

JUN 28 1997

CEMVS-PD-F

MEMORANDUM FOR Commander, St. Louis District

SUBJECT: Carlyle Lake, Illinois, Design Memorandum No. 10, The Master Plan (Updated 1997)

1. The updated Carlyle Lake Master Plan is submitted for review and approval.
2. The updated master plan provides a current inventory and assessment of land and water resources and physical improvements, a reformulation of resource use objectives, discussions of influences on lake operations and management and an evaluation of existing and future needs required to protect the value of the resource base. Emphasis has been placed on increasing the efficiency of operations and rehabilitation of facilities.
3. The technical review has been completed. Checklist and certification are attached
4. It is requested that approval be granted to provide or replace facilities described in Section 8 and the Maintenance and Repair Plan (Appendix II). The cost of new facilities is estimated at almost 2 million dollars and replacement or repair costs at approximately 12.2 million dollars.
5. In accordance with ER 1130-2-550, paragraph 3-2 h., approval of this plan by the District commander is requested.



OWEN D. DUTT  
Chief, Planning Division

CEMVS-DE 1st End

CEMVS-DE

THRU CEMVS-DP 

FOR CEMVS-PD-F

04 AUG 1997

Request for this plan is:

APPROVED

DISAPPROVED

  
THOMAS J. HODGINI  
COL, EN  
Commanding

# **THE MASTER PLAN**

**DESIGN MEMORANDUM NO. 10 (REVISED 1974, UPDATED 1979,1986,1997)  
CARLYLE LAKE, ILLINOIS**

**PREPARED BY:**

**U.S. ARMY ENGINEER DISTRICT, ST. LOUIS  
1222 SPRUCE STREET  
ST. LOUIS, MISSOURI 63103**

## PREFACE

Construction of Carlyle Lake was authorized in July, 1958, and work began that year. The project was completed in June 1967. The original Master Plan was approved in 1962, then revised in 1974 and updated in 1979 and 1986. The Master Plan has served as the guide for the orderly development and management of the land and water resources at Carlyle Lake.

This updated Master Plan presents a current inventory and assessment of land and water resources and physical improvements, reformulated resource use objectives, discussions of influences on lake operations and management and an evaluation of existing and future needs required to protect the value of the resource base. Emphasis has been placed on increasing the efficiency of operations and rehabilitation of facilities for public safety.

Although Carlyle Lake is managed primarily by the St. Louis District Army Corps of Engineers, many others play a crucial role in the operation of the project. These important players, including the Illinois Department of Natural Resources, marina concessionaires, upstream and downstream interest groups, farmers, local and civic groups, hunters, fishermen, campers, sailors, businesses, wildlife observers and others have been involved in the update process. The objective of the Carlyle Lake Master Plan update is to meet the needs and interests of the various users of the project and outline a 10 year plan of action assuring that all project purposes are addressed.

All aspects of lake operation have been reevaluated due to changes which have taken place since the last update in 1986. In some instances, public lands have been reclassified to more fully reflect their present use. Studies that were completed as part of the process of updating the Master Plan include a marina market study, a maintenance and repair plan, and a wastewater feasibility study. Recommendations from these studies have been incorporated into this update of the Master Plan and are included as appendices. All recreation area site plans have been revised to reflect existing development.

The plan will be approved in the St. Louis District; however, this does not assure that all proposed projects will be completed. After approval, funding must be secured to complete the proposed projects.

PREVIOUSLY ISSUED DESIGN MEMORANDA

<u>MEMORANDUM NO.</u>	<u>TITLE</u>	<u>DATE OF SUBMITTAL</u>
1	Hydrology and Hydraulic Analyses) (Revised)	14 Feb 58
2	General Design Memorandum	18 Feb 58
	Supplement No. 1 to Design Memorandum No.2	27 Mar 59
3A	Real Estate Memorandum for Main Dam	31 Jan 58
3B	Real Estate Memorandum for Reservoir Area and Saddle Dam Sites and Supplements No. 1 through 9	29 Aug 58
3C	Real Estate Memorandum for Relocation of the Chicago, Burlington and Quincy Railroad	17 May 62
4	Detailed Design - Main Dam Embankment - First Stage	21 Apr 58
5	Availability of Construction Materials	6 Oct 58
6A	Relocations and Report of Necessity for Pipelines and Power and Telephone Lines	27 Feb 58
6B-1	Relocations - Roads	16 Mar 60
	Supplement No. 1 to Design Memorandum No. 6B-1	8 Mar 61
6B-2	Relocations - CB&Q RR (Revised)	24 May 61
6B-3	Relocations - Cemeteries	4 Sep 62
6C-1	City of Salem, Illinois, Supplemental Water Supply	5 Aug 60
6C-2	Boulder Bottom Oil Field	2 Aug 60
6C-3	West Patoka Oil Field	2 Aug 60
7	Design of Main Dam, Gated Spillway and Second Stage Embankment	8 Mar 60
8A	Saddle Dam No. 3	22 Dec 59
8B	Saddle Dam No. 2	21 Apr 60
9	Keysport Levee (Revised)	1 May 61
10	The Master Plan	13 Mar 62
13	Buildings - Utilities and Access Roads - West Abutment Area	24 Jul 59
14	Design Memorandum for Shoreline Erosion	Aug 80

TABLE OF CONTENTS

<u>SECTION</u>	<u>TITLE</u>	<u>PAGE NO.</u>
	PREFACE	
	PREVIOUSLY ISSUED DESIGN MEMORANDUM	i
	TABLE OF CONTENTS	ii
	LIST OF PLATES	v
	LIST OF APPENDICES	v
	LIST OF TABLES	vi
	LIST OF FIGURES	vii
 SECTION I - INTRODUCTION		
1-01	Authorization	1-1
1-02	Project Purposes	1-2
1-03	Purpose of the Master Plan	1-2
1-04	Prior Master Plans and Supplements	1-2
1-05	Applicable Public Laws	1-5
1-06	Scope of Report	1-7
 SECTION II - PROJECT DESCRIPTION		
2-01	Location	2-1
2-02	Lake Data	2-1
2-03	Lake Regulation	2-5
2-04	Visitation Data	2-5
 SECTION III - RECREATIONAL AND ENVIRONMENTAL RESOURCES OF THE PROJECT AREA		
3-01	Geological	3-1
3-02	Archaeological	3-1
3-03	Historical	3-2
3-04	Ecological Conditions	3-2
3-05	Environmental and Scenic Qualities	3-4
3-06	Recreation	3-5
 SECTION IV - FACTORS INFLUENCING AND CONSTRAINING RESOURCE DEVELOPMENT AND MANAGEMENT		
4-01	General Land and Water Constraints	4-1
4-02	Demographic Data	4-2
4-03	Area of Influence	4-2
4-04	Economic Characteristics	4-6
4-05	Accessibility	4-7
4-06	Related Recreational and Historical Areas	4-8
4-07	Reservoir Plan of Regulation	4-10
4-08	Relocations of Roads, Cemeteries, Railroads, and Utilities	4-12
4-09	Earth-Borrow and Spoil Areas	4-13

TABLE OF CONTENTS cont'd

4-10	Water Quality	4-13
4-11	Public Use of the Spillway	4-13
4-12	Forest and Mineral Resources	4-14
4-13	Water Supply	4-14
4-14	Recreation Attendance and Facility Requirements	4-14
4-15	Environmental and Ecological Concerns	4-16

SECTION V - COORDINATION AND PARTNERING WITH  
OTHER AGENCIES

5-01	General	5-1
5-02	Federal Agencies	5-1
5-03	State of Illinois	5-1
5-04	Local Governments	5-2
5-05	Non-Government Partners	5-2
5-06	Public Involvement For The Master Plan Update	5-2

SECTION VI - OPERATING PROJECTS: STATUS

6-01	Project Development and Operation Chronology	6-1
6-02	Chronology of Expenditures for Public Use and Environmental Resource Development	6-1

SECTION VII - RESOURCE USE OBJECTIVES

7-01	General	7-1
7-02	Resource Use Objectives	7-1

SECTION VIII - RESOURCE PLAN

8-01	Classification of Lake Lands and Waters - Land and Water Use Plan	8-1
8-02	Selected Land and Water Use Policies	8-4
8-03	Project Operational Lands	8-5
8-04	Infrastructure/Facilities Development	8-10
8-05	Implementation	8-26

SECTION IX - FACILITY LOAD AND OTHER DESIGN CRITERIA

9-01	Siting	9-1
9-02	Camping Area Roads	9-1
9-03	Boat Launching Ramps	9-1
9-04	Picnic Shelters	9-1
9-05	Comfort Stations	9-1
9-06	Day Use Service Equipment	9-1
9-07	Signs	9-1
9-08	Interpretive Devices	9-1
9-09	Waste and Disposal	9-1
9-10	Water and Sewer Design Criteria	9-1

TABLE OF CONTENTS cont'd

9-11	Policies and Procedures Publications	9-3
------	--------------------------------------	-----

SECTION X - SPECIAL PROBLEMS

10-01	Sewage Treatment Systems	10-1
10-02	Administration and Maintenance Facilities	10-1
10-03	Pump Stations	10-2
10-04	High Water and Low Elevation of Facilities	10-2
10-05	Fisheries	10-3
10-06	Archaeological and Historical Resources	10-4
10-07	Shoreline Erosion	10-4
10-08	Recreation Carrying Capacity	10-5
10-09	Dam West Recreation Area - Future Design	10-5
10-10	Resort Concession Development	10-5

SECTION XI - SPECIAL PROGRAMS

11-01	Hydro-power (Low-Head Hydroelectric Power Plant)	11-1
11-02	Marinas	11-2
11-03	Maintenance and Repair Plan	11-3
11-04	Shoreline Management Plan	11-3
11-05	Mineral Development	11-3
11-06	Section 1135 Project	11-4
11-07	Wetlands Compensation Area	11-5
11-08	Bike Path	11-5
11-09	User Fees	11-5
11-10	Prison Labor Program	11-6
11-11	Environmental Compliance	11-6
11-12	Water Supply	11-7
11-13	Partnering	11-7

SECTION XII - COST ESTIMATES

12-01	Introduction	12-1
-------	--------------	------

SECTION XIII - OPERATIONAL MANAGEMENT PLAN OBJECTIVES

13-01	Introduction	13-1
13-02	Recreation	13-1
13-03	Safety	13-2
13-04	Shoreline Management	13-3
13-05	Forest Management	13-4
13-06	Fire Protection	13-5
13-07	Fish and Wildlife Management	13-6

SECTION XIV - CONCLUSIONS AND RECOMMENDATIONS

14-01	Conclusions	14-1
-------	-------------	------

TABLE OF CONTENTS cont'd

14-02

Recommendations

14-1

SECTION XV - PLATES

Plate 1	Land and Water Use Allocation
Plate 2	Land and Water Use Plan
Plate 3	Population Density and Zone of Influence
Plate 4	Dam West and West Spillway Recreation Areas
Plate 5	Keyesport Recreation Area
Plate 6	Boulder Recreation Area
Plate 7	Coles Creek Recreation Area
Plate 8	Coles Creek Recreation Area and Group Camp
Plate 9	East Spillway and Gen. Dean Recreation Areas
Plate 9A	Dam East Recreation Area
Plate 10	Plans, Elevations and Sections
Plate 11	Project Structures Site Plan
Plate 12	Fluctuation of Reservoir Level and Hydrologic Data
Plate 13	IDNR Management Areas
Plate 13A	IDNR, Wildlife Management Area - West Side
Plate 14	Eldon Hazlet State Park
Plate 15	South Shore State Park
Plate 16	Carlyle Lake Wildlife Management Area
Plate 17	Shoreline Management Plan
Plate 18	Visitor Center Addition - Elevation
Plate 19	Visitor Center Addition - Floor Plan
Plate 20	Amphitheater

SECTION XVI - APPENDICES

Appendix I	Market Study of Potential Marina Development at Carlyle Lake
Appendix II	Maintenance and Repair Plan
Appendix III	Administration Building Study
Appendix IV	IDNR Expenditures: Existing, Proposed and Future
Appendix V	Public Involvement Plan

LIST OF TABLES

<u>TABLE NO.</u>	<u>DESCRIPTION</u>	<u>PAGE NO.</u>
1	Carlyle Lake - Pertinent Data	2-1
2	Summary of Visitation Data	2-6
3	County Populations (Clinton, Bond, Fayette, Marion)	4-3
4	Related Recreational and Historical Areas within Delineated Market Area	4-9
5	Principal Recreation Facilities: Existing Supply and Demand Summary	4-16
6	Projected Recreation Facility Requirements, 2000 - 2010	4-16
7	Federal and/or State Threatened and Endangered Animal Species Sited or Potentially Sited in the Carlyle Lake Area	4-17
8	State Threatened or Endangered Plant Species Noted or Potentially Noted in the Carlyle Lake Area	4-18
9	Existing Recreational Development	6-5
10	Water and Land Use Allocation	8-12

TABLE OF CONTENTS cont'd

LIST OF FIGURES

<u>FIGURE NO.</u>	<u>DESCRIPTION</u>	<u>PAGE NO.</u>
1	Combined Population Trends of Fayette, Clinton, Bond and Marion Counties, Illinois	4-4
2	Actual and Projected Annual Visitation, 1970-2010 Carlyle Lake, Illinois	4-15