

CHAPTER 2

General Guidance

2.1 Introduction. This chapter provides general guidance for elements that shall be considered when conducting site analysis and preparing designs for new construction or rehabilitation of all Corps-managed recreation areas.

2.2 General Considerations for Recreational Facilities. A general discussion of recreation facility considerations that should be addressed for all recreation areas is included below. More specific guidelines for these and a variety of other recreational facilities are included in Chapters 3-5.

2.2.1 Seasonal Fluctuations. Seasonal fluctuations in water levels shall be taken into consideration when designing and developing lake and riverside facilities to avoid the placement of facilities in hazardous or high maintenance areas. The 5-year flood frequency is a good general guideline when planning lakeside development, although there are other factors to consider, i.e. the requirements of EO 11988 and ER 1165-2-26.

2.2.2 Separation of Uses.

2.2.2.1 To preserve their integrity, campgrounds shall be physically separated from day use areas and other potentially conflicting uses.

2.2.2.2 Typical day use activities, which include picnicking, swimming and boat launching, shall be physically separated from campgrounds, marinas, or other types of potentially conflicting uses.

2.2.2.3 Playgrounds should be located away from interpretive facilities, roadways, and nearby campsites due to noise considerations.

2.2.3 Playgrounds. Playgrounds are an important and necessary feature that should be centrally located within any recreation area. Topography, existing vegetation, and the type of playground equipment provided shall govern the specific layout and shape of each playground. Playgrounds should fit the diverse needs of all children. Opportunities should be provided for a variety of experiences including imaginative and physical play without disturbing the natural, park-like setting of the area in which it is located.

2.2.4 Interpretive Facilities. Interpretive facilities shall be considered in the design of every recreation area. Interpretive facilities include but are not limited to visitor centers, bulletin boards, and kiosks. They assist users in understanding the natural, historic, and/or cultural values of a project site. Interpretive exhibits may give insight into natural or significant cultural features of an area, or explain the significance and history of the project site surrounding the recreation area. Additional interpretation should include the history of the Corps of Engineers and the Corps' mission as an agency. Knowledge of the recreation area and its significance encourages the users' sense of responsibility and appreciation for an area and may help develop specific interests such as ecology and history. Interpretive facilities should provide learning through physical interaction and observation.

2.3 Site Survey and Mapping. Major projects require an accurate topographic map that locates important site features. Survey criteria are not absolute but should provide a visual basis to aid in the design of the area. Onsite personnel must participate in this process from the beginning. It is recommended that the map and survey information be incorporated into existing GIS systems. The minimum information that maps and site surveys should provide includes:

- Corps boundary limits.
- Construction limits.
- Pool fluctuation elevations that would affect facilities within the area.
- Shoreline areas requiring protection/stabilization.
- Major natural features including large trees or unusual rock formations that can be designed into the facility.
- Cultural resources.
- Historic properties.
- Roads.
- Utilities.
- Existing buildings and facilities that will remain or whose demolition and/or removal are part of the plan.
- Facilities to be constructed - current and future.

2.4 Incorporation of Existing Site Features and Vegetation. Existing site features, vegetation of significance, and aesthetic views should be preserved and incorporated into the designs for site improvements. Recreation area design should

locate facilities and roadways among existing trees and vegetation with minimum disturbance. Features such as rock outcroppings, riparian areas, and overlooks should be incorporated into designs as natural amenities and points of interest.

2.5 Grading.

2.5.1 Slope Recommendations. New park facilities should be sited to blend with existing contours and the lay of the land. Table 2.1 summarizes slope recommendations in new park facilities. Minimizing the amount of cuts and fills required for a project reduces construction and maintenance costs. Areas with slopes over 15 percent will require excessive earthwork and should be avoided, unless there is no acceptable alternative.

Table 2.1

Slopes for New Park Facilities - Campgrounds & Day Use Areas	
Allowable Range	2% - 15%
Most Economical Range	2% - 7%
Range Requiring Extra Cut & Fill	8% - 15%
AVOID: Slopes Requiring Excessive Cut & Fill	+15%

2.5.2 Cut and Fill Areas. Slope facing of all cut and fill should be designed for ease of maintenance and passage by pedestrian park customers. Cut and fill slopes in excess of 3:1 may require the incorporation of terraces, retaining walls, stone riprap, or other measures to hold the soil in place. Heavily sloped or terraced areas adjacent to pedestrian footpaths or routes require barriers to prohibit access or the incorporation of paths providing safe passage across the slope.

2.5.3 Grading Adjacent to Buildings. Grading adjacent to buildings shall slope away from the buildings for a minimum distance of 10 feet to ensure positive drainage and to eliminate standing water.

2.5.4 Minimum Slope for Nonpaved Areas. To avoid problems caused by standing water, the minimum allowable slope for non-paved areas, swales, or drainage is 1 percent.

2.5.5 Surface Water Flow and Drainage Collection around Recreation Facilities. Grading must direct surface water flow away from tent pads, hardened areas, picnic tables, or utility hookups. Park roads, parking areas, and walkways should be

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graded to allow the natural flow of surface water. When possible, surface flows may be concentrated and collected in unobtrusive areas away from park customers and vehicular or pedestrian traffic. Drainage system designs should incorporate the use of smaller inlet structures at closer intervals within a collection basin in lieu of a few larger inlet structures that will concentrate flows and thereby interfere with the use or aesthetics of an area.

2.5.6 Grading Around Existing Trees. Grading should not occur within the drip line of existing trees since impacted trees usually require removal in 5 to 10 years. It is recommended that a professional landscape architect and/or forester be consulted to assess the potential impacts prior to grading around existing trees. Where grade changes under the drip line are unavoidable:

2.5.6.1 Care should be taken to minimize the disturbed area.

2.5.6.2 Impacted trees that do not pose hazards may remain in place to allow replacement trees to have a good growth start.

2.5.6.3 Replacement trees should be planted at the time of disturbance at a minimum of 2:1 replacement ratio to mitigate impacts to park users and enhance aesthetics (also see paragraph 2.6 below).

2.6 Succession Tree Planting Guidelines. Through succession planting a natural understory can be created that mimics nature and continually replenishes the canopy. Recommended actions to achieve goals of succession tree planting include:

2.6.1 Begin replanting before the old plant is removed.

2.6.2 Arrange replacement trees to take advantage of contrasts in texture and color and make the park more interesting. Integrate shrubs with upright plants to create a mosaic effect and an understory.

2.6.3 Avoid monocultures by planting a variety of trees within an area.

2.6.4 Design plant canopies to touch when the tree is mature. It is desirable to have a continuous leaf canopy that shades the ground, moderates the temperature, conserves

moisture, and discourages weeds. This can be achieved by planning layout according to each tree's:

- Growing habits.
- Root spread.
- Mature size.
- Light and shade tolerance.
- Water and nutrient needs.

2.6.5 Use close spacing to create a solid leaf canopy, but do not crowd planting to the point that disease problems or stunting result. Avoid overcrowding by interplanting fast-growing common shade species with slow-to-mature species.

2.7 Landscaping. Landscaping can generally be used to improve park aesthetics, control erosion, improve safety, and reduce maintenance costs. Aesthetic improvements include use of landscape materials to screen undesirable views such as service and storage areas, parking lots, dumpster and trash receptacle locations, electrical transformers, and other negative features.

2.7.1 Preserve Natural Appearance of Site with Use of Indigenous Landscape Elements. Landscape designs and plantings at Corps recreation areas should contribute to the natural appearance of the site. Many Corps locations have an abundance of existing landscape elements that can be used in new construction or rehabilitation projects, including trees, shrubs, groundcovers, grasses, flowers, boulders, stones, rocks, soil, and water. Use of indigenous landscape materials preserves the character of the recreation area and may result in lower maintenance costs. The following steps shall be used to preserve natural appearance and make maximum use of indigenous materials:

2.7.1.1 Conduct an inventory of existing plant and site features prior to commencement of design activities. The PDT should use this inventory to document which features are most conducive to the proposed development.

2.7.1.2 Design for large expanses of undeveloped areas to remain undisturbed. This avoids habitat fragmentation and enhances users' experiences within natural areas.

2.7.1.3 Protect existing plants and site materials during construction.

2.7.2 Landscape Design Criteria. The following required design criteria shall be applied (Photos I-3, I4, and I-5):

2.7.2.1 Obtain information on plant materials, availability, suitability, and quality through local and state nursery associations, agricultural extension offices, or state forestry offices.

2.7.2.2 Specify replanting of the site with a variety and range of plants indigenous to the area.

2.7.2.3 Avoid the introduction of exotic plants.

2.7.2.4 Avoid the use of toxic or thorny plants, especially in areas of high pedestrian traffic.

2.7.2.5 Provide visual interest with landscape materials, particularly at park entrances.

2.7.2.6 Provide seasonal interest by specifying a variety of trees, shrubs, and flowers.

2.7.2.7 Address seasonal maintenance requirements to include:

- Watering requirements for different types of vegetation.
- Weed control.
- Trimming of trees and shrubs.

2.7.2.8 Create buffers to improve traffic control, provide screening, or to separate differing uses and activities.

2.7.2.9 Promote security and safety through proper placement of landscape materials.

2.7.2.10 Emphasize low maintenance design considerations such as minimizing mowing and maintenance requirements and landscaping with drought-tolerant plants.

2.7.3 Minimize Mowing Requirements. Mowing is typically the costliest and most time-consuming vegetative management activity. Design features that should be included to reduce mowing efforts include (Photos I-3, I4, and I-5):

2.7.3.1 Keep grassed areas to the minimum required for aesthetics, line-of-sight visibility, and fire and erosion control. Alternatively, maximum consideration should be given

to creating natural or low maintenance areas that do not require mowing.

2.7.3.2 Specify grass that requires mowing on gentle slopes only.

2.7.3.3 Do not specify grass in isolated, hard-to-reach locations.

2.7.3.4 Where mowing is required, specify edging material set flush with the grass, and use of other landscape materials to control grass growth.

2.7.4 Irrigation. Planting and irrigation should reflect the goals of sustainable design with minimal vegetative and mechanical maintenance, including landscaping with drought-tolerant plants. Planting and irrigation should also be designed to withstand park and climatic conditions and conserve water.

2.7.4.1 Commercial quality irrigation equipment, systems, material, and methods should be used.

2.7.4.2 Irrigation components such as valves and controllers that require regular maintenance should be protected using devices such as valve boxes with secured covers.

2.7.4.3 Valves should be clustered and easily accessible for ease of maintenance.

2.7.4.4 Automated irrigation systems and remote control operation should be used when possible to minimize cost and allow for effective water management.

2.8 Roads and Parking. EM 1110-2-410, Design of Recreation Areas and Facilities - Access and Circulation, contains detailed specifications for roadway designs (Chapter 2) and parking areas (Chapter 7). Access into a recreation area should be limited to a single road whenever possible to promote the safety and security of the visiting public and for ease of management of the recreation area. Additional guidance for roads and parking facilities is provided below.

2.8.1 Paving. Roadways and parking areas should be paved with asphalt when possible, typically constructed without curb and gutter. However, a variety of hardened surfaces are

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available, and installation of one appropriate to regional climatic conditions is the standard.

2.8.2 Roads and Parking Placement to Maintain Park Character. Roadways and parking areas help create the customers' first impression regarding the quality and recreation experience an area offers. The design, layout, and orientation of roads and parking areas should:

2.8.2.1 Preserve a park-like character with minimal impact on the site, avoiding the appearance of a thoroughfare.

2.8.2.2 Avoid disturbance of significant park features and vegetation.

2.8.2.3 Provide convenient, enjoyable, and safe access to facilities.

2.8.2.4 Avoid significant barriers to pedestrians traveling between activity areas.

2.8.3 Roadway Design Guidelines. Table 2.2 summarizes roadway design guidelines for various road types.

Table 2.2

Roadway Design Guidelines			
Feature	Two-Way Road	One-Way Road	Service Road
Paved or hardened surface suitable for intended purpose	Required	Required	Required
Minimum paved width	24 ft (7.3 m) Required	14 ft (4.3 m) Required	
Width of shoulder base material on each side	2 ft (0.6 m) Required	2 ft (0.6 m) Required	1.5 ft (0.5 m) Required
Minimum clearing width for construction	30 ft (9.1 m) Required	20 ft (6.1 m) Required	
Crowned cross sections providing adequate slope for drainage	Required	Required	
Minimum overhead clearance	16 ft (4.9 m) Required	16 ft (4.9 m) Required	

Roadway Design Guidelines			
Feature	Two-Way Road	One-Way Road	Service Road
Minimum centerline turning radius for curves and turnouts	50 ft (15.2 m) Required	50 ft (15.2 m) Required	
No trees within: <ul style="list-style-type: none"> • 3 ft (0.9 m) of paving • ditches • back slope areas 	Required	Required	
Widened to provide parallel, angled or perpendicular parking where needed	Optional	Optional	
Turnaround provided			Recommended
Special care taken to avoid being environmentally or aesthetically obtrusive			Recommended

2.8.4 Parking facilities. Parking area design should promote:

- Public safety.
- Effortless vehicle circulation.
- Convenient facility access and ease of parking by the user.
- The goal that a first time user can easily understand access into and out of the area.

2.8.5 Parking Area Design Guidelines. Parking areas shall be designed for customer convenience, safety, and ease of parking with well-defined striping, curbs, barriers, and signage to encourage orderly and proper parking. Circulation patterns should be simple, direct, and obvious to the driver. Pull-through parking shall be utilized to the maximum extent possible for RV units, buses, and vehicles pulling trailers to eliminate the need for backing. Parking spaces angled to the flow of traffic are encouraged for safety and user friendly aspects for all vehicles. In certain areas there may be a demonstrated demand for parking spaces larger than the standard. Site factors and actual demand will determine the number and location of these spaces. Table 2.3 summarizes parking area design

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guidelines. Designs that exceed minimum engineering design standards are recommended based on customer experiences at Corps parks and trends toward larger vehicles and equipment.

2.8.6 Facility Parking Requirements. Parking area designs shall consider visitor needs specific to the facility offered. Table 2.4 summarizes recreational facility parking requirements for planning purposes.

2.8.7 Directional Markings. Directional markings include striping that meets current AASHTO (American Association of State Highway Transportation Officials) requirements and signage conforming to the Corps' "Sign Standards Manual."

Table 2.3

Parking Area General Design Guidelines (Drawings D-3, D-4, E-1, E-2)		
Item	Recommended	Minimum Requirement
Parking area	As close as practical to activity served	No more than 500 ft (152 m) from activity served
Parking grade	1-5%	8% maximum grade
Maneuvering aisles and access areas		
One way	20 ft (6.1 m)	15 ft (4.6 m) (wider recommended for perpendicular aisles)
Two way	30 ft (9.1 m)	24 ft (7.3 m)
Inside turning radius	30 ft (9.1 m) all vehicles	30 ft (9.1 m) oversized vehicle
Parking space, car, standard		
Perpendicular	9 ft x 20 ft (2.7 m x 6.1 m)	9 ft x 16 ft (2.7 m x 4.9 m)
Angled	9 ft x 20 ft (2.7 m x 6.1 m) (45-60 deg)	9 ft x 18 ft (2.7 m x 5.5 m)
Parallel	9 ft x 20 ft (2.7 m x 6.1 m)	8 ft x 20 ft (2.4 m x 6.1 m)

Parking Area General Design Guidelines (Drawings D-3, D-4, E-1, E-2)		
Item	Recommended	Minimum Requirement
Parking space, oversize vehicle Angled	10 ft x 50 ft (3.1 m x 15.2 m) (45-60 deg)	10 ft x 40 ft (3.1 m x 12.2 m)
Parallel	10 ft x 50 ft (3.1 m x 15.2 m)	10 ft x 40 ft (3.1 m x 12.2 m)
Parking space, launch ramp Angled pull- through	10 ft x 50 ft (3.1 m x 15.2 m) (45-60 deg)	10 ft x 42 ft (3.1 m x 12.8 m)
UA, all types		Add 5 ft (1.5 m) to minimum width for all types of spaces

2.8.7.1 Required Striping. Asphalt overlay or concrete roads and parking areas shall include striping as follows:

- Paved lots to indicate parking spaces and delineate access aisles.
- Roads in heavy traffic areas, where topographic conditions such as hills and curves dictate, to designate bicycle routes, and to address safety issues.

2.8.7.2 Required Signs. Directional signs and markings for traffic circulation will be placed when necessary for control and safety.

2.8.7.3 Optional Markings. Wheel stops or curbs may be used as a visual alignment indicator in unpaved parking areas.

Table 2.4

Facility Parking Guide for Planning Purposes		
Facility	No. and Type of Spaces	Per
Launch ramp	30 Oversize 5 Standard	Each launch lane Each launch lane
Swim area	1 Standard 1 Oversize	Every three swimmers Parking lot spaces may be increased based on local usage pattern
Picnic area	2 Standard	Each table
Campsite	1-3 Standard	Each campsite

Facility Parking Guide for Planning Purposes		
Facility	No. and Type of Spaces	Per
Restroom	# Of Standard Spaces That Will Fit Into Area	Parking area equal to length of restroom facility at a minimum
Playground	# Of Standard Spaces That Will Fit Into Area	Parking area equal to length of playground impact area
Fish cleaning station	1 Oversize	Every two fish cleaning spaces
Sanitary dump station	2 Oversize	Each dump unit
Amphitheater	1 Standard	Every four seats

2.9 Bicycle Routes. Bicycle routes or lanes should be considered in the design of new roads due to the increasing number of cyclists within Corps recreation areas. Improvements to existing roadways can also create lanes for cyclists in areas where bicycle use is prevalent. Considerations for bicycle routes are summarized in Table 2.5.

Table 2.5

Bicycle Route Design Features	
Comply with the <u>AASHTO's "Guide To The Development Of Bicycle Facilities"</u>	Required
Pavement markings and signs that adhere to the <u>Federal Highway Administration's "Manual on Uniform Traffic Control Devices"</u> and the Corps "Sign Standards Manual"	Required
Incorporate bicycle parking near access points and high use facilities	Recommended
Convenient to drinking water and restroom facilities	Recommended

2.10 Pedestrian Access. Pedestrian walkways, ramps, and steps provide access and circulation in recreation areas. Along with a UA ramp, limited use of stepped designs may be incorporated into some hardened areas, picnic sites, parking lots, and access to new buildings when necessary to fit within the existing topography, facilities and pathways (Photo I-1). Detailed specifications are contained in Chapter 5 of EM 1110-2-410,

"Design of Recreation Areas and Facilities - Access and Circulation." Additional guidance is provided in Table 2.6.

Table 2.6

PEDESTRIAN ACCESS DESIGN FEATURES	
Walkways and Ramps	
Designed with aesthetics in mind	Required
Used to connect high usage recreation facilities	Required
Does not impede service vehicle access to facilities	Required
Minimum width of 60 in. (1.5 m)	Required
Constructed of concrete or other hard surface types where applicable	Required
Ramps used for grade changes requiring less than three steps	Required
Whenever possible, ramps used in lieu of steps	Recommended
Use preferred longitudinal slope of less than 1:20 for ease of access	Recommended
Steps	
Include top and bottom steps of contrasting color	Required
Be designed with aesthetics in mind	Required
Have a minimum width of 60 in. (1.5 m)	Required
Handrail provided	Required

2.11 Utilities. Utilities are generally required for recreation areas and shall be designed to meet existing and anticipated future demands. Utilities should be designed to be functional, aesthetic, economical, easy to maintain, and user friendly.

2.11.1 Identify Utility Services Sources. Utilities planning includes identifying adequate and affordable sources of the utilities needed, which typically include:

2.11.1.1 Potable Water. Municipal or rural water systems shall be utilized when available. The development of water systems must address state and local regulations. Water supply must be adequate in quantity and quality to handle peak flow required to furnish water to restrooms, shower facilities, sanitary dump stations, drinking fountains, and irrigation for landscaped areas.

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2.11.1.2 Sewage Treatment Facilities. Municipal sewage systems shall be utilized when available. The development of sewage systems must address state and local regulations. Sewage facilities must be designed to handle peak sewage discharge from restrooms, fish cleaning, and sanitary dump stations. When feasible, one wastewater treatment facility may service multiple recreation areas.

2.11.1.3 Electrical Services. Private power utilities serving the facility shall be contacted at the concept stage to ensure power is available in the vicinity and to ensure that utility connection charges are included in cost estimates. Where feasible, all electric power lines should be placed underground inside recreation areas. Lines between use areas and lines from site boundaries to use areas can be placed above ground only if they do not interfere with safety, maintenance, or aesthetics. Overhead lines should be placed where they do not become a safety hazard to sailboats and shall not be placed over access roads to boat launching ramps or parking lots (reference ER 1110-2-4401, "Engineering and Design - Clearances for Electric Power Supply Lines and Communication Lines Over Reservoirs"). Overhead power lines should be aligned behind forest cover out of view where feasible. Clearances shall be thoroughly checked in accordance with current codes and regulations.

2.11.1.4 Commercial Telephone Services. Accessible telephone or emergency call box service shall be provided in public use areas. At least one telephone or call box should allow for emergency calls to be made without coins. International symbol signs shall be used to denote phone or call box locations. Support amenities should include adequate parking, lighting, and shelter from the elements. Phone service should be provided at all entrance stations and maintenance facilities. Information on UA amenities such as volume control should be obtained through the local service provider.

2.11.1.5 Other Sources if Needed. Fuels such as propane or natural gas fuel systems may be used, but those systems and storage facilities must comply with Flammable and Combustible Liquids Code NFPA (National Fire Protection Association) 30.

2.11.2 Designate Utility Corridors. A designated corridor for placement of utility systems and infrastructure should be established to facilitate new construction and the prompt location of system problems when they occur. Design and placement should be accomplished by a certified professional to

ensure that the corridor works in concert with other park systems. Ideal complementary systems are open play areas, campground perimeters, roadways, trails, or large drainage systems. Utility corridors should be kept open and free of trees and brush. A good alternative use for utility corridors could be wildlife plantings.

2.11.3 Consider Aesthetics of Utilities Placement. Power and communication lines inside recreation areas should be placed underground. Care should be taken to maintain good as-built drawings of underground utilities. Conspicuous utilities such as storage tanks and onsite wastewater treatment systems shall be fenced and screened. Odor-generating utilities should be remote to and downwind of park user activities.

2.11.4 Provide Adequate Lighting. Adequate lighting for safety, security, and accessibility shall be designed into all facilities and recreation areas when available at reasonable cost. This includes lighting access to buildings and major facilities. Reference USACE Technical Instructions (TI) 811-16, Lighting Design, and the USACE Safety and Health Requirements Manual, EM 385-1-1, for recommended lighting levels. Lighting considerations are summarized in Table 2.7.

Table 2.7

LIGHTING CONSIDERATIONS	
Locations to be Lighted	
Boat ramps	Required
Parking lots with nighttime use	Required
Major road intersections	Required
Information facilities with nighttime use	Required
Public phones	Required
Maintenance areas	Required
Service facilities	Required
Installation Considerations	
A minimum of two light sources shall be used for interior lighting (Table 3.8)	Required
Mounted high enough to minimize the effect of glare and to prevent vandalism	Recommended
Spillover light pollution such as sky glow, light trespass and glare should be addressed through height, shields for uplight and directional aim	Recommended
Breakaway posts used along roadways	Recommended

Use of battery- or solar-powered lights where electrical service is not available (<u>Photo I-2</u>)	Optional
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2.11.5 Provide Adequate Drinking Water. Adequate fountains and hydrants shall be provided in recreation areas. Drinking water shall be convenient to group activity areas and major facilities. Fountains and communal hydrants shall meet accessibility requirements.

2.12 Trash Removal Services. Trash services shall be provided for all recreation areas. Each receptacle shall be easily accessible by park users and service vehicles. Receptacle distance from user activities should be considered due to the potential for odor. The guidance in Table 2.8 is relative to the type and location of trash receptacles.

Table 2.8

TRASH RECEPTACLES CONSIDERATIONS	
Large Receptacles (Dumpsters)	
Set on a level, well-drained gravel or concrete pad	Required
Have a service area for receptacles designed to support weight and maneuver space requirements of service vehicles	Required
Located near the park exit or central to the park	Recommended
Small Receptacles	
Secured to prevent overturning or theft	Required
Have lids secured to the receptacle	Required
Located near high usage areas such as group shelters, restrooms, parking areas, and along major walkways (<u>Photos I-6 and I-7</u>)	Recommended
Grouped where practical	Recommended
Screened when practical	Recommended
Recycle Containers	
Provided for the public to deposit recyclable materials (<u>Photos I-8, I-9, and I-10</u>)	Optional

2.13 Protection and Control. Access to recreation areas should be controlled to protect the general public and project resources. A controlled entrance will improve safety, reduce vandalism, and provide for controlling the hours or season an area is available for use. Special consideration shall be given to each fee area, which should have a single, well-designed

entrance layout whenever possible to enhance orderly fee collection while controlling entrance and exit to the area.

2.13.1 Gates and Barricades. Control gates and barricades will generally be located at main park entrances and other access points that must be temporarily closed for maintenance, quiet hours, or seasonal closure.

2.13.2 Fencing. Fencing should generally only be constructed for access control, traffic control, screening, and safety purposes. Care must be exercised in determining the type and location of fencing. Where fencing is necessary it should be of the minimum height and design possible to be unobtrusive and still accomplish the required function.

2.14 Signs. Signs shall be provided only where needed to regulate traffic, warn of hazardous conditions, establish restrictions, and provide information. The number of signs should be kept at a minimum. Symbol signs shall be used whenever feasible. Detailed guidance on all traffic, warning and information signs and their placement shall conform to EP 310-1-6a and 6b, the Corps' "Sign Standards Manual."

2.15 Water Safety Alerts. Buoys, buoy lines, markers, signs and other means shall be provided to alert users to restricted areas, swimming areas, danger zones, slow speed areas, boat lanes, etc., and shall conform to the U.S. Coast Guard's "U.S. Aids to Navigation System" and EP 310-1-6a and 6b, the Corps' "Sign Standards Manual."