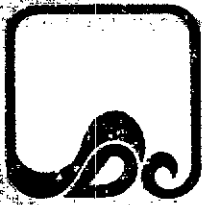


**UNIT 638**

**MOONLIGHT STATE BEACH**

**GENERAL PLAN**

**November 1983**



# San Diego Coastal State Park System General Plan

VOLUME 5



## MOONLIGHT

Preliminary

July 1983



State of California - The Resources Agency  
DEPARTMENT OF PARKS AND RECREATION

This is volume five of the general plan for nine coastal State Park System units in San Diego County. Below is a list of the nine booklets that comprise the San Diego Coastal State Park System General Plan.

Volume Number	Name
1	Summary and Regional Data
2	Carlsbad State Beach
3	South Carlsbad State Beach
4	Leucadia State Beach
5	Moonlight State Beach
6	San Elijo State Beach
7	Cardiff State Beach
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# General Data

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MOONLIGHT  
BEACH

SAN DIEGO COAST STATE BEACHES



GENERAL DATA ON  
MOONLIGHT STATE BEACH

Location: On the Pacific Ocean and along Cottonwood Creek, in the unincorporated community of Encinitas (San Diego County), 19 miles north of the City of San Diego. Access is from nearby streets.

Size: About 12.7 acres, with about 1,900 lineal feet of ocean frontage. The unit consists of 10 separate parcels extending back from the ocean for several blocks.

Existing Facilities: An unpaved parking area with an estimated capacity of about 200 vehicles, a tennis court, concessions building, comfort station, beach shower, and permanent lifeguard tower.

Vegetation: The unit has been highly modified and contains no important native plant communities. The riparian area along Cottonwood Creek contains both native and exotic vegetative types, making up the majority of the unit's vegetation. No rare or endangered plant species are known to exist in the unit.

Wildlife: The beach is a habitat for a variety of shorebirds and gulls. Cottonwood Creek provides riparian habitat for birds, mammals, and amphibians, but channelization of the creek has greatly reduced habitat quality. No rare or endangered animal species are known to exist in the unit.

Outstanding Features: The ocean frontage at Moonlight State Beach provides outstanding beach-oriented recreation opportunities.

Historical and Archeological Values: This unit has been surveyed and no evidence of significant historical events or archeological sites has been found.

Ownership: The first and greatest amount of property was acquired in 1949, when the beach became a unit of the State Park System. Most of the remaining property was acquired in 1960 and 1961, expanding the unit to its present size.

# Resource Element

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*Recreation is the primary resource value at Moonlight State Beach.*

## RESOURCE ELEMENT

This Resource Element was prepared to meet requirements of Section 5002.2, Subsection (b) of Division 5, Chapter 1 of the Public Resources Code and Chapter 1, Section 4332 of Title 14 of the California Administrative Code. In compliance with this section of the Public Resources Code, the Resource Element establishes long-range management objectives for the unit's natural and cultural resources. Specific actions or restrictions required to achieve these objectives are also included in this element. Maintenance operations and details of resource management are left for inclusion in specific resource management programs to be prepared later.

### Summary and Evaluation of Resources

The following resource information is summarized from a large collection of primary and secondary literature located in offices of the Department of Parks and Recreation in Sacramento and at the Area Office. A detailed inventory of features, prepared for this unit during the general plan process, is on file with the department.

#### Natural Resources

##### Topography

Moonlight State Beach consists of ocean frontage, the alluvial mouth of Cottonwood Creek, and the sloping bluff formed by the intersection of the marine terrace by the creek. This small oceanside valley has been altered considerably by the construction of roadways, parking lots, and stream channelization. The elevation of the unit ranges from sea level to about 50 feet (15 meters).

##### Climate

The Mediterranean climate, characterized by warm, dry summers and cool, wet winters, is moderated by the unit's location next to the Pacific Ocean and by coastal fog. Extremes of heat or cold are unusual. Average maximum temperatures range from 64.6°F (17.9°C) in January to 77.3°F (24.9°C) in August.

Prevailing winds are from the west most of the year. Strong hot, dry easterly winds, known as the Santa Anas, sometimes blow for several days, raising the temperature to 90-100°F (32-38°C). Santa Anas can occur anytime of the year but are most prevalent in the fall.

85% of precipitation occurs between November and March. The annual average is about 10 inches (25 cm).

##### Hydrology

Moonlight State Beach occupies an oceanside valley where Cottonwood Creek has dissected the marine terrace. This creek drains about 2,250 acres (922 hectares) of the towns of Encinitas and Leucadia. Culverts carrying the creek under roadways in and adjacent to the unit are inadequate for the

creek's storm waters. The result is that during storms, the creek overtops roads and floods state beach property. A gabion-lined flood channel was installed in 1982 in the unit between Pacific Coast Highway and 3rd Street. Replacement of culverts under 3rd Street, 4th Street, and Encinitas Boulevard will be required to prevent continued overtopping of roads and flooding of existing developments.

### Geology

The beach includes many cobbles. During the winter, there is little sandy beach, especially at high tide, because there is a deficit in the amount of littoral sand. Wave action generally moves sand southward along this stretch of coastline. Construction of Oceanside Harbor and the damming of rivers that previously transported large quantities of sediment to the beaches have disrupted the normal process of sand movement. The southward-moving sand eventually reaches the Scripps Submarine Canyon near La Jolla, where it is lost from the littoral cell. Each year, more sand is lost to the canyon than is replaced by transport of sediment down rivers, creating the deficit. As a result, Moonlight State Beach has less sand each year, exposing the ocean-facing cliffs and oceanside development to direct wave attack, especially during severe storms.

The Eocene Delmar Formation forms the lower portion of the cliffs above Moonlight State Beach, overlying the relatively resistant and well-cemented Delmar Formation. The Torrey Sandstone is in turn overlain by the Lindavista Formation. Both are dissected by the Cottonwood Creek drainage. Recent alluvium lies in the Cottonwood Creek channel.

The Eocene-aged Torrey Sandstone is a massive, poorly consolidated geological formation and is characterized by large-scale cross-bedding. It is very weakly cemented and susceptible to erosion and severe sloughing.

The Pleistocene-aged Lindavista Formation is a terrace deposit composed of boulder conglomerate, conglomeritic sand, and silty sandstone. It is subject to rilling from runoff.

Landsliding is a problem along the ocean-facing bluffs above Moonlight State Beach. A contributing cause to landslides is the accumulation of groundwater above impermeable clay layers. The water eventually lubricates the clay slip surfaces, causing cliff failures.

### Soils

The three soils at Moonlight State Beach are Corralitos loamy sand, 5 to 9% slopes, Marina loamy coarse sand, 2 to 9% slopes, and Marina loamy coarse sand, 9 to 30% slopes.

Corralitos loamy sand, 5 to 9% slopes, is somewhat excessively drained, moderately sloping, very deep loamy sand. Fertility is medium and permeability is rapid. Runoff is slow to medium, and the erosion hazard is slight to moderate.

Marina loamy coarse sand soils are somewhat excessively drained, very deep loamy coarse sand derived from weakly consolidated to noncoherent ferruginous sand. For the 2 to 9% slopes, fertility is medium and permeability is rapid. For the 9 to 30% slopes, runoff is medium to rapid, and the erosion hazard is moderate to high.

### Plant Life

Moonlight State Beach, like other state beaches in the vicinity, has been highly modified and contains no important native plant communities. The riparian area adjacent to Cottonwood Creek supports dense native and exotic (alien) vegetation. Plants in the riparian zone include willows (Salix spp.), cattail (Typha latifolia), curly dock (Rumex crispus), spiny rush (Juncus acutus), bermuda grass (Cynodon dactylon), and giant reed (Arundo donax). Although this riparian area has been highly modified and contains many exotic plants, it has significant value as wildlife habitat.

Nonriparian plant life at Moonlight State Beach is dominated by sea-fig (Carpobrotus aequilaterus). Eucalyptus are common trees in the unit, along with a variety of ornamental shrubs.

### Animal Life

The sandy beach provides habitat for a variety of shorebirds and gulls. Cottonwood Creek flows through the unit and provides some riparian habitat for birds, mammals, and amphibians. The potential value of the creek as habitat has been reduced by stream channelization.

### Marine Life

The dominant marine habitat at Moonlight State Beach is the intertidal sand and cobble beach. Both nearshore sandy and rocky sublittoral zones occur. The constant daily shifting of sand on the exposed beach makes it a harsh environment for most animals. Relatively few animals and almost no plants exist here.

Species that do live on the beach, including worms, bivalves, and sand crabs, possess unusual behavioral, morphological, and physiological adaptations which allow them to counteract adverse environmental conditions. Cobble beaches are much harsher environments than sandy beaches. Among the cobbles, there is no water-holding capacity, and animals are not able to bury themselves and are often crushed as the cobbles roll about in the surf. As littoral sand continues to be lost from the beaches, the diversity and quantity of intertidal organisms will probably decrease.

Offshore fish include surfperch, croakers, corbina, and grunion. Surf fishing and fishing while snorkeling and scuba diving are common along the beach.

## Cultural Resources

### Native American Resources

The unit has been completely surveyed for cultural resources, and there are no known archeological sites, features, or isolated artifacts.

## Euroamerican Resources

There are no known historic sites or any significant Euroamerican cultural resource sites or features at Moonlight State Beach.

### Historical Sketch

Human skeletal material found in cliffs at Del Mar near Torrey Pines State Beach has been dated to 28,000, 44,000, and 48,000 years B.P. (before present) by an experimental amino acid racemization dating technique. However, these dates are controversial and are considered to be hypothetical because they have not been confirmed by other dating techniques.

The earliest documented assemblage of tools in this area came from the banks of the San Dieguito River. This site in western San Diego County yielded a small number of leaf-shaped and weak-shouldered projectile points, knives, crescents, cores, flake scrapers, choppers, hammers, and engraving tools. The San Dieguito culture is considered to have been a regional variation of a widespread hunting tradition that came to southern California from the Great Basin.

The San Dieguito culture, based primarily on hunting, began 10-12,000 B.P. and lasted to 7,500-8,500 B.P. Four phases of the San Dieguito cultural tradition have been recognized, based upon increasing refinement and specialization of tool types.

Archeological sites dating between 7,500 B.P. and 3,000 B.P. include numerous milling stones and mullers that were used to harvest wild seeds. Occupational middens became larger and deeper and include shellfish, some animal bones, and a few heavy projectile points.

A variety of burials have been found in milling stone sites but without elaborate or abundant grave goods. The regional variant of this horizon is called the La Jolla Complex. The La Jolla Complex is known from several sites along the shores, terraces, and nearby hills of the coastal plain, and reflects an economy based on shellfish and seed collecting.

After 5,000 years ago, mortars and pestles were added to handstones and mills for processing plant foods. The projectile points found are better made but are still relatively rare. The following intermediate period up to A.D. 1400 is not well defined in the San Diego area. Pottery was introduced from the east sometime after the beginning of the Christian era and marks the arrival of Yuman-speaking people in San Diego County.

Late Horizon sites after A.D. 1400 include finely chipped projectile points without stems, curved shell fishhooks, a variety of shell, bone, and stone ornaments, and elaborate mortuary customs.

European contact with this part of California began with Juan Rodriguez Cabrillo's 1542 voyage north from Navidad, Mexico. In 1602-1603, Sebastian Vizcaino surveyed this coastline, but no white people settled in the area until 1769 when the Mission San Diego de Alcalá was founded at San Diego. In

the same year, Gaspar de Portola began a land expedition northward up the coast. In mid-July, Portola's party reached the vicinity of the present Carlsbad State Beach. Friar Juan Crespi, who recorded their adventures in his diary, described broad, grassy mesas interrupted by frequent rich, green valleys.

Although Indian people in coastal San Diego County were called Diegueno or Mission Indians, they are known by and prefer a variety of other names. Many ethnographers use Ipai to describe those living between San Diego and Agua Hedionda, and Tipai for those living in the territory from San Diego south past Ensenada, Mexico, and east beyond the Imperial Valley. Some inland Indian groups prefer the name Kumeyaay.

The Ipai people hunted and gathered a wide variety of foods, with acorns making up a smaller part of their entire diet than those of many other California tribes. They had a well-developed trade system with peoples to the east, from whom they obtained foodstuffs and obsidian. The Ipai rapidly integrated Spanish crops, domestic animals, and some tools into their subsistence economy. However, introduced species, especially sheep, competed with native plants and animals that were traditional food sources.

The Ipai and the Tipai took poorly to mission life. Six years after the founding of the San Diego Mission, it was attacked by its "own" Indians.

The secularization of the missions in 1834 and the American takeover of California in 1846 left most Indians without a legal claim to the land. Access to traditional hunting and gathering areas, including the coast, was increasingly restricted. A series of small reservations was established in scattered inland areas beginning in 1875.

The coastal area north of Mission Bay, except for the dark landmark of Torrey Pines, was known as "La Costa" (the Coast). Plain, devoid of landmarks, it was a series of table lands cut by deep ravines and lagoons. As noted in the Coast Pilot of 1889, it was not often approached by regular steamers and trading vessels because it was too far east of the course to and from San Diego. The same can be said of this section of coast dating back to the era of Sebastian Vizcaino and his ocean explorations.

Spanish and Mexican travelers bypassed this portion of the coast, staying for the most part east of the wide lagoons and marshes that cut back into the coastal mountains. Prospective owners of land grants also looked elsewhere, to the east, along the El Camino Real for the grants of Rancho San Dieguitos and Rancho Las Encinitas. The coastal area remained unclaimed public domain well into the latter part of the nineteenth century.

Isolation ended with the completion of a coastal railroad by the California Southern Railway Company in 1881 and a rush to California by people seeking farm land and a healthful climate. The sudden land boom of the mid-1880s often left buyers and sellers broke and changed land ownership in the area.

In 1881, the little farming-service community of Encinitas appeared. The railroad, part of the Santa Fe system, put up a small station which it called "Encenitos," though by 1892 the Postal Directory was listing it as Encinitas.



As the little town grew, a boardwalk (actually a plank road) was constructed from the center of the community to Moonlight Beach. During drought years, the beach often became a public laundry. Although the beach was known by many names, "Moonlight" was most common.

In the 1920s, the Aubrey Austin family created a concession at Moonlight Beach. In 1949, the State Park System began acquiring the property from the Austins, increasing the size from an original purchase of eight and a half acres until 1961, when the current park size of 12.7 acres was reached. The Department of Parks and Recreation redeveloped the unit in the late 1960s, removing the Austin structures, relandscaping, and constructing new facilities. Due to this development, there are no historical sites located at the unit. Also, there is no evidence of significant historical events.

### Esthetic Resources

Sweeping 180-degree panoramas of the ocean can be seen from the clifftops at Moonlight State Beach. The view from the beach is less dramatic and the focus tends to be closer, concentrating on the breaking waves along the surf line. Observation of human activity is part of the beach experience. Surfers, sunbathers, fishermen, and swimmers are prominent and positive visual elements of the beach environment. Animal life, including pelicans, shorebirds, whales, and porpoise, is also seen in or from the unit.

Urban and industrial land uses adjacent to the unit, including traffic and housing developments, detract from the unit's scenery. Low-flying aircraft and traffic can be loud and distracting.

### Recreation Resources

Virtually all recreation activities at Moonlight State Beach are beach and ocean oriented. A notable exception is tennis. A wide variety of activities occur, including:

#### Passive

Sunbathing  
People Watching  
Picnicking  
Beachcombing  
Sightseeing  
Contemplation  
Wildlife Observation

#### Active

Surf Fishing  
Swimming  
Skin Diving  
Jogging  
Volleyball  
Beach Play  
Boating  
Tennis  
Bicycling  
Surfing

Many of these activities, including tennis, sunbathing, jogging, and bicycling, do not require a beach environment, but the esthetic qualities of this beach make these activities more enjoyable here.

## Resource Policy Formulation

### Classification

Moonlight State Beach has been a unit of the State Park System since 1949. The unit was classified a state beach by the State Park and Recreation Commission in May 1969. The Public Resources Code defines a state beach as a type of state recreation unit as follows:

5019.56. State Recreation Units. State recreation units consist of areas selected, developed, and operated to provide outdoor recreational opportunities. Such units shall be designated by the Commission by naming, in accordance with the provisions of Article 1 (commencing with Section 5001) and this article relating to classification.

In the planning of improvements to be undertaken within state recreation units, consideration shall be given to compatibility of design with the surrounding scenic and environmental characteristics.

State recreation units may be established in the terrestrial or underwater environments of the state and shall be further classified as one of the following types: . . .

(d) State beaches, consisting of areas with frontage on the ocean, or bays designed to provide swimming, boating, fishing, and other beach-oriented recreational activities. Coastal areas containing ecological, geological, scenic, or cultural resources of significant value shall be preserved within state wildernesses, state reserves, state parks, or natural or cultural preserves.

### Declaration of Purpose

The State Park and Recreation Commission approved the following Declaration of Purpose for all San Diego coast state beaches on June 19, 1964 as follows:

The purpose of San Diego coast state beaches is to make available to the people, for their benefit and enjoyment forever, the scenic and recreational resources inherent to the coastal beaches and adjacent uplands of San Diego County.

The function of the Division of Beaches and Parks at San Diego coast state beaches is to prescribe and execute appropriate programs which provide facilities and opportunities for maximum public use and enjoyment, in accordance with the declared purpose of the unit.

A new declaration of purpose for Moonlight State Beach is established as part of this general plan as follows:

The purpose of Moonlight State Beach is to make available to the people, for their benefit and enjoyment forever, the scenic, natural, cultural, and recreational resources of the ocean beach and related uplands.

The function of the California Department of Parks and Recreation at Moonlight State Beach shall be to preserve and protect public opportunities for ocean beach-oriented recreation in a high-quality environment. A natural setting for recreational activities shall be preserved.

### Zone of Primary Interest

A zone of primary interest is that area in which the department would like to influence development and use so that a State Park System unit's resources will not be seriously jeopardized or degraded.

The zone at Moonlight State Beach includes all adjacent land, the offshore areas, and the watershed of Cottonwood Creek.

In addition, the department is concerned about all lands, no matter how far from the unit, that can, through their development and use, adversely affect the unit's resources and features. Activities that continue to affect the unit include the generation of air pollution in southern California urban areas, and the damming of rivers and the building of breakwaters and other structures along the coast, which has caused the disruption of littoral sand movement.

### Natural Resource Management Policies

The management of natural resources in the State Park System is governed by statutes, policies, and directives found in the Public Resources Code, California Administrative Code (Title 14), and the department's Resource Management Directives. Specific policies from the department's Resource Management Directives that pertain to the natural resources of Moonlight State Beach are: 13, 14, 15, 16, 18, 19, 33, 36, 38, 39, and 46. Directive 18, particularly relevant to planning southern California state beaches, says:

(18) Insofar as is possible in state beaches, the entire area of the sandy littorals will be available for recreational use and visual enjoyment. It is an objective of the department to avoid use of natural sandy beaches for parking, or for other supportive or secondary uses.

The Resources Agency established the Policy for Shoreline Erosion Protection on September 14, 1978, which applies to planning, purchasing, and improving State Park System units. The policy states, in part:

Development of the lands adjacent to large bodies of water carries with it an element of danger from wave action, which can threaten the safety of public and private property and recreational values.

It is the policy of the Resources Agency that the use of these lands avoid hazardous and costly situations caused by erosion and minimize or resolve existing problems. Only in those situations where structures or

areas of public use are threatened should the state resort to funding or approving remedial projects. When necessary, projects should restore natural processes, retain shoreline characteristics, and provide recreational benefits to the extent possible.

The planning and improvement of parks and beaches should be done in a way consistent with protection against the potential erosion of the affected segment of the coastline, and any structures located in areas subject to erosion damage should be expendable or moveable.

In addition to the policies, directives, and laws that apply statewide, the following specific natural resource management policies have been developed for Moonlight State Beach:

#### Monitoring Erosion and Sand Loss

The problems of littoral sand loss and cliff erosion have been recognized as serious threats to facilities. Little information is available on erosion rates. If rates of loss were known, a management program could be developed for facility protection or replacement of lost facilities.

Policy: A regular program of monitoring rates of cliff erosion and the width and elevation of Moonlight State Beach shall be established by field staff under supervision of the Southern Region and the Resource Protection Division. The monitoring program should include ground photos, taken at regular intervals at the same locations, to document beach profiles and seacliff retreat.

#### Bluff Setbacks

That seacliff retreat is an ongoing process should be taken into consideration when designing and placing facilities near cliff edges. To protect investments in facilities and to assure public safety, it is a sound principle to establish setback zones -- both "zones of exclusion," where facility development is precluded, and "zones of demonstration," where facility development is allowable if stability and geologic suitability can be demonstrated.

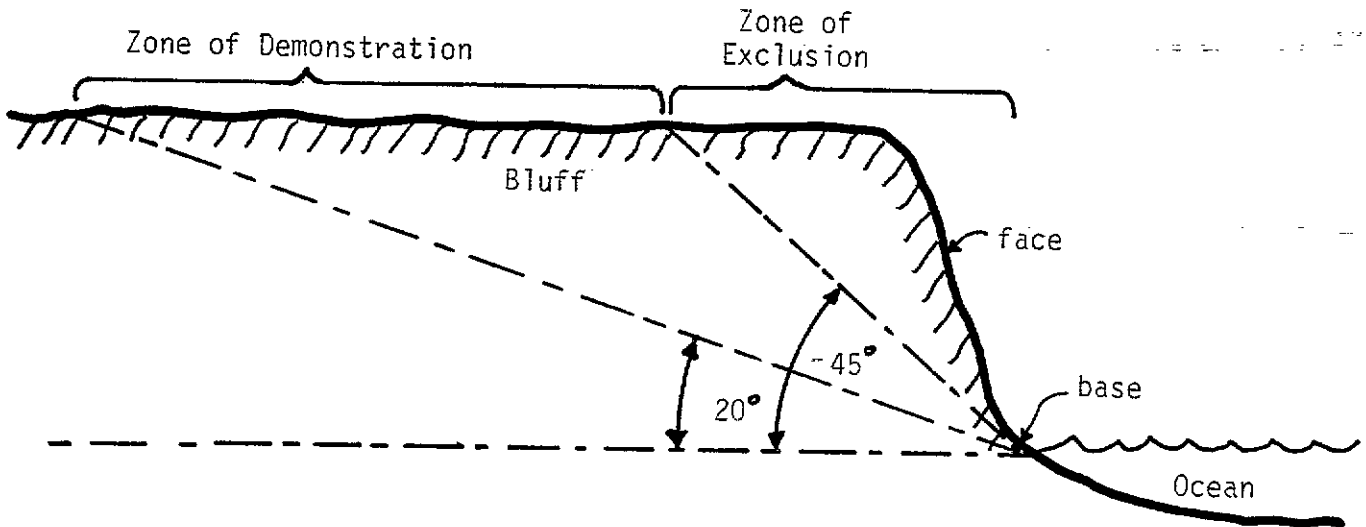
Policy: A zone of exclusion shall be established to include the base, face, and top of all bluffs and cliffs extending inland to a plane formed by a 45-degree angle from the horizontal at the base of the cliff or bluff. No new structures shall be constructed within this zone unless they are either moveable or expendable. Existing facilities, including buildings and campsites, may remain in use subject to regular inspections by field personnel in coordination with the department's geologist. A zone of demonstration shall be established in the unit to extend inland from the zone of exclusion to the intersection of the ground surface with a plane inclined 20 degrees from the horizontal from the toe of the cliff (see Figure 1).

#### Human-Caused Erosion

Foot traffic directly down cliff faces causes cliff erosion by dislodging soil and damaging protective vegetation. Vandalism of cliffs, including graffiti carved into the soft sandstone bluffs, also accelerates erosion.

Figure 1

Zones of Demonstration and Exclusion



Policy: Fencing or other appropriate means shall be used to discourage foot traffic down the cliff faces. Stairways shall be provided down the cliffs where needed. Interpretive programs shall describe the permanent destructive effects of climbing on bluffs and carving graffiti into the cliffs.

Littoral Sand Loss

Loss of littoral beach sand at Moonlight State Beach has reduced recreational opportunities and animal life habitat. Sand loss exposes shoreline facilities and ocean-facing cliffs to direct wave attack. Littoral sand loss is a regional problem common to the entire San Diego County coastline. The U.S. Army Corps of Engineers is conducting a regional shoreline erosion study, including the Moonlight area. The study will include the monitoring of littoral sand movement and may make recommendations concerning where artificial sand replenishment may be beneficial.

Policy: Littoral sand loss is recognized as a major threat to existing facilities and recreational resources. The department shall work with other agencies, including the San Diego Association of Governments, California Department of Boating and Waterways, and the U.S. Army Corps of Engineers, to develop regional solutions to the sand loss problem. Any major program of sand replenishment or retention must consider the regional nature of the problem and the regional impact of actions taken along a segment of the shoreline.

## Landscape Plants

Moonlight State Beach is landscaped with ornamental shrubs and herbs. Some ornamental vegetation requires irrigation to survive. Irrigation water is expensive and often accelerates erosion. Use of exotic (alien) plants also displaces habitat for native plants. The urbanization of coastal San Diego County has severely limited the remaining habitat for native plants in the coastal zone.

Policy: The design of any new landscaping at Moonlight State Beach shall consider the use of native plants that do not require irrigation.

## Riparian Vegetation

The banks of Cottonwood Creek, which flows through Moonlight State Beach and empties into the Pacific Ocean, support a riparian plant community that includes willows (Salix spp.), cattail (Typha latifolia), and spiny rush (Juncus acutus). This streamside vegetation has been highly modified and partially destroyed by efforts to increase the capacity of the stream channel. Additional flood control work may be needed since flooding continues to be a problem. Despite the modifications, the riparian vegetation provides important habitat for birds and small mammals.

Policy: The riparian vegetation along Cottonwood Creek within Moonlight State Beach is recognized as providing important wildlife habitat. Modification of the creek channel, if needed, shall be designed to protect riparian vegetation. If riparian vegetation must be removed to improve flood capacity, appropriate native plants shall be reestablished in the riparian zone.

## Cultural Resource Management Policies

Management of cultural resources at Moonlight State Beach is governed by state statutes and departmental policies and directives. The following portions of the Public Resources Code pertain to the management of cultural resources: Chapter 1, Section 5019.74 (if a cultural preserve is designated); Chapter 1.7, Section 5097.5 and Chapter 1.75, Section 5097.9.

The following Resource Management Directives pertain to the cultural resources of Moonlight State Beach: 3, 18, 19, 24, 25, 50, 51, 52, 54, 55, 56, 58, 59, 60, 69, 70, 71, and 72.

The inventory of features and this Resource Element have been prepared to comply with the Public Resources Code sections and Resource Management Directives listed above. There are no known cultural resource sites at Moonlight State Beach.

Policy: Any archeological or historical resources that may be discovered at Moonlight State Beach by department employees should be reported to the Resource Protection Division, which is responsible for maintaining a statewide inventory of cultural resources. Any discoveries should be protected in situ until they can be professionally described and evaluated (based on Resource Management Directives 25, 50, 51, 54, 58, and 70). A clearance is otherwise given for major capital outlay development, construction, and resource management projects at Moonlight State Beach in accordance with Directive 59.

## Allowable Use Intensity

California state law (Section 5019.5, Public Resources Code) requires that a land carrying-capacity survey be made before any park or recreational area development plan is prepared. As a step in determining carrying capacity, the department considers allowable use intensity.

Appropriate use intensity is determined by the analysis of three components: 1) management objectives, 2) visitor perceptions and attitudes, and 3) the impact of any development and use on natural and cultural resources.

The management objectives for Moonlight State Beach are generally set forth in the statutes defining a state beach (see the Classification section of this Resource Element).

The second component, visitor perceptions and attitudes, is sometimes referred to in relation to "social carrying capacity," and involves assessing the social objectives of the department, what recreationists perceive as an acceptable recreational environment, what degree of isolation or crowding is acceptable, and other perceptions and attitudes pertaining to the quality of visitor recreation experiences. These factors are very difficult to quantify. State Park System planners must take a leading role in increasing public awareness and appreciation of high-quality recreation experiences.

The third, and most important, component in determining allowable use intensity involves an analysis of the natural and cultural resources to determine the area's physical limitations for development of facilities, and the ability of the ecosystem to withstand human impact (ecological sensitivity). This analysis is based on a number of environmental considerations, including: soils and their erosion and compaction potential; geological factors, such as slope stability and relief; hydrologic considerations, including the potential for pollution of surface waters, flooding, and depletion of surface and groundwater through water use; vegetation characteristics, such as durability, fragility, and regeneration rates; occurrence of paleontological strata; and wildlife considerations, such as tolerance to human activity, wildlife population levels, and stability. Additional considerations in determining ecological sensitivity are: rare and/or endangered plants and animals, unique botanical features and ecosystems, and examples of ecosystems of regional or statewide significance (marshes, riparian areas, and vernal pools).

Based on the preceding factors, four zones of allowable use intensity have been developed for the state beaches in San Diego County (all zones may not exist in each unit):

- I. Ocean beach. Capable of high-intensity use but subject to periodic inundation by ocean waves. No permanent facilities allowed within this zone.
- II. Ocean-facing cliffs. Defined as the zone inland from the toe of the cliff to a horizontal distance equal to the height of the cliff as measured from a vertical plane to the toe. Visitor use restricted to designated corridors to provide access from the terrace level to the beach. New construction only for stairways and trails; special

construction methods shall be employed to reduce the potential for accelerating erosion and landsliding. Existing facilities, including buildings and campsites, may remain in use subject to regular inspections by field personnel in coordination with the department's geologist. Use of facilities shall be discontinued if determined to be unsafe.

- III. Sand dunes and low areas inland from beach. Subject to inundation only during unusually heavy storms, swells, and tsunamis. Any native vegetation in this zone should be protected. New developments are allowed in this zone, but risk of damage from ocean waves and shoreline erosion is significant.
- IV. Terrace lands. Capable of high-intensity public use and development with appropriate setbacks.

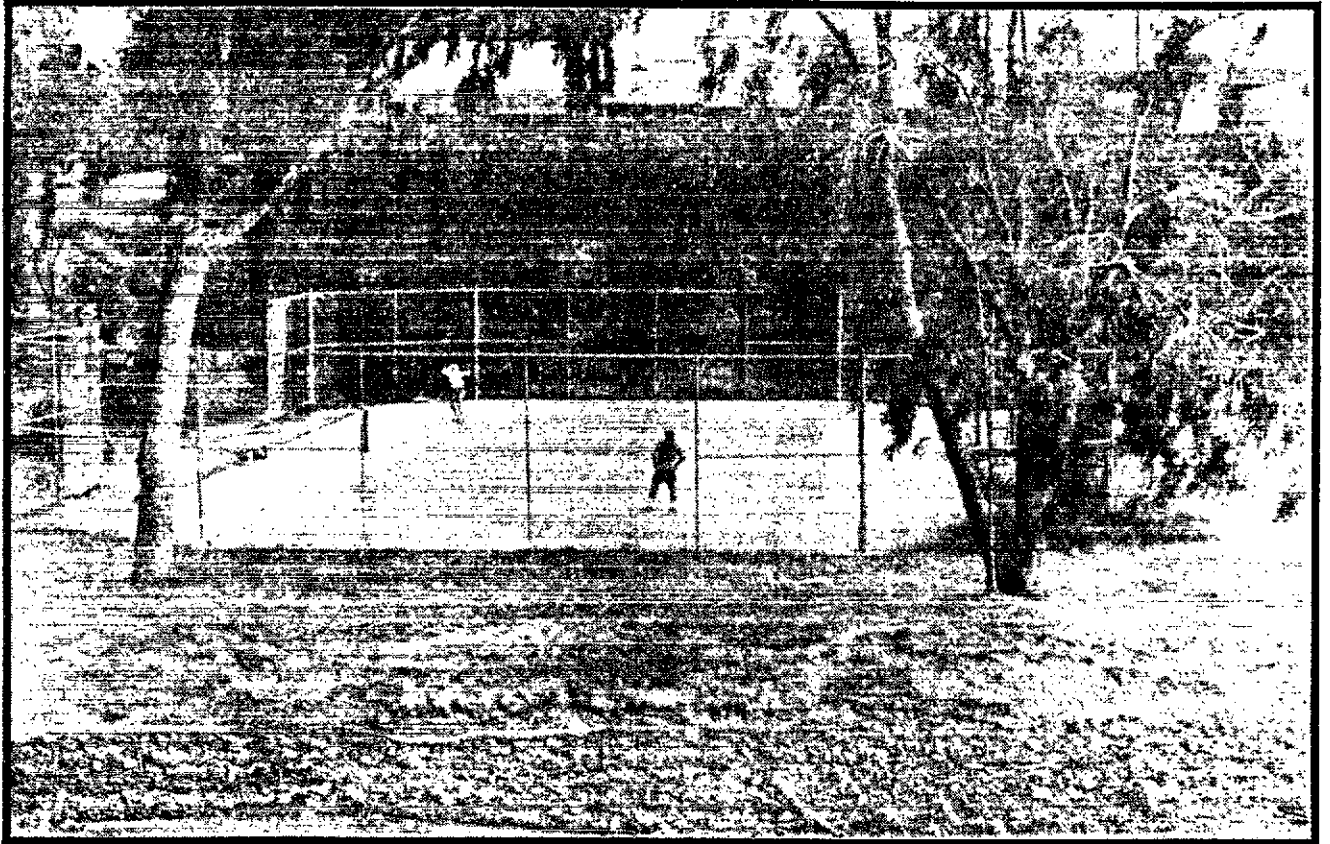
Ownership patterns and other limiting factors, including esthetic, socioeconomic, and design considerations, may indicate that a higher or lower use intensity is desirable in a particular area. If appropriate mitigating actions are incorporated in planning and design, and if risks are understood, higher use levels may be acceptable. In these cases, innovative approaches, such as portable buildings and controlled pedestrian accessways, will be used to provide recreation opportunities.





# Land Use and Facilities Element

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*The expansion of existing recreational facilities is planned for Moonlight State Beach.*

## LAND USE AND FACILITIES ELEMENT

This element provides information on current land uses around the unit, explains current conditions in the unit, and recommends new facilities and uses.

For purposes of this plan, four study areas have been identified, which encompass all existing unit parcels as shown on the Existing Facilities Map. These areas are:

- Area 1 -- Four individual, undeveloped, residential-sized parcels north of B Street.
- Area 2 -- Existing sandy beach and inland portions bounded by C Street on the south, B Street on the north, and Third Street on the east. This area includes most existing facilities and an unpaved parking area.
- Area 3 -- An undeveloped blufftop parcel south of C Street.
- Area 4 -- An area bounded by First Street on the east, Third Street on the west, B Street on the north, and urban development on the south.

### Land Use Patterns of Surrounding Area

The unincorporated residential community of Encinitas provides much of the environment surrounding Moonlight State Beach. The unit is fragmented by residential streets and alleys bisecting unit parcels. A commercial establishment is on C Street immediately south of the inland parcels of the unit.

Annual visitation in fiscal 1980-81 was estimated at 1,402,000. The local community has a strong interest in the unit and its operation. Local use of the unit is substantial.

Available on-site parking currently does not meet the demand for beach access parking. As a result, many beach users park on the streets. This often means no parking spaces are available for local residents, especially during the summer.

### Existing Unit Conditions

Moonlight State Beach is a relatively small, fragmented unit of the State Park System, with 10 separate parcels. Although the unit is small (12.7 acres, with 1,900 lineal feet of ocean frontage), its use is significant. The following is an outline of existing conditions by study area:

- Area 1 -- All parcels are undeveloped and separated from developed parcels by B Street.

Area 2 -- The unit's most used area. Existing facilities are a severely vandalized comfort station, concessions building, lifeguard tower, outdoor beach shower, two volleyball courts, and an informal parking lot (for an estimated 200 vehicles). Concrete walkways connect the facilities and the beach area. To get to the beach from the parking lot, visitors must descend a bluff on a dirt path. Random access from the parking lot has created erosion problems on the bluff face.

Cottonwood Creek, a storm water drainage channel, runs across this parcel adjacent and parallel to B Street. This intermittent creek makes a turn under B Street to the outfall located on the beach. During peak periods of runoff, storm water often overtops B Street due to the channel's inadequate capacity.

Area 3 -- An undeveloped blufftop parcel, unstable and not suitable for development.

Area 4 -- A single tennis court located in the southeastern corner and some erosion control measures are the only improvements in this area. Cottonwood Creek bisects the parcel running parallel to B Street. The drainage channel segment in this location has recently been reinforced with gabions to guard against erosion during peak runoff. Portions of this parcel have been recently graded as part of the erosion control project. Eucalyptus trees and sea-fig are the predominant vegetation found here. The low topographic conditions of this parcel limit access. Only B Street is at grade with this parcel. The parallel alignment of Cottonwood Creek to B Street tends to further limit access. The only other area suitable for at-grade access is the northwest corner of the parcel, which currently has an easement for a sewer lift station.

#### Proposed Rehabilitation Project

Before the general plan effort began, the department started a project to rehabilitate the existing parking lot, access path, and comfort station in Area 2. Concurrent with preparation of this plan, the department submitted to the Legislature a funding request for this project, consistent with PRC Section 5002.2(c). If approved, funds will be available in fiscal 1983-84 for working drawings and construction.

Improvements under this rehabilitation project would include:

- Paved parking lot for 194 vehicles
- Entrance contact station
- Access path from parking lot to the beach
- Rehabilitation of existing comfort station

-- Two interpretive panels

-- Landscaping to control erosion on bluff face below parking lot

This work will improve access, safety, interpretation, and site esthetics, provide necessary sanitary facilities, and control erosion.

However, the following problems, by area, still require attention:

Area 1 -- The four undeveloped parcels on the north side of B Street are separated from the main portion of the unit and from each other. This configuration makes them difficult to incorporate into a logical park-related use plan. They are developable sites, but are more valuable for residential use than for park-related purposes.

Area 2 -- Parking facilities, disabled access, and picnicking opportunities are inadequate.

-- Additional play opportunities are desirable.

-- The existing comfort station, beach access path, and unpaved parking area need rehabilitation.

-- Additional beach showers are needed.

-- Revenue collection is limited and should be improved to conform to current department policy.

-- Bluff faces and riparian areas need to be revegetated.

-- Cottonwood Creek currently floods during storms.

-- Ownership patterns relating to street and alley alignments are unclear. While these streets and the alley are not likely to be developed, the ownership records should be ascertained and proper easements obtained.

-- A maintenance storage structure is needed for equipment.

Area 3 -- Undevelopable because of slope instability, and currently meets no unit needs.

Area 4 -- Additional unit parking and open-space play area are desirable.

-- Revegetation of the riparian habitat along Cottonwood Creek is needed.

-- Current erosion problems relating to storm drainage need to be alleviated.

-- Pedestrian circulation throughout the site needs to be made easier.

## Land Use Recommendations

Moonlight State Beach, with its support facilities, including parking, is well established and accepted by the public. The unit's established land uses will be maintained. In addition, since proposed land uses should be compatible with local community needs, the existing tennis court will be retained, and turfed, open space areas and a tot lot will be provided to increase recreational opportunities.

Much of the property at Moonlight State Beach is undeveloped and little used. In keeping with the intent of the unit's classification, these undeveloped lands will be used for open-space recreation to support current beach-related activities. To maintain compatibility with adjacent land uses, buffer plantings will be used to enhance the unit's parklike character.

## Facility Recommendations

The following list of recommended actions for the development of Moonlight State Beach is organized by area (as identified on the General Plan Conceptual Map).

Commission approval of the general plan will apply only to those recommendations specifically involving DPR property at the time of Commission action.

### Area 1

- Surplus four parcels.

### Area 2

(The parking lot, comfort station, and access path have been proposed for rehabilitation. See the Existing Facilities section of this plan.)

- Develop erosion protection for the open portions of Cottonwood Creek.
- Realign underground portion of Cottonwood Creek as it passes under B Street. Extend pipe to the beach.
- Develop riparian habitat along the banks of the open section of Cottonwood Creek.
- Develop parking for disabled persons (16 metered spaces) and visitor drop-off zone at the end of B Street.
- Develop day-use picnic area with four concrete tables at the end of B Street, and 10 tables in the area east of the comfort station. Install turf and pedestrian walkways and plant trees.
- Establish a vegetative buffer between the residential area and the proposed picnic area at B Street.
- Install three beach showers.

- Establish native, unirrigated vegetation on slopes between parking lot and beach area to control erosion and foot traffic.
- Install parking meters in lot at the end of C Street.
- Develop a children's play structure in beach sand, with perimeter turf and benches.
- Clarify ownership of four identified parcels.
- Develop additional pedestrian walkways.
- Develop a maintenance storage building.

Area 3

- Declare one parcel surplus.

Area 4

- Develop a riparian habitat along Cottonwood Creek.
- Develop a parking lot with 25 metered spaces.
- Develop a turf playing field.
- Develop additional pedestrian walkways.
- Develop storm drainage system.
- Clarify ownership of C Street extension parcel.

These proposals will substantially improve recreational opportunities while minimizing traffic congestion, sanitation problems, and erosion. Table 1 is a summary of key recreational facilities before and after implementation.

Table 1  
Facilities Summary

<u>Facility</u>	<u>Existing on DPR Property</u>	<u>After Implementation</u>
Comfort Stations	1	1
Concession Buildings	1	1
Car Parking Spaces	200 (estimated)	249
Beach Showers	1	3
Picnic Sites	0	14
Children's Play Structure	0	1

Note: "After Implementation" figures include existing facilities.

The general plan also calls for surplussing Areas 1 and 3, totaling .76 acres. Unit size would then be 12.04 acres.



## Special Considerations

State law requires that projects be designed to be accessible to the physically disabled. Parking for the disabled is proposed at beach level at B Street to provide unobstructed access to the beach, picnic areas, and other facilities. All structures will be designed to accommodate wheelchairs and, where appropriate, braille signing. A special drop-off zone will also be designated for the disabled and other visitors requiring access assistance.

## Unresolved Planning Issues

### Sand Loss

Moonlight State Beach loses sand as a result of seasonal conditions. Sand is usually adequately replenished by summer, except after severe winters. (Details of this issue, factors contributing to sand loss, and what is currently being done about sand depletion are noted in the section "Beach Erosion -- A Planning Perspective" in the General Plan Summary, Volume 1.)

### Ownership

Ownership records for Moonlight State Beach, as shown by the boundary lines drawn on the General Plan Conceptual Map, indicate departmental ownership of a portion of Third Street and no departmental ownership in other areas. Clarification of ownership patterns at Moonlight State Beach is needed. County assessor's maps indicate that some parcels are vacated by the county, but preliminary research does not show them under state jurisdiction. Further records research is needed and will be pursued.

## Local Coastal Plan Conformance

Proposals contained in this general plan are consistent with policies and designations identified in the Local Coastal Plan adopted and certified by the California Coastal Commission in June 1981.

## Sequence of Action

As explained in the Existing Unit Conditions section of this plan, the project for rehabilitating the parking lot and comfort station has already begun. In the following recommended sequence of plan implementation, it is assumed that the rehabilitation project has been completed.

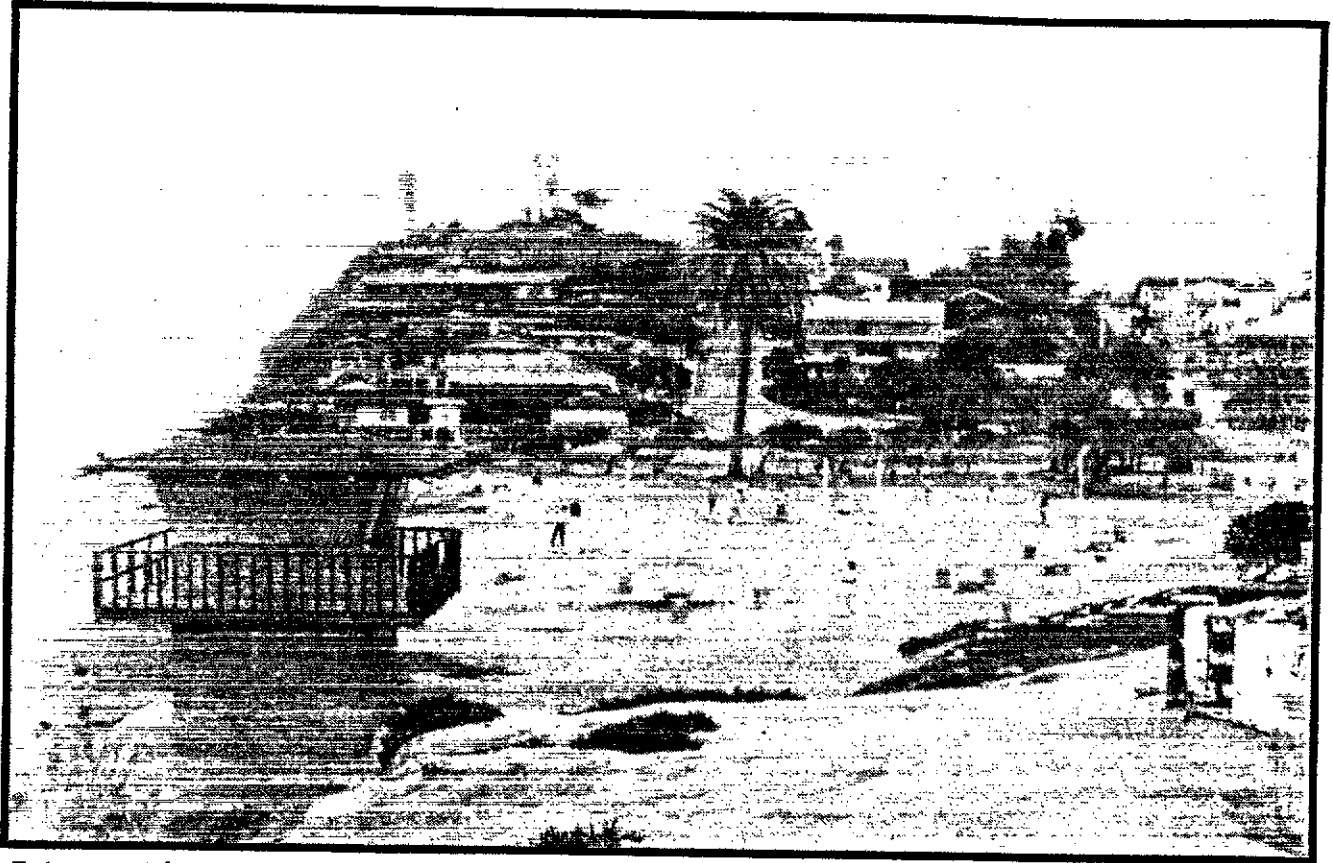
Area 2 improvements shown on the General Plan Conceptual Map would be first. Particularly critical are drainage improvements related to Cottonwood Creek.

Area 4 should then be developed.

Lands in Areas 1 and 3 can be surplussed at any time following approval of the plan without affecting proposals for the other areas.

Interpretive Element

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*Interpretive programs and facilities will be included in proposed improvements at Moonlight.*

## INTERPRETIVE ELEMENT

This general plan element outlines interpretive programs and facilities to enhance the recreational experience available at Moonlight State Beach. (The unit's interpretive prospectus on file with the department contains additional information.)

### Methods and Media

Suitable interpretive methods and media include demonstrations, outdoor exhibit panels, a small mobile exhibit trailer (shared with other San Diego coast state beaches), Junior Lifeguard programs, off-site talks, and beach discovery walks. Water safety and rescue demonstrations (possibly in conjunction with Junior Lifeguard programs) should be conducted by the lifeguards. Docents could conduct beach discovery walks, as well as demonstrate recreational forms such as surf fishing and surfing.

### Interpretive Themes

#### Staying Safe at the Beach

Interpretation should explain the dangers posed by rip currents and offer advice on how to avoid and escape them. Other beach safety tips recommended by the lifeguards should be interpreted. Current weather, tide, surf, and emergency information, fishing regulations, interpretive program schedules, and natural history information should be posted on a bulletin board.

#### Catching Fish at the Beach

The common saltwater sport fishes caught along the San Diego coast and the angling techniques used to catch them should be interpreted. The grunion merits special emphasis.

#### The Animals of the Coast and How They Live

The varied life forms and habits of the common invertebrate and vertebrate animals of the San Diego coast should be interpreted. Interpretive approaches could include: "The Life Underfoot" (the invertebrate life in the wave-wash zone), "A Bill for Every Purpose" (a comparison of size, food, behavior, and bill length among common shorebirds), and "Sea-Going Mammals" (identification and interesting life history information on the San Diego coast's common marine mammals).

#### Flotsam and Jetsam -- Where did it come from? Where will it go?

Beachcombers are naturally curious about things washed up on shore. Commonly found objects of plant and animal origin, such as kelp blades, seashells, crustacean shells, jellyfish, and floating shark egg cases, should be interpreted in light of their original form and lifestyle and their ultimate consumption by beach invertebrates. In contrast, human-originated flotsam, such as styrofoam, bottles, cans, fish lures, and plastic packaging, should be interpreted in light of its nonbiodegradable qualities and the hazards it poses to both humans and wildlife.

## Rivers of Sand

The local littoral cells, the factors affecting their sand input, and the seasonal and long-term dynamics of San Diego County's beaches need to be interpreted so that visitors can better understand the changing size of the beach.

## It's Costing You!

The short- and long-term recreational, esthetic, health, wildlife, and fiscal costs of littering and vandalism at state beaches need to be interpreted in a positive, problem-solving manner. Slide programs, campfire talks, off-site talks, and newspaper articles are appropriate media to interpret this issue.

## Since the Coming of the Railroad

The rapid development of the once-remote northern San Diego coast should be interpreted in light of the changes brought with the 1880s railroad construction. Appropriate subjects include: the Chinese railroad workers, the construction camp at Moonlight Beach, the cutting of the oaks for which Encinitas was named, and the development of the area as a resort community. A selection of early photographs depicting recreational scenes at Moonlight Beach could interpret the similarities and changes in beach use over the last century.

## Visitor Facilities

Interpretive panels and an information bulletin board located in outdoor kiosk shelters or attached to buildings will constitute the major fixed interpretive facilities. They should be as impervious as possible to corrosion and vandalism. By placing them at heavily-used, well-lit areas, they would be read more and better protected from vandals. These shelters should be designed to accommodate standard-size, interchangeable panels which should be rotated to interpret seasonal topics. Panels with coast-wide themes should be shared with nearby state beaches to make maximum use of interpretive resources. Because a major center of activity is the paved area around the concession and restroom facilities, this would be a good place to provide orientation and interpretive information.

A mobile exhibit trailer could be used as a public contact point here as well as along the entire San Diego County coastline. Exhibitory would not have to be confined to two-dimensional panels, and interpretation could be more dynamic than elsewhere at the state beach, covering in more detail such topics as marine terrace formation, ocean currents, sand movement, and erosion. Photographs and artifacts should be employed to give an idea of what early California beachcombers wore and what equipment they used.

In addition, the natural world can be interpreted for visitors through photographs or an audio-visual program. This would help identify birds and marine mammals, show rarely seen plants and animals, and illustrate the problems which endangered species face.

In short, the trailer could become a roving interpretive center, useful not only at the state beaches but also as an educational tool for the department. During months of low beach visitation, the trailer could be taken to schools throughout the region.

Other off-site locations where interpretation should occur are the highway reststops en route to the San Diego coast region. These should orient people to all the state beaches and describe the facilities and activities available at each.

### Visitor Activities

Visitor activities involving interpretation at Moonlight State Beach fall under the category of personal services. As such, these activities require trained interpretive personnel (docents, rangers, or lifeguards). Appropriate visitor activities for this unit include talks (on natural and historic resources and the State Park System), guided tours (beach walks and birdwatching), and demonstrations (lifeguard rescue, aquatic safety, and surf fishing). If a docent organization is established for Moonlight State Beach, some of these activities could be led by the docents.

### Revenue-Generating Activities

A nominal entrance fee might be charged at the proposed interpretive trailer when it is at Moonlight State Beach. Tours, walks, and demonstrations should first be established free of charge to test public acceptance before any consideration is given to charging for these services. Safety demonstrations should never involve a fee.

### Recommendations

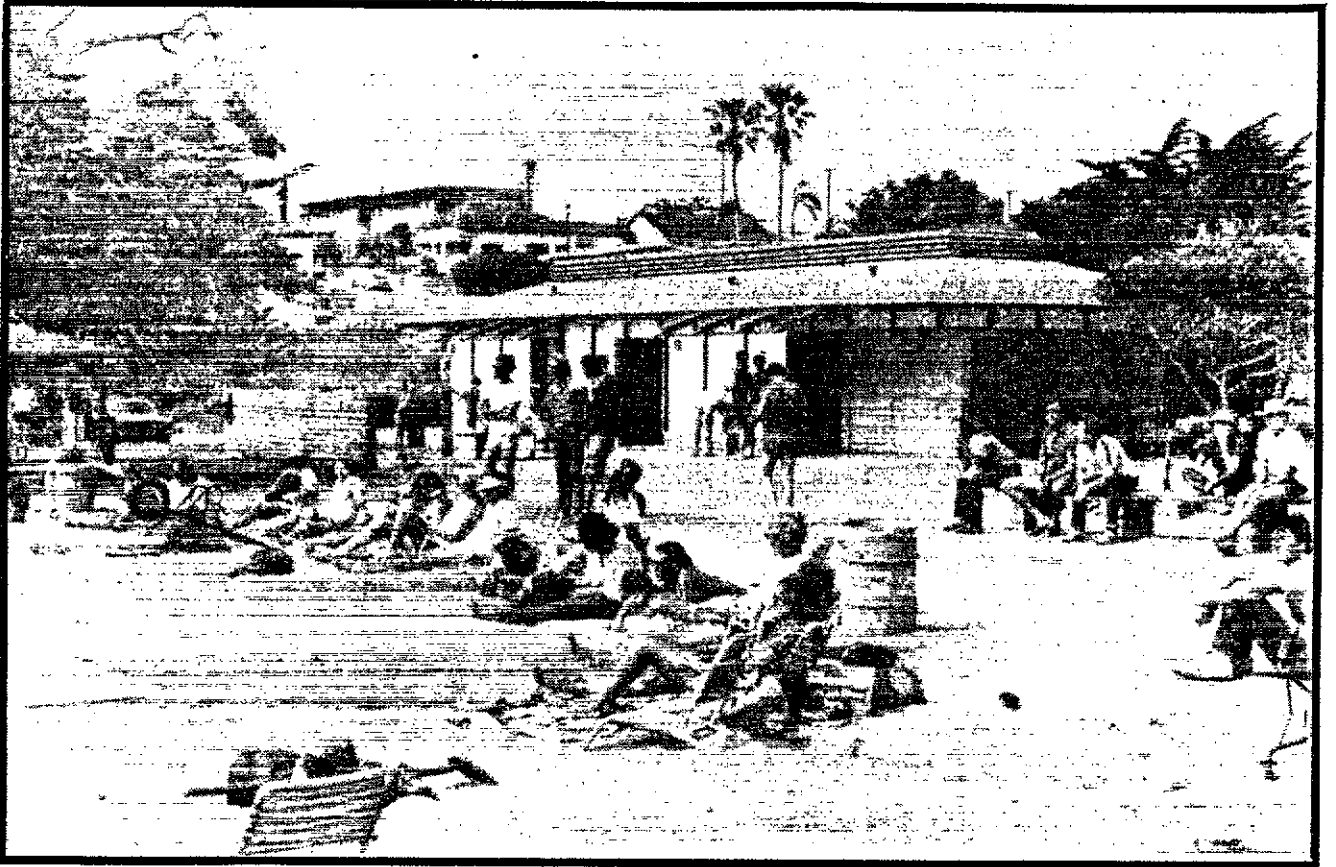
- Fund two interpretive panels to be attached to permanent structures near the concessions-restroom area.
- Provide a mobile regional interpretive exhibit trailer at this unit.
- Develop teachers aid packet for visiting school groups.
- Work with the State Department of Transportation (Caltrans) to provide regional orientation panels at roadside reststops along Interstates 5 and 8 in San Diego County. The panels would orient motorists and potential State Park System visitors to the diverse recreational opportunities offered in the system, and provide detailed information on the San Diego coast units.
- Provide beach walks, on- and off-site talks, aquatic safety demonstrations, and surf-fishing demonstrations at times when projected visitor participation would warrant these efforts.
- Encourage the formation of an interpretive association to provide personal interpretation for unit visitors and to raise funds to further interpretation at San Diego coast state beaches.



# Operations Element

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*Improved public service will result from the implementation of proposals contained in this plan.*

## OPERATIONS ELEMENT

### Current Conditions

Moonlight State Beach is in the San Diego Coast management area. Current operations primarily involve Area 2 which contains the major use area and visitor facilities.

At Moonlight State Beach, staff currently:

- Provides lifeguard and law enforcement services
- Maintains the gravel parking lot and a comfort station
- Provides litter pickup

### Future Conditions

The plan, when effective, will provide more consistent management.

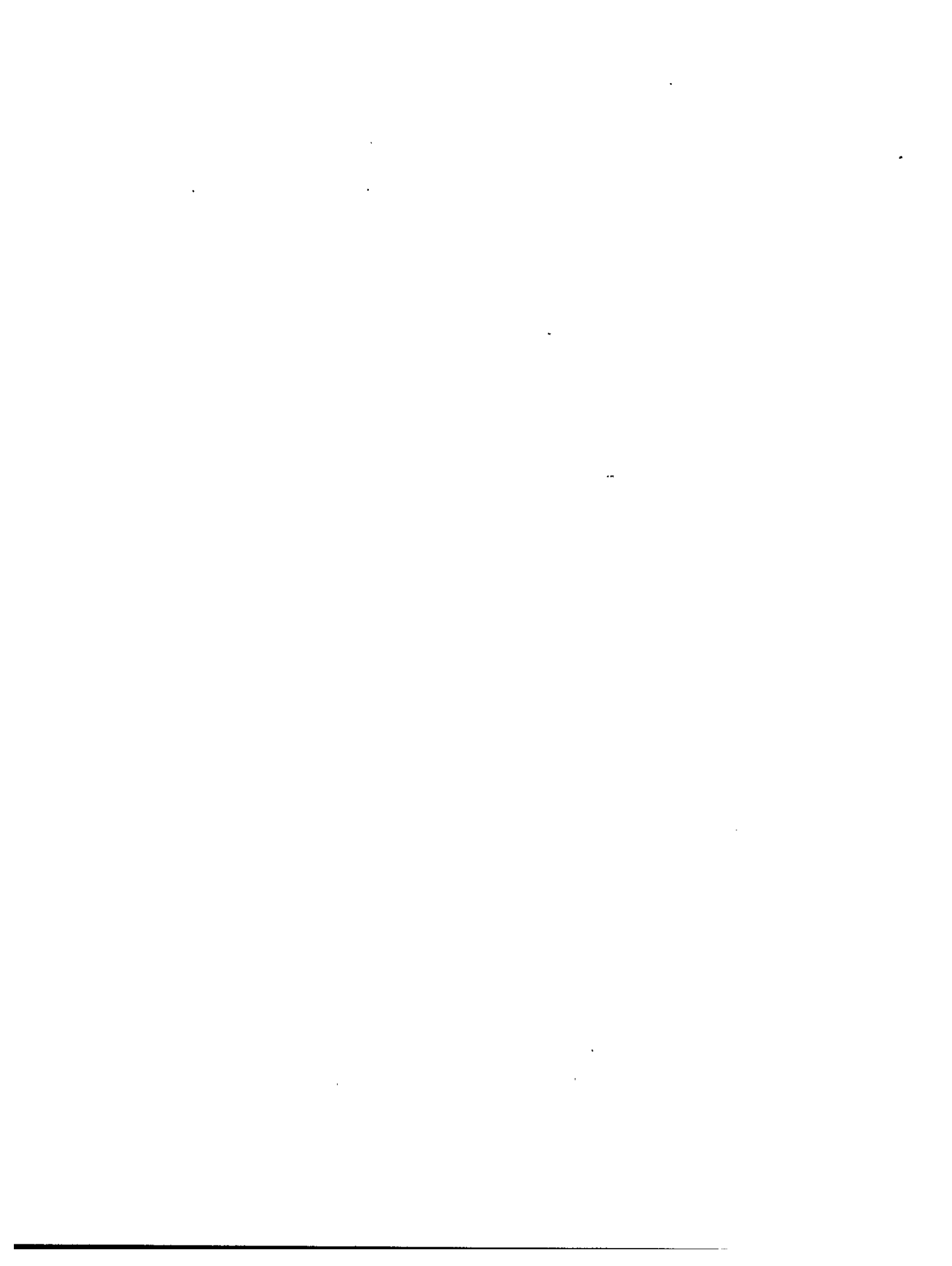
Implementation of the proposals in the general plan will also substantially increase the workload of staff at the unit by adding the following responsibilities:

- Maintenance of parking meters and paved parking lots
- Maintenance of new turf areas, walkways, play structure, and additional landscaping

### Revenue Generation

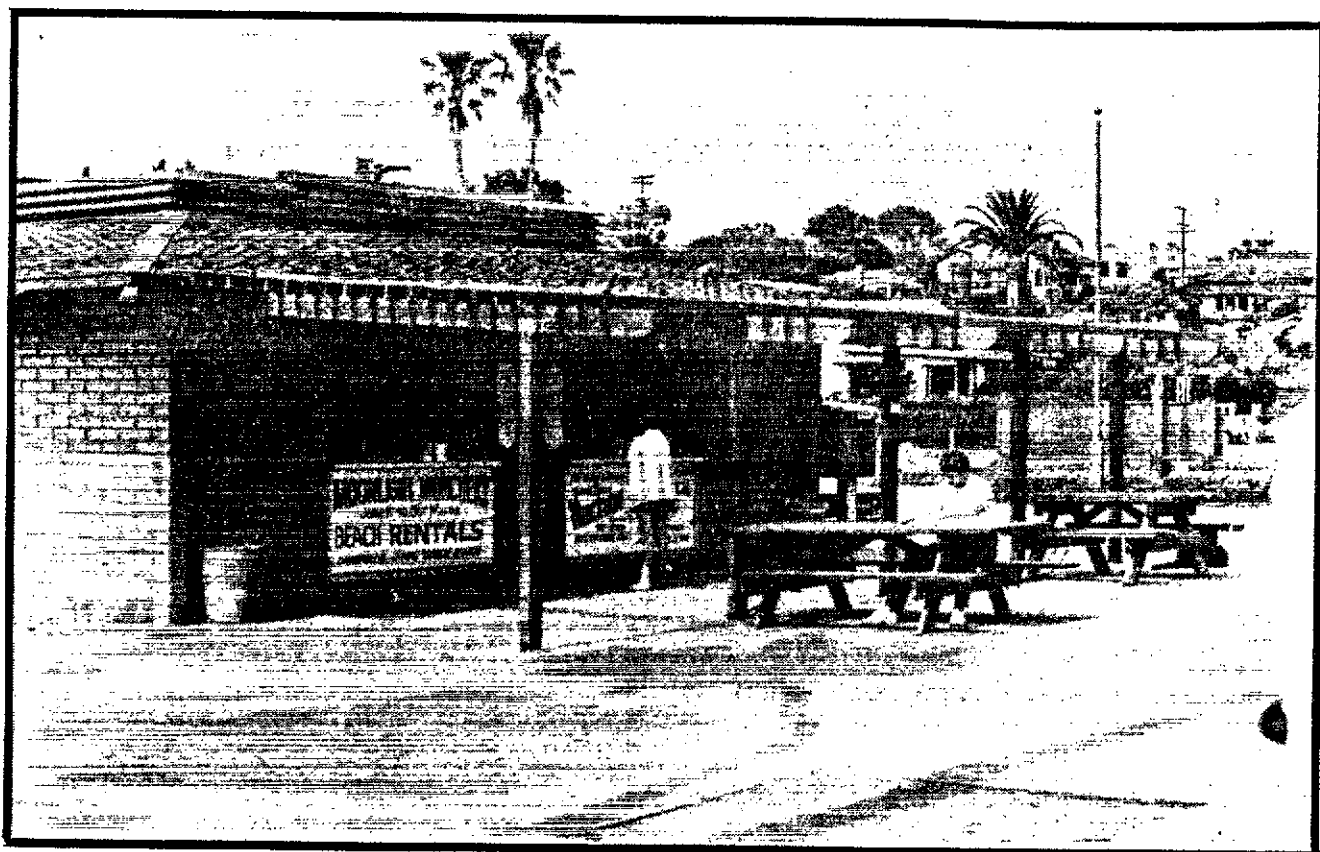
If developed as proposed, the unit will provide additional revenue to help offset extra costs. The addition of day-use parking fees at metered spaces will supplement revenue currently being generated by the concession.

At this time a policy on the installation of parking meters and a rate structure have not been established. Public acceptance of parking meters and their maintenance costs are unknown. In the coastal environment, maintenance costs are expected to be high.



# Concessions Element

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*The existing concession at Moonlight will continue to serve the public.*

## CONCESSIONS ELEMENT

Currently, a concession is operating at Moonlight State Beach during the summer season (Memorial Day to Labor Day), providing visitors with fast food and beverages, beach chairs, umbrellas, surf rafts, volleyball equipment, and other beach accessories.

Since the concession has been operating successfully for several years, no major revisions are planned in the services being provided.

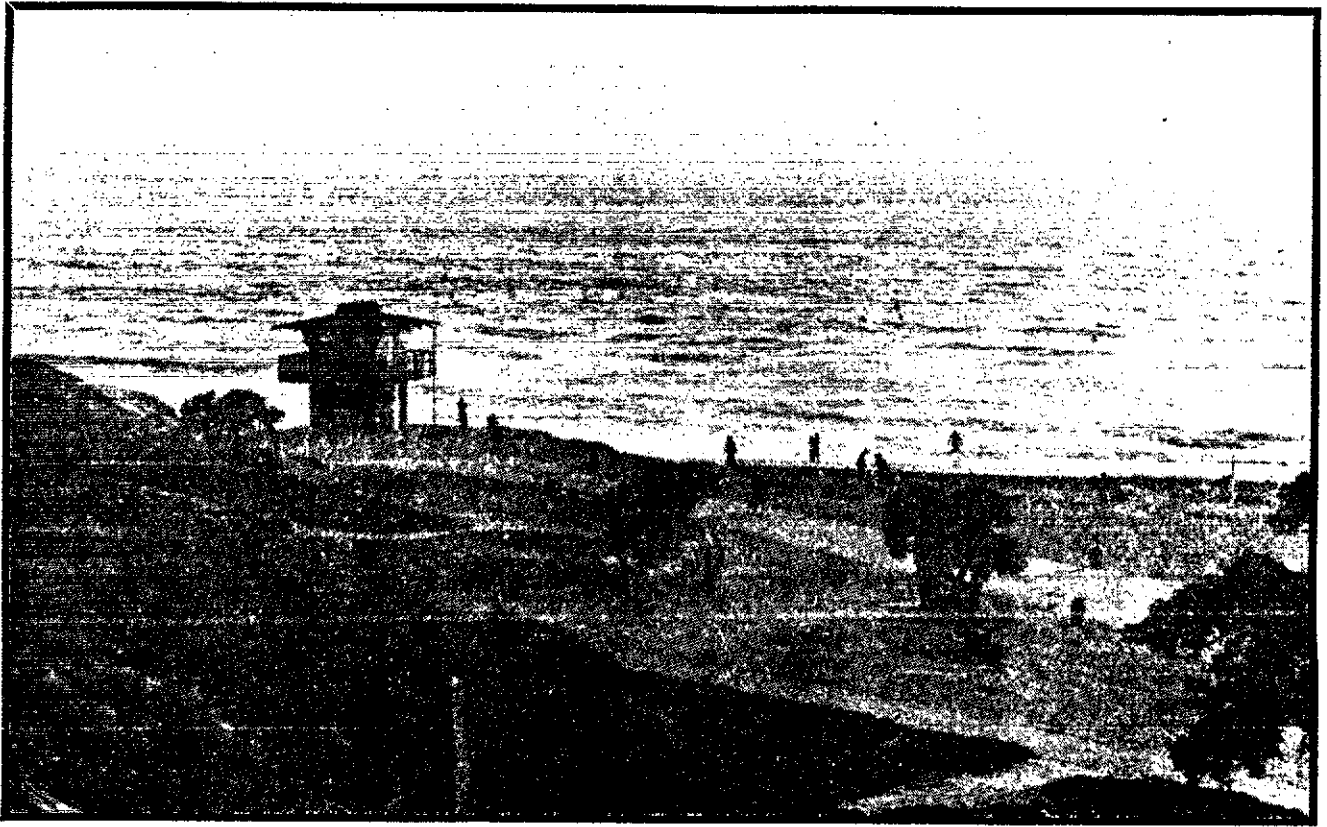
The location of the concession is sufficiently removed from similar services outside the unit and the services are directly oriented to beach visitors. No impacts on services provided outside the unit are anticipated as a result of this plan.



# Environmental Impact Element

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*Environmental impacts of any proposal will be mitigated to preserve the natural resources of the area.*

## ENVIRONMENTAL IMPACT ELEMENT

### Explanatory Note

In accordance with SB 1892, Chapter 615, this general plan (with this Environmental Impact Element) constitutes a report on the project for the purposes of the California Environmental Quality Act. The plan indicates management policies and development plans for Moonlight State Beach. The Draft Environmental Impact Element (or Environmental Impact Report) analyzes and reports potential impacts of these policies and plans on the environment.

Because the general plan is broad in scope, the Draft Environmental Impact Element is a broad, general assessment of environmental impacts. Should specific plans be proposed and budgeted for implementation, more detailed environmental assessments will be prepared along with documentation required by the California Environmental Quality Act. The level of detail of this Environmental Impact Element corresponds to that of the general plan (California Administrative Code, Section 15147).

This Draft Environmental Impact Element has been prepared according to the amended mandates of the California Environmental Quality Act, which call for an objective assessment of the proposed project's environmental consequences. Those aspects of the proposed project with the greatest potential to cause an adverse change in the environment have been emphasized. Existing environmental conditions and effects that are not expected to cause a substantial adverse change in the environment are briefly discussed. Also, published documents such as county general plan elements and local coastal plan elements are incorporated into this report by reference to avoid unnecessary repetition.

Pursuant to the Public Resources Code, Section 5002.2a, and the California Administrative Code, Section 15147, and also to avoid needless repetition, the Environmental Impact Element incorporates by reference all information contained in the preceding elements of this document.

To begin the general plan process, the inventory of features of a State Park System unit (a documentation of the unit's natural, cultural, and recreational resources) is critically analyzed in terms of the purpose, philosophy, and objectives of the unit. Specific policies for the management of the unit's resources are then formulated. (The inventories of features for all units in this general plan are on file with the department's Resource Protection Division in Sacramento.) State Park System planners then work within the framework of the Resource Element to develop unit plans.

Development proposed for this unit reflects the policies presented in the Resource Element of this plan. User facilities that have been selected will promote public use and encourage enjoyment of the unit without impairing and devastating the natural and cultural values. Throughout this planning process, a continuing analysis of possible impacts is made so that mitigating measures, such as decreasing use intensity, can be designed into the general plan to provide recreational opportunities to complement and preserve the unit's valuable resources.

## Description of the Project

Please refer to the Land Use and Facilities Element. The 1983-84 rehabilitation project is outlined in that section as well.

## Description of the Environmental Setting

For information on topography, climate, hydrology, geology, soils, biota, and other resources, please refer to the Resource Element. For information on land use, see the Land Use and Facilities Element.

### Air Quality

The overall air quality of San Diego County is good. During 1981, California Air Quality Standards were equaled or exceeded for three pollutants: ozone, nitrogen dioxide, and particulate matter. The standard for ozone was equaled or exceeded 192 days, nitrogen dioxide one day, and particulate matter 41 days during the year.

Ozone is the most important atmospheric pollutant in San Diego County. A major reason for the high levels of ozone in the county is the pollutant transport from more densely populated areas to the north in Los Angeles, San Bernardino, and Orange counties. As a result, ozone levels are lower along the coast and increase as one moves eastward and inland.

Automobile exhaust is the major source for nitrogen dioxide, sulfur dioxide, and carbon monoxide. The major sources for particulate matter are the automobile, sea salt along the coast, and erosion from agriculture.

The closest air quality monitoring station to Moonlight State Beach (Encinitas) is located about 3.5 miles south in the City of Solana Beach. The air quality of Solana Beach is very good, and it is expected that the air quality of Moonlight State Beach is similar.

The only pollutant monitored at the Solana Beach air quality monitoring station is ozone. During 1981, the California Air Quality Standard for ozone was equaled or exceeded 55 times (days). In 1979, the standard for ozone was equaled or exceeded 35 times (days).

### Noise

The major sources of noise at Moonlight State Beach are vehicle, trail, and air traffic, residential areas, and recreational activities.

The Pacific Coast Highway is adjacent to Parcel 4 and about 1,250 feet from the beach. Third Street, B Street, and C Street are residential streets which are adjacent to and bisect the state beach property.

The Atchison, Topeka, and Santa Fe Railroad tracks run parallel and north of the Pacific Coast Highway, about 150 feet from Parcel 4, and some 1,400 feet from the beach.

Palomar Airport is six miles northeast of Moonlight State Beach. Takeoff and landing noise levels for single and twin engine propeller and jet aircraft at 1,000 feet ranges from 67-97 dBA. Given the unit's distance from the airport, it is expected that noise experienced by visitors will be less.

Intermittent noise is also generated by emergency vehicles attached to the Encinitas Fire Protection District's station at Second and C Streets. The noise level produced by the sirens is about 100 dBA. Area 2 is about 250 feet from the fire station, and the noise level from the sirens would be less than 100 dBA.

The noise caused by people using the beach and the surf is slight. Noise levels of 50-70 dBA at 50 feet can be expected.

The following data concerns Santa Fe Railroad operations in the vicinity.

<u>Train Type and Direction</u>	<u>Length (ft.)</u>	<u>Speed (mph)</u>	<u>Number Equivalent Daily Operations</u>
Freight North	2,500	60	33
Freight South	2,500	60	23
Passenger North	655	90	16
Passenger South	655	90	7

(Source: City of Carlsbad, Draft Environmental Impact Report for the Widening and Extension of Poinsettia Lane, March 10, 1983.)

### Human Community Factors

The 1980 census reported the population of Encinitas at 10,796, including 9,060 (84%) White, 29 (.27%) Black, and 1,340 (12%) of Spanish origin. 5,376, or half the population of Encinitas, are female.

2,653 families live in Encinitas; 2,313 (87%) are White, eight (.3%) are Black, and 252 (9.5%) are of Spanish origin. Between 1970 and 1980, the population of Encinitas increased 100.9% (5,375-10,796). The median home value in Encinitas is \$117,900.

### Public Services

#### Water

The San Dieguito Water District supplies water to the state beach. At the time of this writing, there were no restrictions on hookups. The water meets state and federal drinking water standards.

#### Sewer

The state beach is connected to the Encinitas sewer. Currently, the treatment facilities are not at capacity, and there are no restrictions on sewer connections.

## Traffic

Access to Moonlight State Beach is via Encinitas Boulevard (S-9) and the Pacific Coast Highway (S-21). Encinitas Boulevard provides direct access from Highway 5 to the state beach, and the Pacific Coast Highway provides access from the north and south.

Traffic counts for Encinitas Boulevard were not available from San Diego County; however, volumes for the Pacific Coast Highway in the vicinity of Moonlight State Beach were available. The Pacific Coast Highway is a four-lane road with two northbound and two southbound lanes. The average daily traffic (ADT) during May 1982 was 8,286 northbound and 8,945 southbound. The peak hours of use were 11 a.m. and 5 p.m. The peak hour volume is usually 10% of the ADT, or about 1,723 trips/hour.

Two local residential streets (B and C) are used to get from the Pacific Coast Highway or Encinitas Boulevard to the state beach parking area.

## Fire/Paramedic

Moonlight State Beach is served by the Encinitas Fire Protection District. The fire station is located one block from the state beach at 415 Second Street. The response time to the state beach is between 30 seconds and two minutes.

State park lifeguards and rangers administer minor first-aid to visitors. If visitors have life-threatening injuries, paramedics are called from the Encinitas Fire Protection District Station in Cardiff (about 2.5 miles away). The response time for the paramedics is usually under five minutes, depending on the location of the victim and traffic conditions.

Visitors are taken by ambulance to San Dieguito Hospital or Scripps Hospital if further emergency care is needed.

## Police

Law enforcement at Moonlight State Beach is handled by State Park System personnel and the local sheriff. Both state park lifeguards and rangers are designated as state park peace officers and are responsible for law enforcement on State Park System lands.

The San Diego County sheriff has a station in Encinitas at 175 El Camino Real. Sheriff's units are assigned to patrol the area which includes the state beach and are occasionally called to back up State Park System personnel. Response time for these units is about three to five minutes.

## Cultural Resources

For information on Native American and Euroamerican resources, please refer to the Resource Element.

## Scenic and Recreational Values

Please refer to the Resource Element.

## Environmental Impacts of the Proposed Project

### Significant Environmental Effects

#### Effects on Soils and Geology

Grading the existing 194-vehicle parking lot, utility extensions, Cottonwood Creek realignment, and development of the 25-vehicle parking lot and storm drainage system will all cause ground disturbance, which could potentially increase the amount of erosion.

Additional paving required for the parking facilities and the placement of structures will increase impervious surface area, which will in turn increase the potential for accelerated erosion due to higher volumes of surface water runoff and higher water velocity.

Mitigation Measures: Erosion controls and drainage structures will be installed along the trails, parking areas, and areas with existing erosion problems. Restoration and revegetation will take place in eroded areas that drain into Cottonwood Creek.

1983-84 Rehabilitation Project: The proposed project will involve minor grading of the existing parking area and site work for an access path from the parking area to the beach. The effects on soils and geology will not be significant.

1983-84 Mitigation Measures: Runoff from the rehabilitated parking area will be channeled into drainage structures and eventually into Cottonwood Creek. Energy dissipators will be installed to reduce the speed of the water and associated erosion. Areas with existing erosion problems will be revegetated to lessen the amount of erosion.

#### Effects on Hydrology

Rehabilitation of the existing parking facility and construction of the new 25-vehicle parking lot will increase surface runoff rates. Realignment and undergrounding part of Cottonwood Creek as it passes under B Street, and the extension of the culvert near the beach will also alter unit hydrology. Development of riparian habitat along the banks of the open section of Cottonwood Creek will have a positive effect on hydrologic conditions. If the culvert is not oversized and maintained, flooding may result.

Mitigation Measures: Surface water runoff from impermeable surfaces will be channeled or, if necessary, piped into Cottonwood Creek. Energy dissipators will be installed if needed. Small drainages may be diverted into percolation strips, or ditches, or culverts at the base of the parking area and other slopes, and will eventually drain into Cottonwood Creek. Riparian habitat will be developed along the creek banks. The culvert used to underground a portion of the creek will be oversized to lessen the threat of flooding during storms. The department will monitor the creek during periods of high flow for debris which might get caught in the culvert entrance and cause flooding and damage to downstream structures.

1983-84 Rehabilitation Project: Paving the existing parking area will increase surface water runoff. Planting vegetation to control erosion on the bluff face below the parking lot will improve hydrologic conditions by slowing the speed of the runoff and allowing the water to percolate into the ground rather than running into the creek.

1983-84 Mitigation Measures: The parking area surface will be graded to drain water into several small drainage structures rather than one drainage outlet. Surface water runoff will be handled by culverts or similar drainage structures equipped with energy dissipators. Percolation strips will be used along with culverts. Revegetating the bluff face below the parking lot will be part of the project.

#### Effects on Flora

Construction of the 25-vehicle parking area will require removing existing vegetation. Undergrounding Cottonwood Creek will require eliminating a small amount of vegetation.

Mitigation Measures: The riparian area adjacent to Cottonwood Creek will be developed. Native vegetation will be planted on the slopes between the parking lot and the beach. A vegetative buffer between the residential area and the proposed picnic area at B Street will be established. A turf area will be established near the beach.

1983-84 Rehabilitation Project: The rehabilitation project will have a positive effect on flora. The area between the parking lot and the beach will be revegetated.

1983-84 Mitigation Measures: None necessary.

#### Effects on Fauna

Development of the 25-vehicle parking area will require eliminating a small amount of vegetation that provides habitat for wildlife. Realignment Cottonwood Creek and undergrounding a segment will lessen the creek's value as animal habitat.

Mitigation Measures: As part of the project, a riparian habitat will be reestablished along the banks of the open section of Cottonwood Creek. A turf area and vegetative buffer will be established at the end of B Street. The area between the parking lot and beach will be planted with native vegetation. This will improve the habitat, particularly for birds.

1983-84 Rehabilitation Project: The rehabilitation project will have a positive effect on the fauna of Moonlight State Beach. Revegetating the area between the parking area and the beach will provide improved habitat for a few species.

1983-84 Mitigation Measures: None necessary.

## Effects on Marine Life

Development proposed in the general plan and the 1983-84 rehabilitation project will not have a significant effect on marine life.

## Effects on Air Quality

Adding the parking lots, grading the existing parking lot, and undergrounding the southern portion of Cottonwood Creek will result in airborne dust. Construction and paving equipment will release hydrocarbons into the atmosphere during construction. The barbecue facilities will produce small insignificant amounts of smoke. The additional parking spaces will allow more vehicles at the state beach, thus adding more hydrocarbons to the atmosphere, but the amount of pollution generated by the additional vehicles will not be significant. Paving the Area 2 parking lot will reduce the amount of dust produced.

Mitigation Measures: Standard dust reduction measures will be used during construction. Construction equipment will be equipped with required pollution reduction devices.

1983-84 Rehabilitation Project: Grading the existing parking lot will produce dust, and grading and paving equipment will release hydrocarbons into the atmosphere.

1983-84 Mitigation Measures: Same as those mentioned above.

## Effects of Noise

Construction equipment will produce a temporary increase in noise experienced by state beach visitors and area residents. Equipment such as backhoes, graders, and dump trucks are expected to produce noise in the 85-89 dBA level at 50 feet. Construction and noise may temporarily displace wildlife in the area.

Mitigation Measures: Construction noise will be short-lived and will occur only during daylight hours. This noise will not have a significant impact on wildlife or area residents. After construction is finished, wildlife will return to the area.

1983-84 Rehabilitation Project: Effects are the same as noted above.

1983-84 Mitigation Measures: Same as those above.

## Unavoidable Environmental Effects

Development of facilities outlined in this general plan, including the 1983-84 rehabilitation project, will produce the following unavoidable environmental effects:

1. Increased traffic
2. Increased impervious surface and surface water runoff



3. Commitment of nonrenewable resources
4. Loss of open space
5. Increased noise during construction

#### Alternatives to the Proposed Project

1. NO PROJECT: This alternative would mean that existing conditions at Moonlight State Beach would not be changed. It was rejected because it does not meet public needs.
2. DELETE NEW 25-VEHICLE PARKING AREA: Under this alternative the area north of Third Street proposed for a parking lot would remain unchanged, and vegetation would not be removed. There would not be an increase in impermeable surface area or surface water runoff. This alternative was rejected because the department thinks there is a need for additional parking. The development of the parking area would also provide the department with revenue to help offset maintenance and operational costs.
3. DEVELOP PARKING IN AREA 3: If this alternative was selected, it would require the development of vacant land. Vegetation on the site would have to be removed. Paving the site would increase impervious surface area and surface water runoff. This alternative was rejected because of its size and proximity to the edge of the bluff. The area would not be large enough for a parking lot if proper bluff setbacks are observed.

#### The Relationship Between Local Short-Term Use of Man's Environment and the Maintenance of Long-Term Productivity

The current short-term use of Moonlight State Beach is for beach-related recreation. If the property was not in State Park System ownership, it would most likely be developed for residential or commercial uses.

The short-term uses of the land proposed in the general plan include measures designed to improve and protect unit resources and, therefore, will protect the unit's long-term productivity. The relationship between short-term use and long-term productivity is complementary, one in which the short-term use retains and expands the environment's long-term productivity.

#### Irreversible Changes and Irretrievable Commitments of Resources Which Would be Involved Should the Project be Implemented

If future demands or environmental priorities change, and this site is deemed more suitable for some other use, the area will not have been altered enough by project implementation to preclude changes in its use. Proposed development will utilize some undeveloped land for parking. Some wildlife and vegetation will probably be lost or displaced because of the development or the resulting increased visitation. Some nonrenewable resources will be lost in the form of oil, gasoline, and other products required for the production of energy necessary to complete the proposed development, and in the form of construction materials.

## Growth-Inducing Impacts of the Proposed Project

Development outlined in this general plan will improve the quality of recreational experiences available to state beach users and is not considered growth inducing.

## Effects Found Not to be Significant

The proposed development will not have significant adverse impacts on the following: climate, population, community development, economics, water and sewer services, police and fire services, cultural resources, and scenic values.

## Organizations and References Consulted

California Department of Boating and Waterways  
California Department of Fish and Game  
California Department of Housing and Community Development  
County of San Diego Department of Planning and Land Use  
County of San Diego Department of Traffic Engineering  
County of San Diego Sheriff's Department  
Encinitas Fire Protection District  
Encinitas Sewer District

\* \* \*

California Air Resources Board, Summary of 1979 Air Quality Data, 1980.

California Air Resources Board, Summary of 1981 Air Quality Data, 1982.

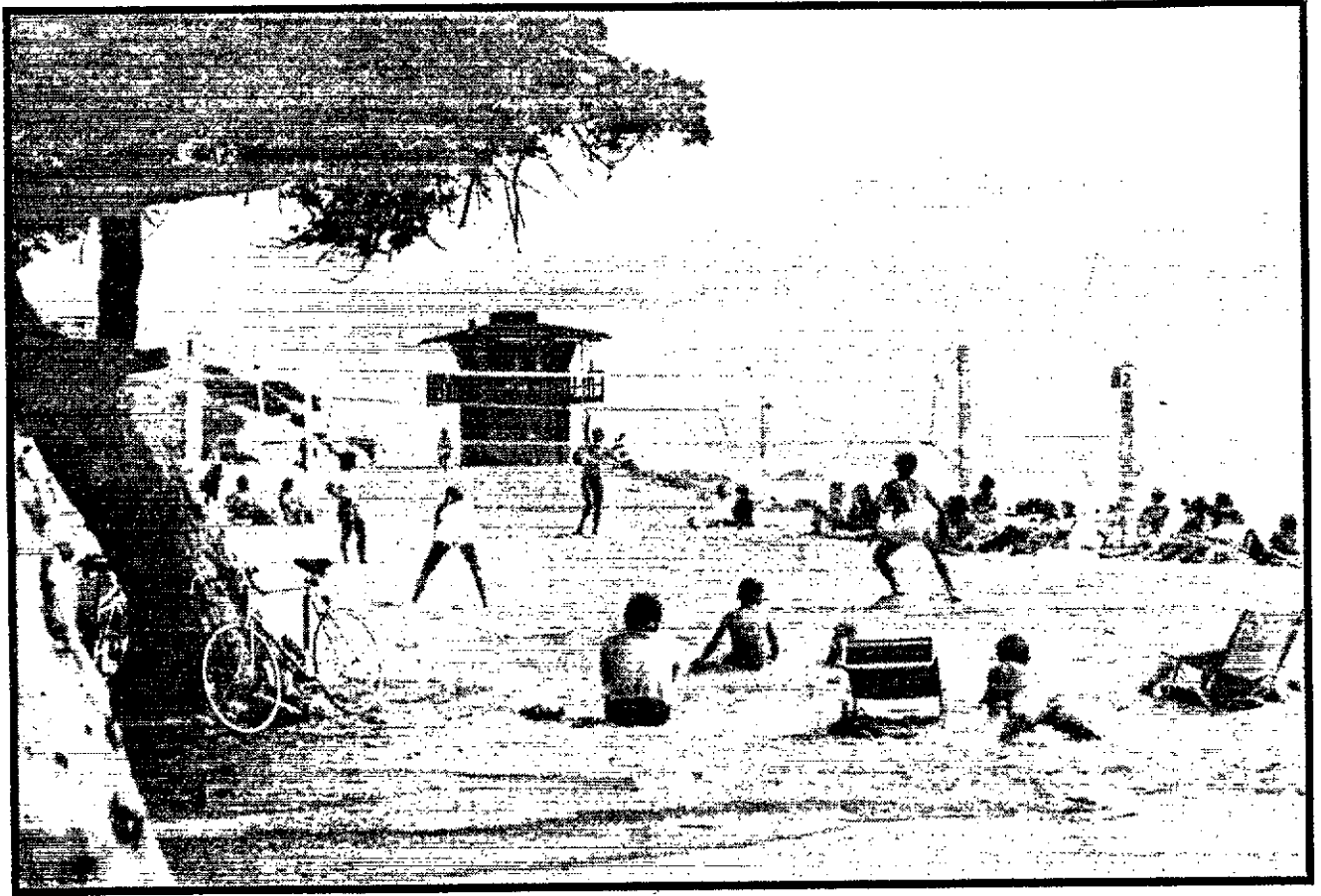
United States Department of Commerce, Bureau of the Census, 1980 Census of Population, July 1982.

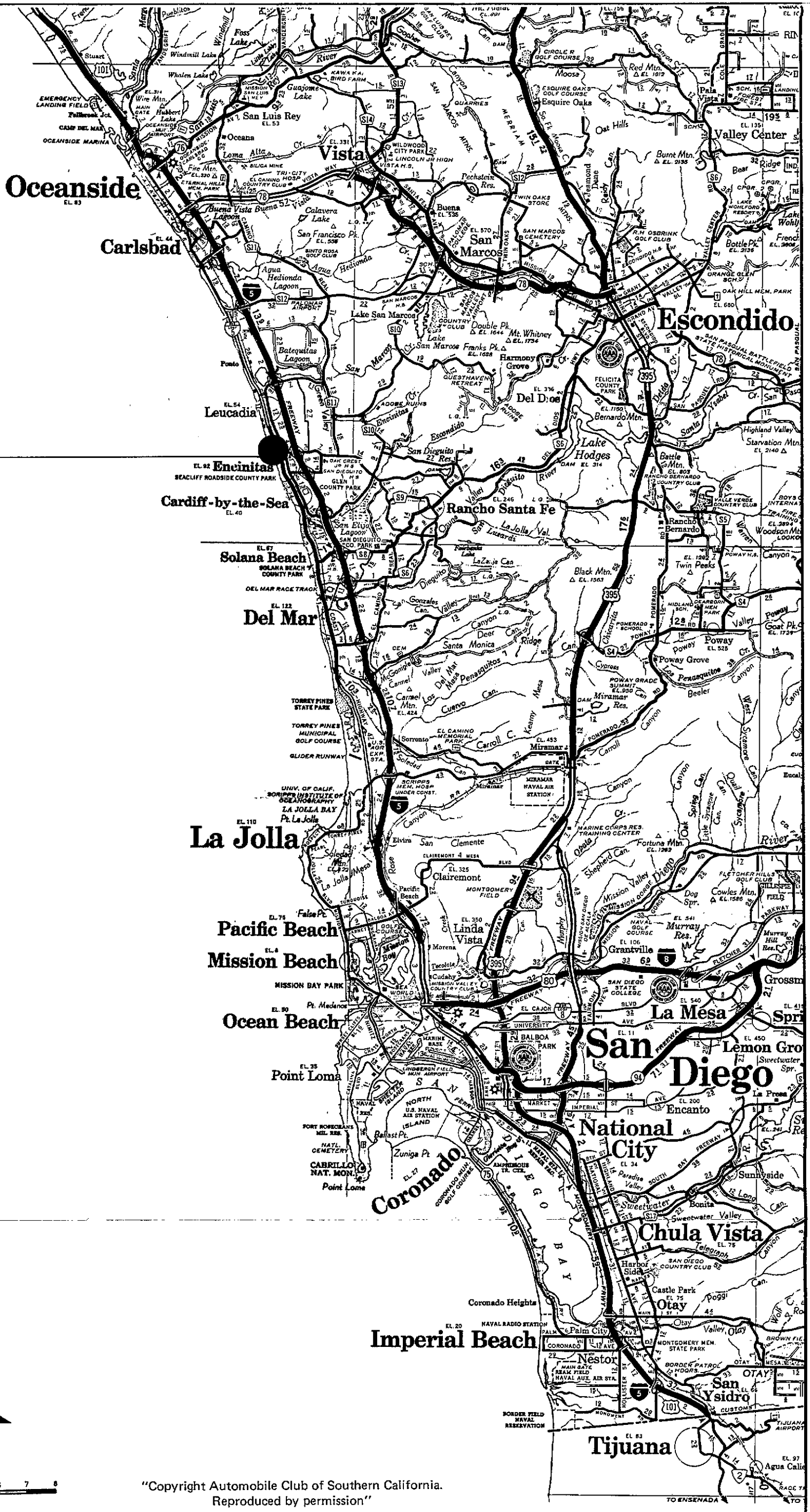
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Maps

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MOONLIGHT S.B.



SCALE IN MILES  
0 1 2 3 4 5 6 7 8  
ONE INCH EQUALS 4 MILES

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SHEET NO.  
1  
4

DRAWING NO.  
19150

MOONLIGHT STATE BEACH  
SAN DIEGO COAST  
GENERAL PLAN  
VICINITY MAP

RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF PARKS AND RECREATION  
APPROVED \_\_\_\_\_ DATE \_\_\_\_\_

REVISIONS	DATE	DESIGNED

DESIGNED
DRAWN
CHECKED



**AREA 1**  
 ● 4 RESIDENTIAL SIZE LOTS  
 ● UNDEVELOPED

**AREA 2**  
 ● SCHEDULED FOR "REHABILITATION"  
 ● PARKING AREA -177 VEHICLES  
 ● COMFORT STATION  
 ● REHABILITATION  
 ● BEACH ACCESS  
 ● COTTONWOOD CREEK  
 ● LIMITED OPEN SPACE  
 ● SANDY BEACH  
 ● CONCESSION BUILDING  
 ● LIFEGUARD TOWER  
 ● BEACH SHOWER  
 ● FIRE RINGS  
 ● 2 VOLLEYBALL COURTS

**AREA 3**  
 ● RESIDENTIAL SIZE  
 ● LOT UNDEVELOPED

**AREA 4**  
 ● COTTONWOOD CREEK  
 ● TENNIS COURT  
 ● OPEN SPACE

MOONLIGHT STATE BEACH

# GENERAL PLAN

## LEGEND

----- DPR BOUNDARY

NOTE: PHOTO BASE COURTESY OF THE DEPARTMENT OF NAVIGATION AND OCEAN DEVELOPMENT, PHOTO BASE DATE 4-23-78.

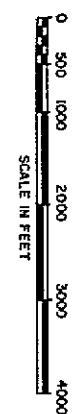


DRAWING NO. <b>19150</b>	MOONLIGHT STATE BEACH <b>SAN DIEGO COAST          GENERAL PLAN</b> EXISTING FACILITIES MAP		RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION		DESIGNED
	SHEET NO. <b>2</b> of <b>4</b>		APPROVED _____	DATE _____	DRAWN
					REVISIONS

# MOONLIGHT STATE BEACH GENERAL PLAN

MOONLIGHT STATE BEACH

MOONLIGHT STATE BEACH



- LEGEND**
- EXISTING DPR OWNERSHIP
  - ▨ AREAS OF POTENTIAL BOUNDARY ADJUSTMENT
  - AREA OF CONCEPTUAL MAP

**LEGEND**

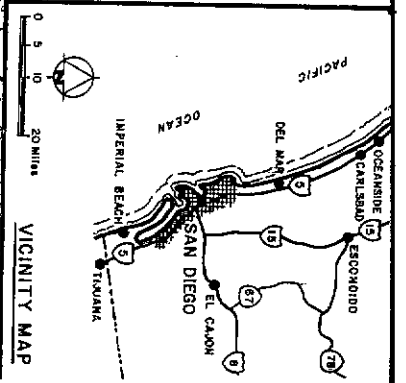
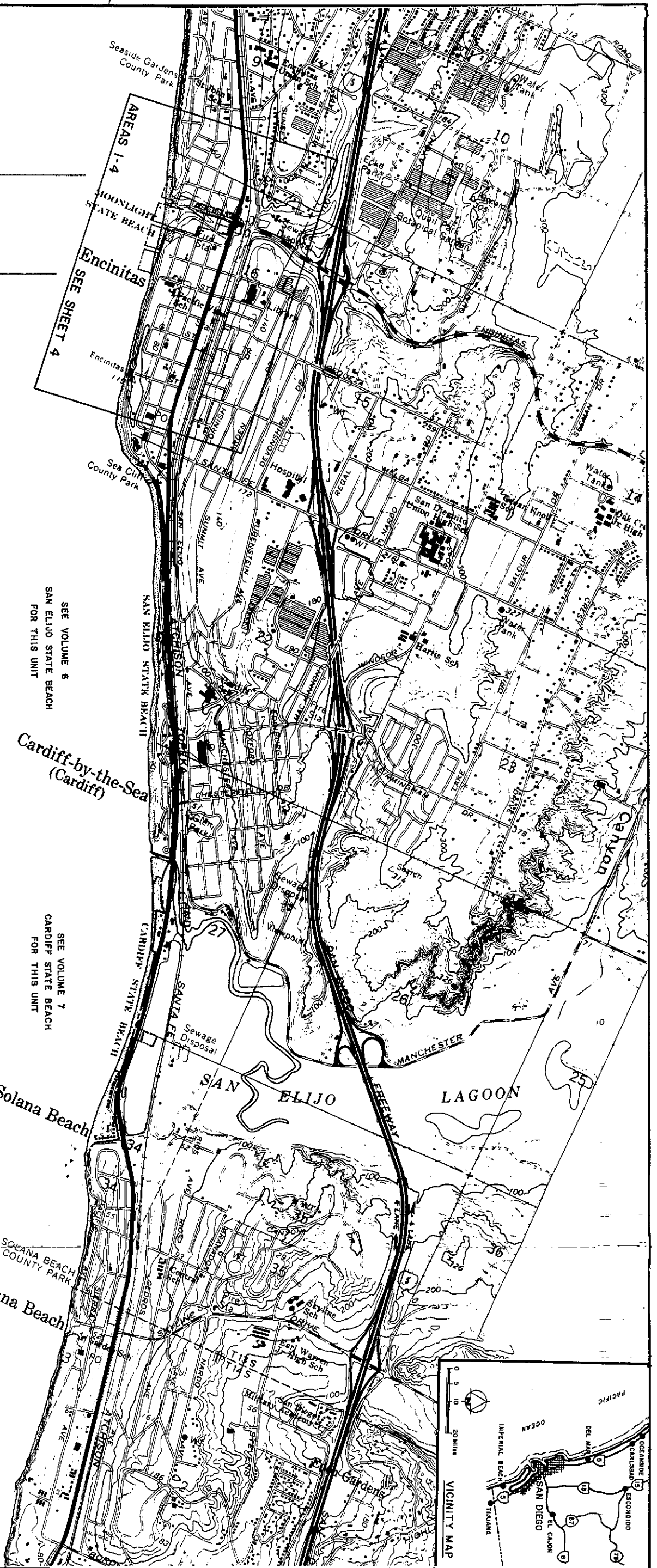


SEE VOLUME 6  
SAN ELIJO STATE BEACH  
FOR THIS UNIT

SEE VOLUME 7  
CARDIFF STATE BEACH  
FOR THIS UNIT

Solana Beach

Solana Beach



MOONLIGHT STATE BEACH  
**SAN DIEGO COAST GENERAL PLAN**  
INDEX MAP

RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF PARKS AND RECREATION  
APPROVED \_\_\_\_\_ DATE \_\_\_\_\_

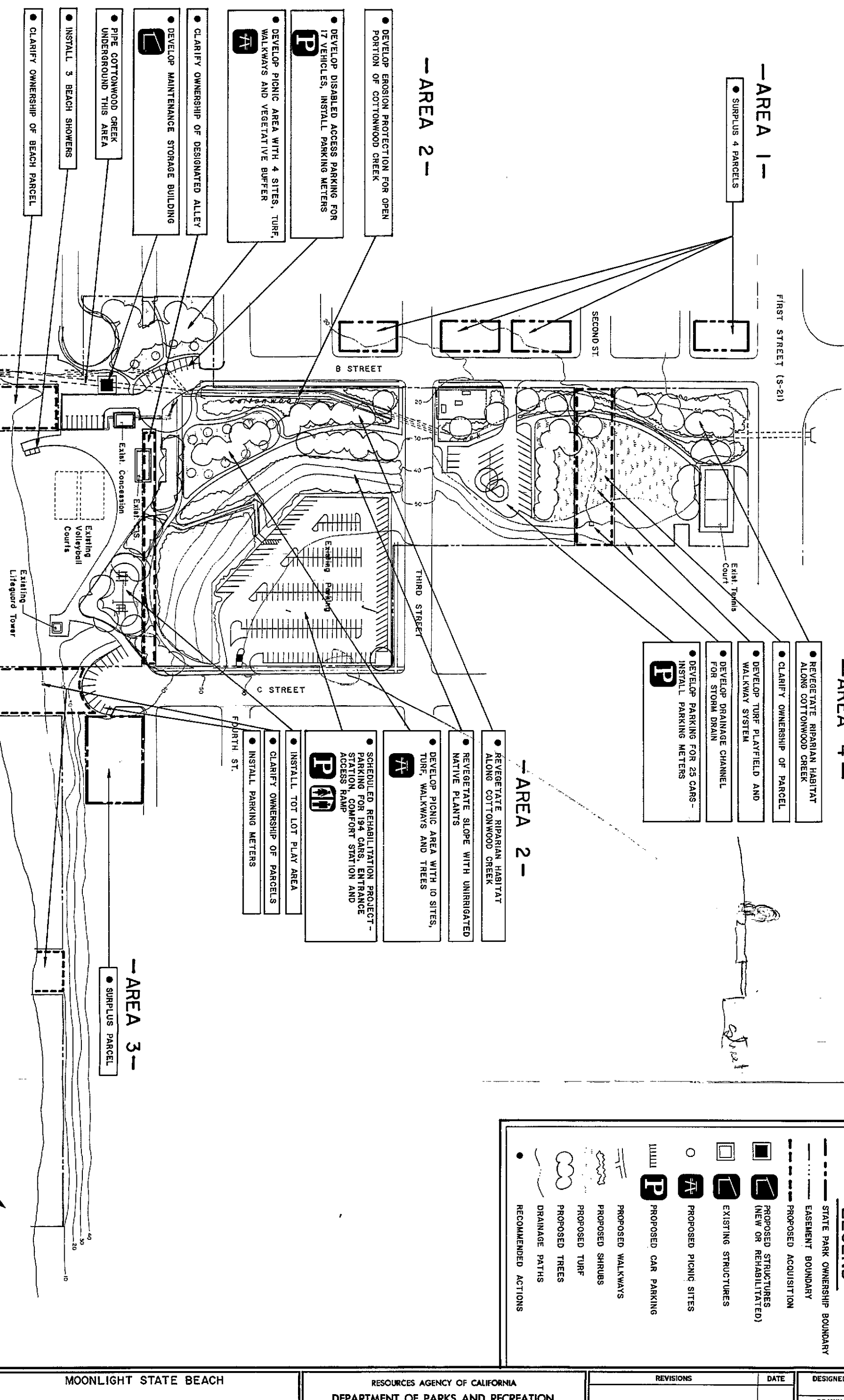
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DRAWING NO. 19150  
SHEET NO. 3 of 4



# MOONLIGHT STATE BEACH GENERAL PLAN

MOONLIGHT STATE BEACH



- AREA 1 —**
- SURPLUS 4 PARCELS

**— AREA 2 —**

- DEVELOP EROSION PROTECTION FOR OPEN PORTION OF COTTONWOOD CREEK
- DEVELOP DISABLED ACCESS PARKING FOR 17 VEHICLES, INSTALL PARKING METERS
- DEVELOP PICNIC AREA WITH 4 SITES, TURF, WALKWAYS AND VEGETATIVE BUFFER
- CLARIFY OWNERSHIP OF DESIGNATED ALLEY
- DEVELOP MAINTENANCE STORAGE BUILDING
- PIPE COTTONWOOD CREEK UNDERGROUND THIS AREA
- INSTALL 3 BEACH SHOWERS
- CLARIFY OWNERSHIP OF BEACH PARCEL

- AREA 4 —**
- REVEGETATE RIPARIAN HABITAT ALONG COTTONWOOD CREEK
  - CLARIFY OWNERSHIP OF PARCEL
  - DEVELOP TURF PLAYFIELD AND WALKWAY SYSTEM
  - DEVELOP DRAINAGE CHANNEL FOR STORM DRAIN
  - DEVELOP PARKING FOR 25 CARS - INSTALL PARKING METERS

**— AREA 2 —**

- REVEGETATE RIPARIAN HABITAT ALONG COTTONWOOD CREEK
- REVEGETATE SLOPE WITH UNIRRIGATED NATIVE PLANTS
- DEVELOP PICNIC AREA WITH 10 SITES, TURF, WALKWAYS AND TREES
- SCHEDULED REHABILITATION PROJECT - PARKING FOR 194 CARS, ENTRANCE STATION, COMFORT STATION AND ACCESS RAMP
- INSTALL TOT LOT PLAY AREA
- CLARIFY OWNERSHIP OF PARCELS
- INSTALL PARKING METERS

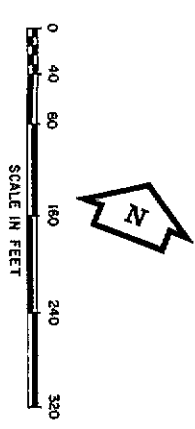
**— AREA 3 —**

- SURPLUS PARCEL

**LEGEND**

- STATE PARK OWNERSHIP BOUNDARY
- - - EASEMENT BOUNDARY
- - - PROPOSED ACQUISITION
- ▣ PROPOSED STRUCTURES (NEW OR REHABILITATED)
- ▣ EXISTING STRUCTURES
- PROPOSED PICNIC SITES
- ⊞ PROPOSED CAR PARKING
- ▬ PROPOSED WALKWAYS
- ▬ PROPOSED SHRUBS
- ▬ PROPOSED TURF
- ▬ PROPOSED TREES
- ▬ DRAINAGE PATHS
- RECOMMENDED ACTIONS

NOTE:  
THE PURPOSE OF THIS PLAN IS TO DETERMINE LAND USE DESIGNATIONS ONLY. DESIGN DETAILS ARE SHOWN TO DEMONSTRATE FEASIBILITY AND ARE SUBJECT TO CHANGE.



MOONLIGHT STATE BEACH  
**SAN DIEGO COAST GENERAL PLAN**  
CONCEPTUAL DETAIL - AREAS 1, 2, 3 & 4

RESOURCES AGENCY OF CALIFORNIA  
DEPARTMENT OF PARKS AND RECREATION  
APPROVED \_\_\_\_\_ DATE \_\_\_\_\_

REVISIONS	DATE	DESIGNED

DRAWING NO. 19150  
SHEET NO. 4 OF 4

# THE SAN DIEGO COASTAL STATE PARK SYSTEM GENERAL PLAN

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