

CEMP-ET Engineer Regulation 1110-2-400	Department of the Army U.S. Army Corps of Engineers Washington, DC 20314-1000	ER 1110-2-400 31 May 1988
	Engineering and Design DESIGN OF RECREATION SITES, AREAS, AND FACILITIES	
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DEPARTMENT OF THE ARMY
U.S. Army Corps of Engineers
Washington D.C. 20314-1000

CEEC-EI

Regulation
No. 1110-2-400

31 May 1988

Engineering and Design
DESIGN OF RECREATION SITES, AREAS, AND FACILITIES

1. Purpose. This regulation establishes policy, and guidance for the design of recreation sites, areas, and facilities.
2. Applicability. This regulation is applicable to all HQUSACE/OCE elements and field operating activities (FOA) having Civil Works responsibilities.
3. References.
 - a. ER 1105-2-20
 - b. ER 1130-2-435
 - c. ER 1165-2-400
 - d. EM 1110-1-400
 - e. EM 1110-2-410
 - f. U.S. Army Engineers Waterways Experiment Station (WES), Instruction Report R-80-1
4. Master Plan. Designs for specific areas or facilities will be initiated only in accordance with an approved master plan, when a master plan is required. When a master plan is not required, recreation development shall be based on the appropriate design memorandum. ER 1130-2-435 provides the policy and guidance for the preparation of master plans.
5. Objectives. Recreation developments and facilities should be safe, cost effective, and promote the health, welfare, and enjoyment of the public. Design each area and facility for its appropriate carrying capacity, anticipated management implications, and proper balance between the area*s capacity with support facilities and preservation of the natural environment.

This regulation supersedes ER 1110-2-400, dated 7 July 1972.

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a. Cost Effectiveness. Achieve a balance between first costs and operating and maintenance costs over the 25 year life expectancy of the project for cost effectiveness. Avoid overdesign of facilities by the judicious use of anticipated visitation, site carrying capacity, and analysis of the 25 year life cycle costing.

b. Standardization. Division offices will establish cost effective regionalized standard designs for commonly constructed recreational facilities. The divisions have the latitude to establish more than one standard design for each type of facility.

c. Health and Safety. The health and safety of the general public will be major considerations in the design of recreation areas and facilities. Designs shall comply with applicable portions of the Corps of Engineers Safety Program (EM and ER 385 Series) and the Occupational Safety and Health Administration (OSHA) standards.

d. Barrier Free Design. Consider equal access to and utilization of facilities by all visitors, when planning and designing recreation areas and facilities. Use the design standards for handicapped facilities in the Uniform Federal Accessibility Standards (UFAS), as published in Volume 49, Federal Register, page 31528, 7 August 1984.

6. Design Guidance. EM 1110-1-400 presents specific design guidance for the planning and design of recreational facilities. EM 1110-2-410 provides access and circulation guidance. Planning guidance for recreation is contained in ER 1105-2-20. Guidance for recreation cost sharing with non-federal entities is contained in ER 1165-2-400. Appendix B of ER 1165-2-400 also provides a checklist of facilities which may be provided in recreation developments at Corps water resource projects. The extent of costs which can be allocated and general requirements for local participation in recreation development and management is contained in chapter 6 of ER 1105-2-20.

a. Design Team. Recreational facility design shall be a coordinated team effort involving planning, design, construction, operations, and non-federal elements. The design team should include a landscape architect with recreation experience or a recreation planner. Designs for recreational facilities such as roads, parking areas, launching ramps, beach developments, and

similar facilities will be field staked and checked by the design team members before the completion of construction plans and specifications. The design team members will visit the sites and areas during construction as a regular part of the design procedure. Once the site or facility has been placed in operation for at least six months, the design team will visit the operational site or facility to evaluate the operational aspects of the design. These visits will verify field conditions first hand and identify any problems that may not have surfaced during the design stage.

b. Technical Coordination. The exchange of ideas, information, and technology generated by field visits, conferences, and publications cannot be overemphasized. All team members need to be constantly aware of new systems and procedures and state-of-the-art technology that will further enhance the planning and design of recreational facilities on a cost effective basis.

c. Engineering Studies. Design recreational and related facilities consistent with the interrelated influences of topographic, geologic, hydrologic, and hydraulic factors. These factors affect the utility of particular sites and/or requirements in the interest of economic, environmental and facility protection. Present a discussion of the factors considered and results of analyses with the summary of decisions in design memoranda. Such discussion will include, as appropriate:

- (1) Siting of roads, parking areas, and structures
- (2) Possible shore erosion
- (3) Surface and sub-surface drainage
- (4) Geological stability of sites including soil depths, wind, waves, and current forces
- (5) Water quality and water supply
- (6) Hydrologic and hydraulic considerations including the minimum time required to inundate camp spaces using the top of conservation pool as a base for time, unless some other water level would be more appropriate

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- (7) Sanitary investigations
- (8) Sedimentation aspects
- (9) Evacuation routes from any recreation site or area

d. Design Memoranda and Plans and Specifications. Phase design and construction of recreational facilities with other project features. Present the design of these facilities in feature design memoranda. Include enough design details for the recreational facility development proposals to serve as the basis for the preparation and approval of project plans and specifications. Perform the design as a coordinated effort among the design professions, making the design a team effort. Designs and design concepts developed by others, particularly where portions of projects are to be leased for operation and management by non-federal park agencies, may be adopted instead of regional standard designs for Corps facilities when approved by HQUSACE. Plans and specifications for construction will be based on designs presented in approved design memoranda.

FOR THE COMMANDER:



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