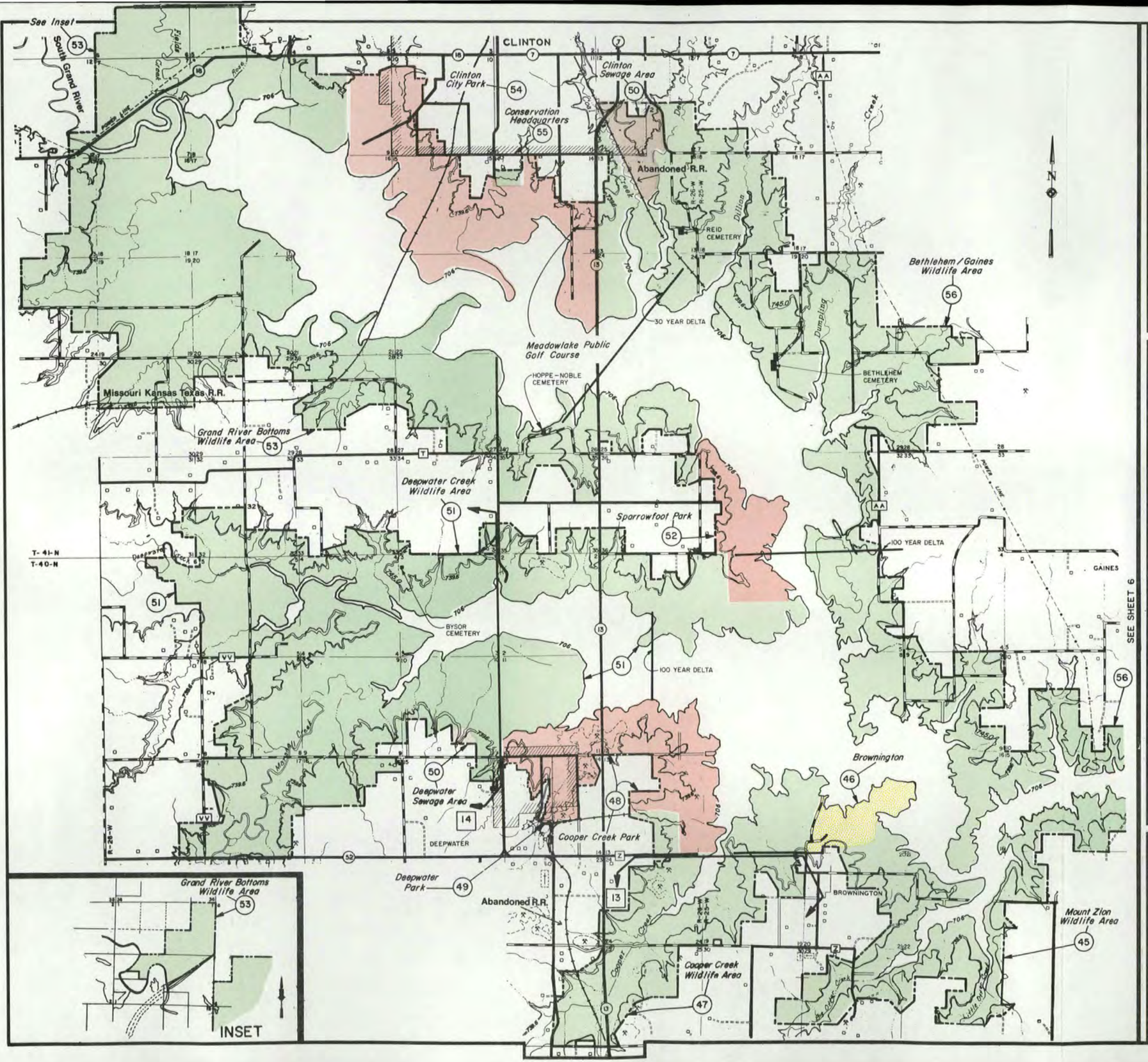
US Army Corps of Engineers

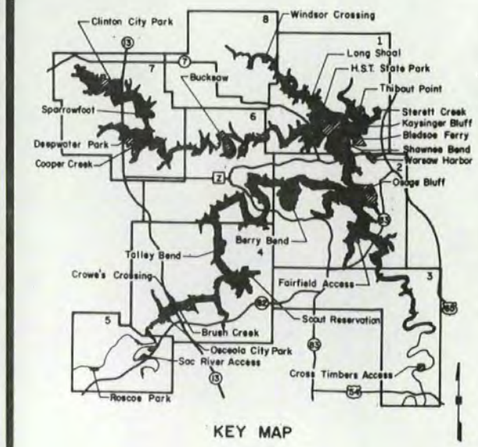
OSAGE RIVER, MISSOURI
HARRY S. TRUMAN DAM & RESERVOIR
MASTER PLAN

LAND CLASSIFICATIONS

Scale:
Date: OCTOBER 1988
Sheet number: 6
Dwg. No.:
DM number: 36A
0-12-10458

PLATE 8





KEY MAP

LEGEND

LAND CLASSIFICATIONS
- PROJECT OPERATIONS
- RECREATION
- NONE — ENVIRONMENTAL SENSITIVE

MULTIPLE RESOURCE MANAGEMENT
- WILDLIFE MANAGEMENT
- RECREATION - LOW DENSITY
- NONE — VEGETATIVE MANAGEMENT

MITIGATION 5

POOL ELEVATION
- —706— Multipurpose Pool
- —739.6— Flood Pool

ROAD FACILITIES
- Federal and State Road Markers
- Paved Road
- Gravel Road
- Unpaved Road
- Trail
- Project Boundary

EXISTING FACILITIES
- Electric Transmission Lines
- Missle Cable
- Petroleum Pipe Line
- Railroad
- Cemetery (As Named)
- School
- House
- Mine
- Church

Scale in Feet: 0 2000 4000 6000 8000

Revisions			
Symbol	Descriptions	Date	Approved

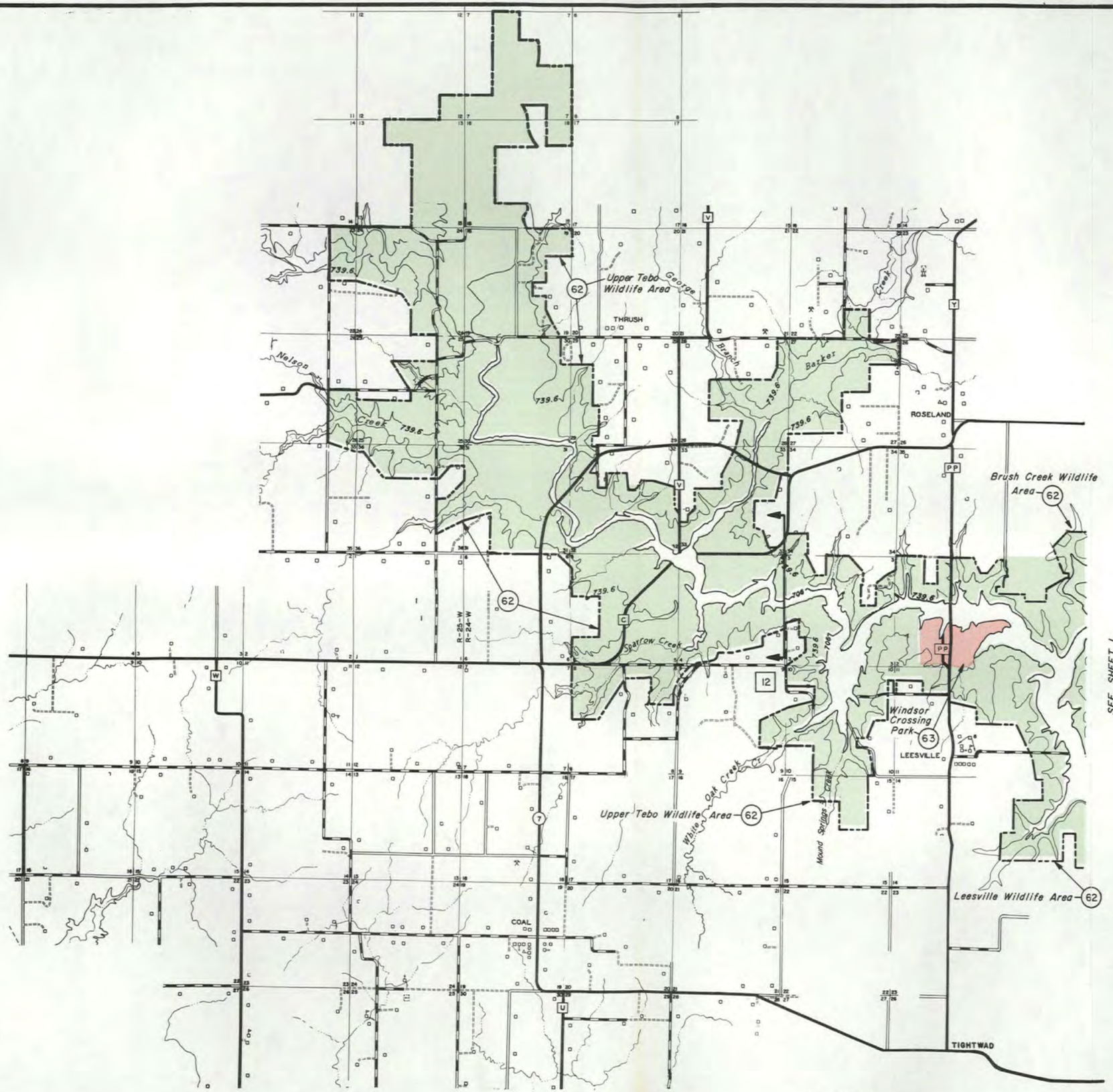
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

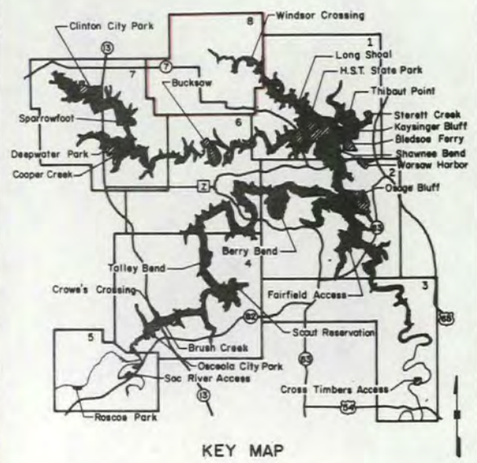
OSAGE RIVER, MISSOURI
HARRY S. TRUMAN DAM & RESERVOIR
MASTER PLAN

LAND CLASSIFICATIONS

Designed by:	G.D.M.
Drawn by:	T.W.L.
Checked by:	R.L.B.
Submitted by:	M.W.C.
Scale:	
Date:	OCTOBER 1988
Sheet number:	7
DM number:	36A
Dwg. No.:	
File No.:	0-12-10459

PLATE 9





LEGEND

LAND CLASSIFICATIONS
- NONE — PROJECT OPERATIONS
- RECREATION
- NONE — ENVIRONMENTAL SENSITIVE

MULTIPLE RESOURCE MANAGEMENT
- WILDLIFE MANAGEMENT GENERAL
- NONE — RECREATION—LOW DENSITY
- NONE — VEGETATIVE MANAGEMENT
- MITIGATION 5

POOL ELEVATION
- —706— Multipurpose Pool
- —739.6— Flood Pool

ROAD FACILITIES
- 65 (7) Federal and State Road Markers
- Paved Road
- Gravel Road
- Unpaved Road
- Trail
- Project Boundary

EXISTING FACILITIES
- Electric Transmission Lines
- Missile Cable
- Petroleum Pipe Line
- Railroad
- Cemetery (As Named)
- School
- House
- Mine
- Church

Scale in Feet: 0 2000 4000 6000 8000 — NORTH

Revisions			
Symbol	Descriptions	Date	Approved

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

Designed by: G.D.M.	OSAGE RIVER, MISSOURI HARRY S. TRUMAN DAM & RESERVOIR MASTER PLAN
Drawn by: T.W.L.	LAND CLASSIFICATIONS
Checked by: R.L.B.	Scale:
Submitted by: M.W.C.	Date: OCTOBER 1988
	Sheet number: 8
	DM number: 36A
	Dwg. No.: 0-12-10460

PLATE 10

89 CAMPING UNITS
6 VAULT TOILETS
1 WASHHOUSE
6 WATER SPIGOTS
1 PLAYGROUND
1 GROUP AREA

20 PICNICKING UNITS
1 WELL
1 VAULT TOILET
1 GROUP SHELTER
1 WATER SPIGOT

STABILIZATION POND

4 LANE BOAT RAMP
1 VAULT TOILET
1 WATER SPIGOT
1 COURTESY LIGHT
2 COURTESY DOCKS
4 LANE BOAT RAMP

FUTURE MARINA DEVELOPMENT

77 CAMPING UNITS
1 PLAYGROUND
1 WASHHOUSE
2 FLUSH TOILETS
9 WATER SPIGOTS
1 ENTRANCE STATION

105 CAMPING UNITS
1 PLAYGROUND
1 SHOWER BUILDING
2 COMFORT STATIONS
3 FLUSH TOILETS
1 VAULT TOILET
1 WELL
23 WATER SPIGOTS

SWIMMING BEACH
2 CHANGE HOUSES
1 VAULT TOILET
1 PLAYGROUND
1 BOAT BEACHING AREA
1 WATER SPIGOT
ENLARGE BEACH
ENLARGE PARKING

AMPHITHEATER

8 PICNICKING UNITS
1 VAULT TOILET
1 GROUP SHELTER
1 WATER SPIGOT
1 HIKING TRAIL
20 PICNICKING UNITS

PARK ATTENDANT SITE
RELOCATE

ENTRANCE STATION
RELOCATE

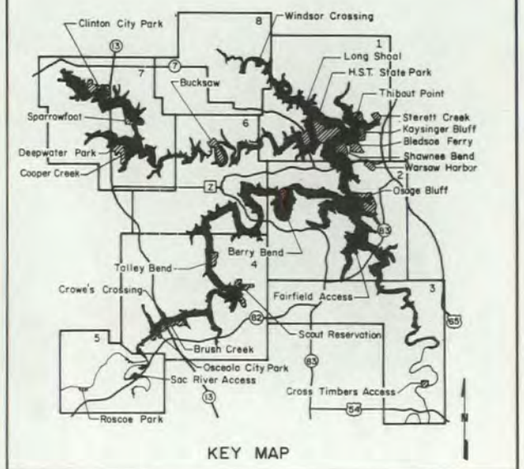
HARRY S. TRUMAN RESERVOIR
(MULTIPURPOSE POOL ELEV. 706.0)

113 CAMPING UNITS
(ALL ELECTRICAL HOOKUPS)
6 TENTING UNITS
1 PLAYGROUND
16 WATER SPIGOTS
1 SHOWER BUILDING
2 COMFORT STATIONS
3 VAULT TOILETS
1 ENTRANCE STATION

OLD CHANNEL OSAGE RIVER

T.40.N T.39.N

SCALE IN FEET 400 0 400 800



KEY MAP

LEGEND

Lake Pool, Elev. (M. S. L.)
- Multipurpose Pool 706
- Five Year Pool 726
- Flood Control Pool .....

Roads
- Federal, State and County Route Markers .....
- Improved .....
- Trail .....

Project Boundary .....
Park Boundary .....
Wooded Area .....

PARK DEVELOPMENT

Paved Roads and Parking	
Gravel Roads and Parking	
Picnic Shelter	PS
Group Shelter	GS
Changehouse	CH
Courtesy Dock	
Fishing Dock	FD
Playground	PG
Camp Circle	CC
Vault Toilet	
Flush Toilet	F
Quad Vault Toilet	Q
Quad Flush Toilet	QF
Shower Building	SB
Washhouse	WH
Comfort Station	CS
Bathhouse	BH
Sanitary Dump Station	SS
Treatment Plant	TP
Stabilization Pond	SP
Lift Station	LS
Sanitary Gravity Line	SS
Sanitary Force Main	FM
Well	
Water Line	W
Underground Electric Line	E
Mercury Vapor Lamp	
Water Spigot	

FUTURE DEVELOPMENT

Symbol	Revisions Descriptions	Date	Approved

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

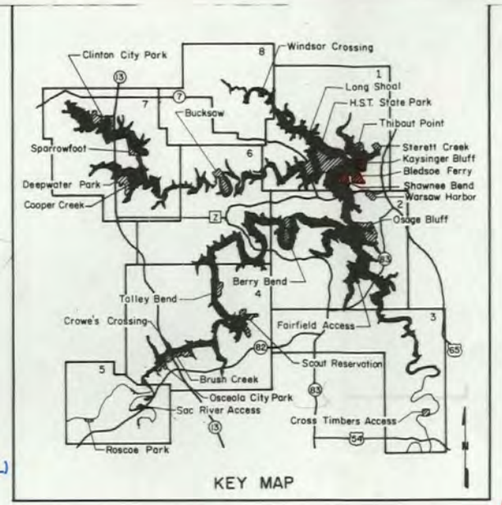
Designed by: G.D.M.
Drawn by: T.W.L.
Checked by: R.L.B.
Submitted by: M.W.C.

US Army Corps of Engineers

OSAGE RIVER, MISSOURI
HARRY S. TRUMAN DAM & RESERVOIR
MASTER PLAN
RECREATION AREA DEVELOPMENT

BERRY BEND PARK

Scale:
Date: OCTOBER 1988
DM number: 36A
Dwg. No.: 0-12-10461



150 CAMPING UNITS (50 ELECTRICAL)
1 WASHHOUSE
1 PLAYGROUND
15 WATER SPIGOTS
2 FLUSH TOILETS
1 SANITARY DUMP STATION
1 ENTRANCE STATION

SHAWNEE BEND PARK
2 4-LANE LAUNCHING RAMPS W/COURTESY DOCKS.
1 SWIMMING BEACH
1 BOAT BEACH
1 BATH HOUSE
3 VAULT TOILETS
2 GROUP SHELTERS
20 PICNICKING UNITS
4 WATER SPIGOTS

KAYSINGER BLUFF PARK
HARRY S. TRUMAN VISITORS CENTER.
HOOPER HOUSE (HISTORICAL)
2 WATER SPIGOTS
HIKING TRAIL
1 COMFORT STATION
10 PICNICKING UNITS
1 GROUP SHELTER
ROAD REALIGNMENT
1 FLUSH TOILET
ADDITIONAL HISTORICAL IMPROVEMENTS

HARRY S. TRUMAN RESERVOIR
(MULTIPURPOSE POOL ELEV. 706.0)

BLEDSOE FERRY PARK
40 PICNICKING UNITS
4 GROUP SHELTERS
1 2-LANE BOAT RAMP
2 FISHING DOCKS (HANDICAPPED ACCESSIBLE)
1 COMFORT STATION
10 VAULT TOILETS
4 FISHING DOCKS

TRAP/SKEET RANGE
GOLF COURSE EXPANSION
SHAWNEE BEND GOLF COURSE
2 SPORTS FIELDS
RECOMMEND FOR DISPOSAL
PARKING
EXISTING TREATMENT PLANT
HOOPER HOUSE
VISITOR CENTER
STORAGE BUILDING
LAB BUILDING AND YARD
ADMINISTRATION AREA
CEMETERY
FISHING STEPS OUTLET
BURIED AVM CABLES
BURIED AVM ELEC. LINE
FISHING STEPS
CHANNEL
OSAGE RIVER
OLD CHANNEL OSAGE RIVER
SCALE IN FEET 400 0 400 800

LEGEND

Lake Pool, Elev. (M. S. L.)
Multipurpose Pool 706
Five Year Pool 724
Flood Control Pool 739.6
Roads
Federal, State and County Route Markers
Improved
Trail
Project Boundary
Park Boundary
Wooded Area

PARK DEVELOPMENT
Paved Roads and Parking
Gravel Roads and Parking
Picnic Shelter PS
Group Shelter GS
Changehouse CH
Courtesy Dock
Fishing Dock FD
Playground PG
Camp Circle CC
Vault Toilet
Flush Toilet F
Quad Vault Toilet Q
Quad Flush Toilet QF
Shower Building SB
Washhouse WH
Comfort Station CS
Bathhouse BH
Sanitary Dump Station DS
Treatment Plant TP
Stabilization Pond SP
Lift Station LS
Sanitary Gravity Line SS
Sanitary Force Main FM
Well
Water Line W
Underground Electric Line E
Mercury Vapor Lamp
Water Spigot

FUTURE DEVELOPMENT

Revisions			
Symbol	Descriptions	Date	Approved

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

Designed by: G.D.M.	OSAGE RIVER, MISSOURI
Drawn by: T.W.L.	HARRY S. TRUMAN DAM & RESERVOIR
Checked by: R.L.B.	MASTER PLAN
Submitted by: M.W.C.	RECREATION AREA DEVELOPMENT
Scale:	BLEDSOE FERRY PARK
Date: OCTOBER 1988	KAYSINGER BLUFF PARK
DM number: 36A	SHAWNEE BEND PARK
Dwg. No.:	0-12-10462

US Army Corps of Engineers

PLATE 12

VALUE ENGINEERING PAYS

OSAGE RIVER

HARRY S. TRUMAN RESERVOIR

BRUSH CREEK COVE

2 LANE BOAT RAMP

45 CAR TRAILER PARKING

FLUSH TOILET

WELL

LIFT STATION

90 CAR PARKING (GRAVEL)

STABILIZATION POND

MARINA CONCESSION BOUNDARY

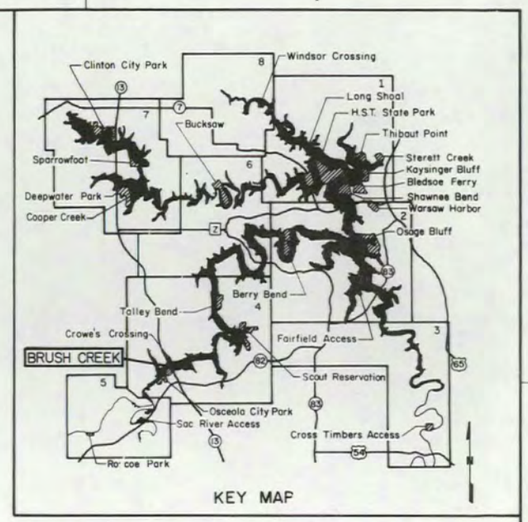
GRAVEL ROAD

PAVED ROAD

PROPOSED MARINA CONCESSION AREA

SCALE 200 100 0 200 400

N



KEY MAP

Revisions			
Symbol	Descriptions	Date	Approved

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

Designed by: G.D.M.	OSAGE RIVER, MISSOURI HARRY S. TRUMAN DAM & RESERVOIR MASTER PLAN RECREATION AREA DEVELOPMENT
Drawn by: T.W.L.	BRUSH CREEK ACCESS
Checked by: R.L.B.	Scale: AS SHOWN; DM number:
Submitted by: M.W.C.	Date: OCTOBER 1988; 36A; 0-12-10463

PLATE 13

170 CAMPING UNITS (113 ELECTRICAL)
1 SHOWER BUILDING
2 COMFORT STATION
2 FLUSH TOILETS
3 VAULT TOILETS
1 WELL
17 WATER SPIGOTS
1 PLAYGROUND
1 GATE
1 ENTRANCE STATION

SWIMMING BEACH
BOAT BEACH
2 CHANGE HOUSES
1 VAULT TOILET
1 PLAY GROUND
1 WATER SPIGOT
ENLARGE PARKING

136 CAMPING UNITS
1 COMFORT STATION
1 WASHHOUSE
1 VAULT TOILET
1 FLUSH TOILET
11 WATER SPIGOTS
1 PLAYGROUND
1 GATE
1 FISHING DOCK
1 ENTRANCE STATION (RELOCATED)
50 ELECTRICAL HOOKUPS

MARINA CONCESSESSION
1 4-LANE BOAT RAMP
1 FLUSH TOILET
1 WELL
RESTAURANT
CABINS
MOTEL
FLOATING FACILITIES
1 1-LANE BOAT RAMP
ENLARGE PARKING

AMPHITHEATER

40 TENTING UNITS
2 FLUSH TOILETS
3 WATER SPIGOTS
CONVERT TO PICNICKING (40 UNITS)
2 GROUP SHELTERS
1 PLAYGROUND

PARK ATTENDANT SITE
SANITARY DUMP STATION
STABILIZATION POND
RELOCATE ENTRANCE STATION

OVERLOOK PARKING
15 PICNICKING UNITS
1 VAULT TOILET

FUTURE PICNIC AREA
20 UNITS

ACCESS ROAD OFF PROJECT LAND
0.10 MILES

BOAT BEACHING AREA
LARGE SWIMMING BEACH
MARINA CONCESSION
BUCKSAW MARINA BOUNDARY
ENTRANCE STATION
HARRY S. TRUMAN RESERVOIR
CHANNEL
OLD
COUNTY ROAD
SCALE IN FEET 400 0 400 800
T. 40 N. R. 24 W.

KEY MAP

LEGEND

Lake Pool, Elev. (M. S. L.)
Multipurpose Pool — 706
Five Year Pool — 726
Flood Control Pool — 739.6
Roads
Federal, State and County Route Markers
Improved
Trail
Project Boundary
Park Boundary
Wooded Area

PARK DEVELOPMENT
Paved Roads and Parking
Gravel Roads and Parking
Picnic Shelter — PS
Group Shelter — GS
Changehouse — CH
Courtesy Dock
Fishing Dock — FD
Playground — PG
Camp Circle — CC
Vault Toilet
Flush Toilet — F
Quad Vault Toilet — Q
Quad Flush Toilet — QF
Shower Building — SB
Washhouse — WH
Comfort Station — CS
Bathhouse — BH
Sanitary Dump Station — SS
Treatment Plant — TP
Stabilization Pond — SP
Lift Station — LS
Sanitary Gravity Line — SS
Sanitary Force Main — FM
Well
Water Line — W
Underground Electric Line — E
Mercury Vapor Lamp
Water Spigot

FUTURE DEVELOPMENT

Revisions			
Symbol	Descriptions	Date	Approved

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

Designed by: G.D.M.
Drawn by: T.W.L.
Checked by: R.L.B.
Submitted by: M.W.C.

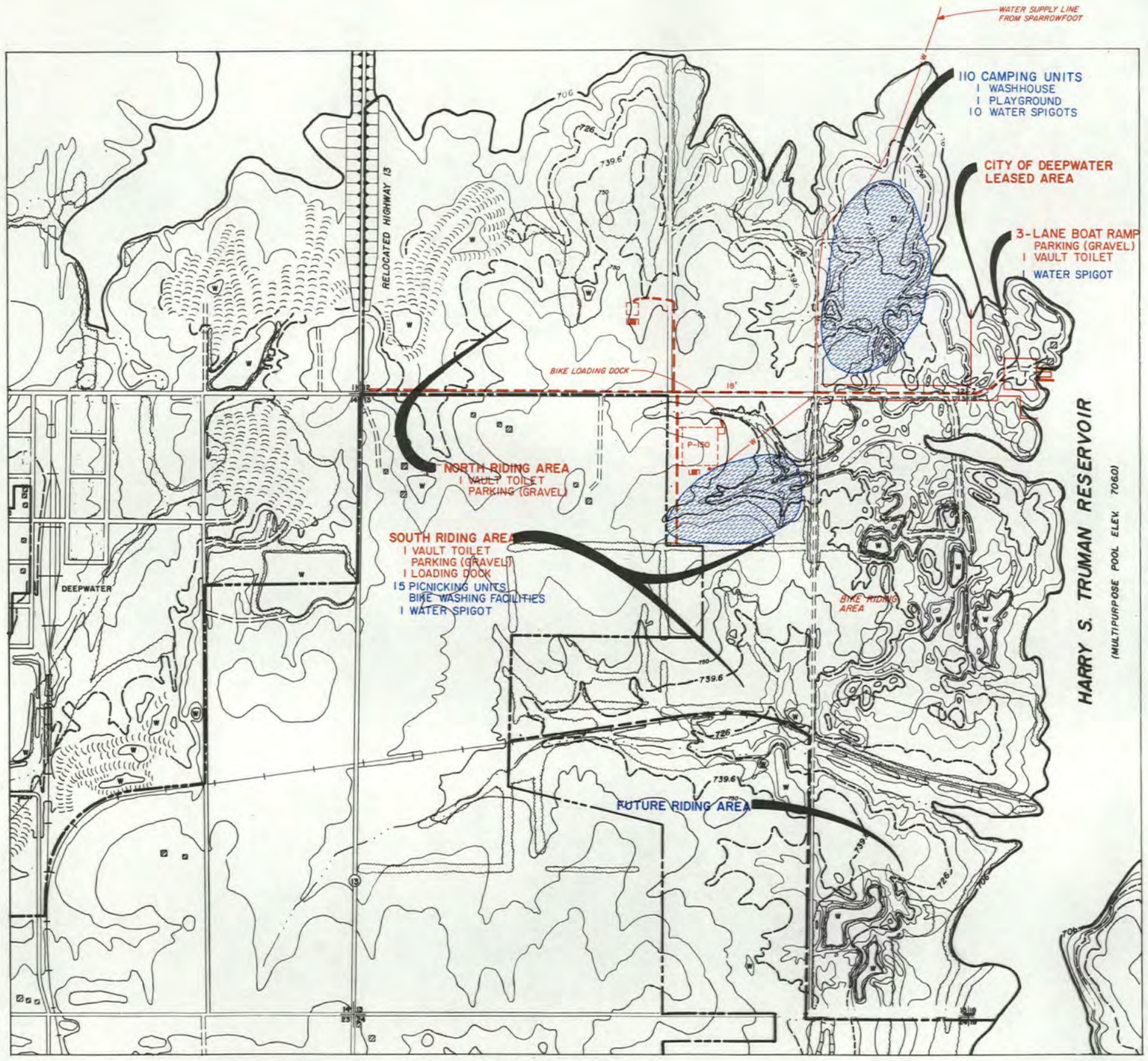
US Army Corps of Engineers

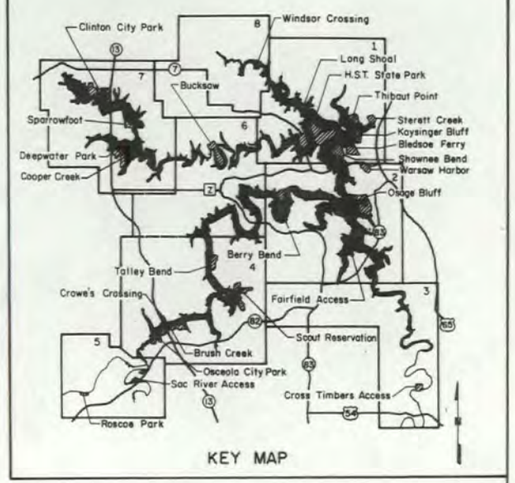
OSAGE RIVER, MISSOURI
HARRY S. TRUMAN DAM & RESERVOIR
MASTER PLAN
RECREATION AREA DEVELOPMENT

BUCKSAW PARK

Scale:
Date: OCTOBER 1988
DM number: 36A
Dwg. No.: 0-12-10464

PLATE 14





KEY MAP

LEGEND

Lake Pool, Elev. (M. S. L.)
- Multipurpose Pool 706
- Five Year Pool 726
- Flood Control Pool 739.6

Roads
- Federal, State and County Route Markers
- Improved
- Trail

Project Boundary

Park Boundary

Wooded Area

PARK DEVELOPMENT

- Paved Roads and Parking
- Gravel Roads and Parking
- Picnic Shelter — PS
- Group Shelter — GS
- Changehouse — CH
- Courtesy Dock
- Fishing Dock — FD
- Playground — PG
- Camp Circle — CC
- Vault Toilet
- Flush Toilet — F
- Quad Vault Toilet — Q
- Quad Flush Toilet — QF
- Shower Building — SB
- Washhouse — WH
- Comfort Station — CS
- Bathhouse — BH
- Sanitary Dump Station — SS
- Treatment Plant — TP
- Stabilization Pond — SP
- Lift Station — LS
- Sanitary Gravity Line — SS
- Sanitary Force Main — FM
- Well
- Water Line — W
- Underground Electric Line — E
- Mercury Vapor Lamp
- Water Spigot

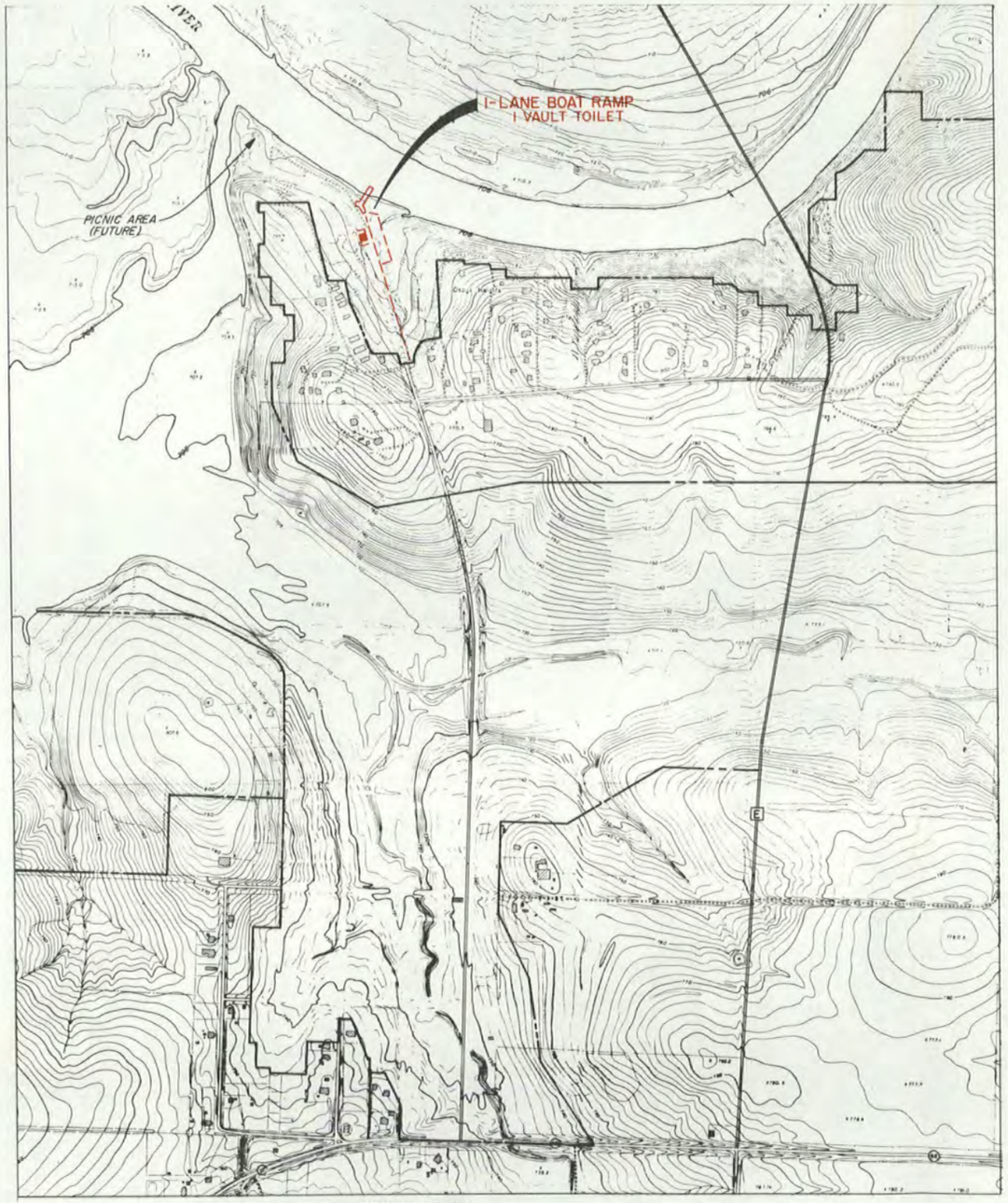
FUTURE DEVELOPMENT

Revisions			
Symbol	Descriptions	Date	Approved

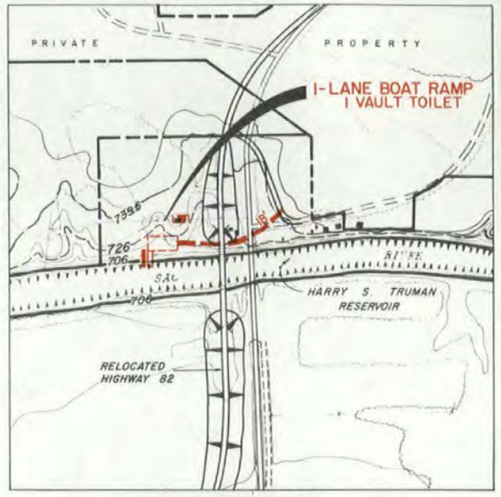
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: G.D.M.	OSAGE RIVER, MISSOURI HARRY S. TRUMAN DAM & RESERVOIR MASTER PLAN RECREATION AREA DEVELOPMENT
Drawn by: T.W.L.	COOPER CREEK PARK
Checked by: R.L.B.	Scale: — DM number: —
Submitted by: M.W.C.	Date: OCTOBER 1968 — Dwg. No.: 36A — 0-12-10465

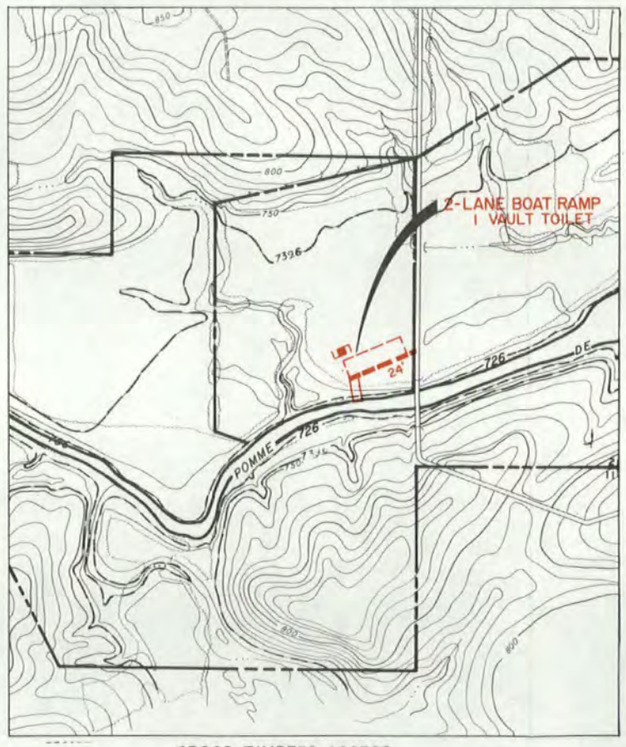
PLATE 15



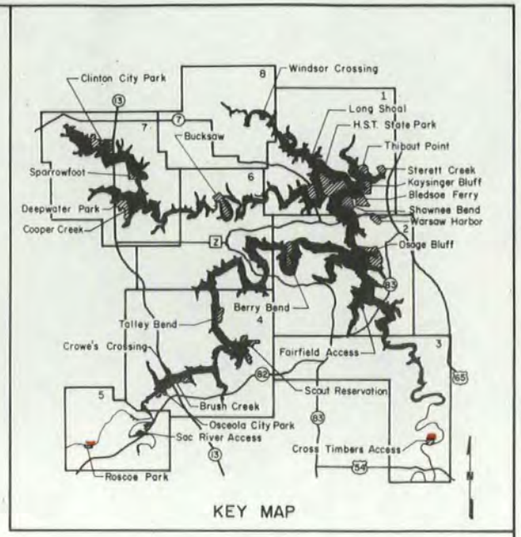
ROSCOE PARK



SAC RIVER ACCESS



CROSS TIMBERS ACCESS



KEY MAP

LEGEND

Lake Pool, Elev. (M. S. L.)
- Multipurpose Pool — 706
- Five Year Pool — 726
- Flood Control Pool — 739.6

Roads
- Federal, State and County Route Markers
- Improved
- Trail

Project Boundary

Park Boundary

Wooded Area

PARK DEVELOPMENT

- Paved Roads and Parking
- Gravel Roads and Parking
- Picnic Shelter — PS
- Group Shelter — GS
- Changehouse — CH
- Courtesy Dock
- Fishing Dock — FD
- Playground — PG
- Camp Circle — CC
- Vault Toilet
- Flush Toilet — F
- Quad Vault Toilet — Q
- Quad Flush Toilet — QF
- Shower Building — SB
- Washhouse — WH
- Comfort Station — CS
- Bathhouse — BH
- Sanitary Dump Station — SS
- Treatment Plant — TP
- Stabilization Pond — SP
- Lift Station — LS
- Sanitary Gravity Line — SS
- Sanitary Force Main — FM
- Well
- Water Line — W
- Underground Electric Line — E
- Mercury Vapor Lamp
- Water Spigot

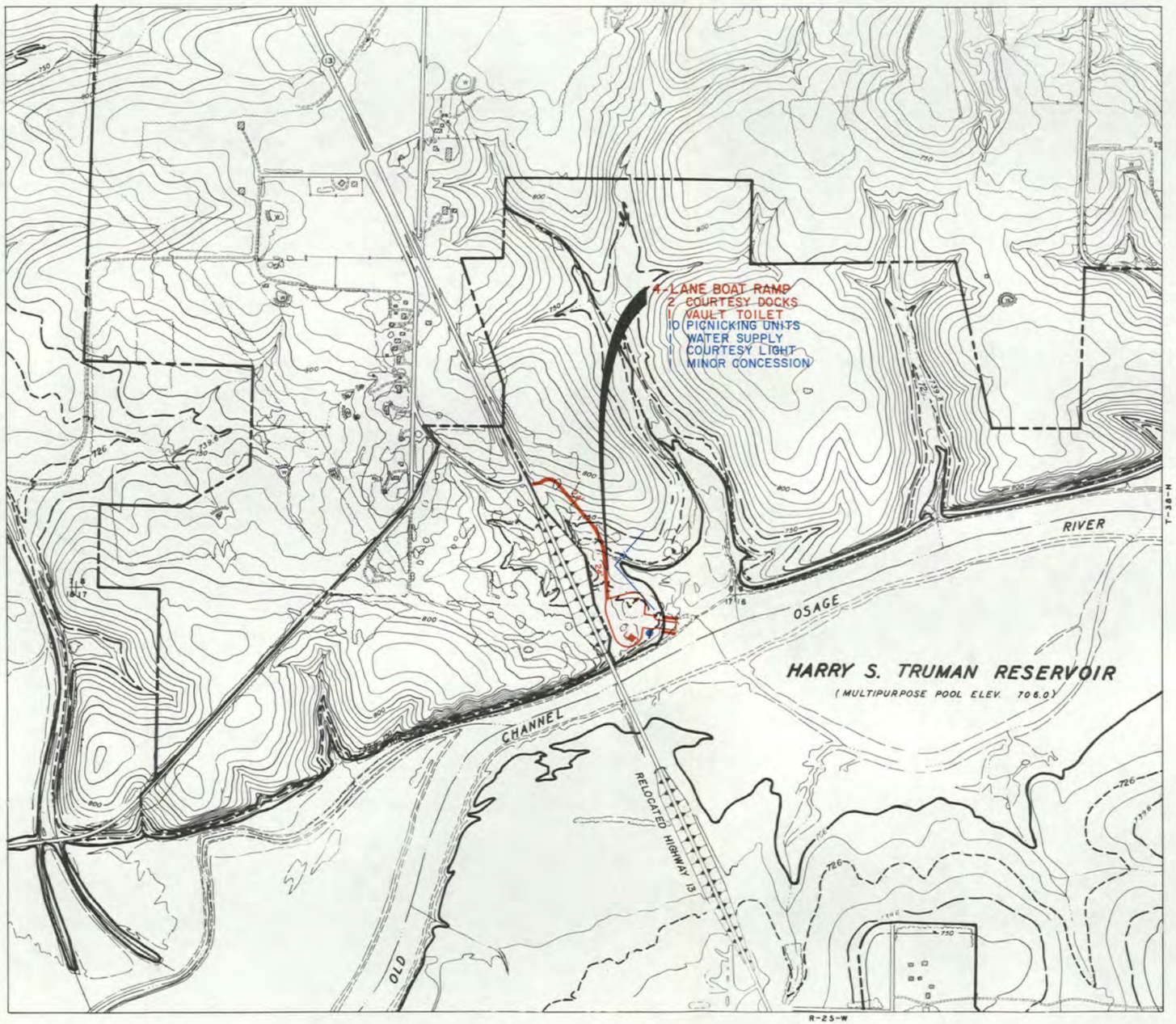
Revisions			
Symbol	Descriptions	Date	Approved

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

Designed by: G.D.M.	OSAGE RIVER, MISSOURI
Drawn by: T.W.L.	HARRY S. TRUMAN DAM & RESERVOIR
Checked by: R.L.B.	MASTER PLAN
Submitted by: M.W.C.	RECREATION AREA DEVELOPMENT
	ROSCOE PARK SAC RIVER ACCESS CROSS TIMBERS ACCESS
Scale:	
Date: OCTOBER 1988	DM number: 36A
Dwg. No.:	0-12-10466

US Army Corps of Engineers

PLATE 16



KEY MAP

LEGEND

- Lake Pool, Elev. (M. S. L.)
  - Multipurpose Pool 706
  - Five Year Pool 726
  - Flood Control Pool 751
- Roads
  - Federal, State and County Route Markers
  - Improved
  - Trail
- Project Boundary
- Park Boundary
- Wooded Area

PARK DEVELOPMENT

- Paved Roads and Parking
- Gravel Roads and Parking
- Picnic Shelter ..... PS
- Group Shelter ..... GS
- Changehouse ..... CH
- Courtesy Dock
- Fishing Dock ..... FD
- Playground ..... PG
- Camp Circle CC
- Vault Toilet
- Flush Toilet
- Quad Vault Toilet ..... Q
- Quad Flush Toilet ..... QF
- Shower Building ..... SB
- Washhouse ..... WH
- Comfort Station
- Bathhouse
- Sanitary Dump Station
- Treatment Plant ..... TP
- Stabilization Pond
- Lift Station ..... LS
- Sanitary Gravity Line
- Sanitary Force Main ..... M
- Well
- Water Line ..... W
- Underground Electric Line ..... E
- Mercury Vapor Lamp
- Water Spigot

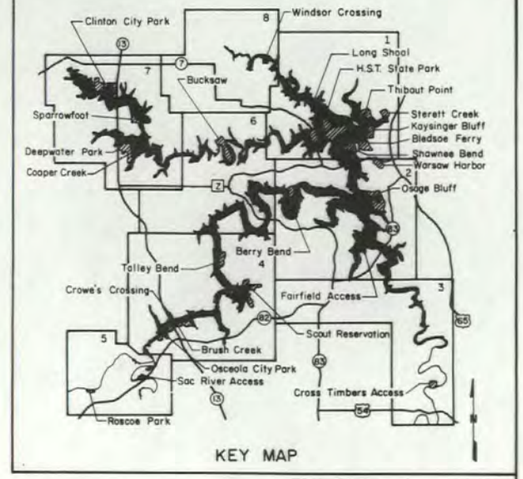
FUTURE DEVELOPMENT

Revisions			
Symbol	Descriptions	Date	Approved

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

Designed by: G.D.M.	OSAGE RIVER, MISSOURI HARRY S. TRUMAN DAM & RESERVOIR MASTER PLAN RECREATION AREA DEVELOPMENT		
Drawn by: T.W.L.	CROWE'S CROSSING PARK		
Checked by: R.L.B.	Scale:	DM number:	
Submitted by: M.W.C.	Date: OCTOBER 1988		
	Dwg. No.: 36A		0-12-10467

US Army Corps of Engineers



LEGEND

- Lake Pool, Elev. (M. S. L.)
  - Multipurpose Pool — 706
  - Five Year Pool — 726
  - Flood Control Pool — 739.6
- Roads
  - Federal, State and County Route Markers
  - Improved
  - Trail
- Project Boundary
- Park Boundary
- Wooded Area

PARK DEVELOPMENT

- Paved Roads and Parking
- Gravel Roads and Parking
- Picnic Shelter — PS
- Group Shelter — GS
- Changehouse — CH
- Courtesy Dock
- Fishing Dock — FD
- Playground — PG
- Camp Circle — CC
- Vault Toilet
- Flush Toilet — F
- Quad Vault Toilet — Q
- Quad Flush Toilet — QF
- Shower Building — S
- Washhouse — WH
- Comfort Station — CS
- Bathhouse — BH
- Sanitary Dump Station — SS
- Treatment Plant — TP
- Stabilization Pond — SP
- Lift Station — LS
- Sanitary Gravity Line — SS
- Sanitary Force Main — FM
- Well
- Water Line — W
- Underground Electric Line — E
- Mercury Vapor Lamp
- Water Spigot

FUTURE DEVELOPMENT

Revisions			
Symbol	Descriptions	Date	Approved

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

Designed by: G.D.M.	OSAGE RIVER, MISSOURI
Drawn by: T.W.L.	HARRY S. TRUMAN DAM & RESERVOIR
Checked by: R.L.B.	MASTER PLAN
Submitted by: M.W.C.	RECREATION AREA DEVELOPMENT
	FAIRFIELD ACCESS
Scale:	DM number:
Date: OCTOBER 1988	
Dwg. No.: 36A	0-12-10468

US Army Corps of Engineers

PLATE 18

HARRY S. TRUMAN RESERVOIR

(MULTIPURPOSE POOL ELEV. 706.0)

INSET

201 CAMPING UNITS
(50 ELECTRICAL HOOKUP)
1 SHOWER BUILING
2 COMFORT STATIONS
1 WELL
1 SANITARY DUMP STATION
1 SWIMMING BEACH
1 CHANGE HOUSE
53 ELECTRICAL HOOKUPS

1 SB(10 SHOWERS/SIDE)

ENTRANCE STATION

SPECIAL ECOLOGICAL AREA

SERVICE AREA

SUPERINTENDENT RESIDENCE

VISITOR CENTER

TRAILS

LODGE / RESORT COMPLEX

TRAILS & OVERLOOK

12 PICNICKING UNITS

DAY USE AREA
52 PICNICKING UNITS
1 SWIMMING BEACH
1 GROUP SHELTER
1 VAULT TOILET
1 BATHHOUSE
100 PICNICKING UNITS
& SUPPORT FACILITIES

MARINA CONSESSION
DRY BOAT STORAGE
FLOATING FACILITIES
4-LANE BOAT RAMP
1 VAULT TOILET
1 COMFORT STATION
1 STABILIZATION POND

TRAILS

OLD CHANNEL

OSAGE RIVER

HARRY S. TRUMAN RESERVOIR

(MULTIPURPOSE POOL ELEV. 706.0)

SCALE IN FEET 400 0 400 800

HARRY S. TRUMAN RESERVOIR

(MULTIPURPOSE POOL ELEV. 706.0)

2-LANE BOAT RAMP
1 VAULT TOILET
1 STABILIZATION POND

INSET

KEY MAP

Clinton City Park
Windsor Crossing
Long Shoal
H.S.T. State Park
Thibaut Point
Bucksaw
Sparrowfoot
Steretl Creek
Kaysinger Bluff
Bledsoe Ferry
Deepwater Park
Shawnee Bend
Warsaw Harbor
Cooper Creek
Osage Bluff
Berry Bend
Talley Bend
Crowe's Crossing
Fairfield Access
Scout Reservation
Brush Creek
Osceola City Park
Soc River Access
Cross Timbers Access
Roscoe Park

LEGEND

Lake Pool, Elev. (M. S. L.)
Multipurpose Pool 706
Five Year Pool 726
Flood Control Pool 739.6
Roads
Federal, State and County Route Markers
Improved
Trail
Project Boundary
Park Boundary
Wooded Area

PARK DEVELOPMENT

Paved Roads and Parking
Gravel Roads and Parking
Picnic Shelter ..... PS
Group Shelter ..... GS
Changehouse ..... CH
Courtesy Dock
Fishing Dock ..... FD
Playground ..... PG
Camp Circle CC
Vault Toilet
Flush Toilet ..... F
Quad Vault Toilet ..... Q
Quad Flush Toilet ..... QF
Shower Building ..... SB
Washhouse ..... WH
Comfort Station ..... CS
Bathhouse ..... BH
Sanitary Dump Station ..... SS
Treatment Plant ..... TP
Stabilization Pond ..... SP
Lift Station ..... LS
Sanitary Gravity Line ..... SS
Sanitary Force Main ..... FM
Well
Water Line ..... W
Underground Electric Line ..... E
Mercury Vapor Lamp
Water Spigot

FUTURE DEVELOPMENT

Development shown is by Corps of Engineers. Additional development will be provided by Missouri Department of Natural Resources.

Symbol	Descriptions	Revisions	Date	Approved

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

Designed by: G.D.M.
Drawn by: T.W.L.
Checked by: R.L.B.
Submitted by: M.W.C.

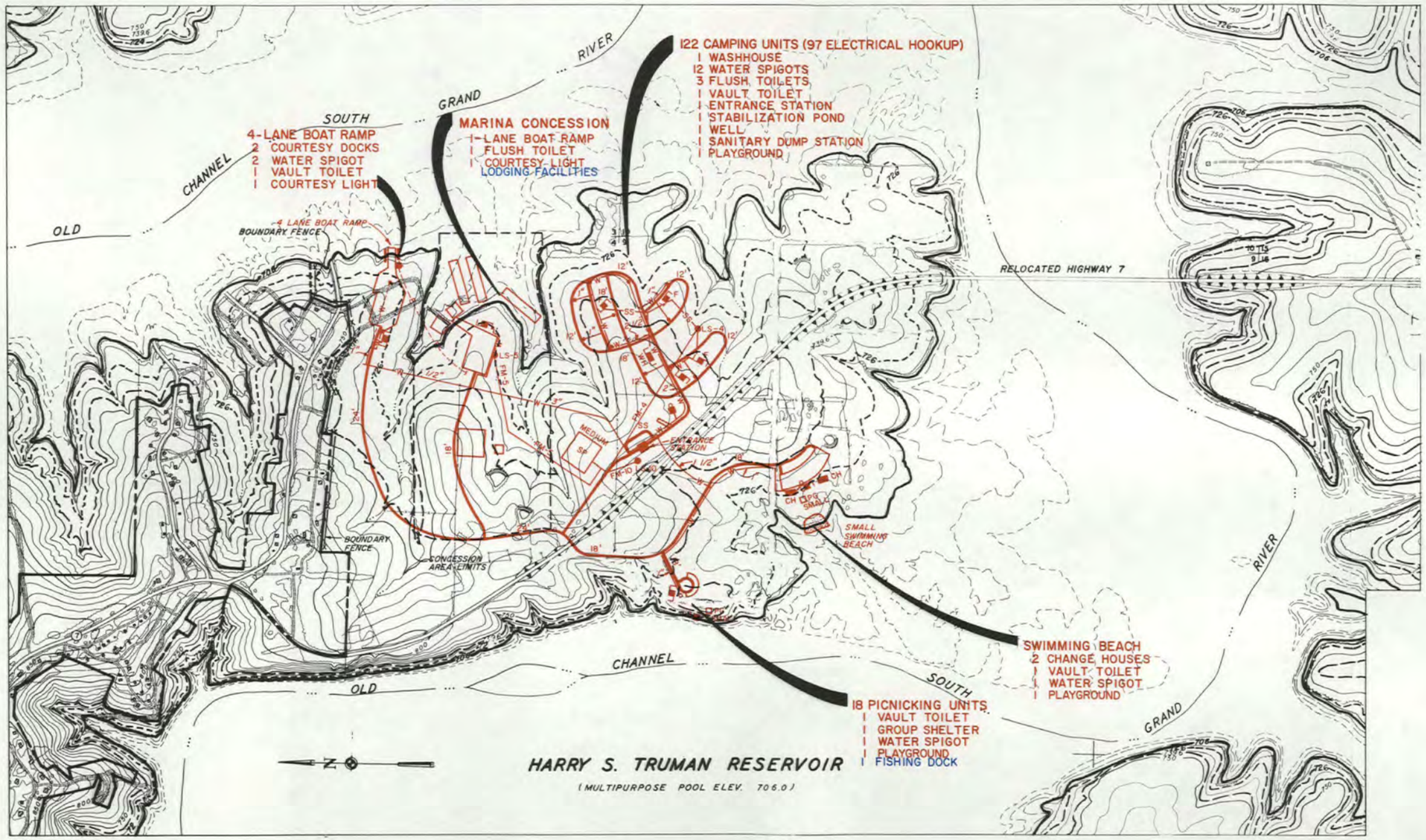
US Army Corps of Engineers

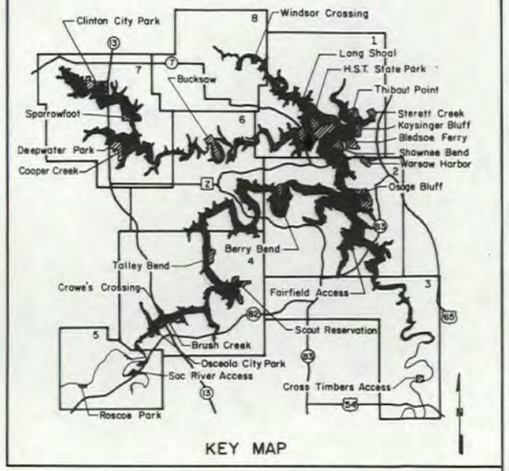
OSAGE RIVER, MISSOURI
HARRY S. TRUMAN DAM & RESERVOIR
MASTER PLAN
RECREATION AREA DEVELOPMENT

HARRY S. TRUMAN
STATE PARK

Scale:
Date: OCTOBER 1988
Dwg. No.: 36A
DM number: 0-12-10469

PLATE 12





LEGEND

Lake Pool, Elev. (N. S. L.)
- Multipurpose Pool — 706
- Five Year Pool — 726
- Flood Control Pool — 739.6

Roads
- Federal, State and County Route Markers
- Improved
- Trail

Project Boundary

Park Boundary

Wooded Area

PARK DEVELOPMENT
- Paved Roads and Parking
- Gravel Roads and Parking
- Picnic Shelter — PS
- Group Shelter — GS
- Changehouse — CH
- Courtesy Dock
- Fishing Dock — FD
- Playground — PG
- Camp Circle — CC
- Vault Toilet
- Flush Toilet — F
- Quad Vault Toilet — Q
- Quad Flush Toilet — QF
- Shower Building — SB
- Washhouse — WH
- Comfort Station — CS
- Bathhouse — BH
- Sanitary Dump Station — SS
- Treatment Plant — TP
- Stabilization Pond — SP
- Lift Station — LS
- Sanitary Gravity Line — SS
- Sanitary Force Main — FM
- Well
- Water Line — W
- Underground Electric Line — E
- Mercury Vapor Lamp
- Water Spigot

FUTURE DEVELOPMENT

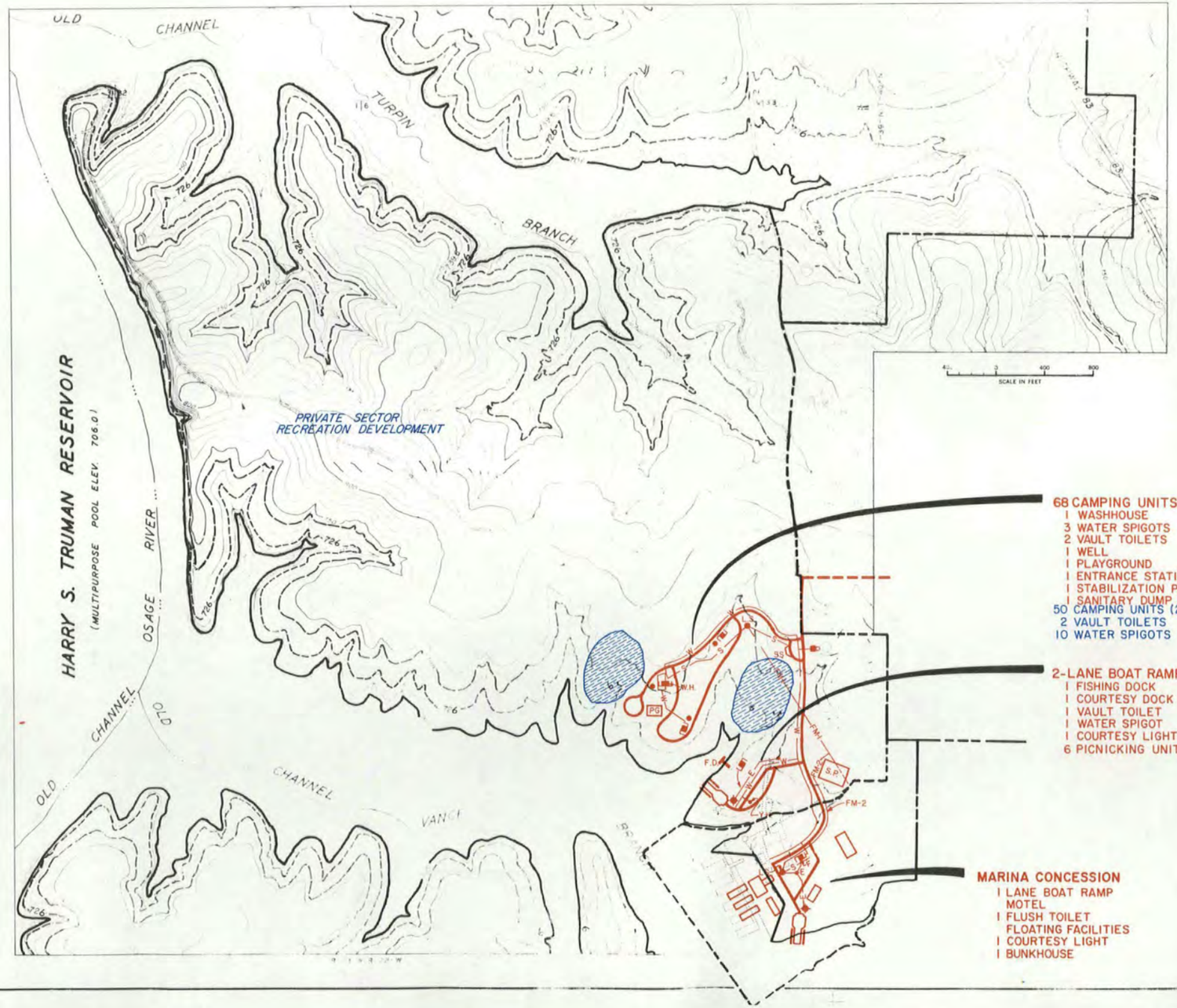
Symbol	Descriptions	Date	Approved

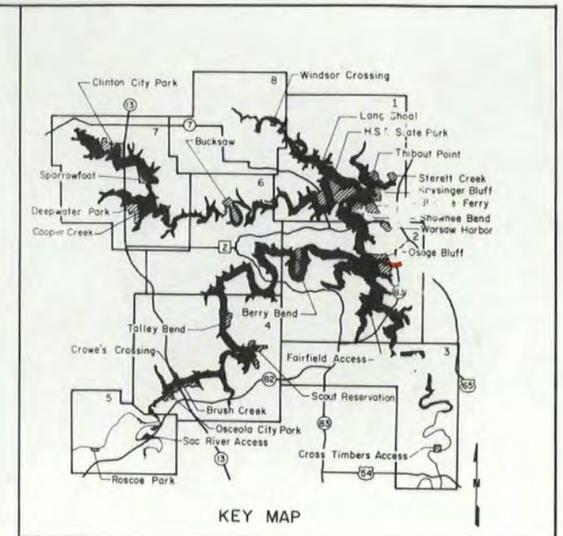
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: G.D.M.	OSAGE RIVER, MISSOURI
Drawn by: T.W.L.	HARRY S. TRUMAN DAM & RESERVOIR
Checked by: R.L.B.	MASTER PLAN
Submitted by: M.W.C.	RECREATION AREA DEVELOPMENT
	LONG SHOAL PARK
Scale:	DM number: 36A
Date: OCTOBER 1988	Dwg. No.: 0-12-10470

US Army Corps of Engineers

PLATE 20





KEY MAP

LEGEND

Lake Pool, Elev. (M. S. L.)
- Multipurpose Pool — 706
- Five Year Pool — 726
- Flood Control Pool — 738

Roads
- Federal, State and County Route Markers
- Improved
- Trail

Project Boundary

Park Boundary

Wooded Area

PARK AREA DEVELOPMENT

- Paved Roads and Parking
- Gravel Roads and Parking
- Picnic Shelter — PS
- Group Shelter — GS
- Changehouse — CH
- Courtesy Dock
- Fishing Dock — FD
- Playground — PG
- Camp Circle — CC
- Vault Toilet
- Flush Toilet — F
- Quad Vault Toilet — Q
- Quad Flush Toilet — QF
- Shower Building — SB
- Washhouse — WH
- Comfort Station — CS
- Bathhouse — BH
- Sanitary Dump Station — SS
- Treatment Plant — TP
- Stabilization Pond — SP
- Lift Station — LS
- Sanitary Gravity Line — SS
- Sanitary Force Main — FM
- Well
- Water Line — W
- Underground Electric Line — E
- Mercury Vapor Lamp
- Water Spigot
- Marina Development

Symbol	Descriptions	Date	Approved

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

Designed by: G.D.M.	OSAGE RIVER, MISSOURI HARRY S. TRUMAN DAM & RESERVOIR MASTER PLAN RECREATION AREA DEVELOPMENT		
Drawn by: T.W.L.	OSAGE BLUFF PARK		
Checked by: R.L.B.	Scale:	DM number:	
Submitted by: M.W.C.	Date: OCTOBER 1988	36A	0-12-10471
	Dwg No.		

US Army Corps of Engineers

PLATE 21

OLD HANN

SPARROW ISLAND

FOOT ISLAND

SWIMMING BEACH

ENTRANCE STATION
TURNAROUND
PARK ATTENDANT SITE

HENRY CO. RURAL WATER DISTRICT WELL

SERVICE ROAD

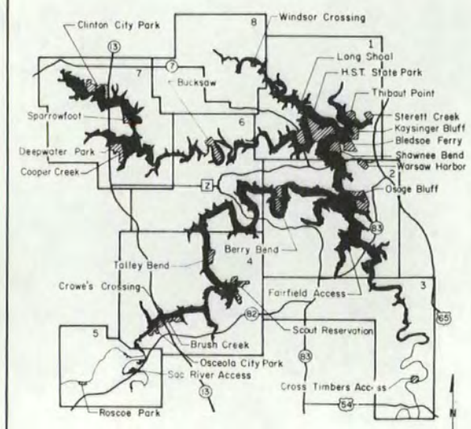
164 CAMPING UNITS (95 ELECTRICAL HOOKUPS)
1 WASHHOUSE
5 VAULT TOILETS
1 SANITATION DUMP STATION
11 WATER SPIGOTS

ACCESS ROAD OFF PROJECT LAND 1.12 MILES TO HWY 13

18 PICNICKING UNITS
3 SHOWERS
1 SWIMMING BEACH
2 WATER SPIGOTS
1 BATHHOUSE
2 PLAYGROUNDS

4-LANE BOAT RAMP
2-LANE BOAT RAMP
3 COURTESY DOCKS
2 WATER SPIGOTS
2 VAULT TOILETS
1 SATELLITE BAIT/BOAT-STORAGE CONCESSION

WATER SUPPLY LINE TO COOPER CREEK



KEY MAP

LEGEND

- Lake Pool Elev. (M. S. L.)
  - Multipurpose Pool — 706 —
  - Five Year Pool
  - Flood Control Pool
- Roads
  - Federal, State and County Route Markers
  - Improved
  - Trail
- Project Boundary
- Park Boundary
- Wooded Area

PARK AREA DEVELOPMENT

- Paved Roads and Parking
- Gravel Roads and Parking
- Picnic Shelter — PS
- Group Shelter — GS
- Changehouse — CH
- Courtesy Dock
- Fishing Dock — FD
- Playground — PG
- Camp Circle — CC
- Vault Toilet
- Flush Toilet — F
- Quad Vault Toilet — Q
- Quad Flush Toilet — QF
- Shower Building — SB
- Washhouse — WH
- Comfort Station — CS
- Bathhouse — BH
- Sanitary Dump Station — SS
- Treatment Plant — TP
- Stabilization Pond — SP
- Lift Station — LS
- Sanitary Gravity Line — SS
- Sanitary Force Main — FM
- Well
- Water Line — W
- Underground Electric Line — E
- Water Spigot

FUTURE DEVELOPMENT

Descriptions	Date	Approved

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

G.D.M. | T.W.L. | R.L.B. | M.W.C.

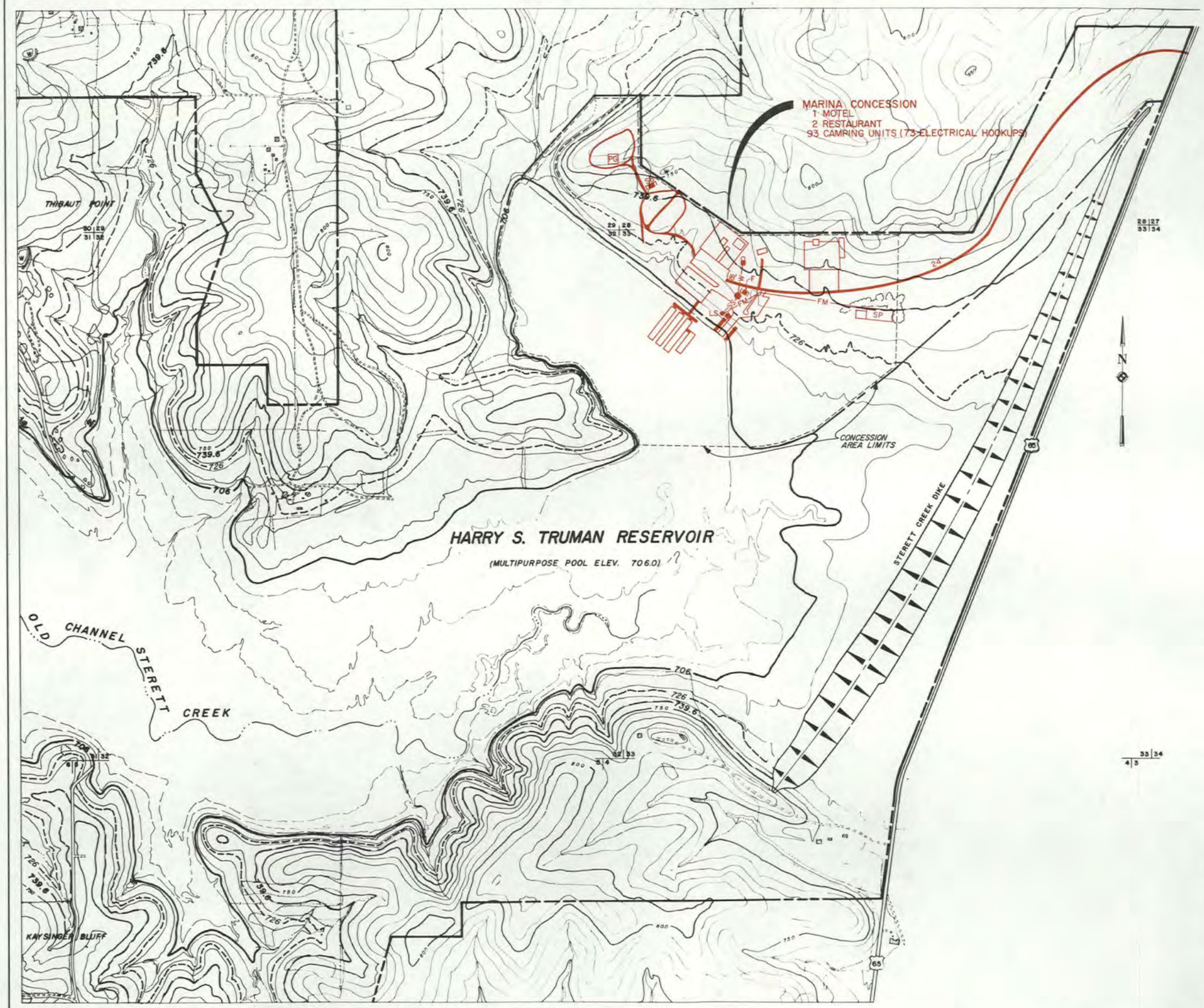
US Army Corps of Engineers

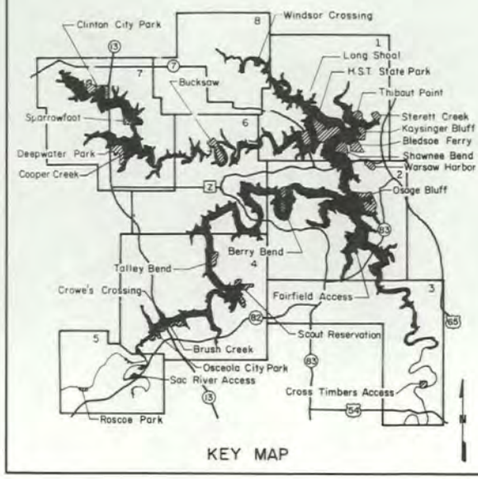
HARRY S. TRUMAN DAM & RESERVOIR
WATER PLAN
RECREATION AREA DEVELOPMENT

SPARROWFOOT PARK

Scale	DM number	
Date: OCTOBER 1988	36A	0-12-10472
Dwg. No.		

PLATE 22





KEY MAP

LEGEND

- Lake Pool, Elev. (M. S. L.)
  - Multipurpose Pool — 706
  - Five Year Pool — 726
  - Flood Control Pool — 739.6
- Roads
  - Federal, State and County Route Markers
  - Improved
  - Trail
- Project Boundary
- Park Boundary
- Wooded Area

PARK DEVELOPMENT

- Paved Roads and Parking
- Gravel Roads and Parking
- Picnic Shelter — PS
- Group Shelter — GS
- Changehouse — CH
- Courtesy Dock
- Fishing Dock — FD
- Playground — PG
- Camp Circle — CC
- Vault Toilet
- Flush Toilet — F
- Quad Vault Toilet — Q
- Quad Flush Toilet — QF
- Shower Building — SB
- Washhouse — WH
- Comfort Station — CS
- Bathhouse — BH
- Sanitary Dump Station — SS
- Treatment Plant — TP
- Stabilization Pond — SP
- Lift Station — LS
- Sanitary Gravity Line — SS
- Sanitary Force Main — FM
- Well
- Water Line — W
- Underground Electric Line — E
- Mercury Vapor Lamp
- Water Spigot

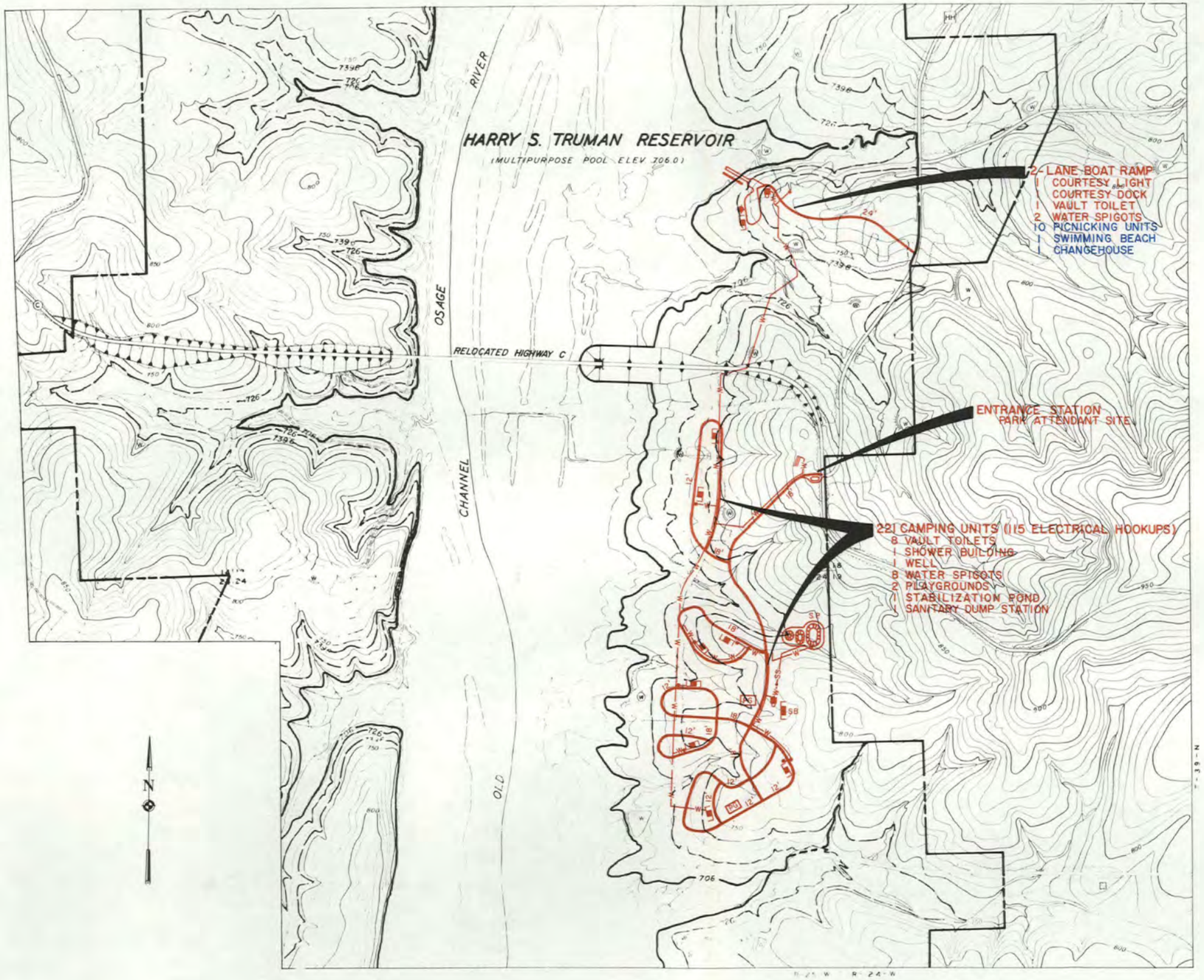
Symbol	Revisions Descriptions	Date	Approved

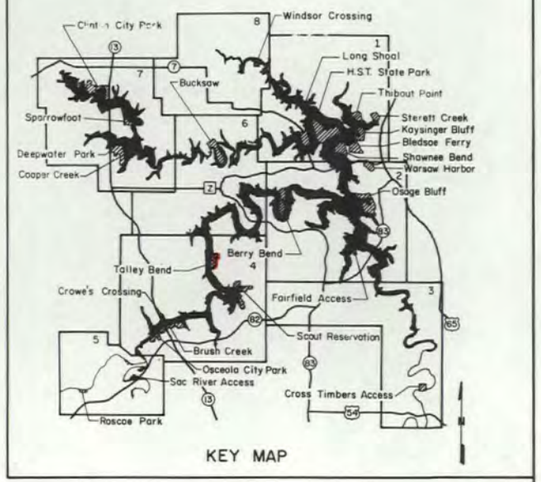
U. S. ARMY ENGINEER DISTRICT
CORPS OF ENGINEERS
KANSAS CITY, MISSOURI

Designed by: G.D.M.	OSAGE RIVER, MISSOURI
Drawn by: T.W.L.	HARRY S. TRUMAN DAM & RESERVOIR
Checked by: R.L.B.	MASTER PLAN
Submitted by: M.W.C.	RECREATION AREA DEVELOPMENT
	STERETT CREEK PARK
Scale:	DM number: 36A
Date: OCTOBER 1988	Dwg. No.: 0-12-10473

US Army Corps of Engineers

PLATE 23





LEGEND

Lake Pool, Elev. (M. S. L.)
- Multipurpose Pool — 706
- Five Year Pool — 726
- Flood Control Pool — 739.6

Roads
- Federal, State and County Route Markers
- Improved
- Trail

- Project Boundary
- Park Boundary
- Wooded Area

PARK DEVELOPMENT
- Paved Roads and Parking
- Gravel Roads and Parking
- Picnic Shelter — PS
- Group Shelter — GS
- Changehouse — CH
- Courtesy Dock
- Fishing Dock — FD
- Playground — PG
- Camp Circle — CC
- Vault Toilet
- Flush Toilet — F
- Quad Vault Toilet — Q
- Quad Flush Toilet — QF
- Shower Building — S
- Washhouse — WH
- Comfort Station — CS
- Bathhouse — BH
- Sanitary Dump Station — SS
- Treatment Plant — TP
- Stabilization Pond — SP
- Lift Station — LS
- Sanitary Gravity Line — SS
- Sanitary Force Main — FM
- Well
- Water Line — W
- Underground Electric Line — E
- Mercury Vapor Lamp
- Water Spigot

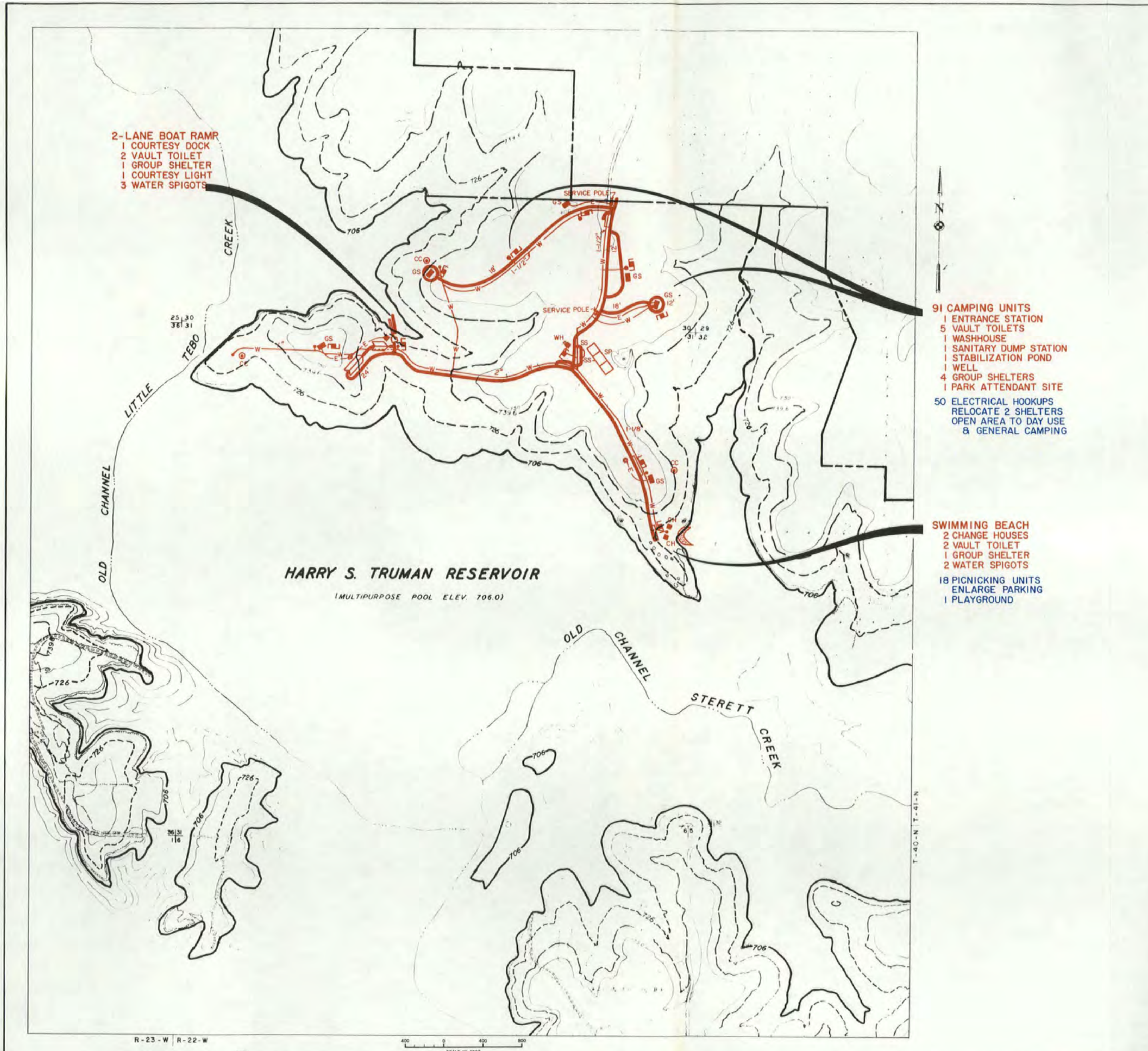
FUTURE DEVELOPMENT

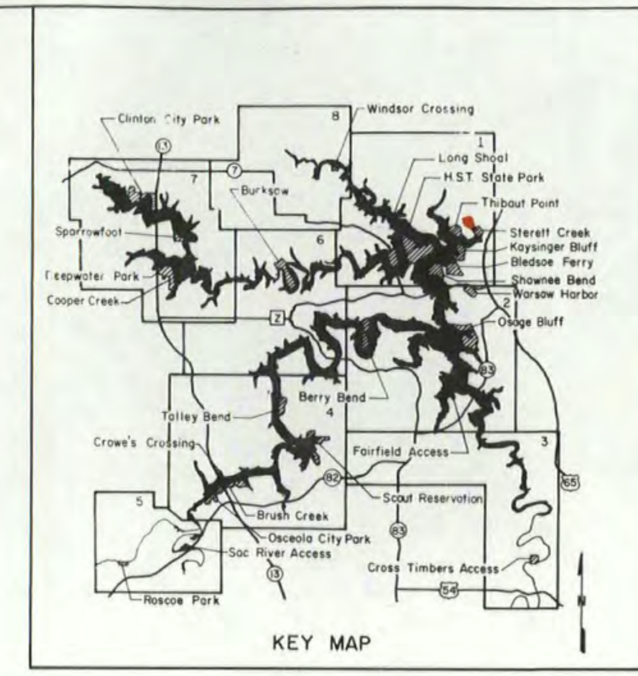
Revisions			
Symbol	Descriptions	Date	Approved

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

Designed by: G.D.M.	OSAGE RIVER, MISSOURI HARRY S. TRUMAN DAM & RESERVOIR MASTER PLAN RECREATION AREA DEVELOPMENT
Drawn by: T.W.L.	TALLEY BEND PARK
Checked by: R.L.B.	Scale: — DM number: —
Submitted by: M.W.C.	Date: OCTOBER 1988 — Dwg. No.: 36 — 0-12-10474

PLATE 24





LEGEND

Lake Pool, Elev. (M. S. L.)
- Multipurpose Pool — 706
- Five Year Pool — 726
- Flood Control Pool — 739.6

Roads
- Federal, State and County Route Markers
- Improved
- Trail

Park Boundary

Recreation Area Boundary

Wooded Area

PARK DEVELOPMENT

- Paved Roads and Parking
- Gravel Roads and Parking
- Picnic Shelter — PS
- Group Shelter — GS
- Changehouse — CH
- Courtesy Dock
- Fishing Dock — FD
- Playground — PG
- Camp Circle — CC
- Vault Toilet
- Flush Toilet — F
- Quad Vault Toilet — Q
- Quad Flush Toilet — QF
- Shower Building — SB
- Washhouse — WH
- Comfort Station — CS
- Bathhouse — BH
- Sanitary Dump Station — SS
- Treatment Plant — TP
- Stabilization Pond — SP
- Lift Station — LS
- Sanitary Gravity Line — SS
- Sanitary Force Main — FM
- Well
- Water Line — W
- Underground Electric Line — E
- Mercury Vapor Lamp
- Water Spigot

FUTURE DEVELOPMENT

Revisions			
Symbol	Descriptions	Date	Approved

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

Designed by: G.D.M.	US Army Corps of Engineers — OSAGE RIVER, MISSOURI / HARRY S. TRUMAN DAM & RESERVOIR / MASTER PLAN / RECREATION AREA DEVELOPMENT
Drawn by: T.W.L.	THIBAUT POINT PARK
Checked by: R.L.B.	Scale: — DM number:
Submitted by: M.W.C.	Date: OCTOBER 1988 — Dwg. No.: 36A — 0-12-10475

PLATE 25

OUTLET CHANNEL

BLEDSOE FERRY PARK

TRUMAN DAM ACCESS ROAD

CITY OF WARSAW

HARBOR

2 LANE BOAT RAMP
COURTESY LIGHT
1 FLUSH TOILET
15 PICNICKING UNITS
1 WATER SPIGOT
1 BASEBALL FIELD

1 COURTESY DOCK
10 PICNICKING UNITS

RIGHT BANK LEVEE

LEFT BANK LEVEE

PARKING AREA

LAKE OF THE OZARKS

FUTURE DEVELOPMENT

LEGEND

Lake Prof. Elev. (M.S.L.)
- Multipurpose Pool — 706
- Five Year Pool — 726
- Flood Control Pool — 745.6

Roads
- Federal, State and County Route Markers
- Improved
- Trail

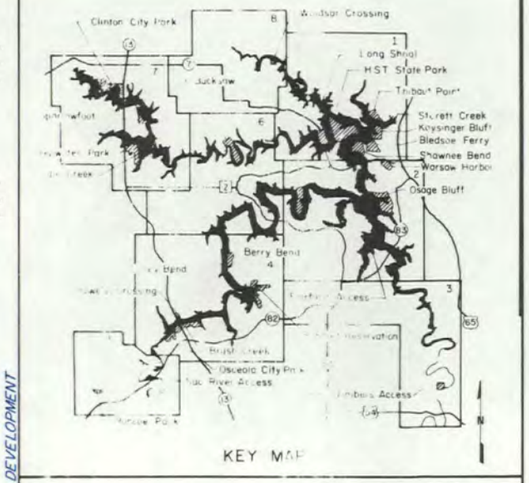
Project Boundary

Park Boundary

Wooded Area

PARK DEVELOPMENT

- Paved Roads and Parking
- Gravel Roads and Parking
- Picnic Shelter — PS
- Group Shelter — GS
- Changehouse — CH
- Courtesy Dock
- Fishing Dock — FD
- Playground — PG
- Camp Circle — CC
- Vault Toilet — T
- Flush Toilet — F
- Quad Vault Toilet — Q
- Quad Flush Toilet — QF
- Shower Building — SB
- Washhouse — WH
- Comfort Station — CS
- Bathhouse — BH
- Sanitary Dump Station — SS
- Treatment Plant — TP
- Stabilization Pond — SP
- Lift Station — LS
- Sanitary Gravity Line — SS
- Sanitary Force Main — FM
- Well
- Water Line — W
- Underground Electric Line — E
- Mercury Vapor Lamp
- Water Spigot

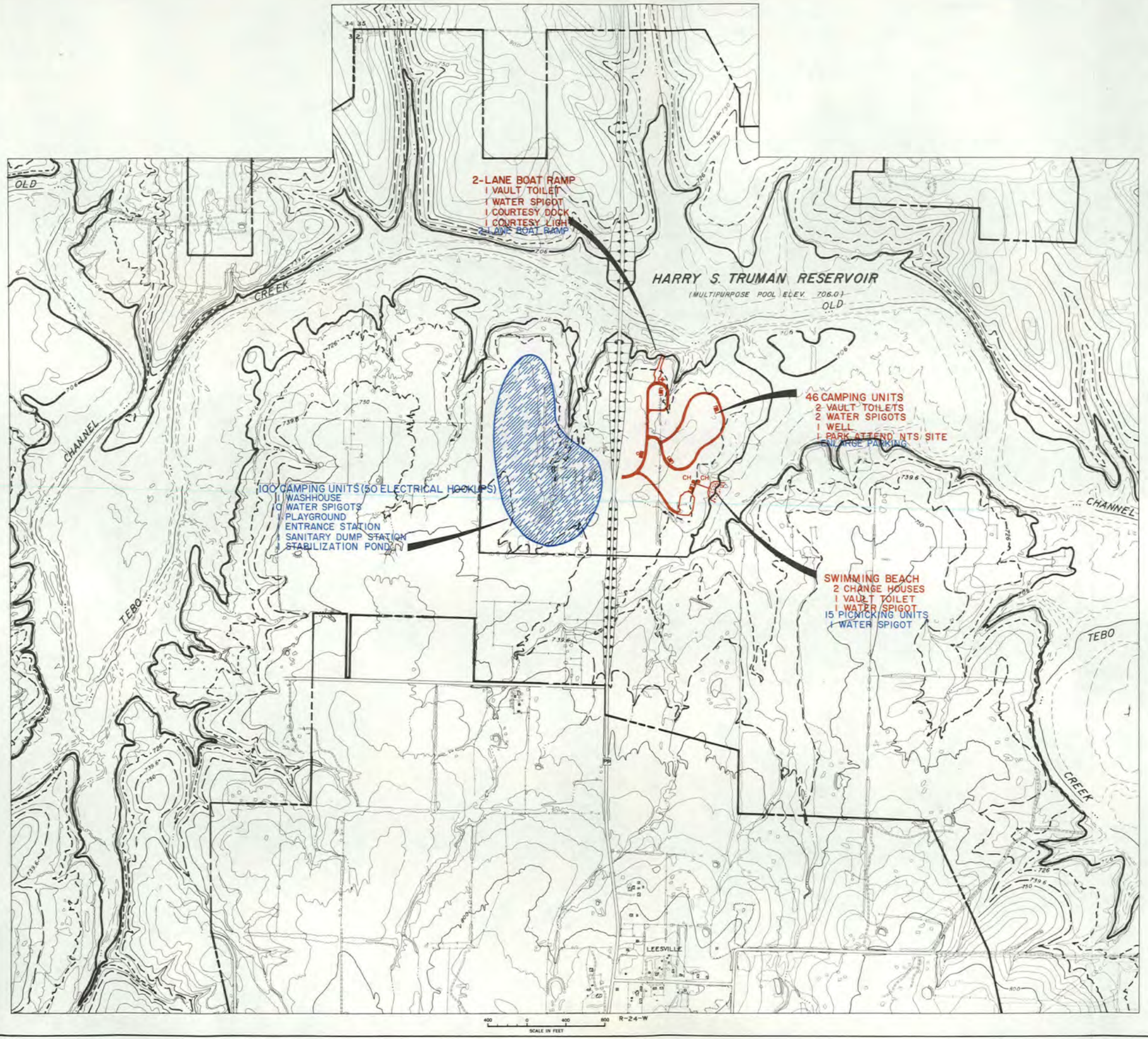


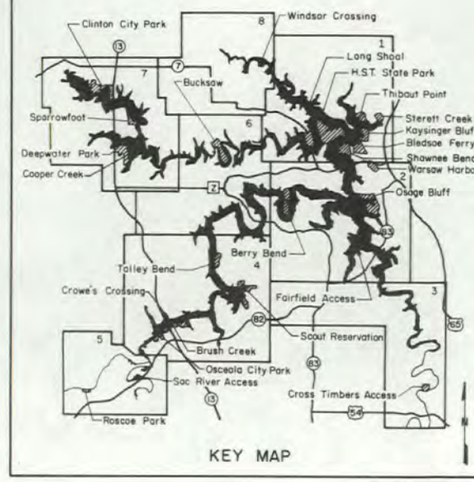
Revisions			
Symbol	Description	Date	Approved

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

Designed by: G.D.M.	OSAGE RIVER, MISSOURI HARRY S. TRUMAN DAM & RESERVOIR MASTER PLAN RECREATION AREA DEVELOPMENT
Drawn by: T.W.L.	WARSAW HARBOR AND DOWNSTREAM LEVEES
Checked by: R.L.B.	Scale:
Submitted by: M.W.C.	Date: OCTOBER 1988
	Dwg. No.: 36A
	DM number: C-12-10476

PLATE 26





LEGEND

Lake Pool, Elev. (M. S. L.)	
Multipurpose Pool	706
Five Year Pool	726
Flood Control Pool	739.6
Roads	
Federal, State and County Route Markers	
Improved	
Trail	
Project Boundary	
Park Boundary	
Wooded Area	

PARK DEVELOPMENT

Paved Roads and Parking	
Gravel Roads and Parking	
Picnic Shelter	PS
Group Shelter	GS
Changehouse	CH
Courtesy Dock	
Fishing Dock	FD
Playground	PG
Camp Circle	CC
Vault Toilet	1
Flush Toilet	F
Quad Vault Toilet	Q
Quad Flush Toilet	QF
Shower Building	SB
Washhouse	WH
Comfort Station	CS
Bathhouse	BH
Sanitary Dump Station	SS
Treatment Plant	TP
Stabilization Pond	SP
Lift Station	LS
Sanitary Gravity Line	SS
Sanitary Force Main	FM
Well	W
Water Line	W
Underground Electric Line	E
Mercury Vapor Lamp	
Water Spigot	

FUTURE DEVELOPMENT

Revisions			
Symbol	Descriptions	Date	Approved

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

Designed by: G.D.M.	OSAGE RIVER, MISSOURI
Drawn by: T.W.L.	HARRY S. TRUMAN DAM & RESERVOIR
Checked by: R.L.B.	MASTER PLAN
Submitted by: M.W.C.	RECREATION AREA DEVELOPMENT
	WINDSOR CROSSING PARK
Scale:	DM number: 36A
Date: OCTOBER 1988	0-12-10477
Dwg. No.:	

US Army Corps of Engineers

PLATE 27