
MARK TWAIN LAKE MASTER PLAN

CLARENCE CANNON DAM AND MARK TWAIN LAKE MONROE CITY, MISSOURI

CHAPTER 1 INTRODUCTION

1.1 AUTHORIZATION

Federal laws provide that land and water areas of Department of the Army reservoirs, constructed for the primary purposes of flood risk management, navigation and/or hydropower, shall be administered to encourage and develop all collateral uses such as water supply, public parks and recreation, conservation of fish and wildlife resources, pollution abatement, and other purposes in the public interest.

The Flood Control Act of 28 June 1938 authorized a dam and reservoir on the Salt River near Joanna, Missouri, as part of a general comprehensive plan for flood control in the Upper Mississippi River Basin. A restudy of the project indicated the feasibility of a multi-purpose development, including hydroelectric power. The project was authorized as such by Sec. 203 of the Flood Control Act of 23 October 1962 (PL 87-874), as recommended by the Chief of Engineers in House Document No. 507, 87th Congress, 2nd Session. The reservoir, originally named the Joanna Reservoir, was officially renamed Clarence Cannon Dam and Reservoir by Public Law 89-298, 89th Congress, 3rd Session on 27 October 1965. Clarence Cannon Dam and Reservoir was officially renamed Clarence Cannon Dam and Mark Twain Lake by PL 97-128, 97th Congress, 29 December 1981.

1.2 PROJECT PURPOSES

The authorized purposes of the project are flood risk management in the Salt River Basin, hydroelectric power generation, water supply, fish and wildlife conservation, recreation, and incidental navigation.

1.3 PURPOSE AND SCOPE OF THE MASTER PLAN

This revised Master Plan replaces *The Master Plan, Design Memorandum No. 9, Clarence Cannon Dam and Mark Twain Lake*, that was updated in 2004. A master plan is the strategic land use management document that guides the comprehensive management and development of all project recreational, natural, and cultural resources throughout the life of the water resource project. The Master Plan guides the efficient and cost-effective management, development, and use of project lands. It is a vital tool for the responsible stewardship and sustainability of project resources for the benefit of present and future generations.

The Master Plan guides and articulates Corps responsibilities pursuant to federal laws to preserve, conserve, restore, maintain, manage, and develop the project lands, waters, and associated resources. The Master Plan is a dynamic operational document projecting what could and should happen over the life of the project and is flexible based upon changing conditions. The Master Plan deals in concepts, not in details, of design or administration. Detailed management and administration functions are addressed in the Operational Management Plan (OMP), which implements the concepts of the Master Plan into operational actions. The Master Plan will be developed and kept current for Civil Works projects operated and maintained by the Corps and will include all land (fee, easements, or other interests) originally acquired for the projects and any subsequent land (fee, easements, or other interests) acquired to support the operations and authorized missions of the project.

The Master Plan is not intended to address the specifics of regional water quality, shoreline management, or water level management; these areas, if applicable, are covered in other project plans. However, specific issues identified through the Master Plan revision process can still be communicated and coordinated with the appropriate internal Corps resource (i.e. Operations for shoreline management) or external resource agency (i.e. Missouri Department of Natural Resources for water quality) responsible for that specific area.

1.4 WATERSHED AND PROJECT DESCRIPTION

Mark Twain Lake is located in Monroe and Ralls Counties on the Salt River in Northeast Missouri, approximately 63 miles upstream from its confluence with the Mississippi River. The Mark Twain Lake Watershed is comprised of 2,318 square miles with an additional 29 square miles draining into the re-regulation pool. (See Figure 1-1, Mark Twain Lake Watershed.) The North Fork of the Salt River is the major drainage channel, draining 626 square miles and is 88.0 miles in length. The Middle Fork, Elk Fork and South Fork of the Salt River are the other major tributaries to Mark Twain Lake. The Middle Fork drains 356 square miles and is 65.4 miles in length. The Elk Fork drains 262 square miles and is 34.8 miles in length. The South Fork drains 298 square miles and is 38.0 miles in length.

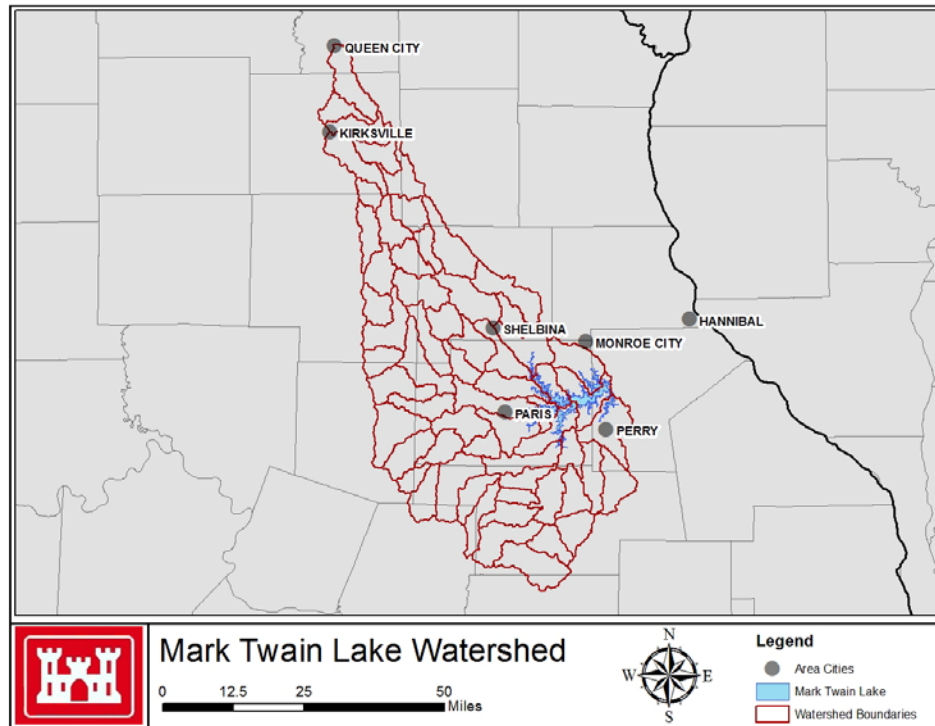
The Salt River watershed is primarily agricultural with a gently undulating plain in the upstream portion and it becomes more rolling and hilly in the downstream reaches. High rock bluffs border the streams at various locations. The river valleys are characterized by fairly narrow, tortuous courses interspersed by areas of widened bottomlands. Hickory and oak groves are scattered among crop and grazing lands.

The Mark Twain Lake Watershed is primarily agricultural with a gently undulating plain in the upstream portion and it becomes more rolling and hilly in the downstream reaches. High rock bluffs border the streams at various locations. The river valleys are characterized by fairly narrow, tortuous courses interspersed by areas of widened bottomlands. Hickory and oak groves are scattered among crop and grazing lands.

The total area contained in the Mark Twain Lake Project, including land and water surface consists of 54,741 acres. An additional, 9,740 acres are for flowage easement. Construction of the Clarence Cannon Dam and Mark Twain Lake Project began in 1969 and was completed by August of 1983. There are 15 recreation areas around Mark Twain Lake; thirteen parks are

managed by the Corps of Engineers and two are leased to the Missouri Department of Natural Resources.

Figure 1-1 Mark Twain Lake Watershed



1.5 PRIOR PERTINENT DESIGN MEMORANDA

The 1991 and 2004 Master Plan Updates and their supplements are listed below. Additionally, a listing of prior design memorandums and accompanying supplements are provided in Appendix A and with the release of this Master Plan, are considered incorporated into this document.

1991 Master Plan Update. The 1991 update of the Master Plan was supplemented eight times. The following is a brief summary of those eight supplements.

- Supplement 1, 1991, requested that the Spillway Recreation Area be renamed the Warren G. See Spillway Area. Total estimated cost was \$1500. Approved by CELMV-PD-R on 4 April 1991.
- Supplement 2, 1994, presented the request by the Northeast Missouri Area Vietnam Veterans Inc. to construct a memorial at the M. W. Boudreaux Memorial Visitor Center for Northeast Missouri soldiers who died in the Vietnam War. Total estimated cost of the project was \$45,000. Approved by CELMV-PE-R on 28 October 1994
- Supplement 3, 1995, requested approval of a three-year road improvement and maintenance project for paved surfaces with a request for special funding. The three-year

project cost was estimated at \$1,586,621. The project without the special funding was approved on 18 October 1995 by CELMV-ET-PR.

- Supplement 4, 1995, proposed a marina development at the North Extension lease area of Mark Twain State Park, fish cleaning stations in several recreation areas, an amphitheater at Frank Russell campground, a vault toilet and multi-purpose shelter in the Warren G. See South Spillway Recreation Area, a wetland restoration project in the North Fork area, and high water accesses at three locations. Total estimated cost was \$186,013. CELMV-ET-PR approved the supplement on 12 January 1996.
- Supplement 5, 1997, proposed a shooting range with a parking lot, road maintenance on an existing unsurfaced access road, and three minimum facilities for public health and safety including a five car/trailer access lot, and a 20 car gravel access lot. It also reflected a boundary change due to a recent land acquisition. Total estimated cost for all projects was \$155,250. The St. Louis District Engineer approved the supplement on 23 July 1997.
- Supplement 6, 1999, proposed six comfort station shower additions at Ray Behrens and Indian Creek, two handicapped fishing accesses in the Spillway, an extension to the Joanna Trail, land acquisition for the Joanna Trail, relocation of the John F. Spalding bathhouse and the Indian Creek comfort station to higher ground, expansion of the Spalding Wastewater Treatment Plant, continuation of special emphasis programs for youth, seniors and physically challenged individuals in various recreation areas, construction of a non-discharge sewage treatment lagoon and upgrade of the vault toilet to waterborne with a shower facility in the South Spillway Recreation Area, and designation of the Joanna Loop in the Frank Russell Campground for equine use. Total cost of proposed items was \$1,560,436. The supplement was approved by the St. Louis District Engineer on 16 February 1999.
- Supplement 7, 2001, proposed re-designating the Mark Twain State Park marina site as a beach, adding a swimming facility at Camp Colborn, Mark Twain State Park, upgrading the campsite electrical service at the Indian Creek and Ray Behrens Recreation Areas, adding two shelters and an earthen berm with a concrete retention wall at the special events area of the South Spillway Recreation Area, adding an archery range at the Ray Behrens Recreation Area, and installing full hookups at campsites in the Indian Creek and Ray Behrens Recreation Areas. Total estimated cost was \$1,163,750. Supplement was approved by St. Louis District Engineer on 24 August 2001.
- Supplement 8, 2002 proposed renaming the M.W. Boudreaux Group Use Area in recognition and memory of John C. “Jack” Briscoe for his outstanding leadership, contributions and support to Northeast Missouri and to the Clarence Cannon Dam and Mark Twain Lake Project. Total estimated cost was \$1300.00. Supplement was approved by St. Louis District Engineer on 12 March 2002.

2004 Master Plan Update. The 2004 update of the Master Plan was supplemented seven times. The following is a brief summary of those seven supplements.

- Supplement 1, 2007, requested the construction of the Mark Twain Birth Site Trail adjacent to Florida, Missouri through an easement with the Monroe County Commission. Total estimated cost of the project was \$33,000. The supplement was approved by the St. Louis District Engineer on 23 July 2007.
- Supplement 2, 2009, proposed relocation of facilities out of the flood zone to include replacement of vault toilets with a water-borne comfort station in the North Spillway, replacement of vault toilets with a water-borne comfort station in the South Spillway, replacement of vault toilets at the Bluffview Recreation Area with one vault toilet, replacement of vault toilets at Robert Allen, South Fork, Stoutsville, and the Indian Creek (east ramp) Recreation Areas, and the addition of a business center at the Administration Building. The total estimated cost of all the projects was \$660,000. The supplement was approved by the St. Louis District Engineer on 7 May 2009.
- Supplement 3, 2010, proposed replacement of three vault toilets in the Frank Russell Campground and two vault toilets in the Indian Creek Campground, facility consolidation and shower building replacement in the Ray Behrens Campground, modification of the Ray Behrens Boat Ramp, replacement of the Ray Behrens Fee Booth, installation of a new picnic shelter in the Frank Russell Recreation Area through partnership with the Northeast Missouri Environmental Stewardship Consortium, conversion of existing campsites to ADA accessible campsites in the Indian Creek, Ray Behrens, and Frank Russell Recreation Areas, replacement of wooden playground systems at the Warren See Spillway, John Briscoe Group Camp, Frank Russell, and Ray Behrens Recreation Areas, installation of an equipment storage building at the Mark Twain Lake Project Office, installation of a floating wave attenuator at the Blackjack Marina, and installation of ADA Accessible fishing pier in the Warren See Spillway Recreation Area. Total estimated cost of all the projects was \$5,608,125. The supplement was approved by the St. Louis District Engineer on 16 February 2010.
- Supplement 4, 2010, proposed rehabilitation of the existing unimproved earthen Eagle Nature Trail located at the M.W. Boudreaux Visitor Center to an ADA accessible trail. Total estimated cost of the project was \$69,512. The supplement was approved by the St. Louis District Engineer on 18 September 2010.
- Supplement 5, 2011, proposed three equine campsites, trail, and small comfort station in the Frank Russell Recreation Area, a small comfort station at the John F. Spalding Recreation Area to be funded through grants and partnerships. The total estimated costs of all the projects was \$168,592. The supplement was approved by the St. Louis District Engineer on 9 November 2011.
- Supplement 6, 2013, proposed construction of the Indian Creek Multi-Use Trail through grants and partnerships. The total estimated cost of the project was \$247,715. The supplement was approved by the St. Louis District Engineer on 19 July 2013.

- Supplement 7, 2013, proposed development of five equine campsites through grants and partnerships. Total estimated cost of the project was \$24,000. The supplement was approved by St. Louis District Engineer on 3 December 2013.

1.6 PERTINENT PROJECT INFORMATION

Table 1-1 Project Information

Project Data	
Location	15 miles south of Monroe City, MO & 120 miles north of St. Louis
Total Acreage	54,741 acres
Lake Surface Normal Pool	18,600 acres - 606 ft. NGVD
Lake Surface Flood Pool	38,400 acres - 638 ft. NGVD
Recreation Areas	15
Recreation Area Acreage	9,780 acres
Estimated Annual Visitation	2.2 Million
Dam Construction Began	1969
Construction Completion Date of Dam/Gates Closed	August 1983
Date Lake Reached Normal Pool	March 1984
Dedication	September 1984
Main Dam Statistics	
Location	63 miles upstream from confluence of Salt River with Mississippi River
Length	1,940 feet
Width at Crest	30 feet
1 Concrete Powerhouse/Spillway Section	450,000+ yards of concrete
1 Earthen Section	3,000,000+ yards of fill
Re-Regulation Dam Statistics	
Location	9.5 miles downstream from main dam
Height	40 feet
Length	1,500 feet
Watershed	29 square miles
Lake Acreage	800 surface acres
The Re-Regulation Dam consists of an Earth structure with 2 flow control gates.	
The Re-Regulation Dam is required to raise the tail water at the main dam to a level suitable for pump-back with the Francis Unit.	

