

6.0

DESIGN STANDARDS AND GUIDELINES

The unique character of SPRA derives from all the various elements of the park including building design, environmental resource management, site treatments, roads, parking, trails and paths, campgrounds, and day-use areas. The Master Plan proposes programmatic and conceptual improvements to these elements, with the expectation that some improvements will require more detailed design studies before they are implemented.

Design standards and guidelines will inform these future design efforts in order to maintain the unique character of the park over time. These standards and guidelines provide constraint where needed to protect park resources, as well as the flexibility to adapt designs to future conditions and technologies.

The standards and guidelines include area-wide design principles which describe the overall design intent for SPRA. These principles are aimed at preserving park resources and maintaining a unified aesthetic throughout the park as improvements are implemented.

The design standards and guidelines address the following topics:

- ❑ Area-wide design principles
 - ◆ Sustainable design practices
 - ◆ Site planning and design
 - ◆ Energy-efficient design
 - ◆ Form, scale, and massing
 - ◆ Materials and resources
 - ◆ Architectural components

- ◆ Design for snow management
- ◆ Water conservation
- ❑ Access elements
 - ◆ Entrances
 - ◆ Roads, parking, and trails
 - ◆ Bridges
- ❑ Recreation elements
 - ◆ Campgrounds
 - ◆ Convenience camping units
 - ◆ Day use areas
- ❑ Environmental resource management
 - ◆ Fuel load management
 - ◆ Shore and creek protection
 - ◆ Vegetation management and restoration
 - ◆ Construction management
- ❑ Design review process

The provisions of this document shall apply to all development and redevelopment of facilities within SPRA. Each development/redevelopment project shall be evaluated with regard to how it achieves an overall design that meets the intent and directions of these standards and guidelines.

Each standard and guideline includes examples and illustrations of ways in which the intent of the standard can be achieved. The graphic illustrations are meant to be examples and are not the only acceptable means of accomplishing the intent of the standards. Any designs, styles, and techniques not pictured in the examples but which

fulfill the intent of the design standard are also encouraged for consideration.

Standards in this document are indicated by use of the verb “shall.” These statements indicate requirements and offer relatively little flexibility unless choices are provided within the statements themselves. All projects must include these elements as described.

Guidelines are indicated by statements using the verbs “should” or “may” and provide more flexibility than standards. Design approaches that are equal to, or better than, those stated in the guidelines may be used, as long as the intent is satisfied.

Regardless of which term is indicated, each standard and guideline must be addressed. EID will evaluate the design and implementation of each particular element or project to see that it has responded to the applicable standards and guidelines.

6.1 AREA-WIDE DESIGN PRINCIPLES

The area-wide design principles provide sustainable approaches to design relevant to the development of individual park elements and SPRA as a whole. These principles promote design that is sensitive to protecting the natural resources at the park while also creating facilities that meet the recreational needs of park visitors. Many of these principles are derived from the USFS approach to designing for their forested parks as described in “The Built Environment Image Guide” (USDA, 2001).

6.1.1 SUSTAINABLE DESIGN PRACTICES

Natural resources play a defining role in the character of SPRA, and conservation of these resources is a fundamental objective of

sustainable design. Sustainable design (otherwise known as “design with nature” or “environmentally sensitive design”) integrates principles that allow humans to live in harmony with the natural world, protect biodiversity, and share habitats with other species.

In 1991, the National Park Service launched a Sustainable Design Initiative in response to a number of stress factors similar to those occurring at SPRA. These include:

- Population increases,
- Park visitation increases,
- Demographic changes,
- Increased numbers and types of sites to manage,
- Environmental degradation, and
- Need to protect whole ecosystems.

Sustainable design and construction respond to these stresses by minimizing the use of resources, conserving ecosystems, and using techniques that support the long-term health of the environment while also meeting the functional needs of present day park visitors (National Park Service, 2003). Sustainable design and construction shall be incorporated into the development of SPRA facilities, as reflected by the standards and guidelines in this section, and with an eye towards future developments in the application of sustainable practices.

6.1.2 SITE PLANNING AND DESIGN

Building Placement

Careful attention shall be given to the siting of all structures and facilities to protect sensitive areas, reduce the impacts to visual and natural resources, maximize energy efficiency, and preserve the character of SPRA.

- ❑ Buildings should be sited in locations that will minimize tree removal and preserve scenic views. Where feasible, clustering several small buildings in available openings would be preferable to removing trees to create an opening for a single larger building.
- ❑ Winter-use buildings should be sited to optimize solar heating opportunities and reduce exposure to winds. This includes proper unobstructed southerly orientation for roof-mounted systems and thermal gain from the building mass. Pay attention to potential for future shadows from trees if panel systems are used.
- ❑ Summer-use buildings should be sited to take advantage of vegetation, orientation, prevailing winds, and other buildings to reduce the need for supplemental cooling.
- ❑ Natural features on potential sites shall be considered for integration into project design as opposed to being removed.
- ❑ Buildings shall be oriented parallel to topographic contours as much as possible to minimize grading.
- ❑ Buildings shall be located such that the activity associated with the building does not impact nearby sensitive environmental areas.
- ❑ All new buildings shall be situated to facilitate ADA/Title 24-compliant access.
- ❑ Cut and fill shall be minimized; however slopes should not exceed a 3:1 gradient. Where slopes need to exceed 3:1, logs, boulders, or other natural materials should be used when feasible to create retaining walls. Also, grading design shall seek to provide a diversity of gradients and profiles rather than uniform slopes.
- ❑ Grading should emulate the natural drainage of the area, direct water away from buildings, and avoid concentrating flows whenever possible.
- ❑ Infiltration trenches, sediment basins, or similar techniques shall be used to filter stormwater runoff from roofs and paved or compacted surfaces when feasible. Use of culverts and other underground pipe systems should be avoided.
- ❑ The number of temporary access routes to construction sites shall be minimized.

6.1.3 ENERGY EFFICIENCY

Energy efficiency, a fundamental objective of sustainability, can be increased by proper site selection as described above and incorporating energy saving features into the building design.

Grading and Drainage

Site disturbances should be limited as much as possible to reduce environmental impacts, including soil compaction, erosion, and dust. Standards and guidelines for grading and drainage are as follows:

- ❑ Grading plans shall show locations of trees that are 6 inches and greater DBH.
- ❑ Construction staging and access areas shall be planned to minimize impacts around project footprints.
- ❑ Natural ventilation to cool and heat buildings shall be used wherever possible.
- ❑ Mechanical equipment, where needed, shall be designed to minimize demand for power or fuel and to burn fuels cleanly.
- ❑ Building envelopes shall have adequate insulation to minimize heating and cooling costs.
- ❑ Overhangs, awnings, vents, and windows shall be incorporated into the design of buildings as feasible to provide passive climate controls for both heating and cooling.
- ❑ Energy efficient windows shall be used and properly installed to minimize air infiltration.

- ❑ Opportunities to incorporate thermal mass into the building design for passive heating should be considered.
- ❑ Demand for heating and cooling should be minimized by using vegetation where feasible to provide summer shade and screen winter winds
- ❑ A combination of energy efficient lighting and natural lighting shall be used to minimize electrical demand for lights and reduce heat buildup.
- ❑ The design of interior spaces should include access to natural light when possible such as through windows or skylights.
- ❑ Access to natural light should be optimized by building orientation and window size and location.

6.1.4 WATER CONSERVATION

Water resources in El Dorado County are under increasing pressure as new development brings in more residents. As the foremost water purveyor in the county, it is important for EID to demonstrate responsible water use at SPRA.

- ❑ Water-efficient fixtures and appliances shall be used in all new facilities, and retrofit in existing facilities as part of regular maintenance.
- ❑ Native and/or drought tolerant plant species shall be emphasized in ornamental landscaping to minimize irrigation demand.
- ❑ Where supplemental irrigation is needed, a water-efficient irrigation system shall be used. Such systems feature components like with drip emitters or bubbler heads that apply water directly to the root zone, minimal spray areas, and timers to prevent overuse.
- ❑ Porous paving should be installed to minimize erosion and to “recharge” the groundwater.
- ❑ Waterless toilets should be used.

- ❑ Swimming pools should be covered when not in use to prevent evaporative water loss.
- ❑ Opportunities to integrate graywater and stormwater recovery into facility design for irrigation should be considered.

6.1.5 SHAPE, SCALE, AND MASSING

Designs for proposed structures for SPRA need to be visually harmonious with the natural environment. This can be accomplished by considering how the shape, scale, and massing of structures relate to the surroundings.

- ❑ Building profiles shall be subordinate to the natural setting and should not detract from scenic vistas. Vegetation may be used to obscure buildings and reduce their visual impact.
- ❑ Building size and architectural elements shall be in scale to the surrounding natural elements. It may be preferable to use several small buildings instead of a single large building depending on the setting.
- ❑ Building shapes may range from organic—such as domed or round—to rectangular as long as they complement the natural setting.
- ❑ Buildings shall be visually compatible with other nearby structures to avoid creating juxtapositions that distract from the harmony of the natural setting.

6.1.6 MATERIALS

Materials used for structures and other improvements should be from sustainable sources whenever feasible, minimize maintenance, and preserve a sense of place.

Sources

- ❑ Regionally indigenous materials should be considered for use when they can be collected in a sustainable manner and are economically feasible.

- ❑ Locally predominant, certified lumber should be used for construction of buildings and site furnishings.
- ❑ The use of products with post-consumer recycled content (decking, siding, roofing materials, and fencing) and salvaged materials should be encouraged.
- ❑ Rather than bringing in new materials, on-site materials such as logs or boulders should be incorporated into features as long as such use does not cause environmental damage.
- ❑ Locally available materials (within a 100-mile radius from the site) should be used to minimize transportation costs.

Maintenance

- ❑ While wood is commonly used for structures, concerns about rot, fire, and the need for periodic treatment, such as painting or staining, should lead to the consideration of alternate, more durable materials. However, alternate materials should be carefully selected for to make sure they do not conflict with the natural setting.
- ❑ Low-maintenance natural materials (for example, stone, redwood, or cedar) should be used when feasible.
- ❑ Materials that can be allowed to develop a natural patina or weather overtime should be considered over those that require regular cleaning, resurfacing, and/or painting.
- ❑ Materials should be selected to withstand the variations in temperature and precipitation typical to SPRA to limit the need for maintenance and replacement.

Wood and Simulated Wood

- ❑ Designs for structures, furnishings and other improvements that use wood should look for opportunities to retain the natural quality of the wood, such as using logs or rough-hewn planks.
- ❑ Improvements shall not use CCA pressure-treated wood. Instead, use wood treated with

Environmental Protection Agency approved preservatives and compatible corrosion-resistant fasteners.

- ❑ The minimal level of protection should be used for pressure-treated wood to meet the intended application. For example, railing and decking require less protection than ground-contact or permanent foundation uses.
- ❑ Where feasible, wood furnishings should be elevated to avoid ground contact and to reduce the required level of protection.
- ❑ Fencing and barriers should use natural cedar split railing, recycled plastic railing that looks like wood, or other materials that are consistent with the natural setting.
- ❑ Composite decking, manufactured from recycled wood and plastic post-consumer products, should be considered in lieu of wood decking as it is more durable and requires essentially no maintenance over the product life. Composite decking that mimics the texture and colors of real wood as shown in Figure 6-1 should be used. Many manufacturers also provide durable railing systems.

Figure 6-1: Composite Decking



Paving, Stone and Stone Veneer

- ❑ Native stone or natural-appearing stone products should be used where stone is needed for structural and retaining walls, fireplaces, chimneys, barbecue/grill structures, drinking fountains, kiosks, etc.

- ❑ Stone structures should be visually consistent with the rustic aesthetic of the park and/or the style of masonry found on historic structures in the area. To achieve a rustic look use a variety of stones laid in a random horizontal pattern, with larger stones near the bottom.
- ❑ The method used for mortaring joints should be consistent with those used within visual proximity.
- ❑ Porous paving or unit paving should be used where feasible to allow stormwater infiltration and reduce runoff.

Color and Finish

- ❑ Colors should complement those that occur naturally in the surrounding vegetation, rocks, soil, and water.
- ❑ A limited color palette should be used throughout the park to establish a consistent visual character.
- ❑ Finishes that appear unnatural or highly refined should be avoided. Clear stains that allow wood grain and character to remain visible are preferable to opaque stains.
- ❑ The use of bright and intense colors should be limited to architectural accents.

6.1.7 ARCHITECTURAL COMPONENTS

The following guidelines should be reflected in designs for the major architectural components of a structure, particularly the base, walls, and roof.

Base

- ❑ Structures on piers or poles should be enclosed to prevent fires from moving under the structure.
- ❑ When buildings are to be located on slopes, the foundations should be stepped to minimized grading and ground disturbance.
- ❑ The building base should visually tie the structure to the ground and be large enough to balance the mass of the structure above.

- ❑ Appropriate base materials should be used for the anticipated conditions of the site. Snow accumulation in some areas may require higher base elements than in others.

Exterior Walls

- ❑ Supporting members for porch roofs and entries should use appropriately sized timber or multi-member posts to be in visual balance with the mass of roofs.
- ❑ Large unbroken expanses of flat wall should be avoided by including windows, shingles, or lapped siding for texture and surface relief.
- ❑ The exterior application of materials should be kept simple and uncomplicated, and should not conflict with the natural setting.

Roofs

- ❑ Roofs should appear more dominant than walls to visually integrate with the heaviness of the surrounding forest canopy.
- ❑ Simple roof forms should be used to keep the building profile unobtrusive.
- ❑ Historical precedent and the local vernacular should be referred to for examples of roof lines and materials, such as mining structures and old resort lodges.
- ❑ Roof materials that are non-reflective and blend with a natural color palette should be used.
- ❑ Materials which are resistant to wildfire, such as non-reflective metal or composition asphalt shingles shall be used for roofing. Entire roof assembly shall be Class 'A'.
- ❑ Covered porches may be provided to protect entries.

Decks

- ❑ Decks may be used to extend the living space of a structure to the outdoors. Where feasible, decks should be located on the lake side of a structure to take advantage of views of the lake and surrounding area.

- ❑ Porch decks may be constructed on the front sides of cabins and yurts to provide a sense of entry and an additional outdoor room.
- ❑ Decks may be used to link cabins to better suit the needs of large family groups and duplex cabins.

6.1.8 SNOW MANAGEMENT

Although snowfall at SPRA does not usually exceed a few inches at any given time, on occasion a foot or two may fall in a single storm or may accumulate over the course of several storms. Park facilities need to withstand these conditions to ensure staff and visitor safety and minimize maintenance.

- ❑ All facilities shall be structurally designed to bear anticipated snow load.
- ❑ If buildings are to be occupied in winter, they shall have adequate wall and plumbing insulation, energy efficient windows, and a reliable source of heat with ventilation.
- ❑ Roofs shall be designed to avoid excessive accumulation of snow and to shed snow to areas that will not create hazards for pedestrians or vehicles.
- ❑ Pedestrian routes for winter use shall be clearly marked and graded to prevent ice buildup.
- ❑ Sufficient area to dump removed snow should be included in the design of roads and parking areas when these facilities will be used in the winter.

6.2 ACCESS ELEMENTS

Providing safe and efficient access to SPRA facilities is critical to maintaining the quality of visitors' recreation experience. The components of the park access network include entrances, roads, parking, trails, and bridges.

6.2.1 ENTRANCES

Given the narrow roads, level of visitation, and number of facilities in the park, it is especially important that entrances be properly designed for safety and to avoid visitor confusion.

- ❑ Park and campground entrances should be distinct and easy to identify from a distance of at least 500 feet.
- ❑ Traffic control signage shall be posted as needed to direct ingress/egress, and to warn approaching traffic of the potential for pedestrians or slowing traffic.
- ❑ Vegetation shall be managed to maintain visibility of vehicles, pedestrians, and signage.

6.2.2 ROADS, PARKING, AND TRAILS

Roads

There are three general types of roads that make up the vehicle circulation system at SPRA. Lake Drive is a major access road that connects the park entry with other facilities. Collector roads connect the main road to campgrounds, service or administrative areas, trailer dump stations, or other site amenities, such as boat launching ramps. Campground access roads provide internal circulation to individual campsites.

All development and redevelopment affecting SPRA roads should be in accordance with the following minimum guidelines to facilitate traffic and ensure public safety. Recommended road widths and surfaces are as shown in Table 6-1.

- ❑ Adjustments to alignments or siting for new roads should be planned carefully to preserve major trees and clumps of vegetation, while considering safety factors such as visibility.
- ❑ Slope should be no greater than 15 percent to accommodate emergency access vehicles and travel in winter conditions.

- ❑ All roads should be signed for speed limits, intersections, and trail/pedestrian crossings.
- ❑ Circulation should be designed to minimize use of campground roads to access day use facilities.
- ❑ Where two-way road widths do not meet guidelines, pull-out areas should be designated to allow passing for large vehicles.
- ❑ When road improvements require surface flow to pass under the road, culverts shall be properly sized and armored to prevent washouts and undercutting.
- ❑ Vehicular access should be controlled and natural needle and leaf mulching maintained on lesser used, unpaved roads to minimize erosion and protect road surface.
- ❑ When speed bumps are installed on paved roads within campground areas they should be angled to divert road surface runoff into areas with sediment filtration capacity.

Table 6-1: Road Design Guidelines

	Major Access	Connector	Campground Access
Road Width	24 feet	12 feet	10 feet
Road Surface	Asphalt	Chip/seal, pervious geo-block w/gravel, or asphalt	Chip/seal, pervious geo-block w/gravel, or asphalt
Shoulder Width	2 feet	1 foot	1 foot
Shoulder Surface	Compacted gravel or better	Compacted gravel or better	Compacted gravel or better
Traffic Flow	2-way	1- or 2-way	1-way loop

Parking Areas

Parking improvements are needed in various areas of SPRA to facilitate access to day use areas, the Marina and boat launches, trailheads, and campgrounds.

- ❑ All paved parking spaces should be delineated with 2- to 3-inch-wide white lines painted on the surface between the spaces. This will help to more efficiently utilize available space

thereby maximizing the number of vehicles that can be accommodated.

- ❑ Drive aisles should be 24 feet wide for two-way traffic and 12 feet wide for one-way traffic.
- ❑ Parking areas should be defined with materials such as split-rail fencing, boulders, post and cable, or large diameter logs to “contain” vehicles in designated areas.
- ❑ Large trees in and around parking areas should be saved to break up paved areas and to provide shade and screening. Where trees are to be saved, parking surfaces shall not be located where they will adversely impact tree health.
- ❑ All head-in parking spaces shall be a minimum of 9 feet wide by 18 feet long.
- ❑ Parallel parking spaces shall be a minimum of 9 feet wide by 20 feet long.
- ❑ Handicap spaces shall comply with ADA/Title 24 standards for placement, dimensions, and signage.
- ❑ Bumper or wheel stops should be used to define the front edge of spaces.
- ❑ Parking spaces should at a minimum be surfaced with compacted gravel. Permeable materials are preferred but asphalt may be used where needed for durability and to reduce dust.
- ❑ The ratio of parking spaces to campsites in each campground should be at least 1.5:1, with at least one parking space clearly designated for each campsite.
- ❑ Unless a campground access road is at least 22 feet wide, no on-road parking should be permitted.

Trails

Designated trails at SPRA currently serve pedestrians, equestrians, and bicyclists. Until a dedicated mountain bike trail is developed, all

three user groups are allowed to share the same alignments.

- ❑ Where feasible, maintenance should improve pedestrian trail accessibility as defined by ADA/Title 24 accessibility standards. Such improvements are subject to the limitations of terrain, staff, and funding and shall not cause damage to significant natural resources.
- ❑ Where site conditions allow, new pedestrian trails used to connect facilities should be designed to satisfy ADA/Title 24 accessibility standards.
- ❑ Any designated trail should have at least 3-foot-clear width if intended for non-handicap pedestrian use, at least 4-foot-clear width for handicap accessible and bicycle use, and at least 6-foot-clear width for equestrian use.
- ❑ Multiuse trails should provide periodic turnouts at least 4 feet wide to allow users to pass without disturbance to horses or people.
- ❑ Any trail designated for multiple uses should have signage that clearly describes which users have the right of way, rules for safety, and proper trail etiquette.
- ❑ Trails should have out-sloping waterbreaks and dips as needed to shed storm runoff into adjacent vegetated areas.

6.2.3 BRIDGES

The combination of creeks and terrain in several park locations requires bridges for trail and vehicular access.

- ❑ Bridges should be provided at all trail drainage crossings to minimize disturbances to riparian areas.
- ❑ Width of bridges on designated handicap accessible trails shall be at least 4 feet to accommodate wheel chairs.
- ❑ All bridges shall have handrails 42 to 54 inches high if the deck is 30 inches or more above grade.

- ❑ Bridges should be designed and finished to visually integrate with the natural setting.
- ❑ Width and bearing capacity of bridges shall be adequate to safely allow all anticipated uses.
- ❑ Impacts to drainage corridors shall be minimized by using clear span bridges where feasible.

6.3 RECREATION ELEMENTS

The three major types of recreation facilities recommended for SPRA are campgrounds, convenience unit campgrounds, and day use areas. This section provides standards and guidelines for the structures and amenities associated with each type of facility.

6.3.1 CAMPGROUNDS

Part of SPRA’s popularity may be attributed to the wide variety of camping experiences currently available at the park. This Master Plan recommends improvements to the existing family, group, and scout/youth group campgrounds as well as the addition of a primitive campground.

Campground Reconfiguration

- ❑ Each campground layout should be reviewed on-site to ensure that grade transitions can be accomplished smoothly and with minimal need for retaining walls or other costly measures.
- ❑ Siting of campsites and day use areas should emphasize protection of natural resources and safety, as well as functionality.
- ❑ When demand and site conditions permit, up to 30 percent of sites in a campground may be tandem or double tandem sites to accommodate larger family groups.

Campsites

- ❑ Family campsites should accommodate up to 8 people and provide parking space for an

automobile/trailer combination, a recreational vehicle, or an automobile.

- ❑ Primitive campsites should be designed for walk-in access by small parties of 1 to 6 individuals.
- ❑ Group campsites should accommodate from 20 to 100 people, depending on the size of the area allocated to a particular site. Tent sites should be located at the periphery of the site away from trailers.
- ❑ Group campsites should provide parking for multiple automobiles, automobile/trailer combinations, and RVs.
- ❑ The number of campers allowed at any group campsite should be balanced with parking capacity. A typical ratio should be 2.5 campers per vehicle. If adequate parking is not available, capacity of the site should be reduced unless a designated area for overflow parking can be provided within easy walking distance.
- ❑ Because the nature of groups tends to be more gregarious than individuals and families, group campsites should be located away from family campgrounds.
- ❑ The living area of each campsite should be located to the right or rear of the parking spur. This is preferred because the doors of recreational vehicles are on the right side (passenger side of the vehicle) when facing the direction of traffic flow.
- ❑ Designated handicap accessible campsites shall have handicap accessible parking spurs and be conveniently located near handicap accessible sanitary facilities. All designated handicap accessible campsite components shall comply with the requirements of ADA/Title 24 and be connected to other campground features by handicap accessible routes.
- ❑ Total minimum area for a family campsite should be 800 square feet if including tent space and 650 square feet if no tent space is provided (RV only).
- ❑ A flat area of at least 144 square feet (12 feet by 12 feet) should be identified for each tent site. For handicap accessible campsites, the pad should be elevated 15 inches above the surrounding area, retained by wood or concrete, and a 4-foot clearance shall be provided on all sides.
- ❑ Natural materials, such as boulders, logs, split-rail fencing, or railroad ties, should be used to define the camp space and minimize site impacts.
- ❑ Campsites should be surfaced with compacted sand, 3/16-inch gravel, or decomposed granite over permeable landscape fabric over compacted earth. Avoid rounded materials such as pea gravel or creek gravel that do not compact well. See Site Furnishings section below for surfacing requirements for the area immediately surrounding the fire ring.
- ❑ In order to drain properly and still provide a relatively flat camping area, sites should be sloped at 1.5 percent minimum and 3 percent maximum.
- ❑ Premium campsites may be provided with additional amenities such as utility hookups, a serving table, and additional lantern poles.
- ❑ In general, a minimum 25- to 30-foot separation between family campsites should be provided. This will allow an adequate buffer for privacy and protection of natural resources.
- ❑ Campers in group campsites expect to be in closer proximity to each other, and separation between sites is not as critical as for family campgrounds. Separation between individual tent sites in the larger group site should vary from 10 to 15 feet minimum depending on the overall space available.
- ❑ Group sites should be separated from each other to the maximum extent possible to avoid groups disturbing each other. The minimum

separation should be 50 feet apart, depending on group sizes and available space. A separation of 100 feet is preferable.

- ❑ Primitive campsites should be at least 200 square feet and separated to the greatest extent possible within the area designated for this use. These sites should have a minimum separation distance of 40 to 50 feet for privacy and quiet.

Campsite Parking Spurs

- ❑ Although back-in spurs may be located on either side of a one-way road, they are preferable on the left side for driver's side visibility.
- ❑ Back-in spurs should not be used where there is a change in grade from the main road of more than a few inches. They should be angled 30 to 45 degrees, as measured from the road, but no greater than 60 degrees.
- ❑ Back-in spurs should be 14 feet wide for single wide or at least 22 feet wide for double wide. They should be 60 feet minimum in length to accommodate a trailer, plus a towing vehicle such as a car or truck, but length may vary to accommodate site features.
- ❑ Pull-through spurs should be located only on the right side of the road as trailer doors open on that side.
- ❑ Although pull-through spurs are generally preferred for large RVs, fifth-wheels, and very large, self-contained trailers, their numbers should be limited to a just a few at the largest sites as they take up the most space.
- ❑ Pull-through spurs should be 14 feet wide and a minimum of 100 feet long to accommodate a trailer plus a towing vehicle such as a car or truck.
- ❑ Campsite parking spaces may be chipped and sealed, or surfaced with compacted road base, asphalt, or permeable pavers.

- ❑ For handicap accessible sites, either a back-in or pull-through spur may be modified to increase width to a minimum of 20 feet at sites that slope no more than 1.5 percent.
- ❑ Natural materials, such as boulders, logs, and low rail fencing, should be used to define parking areas clearly.

Pedestrian Circulation

- ❑ A 4-foot-wide handicap accessible route should link all facilities within a campground, such as restrooms, parking lots, and handicap accessible campsites, as well as places of interest, including the trail system that encircles the lake.
- ❑ The pedestrian route should be separated from the road wherever possible and should not bisect campsites. When a path needs to skirt the edge of a campsite, it should be separated from the campsite using a low barrier such as logs or boulders to reduce the potential for territorial conflicts.
- ❑ Natural materials, such as boulders, logs, and low rail fencing, should be used to define paths clearly.
- ❑ Paths should be signed at each road crossing to help direct pedestrians along the route and to minimize accidental intrusion into neighboring campsites.

Utilities

- ❑ Water should be provided from a spigot that has been installed in a rock-lined splash basin. The splash basin should be located no closer than 5 feet from the road, in close proximity to the sites.
- ❑ Hydrants and spigots located along a handicap accessible route or at a handicap accessible site should have a 5-foot-wide handicap accessible approach apron. The approach apron shall be flush with and constructed of the same material as the access route.

- ❑ A minimum of one water spigot, with pressure reducing valve if needed, should be provided for every 10 camping units or every 20 people accommodated in a site.
- ❑ Spigots should be located no more than 300 feet from the farthest campsite.
- ❑ For a primitive campground, the water spigot should be located at the trailhead leading to the campground.
- ❑ For premium sites, a spigot should be provided in the campsite and located so as not to attract and encourage use by other campers.
- ❑ If provided, utility hookups should be placed to the left rear of a single parking or the middle rear of a double parking space. Curb or bumper posts should be provided to prevent impact of vehicle with hookup.
- ❑ When electrical service is provided to a campsite, use a covered and grounded electrical box mounted to a post or in a manufactured assembly that includes a ground fault interrupter.
- ❑ Warning tape should be placed in the trench above the electric lines. Electrical facilities at each campsite should be sized to comply with National Electrical Code, Section 551 G and county ordinance.
- ❑ When water and/or electric hookups are provided at a campsite, they should be located on the driver's side of the parking spur at a point not more than 15 feet from the rear of the spur.
- ❑ Steel guard posts 4 to 5 inches in diameter and filled with concrete should be installed to protect hookups and should be located 18 to 24 inches away from the hookup on the side nearest the road.

Trash Removal

- ❑ Trash receptacles should be located near the entrance to each campground. Additional 30-gallon receptacles or larger dumpsters should be placed in central locations throughout the

campground. The number and size of receptacles should be such that trash does not overflow between pick-ups.

- ❑ Plantings or stone walls may be used to screen trash receptacles from view.
- ❑ Trash receptacles within the campgrounds should be wildlife proof. Trash should be collected twice per day and contained in wildlife-proof storage areas.
- ❑ Separate bins should be provided and labeled for bottles and cans to encourage recycling.
- ❑ At primitive campsites all trash should be carried out by the campers; a refuse container should be provided at the trailhead.

Restrooms

- ❑ Restrooms should be sited to minimize compaction and erosion, as well as intrusions on other campsites.
- ❑ Restrooms should be sited along campground roads for maintenance and service reasons.
- ❑ Restrooms should be sited and sized to provide facilities for the majority of users inside a 600-foot radius.
- ❑ At least one handicap accessible stall should be provided at each restroom location that is connected to a handicap accessible path or parking lot.
- ❑ Vegetative screening should be provided for those campsites nearest the restroom to maximize privacy and minimize disturbance.

Showers/Laundry

- ❑ Shower/laundry facilities should be coin/token operated and designed with water efficient fixtures to limit water use.
- ❑ Shower/laundry siting parameters are the same as for restrooms.
- ❑ Shower facilities should have multiple private stalls and at least one handicap accessible stall.

- ❑ Separate changing areas with benches and clothes hooks should be provided in the shower facility.
- ❑ The laundry facility should have a built-in counter for folding/sorting clothes.
- ❑ The laundry room should have its own access and should not be directly accessible from either the restroom or shower area.
- ❑ Where feasible, motion and light sensitive light fixtures should be provided at the entrances of restrooms, showers, and laundry facilities. Lighting should be low intensity and illuminate only the doorway and nearby ground surface. Consideration should be given to installing a solar power supply where electricity is not available.
- ❑ Disposal of shower/laundry grey water shall be accomplished with either on-site leach fields or by removal from the site to an appropriate disposal facility. Leach fields shall be sized and sited according to El Dorado County requirements.

Signage

- ❑ Kiosks, signs, or message boards should be provided at each campground with a permanent display including campground regulations and a campground map that effectively communicates site layout, handicap accessible features, and items of interest.
- ❑ All campsites should be marked with an identifying site number. Campsite numbering may be on a separate post or marked on the parking spur surface at its intersection with the campground road.
- ❑ Campsite numbering should be at least 6 inches high and of a reflective material that can be easily seen at night to help campers identify their campsites upon arrival.

Recreation Amenities

- ❑ Small court-type facilities such as horseshoes or bocce may be provided at larger

campgrounds where there is adequate flat area for safe play.

- ❑ Horseshoe and/or bocce facilities shall include backstops or edging to contain loose pit material, horseshoes, or balls. The surrounding yard areas should be graded level with or slope away from walkways to eliminate ledges and steps that may cause ankle injuries.

Site Furnishings

- ❑ Minimum campsite furnishings should include a picnic table, a fire ring and/or barbecue. These should be spaced to allow campers to circulate comfortably within the living area and still have room to set out folding chairs and an additional table or two. Group campsites should also include a large communal area or “kitchen.” Tables, fire ring and/or grill should be sized to meet site capacity.
- ❑ Picnic tables should be of heavy-duty construction with integral benches. The recommended minimum length is 8 feet with longer tables for group sites. Tables in handicap accessible sites should have extended ends and meet handicap accessibility standards.
- ❑ An additional table for preparing food is an optional amenity that may be furnished at premium campsites.
- ❑ Pedestal grills should be located a minimum of 10 feet away and downwind of the picnic table, 5 feet from food preparation tables, and 5 feet horizontally from any vegetation and other fire hazards. They should be installed so the cooking surface is not more than 34 inches above grade.
- ❑ For a handicap accessible site, a pedestal grill should be between 5 and 6 feet away from the end of table. (This distance enables a person in a wheelchair to transfer hot pots from a grill to another surface without having to move the wheelchair.) The grill should be located within the edge of the living area with

a 5-foot-clear space around all approachable sides.

- ❑ When a fire ring/grill is used, it should be located near a corner of the living area, downwind from the table, with a 5-foot-wide, clear space around all sides to permit circulation and seating.
- ❑ Universal access fire rings and grills shall be used in designated handicap accessible sites. Clear spaces around the grill and fire ring shall be surfaced with detectable warnings to alert a visually impaired person.
- ❑ Only compacted road base or gravel should be used under the fire ring and 12 inches beyond its edge; concrete should not be used, due to the danger of extremely hot concrete exploding.
- ❑ Lantern poles should be provided at each campsite near the picnic table to prevent lantern damage to trees and reduce the risk of lanterns being dropped.
- ❑ Group campsite “kitchens” should include a large two- to three-compartment stainless steel sink with running water, a large masonry barbecue with adjustable grills, and extra preparation/serving tables.

Amphitheaters

- ❑ Amphitheater construction should take advantage of natural topography to minimize cut and fill and reduce visual and noise impacts to adjacent property owners and other park visitors.
- ❑ Amphitheaters should be sited to minimize removal of trees and other native vegetation.
- ❑ No electronically amplified events shall be held in SPRA amphitheaters. Public address systems may be used briefly to introduce and conclude performances.
- ❑ Any lighting associated with amphitheaters shall not cause a significant visual impact on adjacent property owners or detract from the camping experience of other park visitors.

- ❑ Permanent seating and stages at amphitheaters should be rustic in nature, consistent with the forest aesthetic of the park, have a low-maintenance requirement, and be able to withstand year-round exposure to the elements.

Mess Hall

- ❑ Mess halls may be large tent-like structures or permanent buildings with solid or canvas walls.
- ❑ A trellised or covered outdoor dining area and picnic tables should be associated with the mess hall.
- ❑ A mess hall may include hot and cold potable water, a two- to three-compartment stainless steel sink, propane and/or wood fired oven or grill, food preparation/serving tables, refrigerated food storage, pantry space, and lockers for dishes and equipment.
- ❑ Disposal of mess hall grey water shall be accomplished with either on-site leach fields or by removal from the site to an appropriate disposal facility. Leach fields shall be sized and sited according to El Dorado County requirements.
- ❑ Proper food storage and trash disposal practices shall be used at all mess halls to secure the facility from intrusion and to protect wildlife.

6.3.2 CONVENIENCE CAMPING UNITS

Convenience camping units are a new type of facility for SPRA and may be constructed initially as pilot projects to test market demand and economic feasibility. There are many types of convenience units, however, for the purposes of this Master Plan, only camping platforms, cabins, and yurts will be considered. Figure 6-2 through Figure 6-6 illustrate typical examples of these convenience camping units.

Camping Platforms

- ❑ Camping platforms should be considered for areas where conditions are not suitable for traditional camping, especially in areas with sensitive habitat or steep grades. Because the majority of camping activity occurs on the platform, impacts to the site are reduced, especially soil compaction and damage to vegetation.
- ❑ Platforms may be covered with canvas tarps, shade cloth, trellis-type structures, solid roofs, or be left open.
- ❑ Ramps shall be used to make ADA/Title 24-designated platforms handicap accessible.
- ❑ Railings shall be constructed around platform edges that are 30 inches or more above grade.
- ❑ Sleeping and eating functions may be separated by providing separate platforms for tents arranged around another platform with a picnic table and a prep table with sufficient space for camp chairs. This also allows flexibility to vary the height of the platforms to better fit a site.

Figure 6-2: Camping Platform



- ❑ As campfires are generally desired by the majority of campers, a flat, 11-foot-diameter (minimum) area should be created preferably on the uphill side and adjacent to the “kitchen” platform to accommodate a 30-inch-diameter fire ring/grill unit.
- ❑ If platform installation requires a cut into the existing grade, consider using 18- to 24-inch-

high retaining walls or large logs to retain the cut bank while providing campsite seating.

Cabins

- ❑ Cabins shall be designed to be consistent with the forest aesthetic of SPRA.
- ❑ Cabin configuration may be variable including basic one-room units, duplex units with two basic units sharing a common wall, or deluxe units with multiple rooms.
- ❑ Cabins should be single-story and shall not exceed 600 square feet. Cabin foundations shall be designed to minimize grading.
- ❑ Water and propane may be provided at some cabins.
- ❑ Showers and waterless toilets may serve a group of cabins or individual cabins.

Figure 6-3: Basic Cabin



Figure 6-4: Deluxe Cabin



- ❑ Cabin waste water disposal shall be designed to be consistent with El Dorado County regulations.
- ❑ Cabins may be outfitted with cots, bunks, simple furniture, hooks, shelving, and secure food storage units. Visitors shall provide their own bedding or sleeping bags.
- ❑ Some cabins may be winterized to facilitate year-round use.
- ❑ Some cabins should be made handicap accessible for disabled campers.
- ❑ Cabins should be equipped with a locking door and windows.

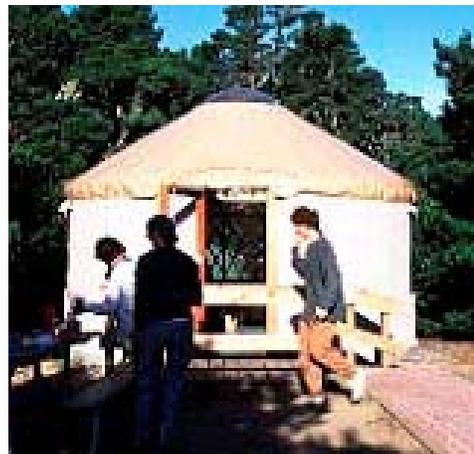
Yurts

- ❑ Yurts should have a waterproof canvas tent-like roof, a plywood floor, structural wall supports, a venting skylight, framed-in lockable wooden door, window screens and flaps, and reflective insulation.
- ❑ Various yurt styles and designs may be used. Basic yurts are approximately 16 feet in diameter with a 10-foot-high ceiling and can sleep four. Larger deluxe yurts (24-foot diameter) can sleep up to eight and may include more amenities than the basic yurt.
- ❑ Consideration shall be given to selecting canvas colors for the sides and roofs that blend with the surrounding environment, such as light to medium browns and olive to forest greens.
- ❑ Cots, bunks, and simple furniture may be provided but visitors shall bring their own sleeping bags or bedding.

Figure 6-5: Basic Yurt



Figure 6-6: Deluxe Yurt



6.3.3 DAY USE AREAS

SPRA day use areas receive heavy levels of visitation throughout the May through September season. The areas need to be well-designed to provide a high-quality facility to visitors while also protecting park resources from overuse.

- ❑ Day use areas should be designed to accommodate a variety of visitors including individuals, families, and large groups.
- ❑ Day use areas should be located within 300 feet of a parking area.
- ❑ Handicap accessible picnic sites should be located no more than 150 feet from a handicap accessible parking space, and be connected by a handicap accessible route.

- ❑ At least one handicap accessible picnic site should be provided at day use areas that are adjacent to handicap accessible trails or parking lots.
- ❑ All handicap accessible picnic sites shall comply with the ADA/Title 24 requirements.
- ❑ Picnic sites should be located to take advantage of views and afternoon shade from existing trees.
- ❑ A minimum width of 10 feet clear around picnic tables should be provided to allow movement on both sides of a standard, 5-foot-wide picnic table.
- ❑ An area with a 6-foot-long table should be a minimum of 14 feet long; an area with an 8-foot-long table should be a minimum of 16 feet long.
- ❑ Tables in individual picnic areas should be separated by at least 15 feet to provide users with a sense of private space.
- ❑ For picnic tables in group day use areas, a minimum of 3 feet should be allowed between the long sides and 4 feet between the short ends. A 4-foot-wide clear space should be provided around the entire perimeter of any particular group area. Group picnic areas should be separated from each other by at least 25 feet.
- ❑ Heavy-duty picnic tables with integral benches ranging in length from 6 to 8 feet should be used depending on the capacity of the site. At least two of the picnic tables within a group picnic area closest to the handicap accessible parking should be handicap accessible.
- ❑ Thirty-gallon receptacles should be located at each entrance to a day use area. Additionally, a 30-gallon receptacle should be provided and placed in central proximity to each relative grouping of four to six picnic tables, depending on the frequency of use. For heavily used areas, more receptacles may be needed so that trash does not overflow between pickups.
- ❑ Heavy-duty, adjustable grills should be located at the edge of a picnic site downwind from the table.
- ❑ The grill shall be installed to avoid any fire hazard, such as nearby vegetation. The grill should be installed so that the cooking surface is at a maximum height of 34 inches above the ground.
- ❑ A minimum 4 foot clearance between the seat edge of the picnic table and the face of the grill should be provided for both safety clearance and accessibility.
- ❑ Drinking fountains or potable water spigots should be provided within 200 feet of the furthest picnic site.
- ❑ A restroom should be located no further than 300 feet from and no closer than 25 feet to picnic sites.
- ❑ The design of shade structures and picnic pavilions should be consistent with SPRA's forested aesthetic.
- ❑ Picnic pavilions may have compacted gravel, compacted decomposed granite, or concrete floors. They may be furnished with adjustable grills with masonry bases, sinks with running water, and preparation/serving tables.
- ❑ All-weather benches should be placed at strategic locations in day use areas to take advantage of views and the afternoon shade of existing trees. They should be installed so that the front edge of the bench is at least 2.5 feet from the edge of any trail or path.

6.4 ENVIRONMENTAL RESOURCE MANAGEMENT

Preservation and enhancement of the natural resources at SPRA is critical to preserving the lake's water quality and ensuring the continued success of the park as a recreation resource. The following standards and guidelines address a

variety of natural resource management issues and provide direction to guide implementation of the projects proposed in this Master Plan.

6.4.1 FUEL LOAD MANAGEMENT

The threat of fire is an ever present concern at SPRA due to the combination of recreational activities and the forested setting. Proper fuel load management will help reduce this threat to visitors, park facilities, and adjacent property.

- ❑ Fuel load management practices shall be implemented to reduce combustible materials within 100 feet of permanent buildings.
- ❑ Ladder fuels shall be eliminated and lower branches shall be removed from trees approximately half the distance of their total height to a maximum of 12 feet from the ground on trees within 100 feet of permanent buildings.
- ❑ Vegetation management near power lines shall be implemented to prevent fire hazards.
- ❑ Excess dead vegetation and organic debris should be removed from campground and day use areas at the start of the summer season.
- ❑ Trees in improved areas should be thinned to approximately 15 foot spacing by removing dead or diseased trees and those growing too close together. Spacing may be greater on steep slopes.
- ❑ Aesthetics, design intent, and tree health shall be considered when selecting trees to remain when thinning.
- ❑ Use of controlled burns should be continued every three years or as needed to remove highly flammable underbrush species such as mountain misery (*Chamaebatia foliolosa*).

6.4.2 SHORE AND CREEK PROTECTION

Improvements projects that take place in the creek and/or shore zones need to include measures to protect water and habitat quality.

- ❑ Bioengineering methods shall be used whenever feasible to armor and stabilize shoreline or creek banks that show significant evidence of erosion and cutting.
- ❑ The conditions influencing erosion, including wave action and soil cohesion, shall be thoroughly evaluated before determining how best to address shore and creek erosion.
- ❑ Shoreline/creek bank stabilization techniques that also serve to provide additional habitat for birds and other wildlife should be encouraged.
- ❑ Shoreline/creek restoration projects shall consider overall ecological function including hydrology, hydraulics, vegetation, and habitat value.
- ❑ Healthy native vegetation along shoreline and creek banks should be maintained to prevent erosion.
- ❑ Specific access points and interpretive signage should be provided at the shoreline and creeks to educate campers and foster stewardship.

6.4.3 VEGETATION MANAGEMENT AND RESTORATION

During the implementation of both restoration and ornamental plantings, measures must be taken to protect plantings, reduce maintenance, promote healthy establishment, and preserve the character of the SPRA landscape.

- ❑ Ornamental planting designs should favor species native to the SPRA region because these species are well-adapted to climate and soil conditions.
- ❑ Ornamental and restoration vegetation should be grouped to reflect the geometry, frequency, and groupings found in nature to maintain the aesthetic of SPRA.
- ❑ New restoration vegetation shall be planted in accordance with methods used for native

vegetation restoration, not commercial landscaping standards.

- ❑ Stakes and rubber ties used to support young trees shall not restrict movement and should be removed after two to three seasons.
- ❑ Restoration planting shall be timed to take advantage of natural rainfall or be provided with supplemental water-efficient irrigation as needed during the establishment period.
- ❑ Fencing and/or signage shall be installed to exclude campers from revegetation areas.
- ❑ To facilitate the re-establishment of native vegetation in impacted areas of campgrounds as well as other areas, paths should be clearly defined and visitors should be encouraged to stay on paths.
- ❑ Uses should be limited within areas immediately around the base of existing trees, especially the inner half of the dripline, to prevent soil compaction and tree mortality.
- ❑ As areas are decommissioned or restricted from use, compacted soil outside of the driplines of existing trees and within the outer third of the dripline should be aerated to the extent feasible using mechanical aerators or hand tools. No rototilling or ripping should be allowed within the driplines of existing trees.
- ❑ A 4- to 6-inch layer of wood chips or other natural mulch should be placed over the entire area after aeration has been completed. This keeps soil in place, improves moisture retention, and protects against recompaction.
- ❑ Soil samples should be analyzed prior to implementation of any intensive revegetation program, including an analysis of nutrients and organic matter. Soil supplements, particularly mycorrhizae and humic acids, can improve the chance of successful establishment.
- ❑ Maintenance crews should be trained on how to identify, remove, and control invasive, non-native plant species.
- ❑ Revegetation areas specifically, and the park in general, should be monitored for invasive, non-native plant species.
- ❑ Invasive non-native plants should be removed from campgrounds and day use areas and replaced with native species.

6.4.4 CONSTRUCTION MANAGEMENT

Precautions need to be used during construction activities to reduce impacts on natural resources, including vegetation, water quality, and to limit off-site disposal of natural materials.

- ❑ Management of on-site drainage during any construction activity shall be implemented to keep sediment and other pollutants from entering creeks and the lake.
- ❑ Trees 6 inches and greater DBH in construction areas shall be protected with hazard fencing located at the driplines of trees if they are intended to be preserved.
- ❑ No storage of material or parking shall be allowed within the dripline of existing trees.
- ❑ New services and utilities should be underground and away from mature trees where possible.
- ❑ Stormwater Best Management Practices shall be implemented to reduce erosion and protect water quality during construction disturbance per the NPDES General Stormwater Construction Permit.
- ❑ Topsoil shall be removed and stockpiled for reuse when construction improvements will disturb existing native soil.
- ❑ Planting of disturbed areas and stabilization of disturbed soils should occur within 30 days of final grading. Consideration shall be given to soil environment, species suitability, availability of irrigation, and planting times. Native species shall be used when feasible.

- ❑ Vegetative material removed for construction should be chipped and used as trail surfacing.

6.5 DESIGN REVIEW PROCESS

A design review process shall be implemented to make sure that all new projects and facility renovations are consistent with the natural, rustic character of SPRA. This is especially important for projects that are described conceptually in this Master Plan and require additional design refinement prior to implementation.

The design review process shall require that every project, including the Sugarloaf Fine Arts Camp, first demonstrate consistency with this Master Plan and the relevant Design Standards and Guidelines before the project is approved for implementation. In conjunction with the design review process, EID will also make a determination as to the need for additional CEQA analysis and permitting.

A project may be reviewed multiple times during design development. An initial review shall occur during the conceptual design phase to ensure that the project is substantially in compliance before resources are expended on subsequent detail design and construction document phases. Final design review must occur before the project is put out to bid.

In order to ensure a comprehensive design review process, EID should establish a design review committee that includes appropriate representation from stakeholders, such as the El Dorado County Parks and Recreation department, the Eldorado National Forest, visitor groups, park maintenance staff and facilities managers, local residents, construction managers, and design professionals. The committee would be advisory only, with EID through its Board of Directors having the final approval of project design, subject to applicable law and regulation.