

UNIT 231

ANGEL ISLAND STATE PARK

GENERAL DEVELOPMENT PLAN

May 1978

Angel Island

State Park

RESOURCE MANAGEMENT PLAN
GENERAL DEVELOPMENT PLAN
ENVIRONMENTAL IMPACT REPORT

July 1979

EDMUND G. BROWN JR.
Governor

HUEY D. JOHNSON
Secretary for Resources

RUSSELL W. CAHILL
Director



State of California - The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
P.O. Box 2390
Sacramento, CA 95811

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DEPARTMENT OF PARKS AND RECREATION

STATE PARK AND RECREATION COMMISSION

P. O. BOX 2390, SACRAMENTO 95811



Resolution 18 - 78

Resolution adopted by the
CALIFORNIA STATE PARK AND RECREATION COMMISSION
at its regular meeting in San Rafael
May 5, 1978

WHEREAS, the Director of the Department of Parks and Recreation has presented to this Commission for approval the proposed Resource Management Plan and General Development Plan for Angel Island State Park; and

WHEREAS, this reflects the long-range development plan as to provide for the optimum use and enjoyment of the unit as well as the protection of its quality;

NOW, THEREFORE, BE IT RESOLVED, that the State Park and Recreation Commission approves the Department of Parks and Recreation's "Resource Management Plan and General Development Plan for Angel Island State Park," Preliminary, dated January 1978, subject to such environmental changes as the Director of Parks and Recreation shall determine advisable and necessary to implement carrying out the provisions and objectives of said plan.

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SUMMARY

Angel Island State Park is a square mile of relatively undeveloped land resting in San Francisco Bay. For many people, enjoyment of the island comes from simply viewing it from the mainland. Others reach it by ferries or private boats landing at Ayala Cove, where docks are in service. Most use on the island is concentrated in the Ayala Cove area. Some people get to other parts of the island by walking, riding bikes, or riding on a tram that runs during periods of heavy visitation.

The heavy use at Ayala Cove is taking its toll on resources. On the other hand, there are interesting areas of the island that are little used, because they are not so readily accessible and are not in a condition that invites public use. Historic buildings are in a state of disrepair, and hazards exist because of building conditions, open manholes, and other site conditions.

To redistribute visitor use and thereby spare Ayala Cove from continued overuse, and to open up other areas for visitor enjoyment, the Department of Parks and Recreation needs to undertake major programs of hazard correction, resource management, building restorations, and interpretive programs on the island. The department must also develop new boating access areas and facilities for use incidental to enjoyment of the natural and cultural resources which are the reasons for Angel Island's status as a unit of the State Park System.

To carry out such a program, the department must prepare plans to guide the effort, and to support its requests to the legislature and other funding sources.

As presented here, the General Development Plan proposes to enhance the island experience, and to expand recreation opportunities within the limits of the island's sensitive resources. The plan provides for improvement of existing facilities, addition of new facilities, and resource management preservation measures.

Resource management issues are discussed in the Resource Management Plan.

Interpretive programs will be addressed in an interpretive prospectus, which will supplement the General Development and Resource Management plans. The interpretive prospectus is not part of this planning document, but is a tool of implementation.

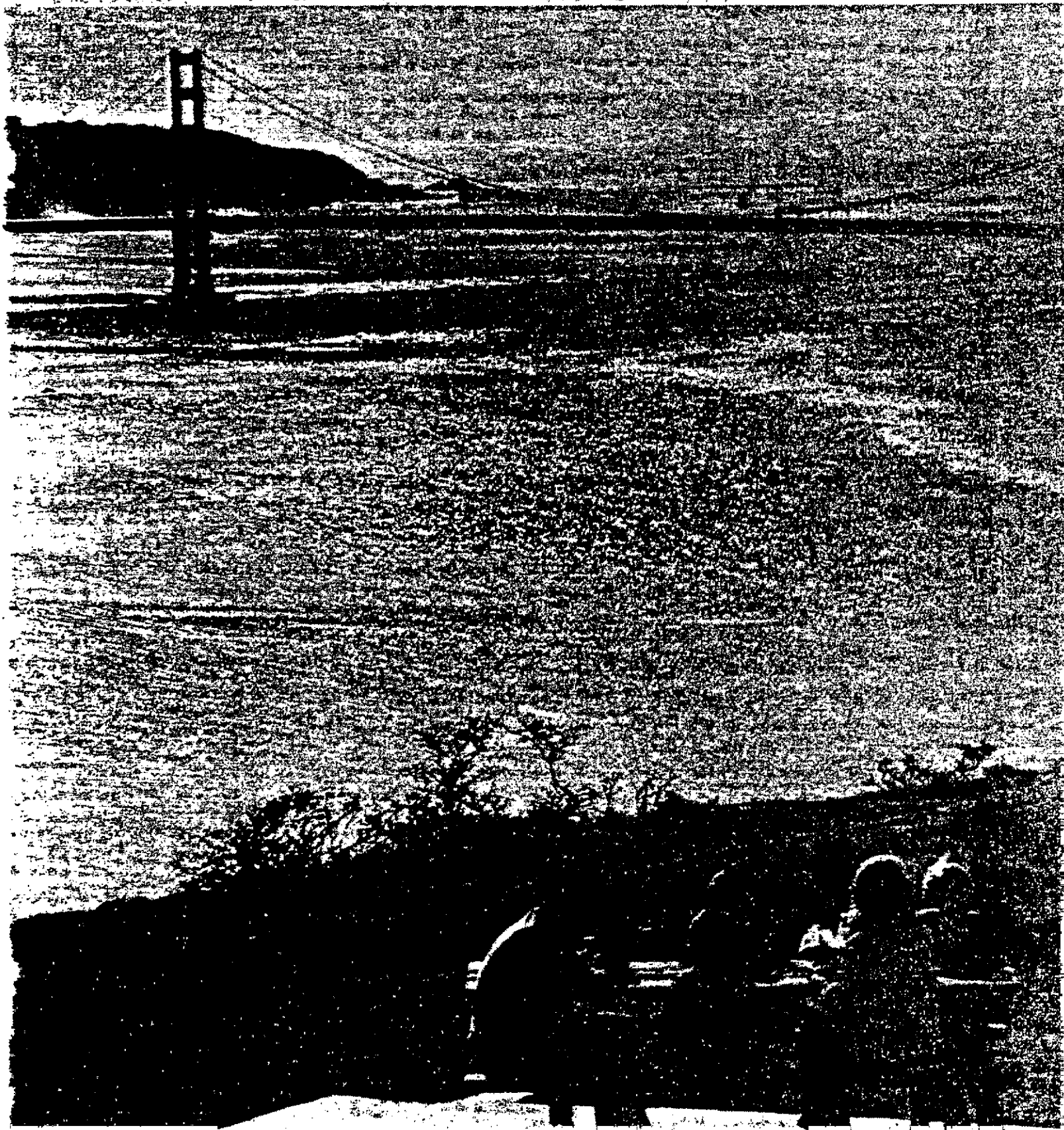
Utilities considerations are part of the General Development Plan. The department is in the process of preparing a detailed study of alternative sanitary sewage disposal systems and other appropriate technology to resolve the problem.

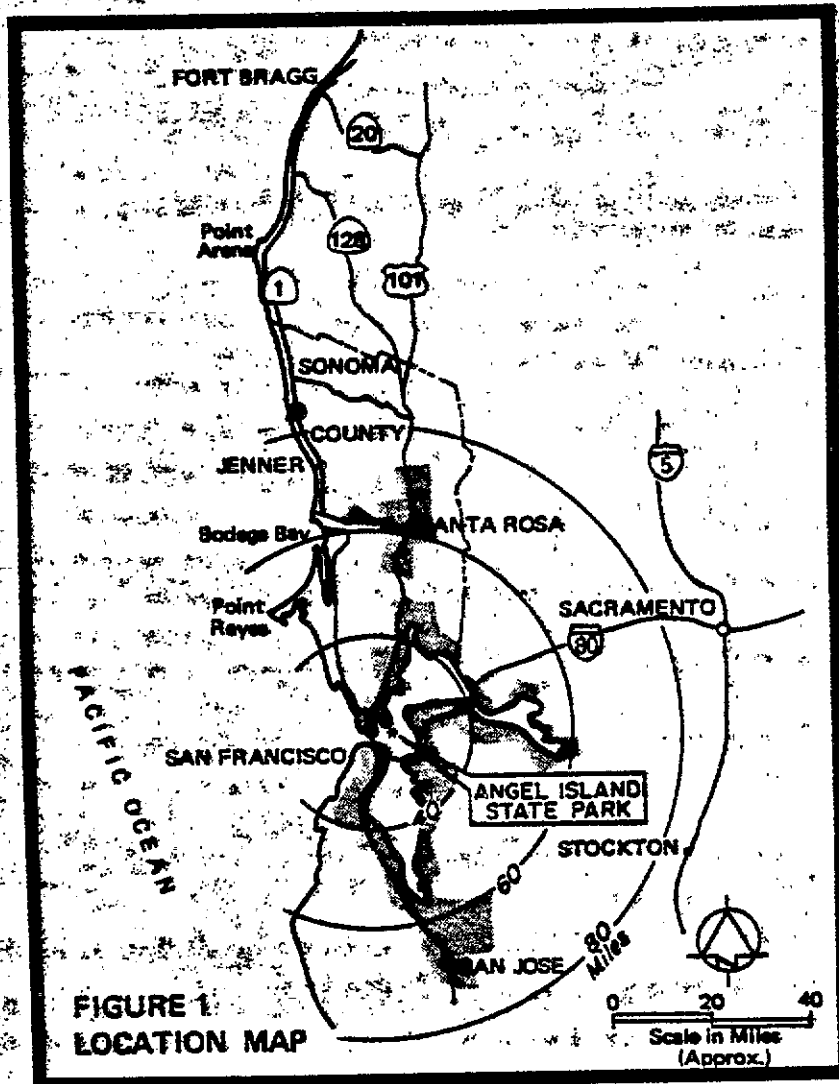
Two other supplemental studies are important, and must be addressed, before implementation of related aspects of this plan is undertaken. These are: (1) a transportation study (2) a concessions study.

These studies are ongoing, and are open-ended activities to implement this plan.

Another current study for Angel Island State Park is an environmental impact report on deer management. That study developed before this planning effort, and is being treated as a separate matter.

Introduction





**FIGURE 1:
LOCATION MAP**

INTRODUCTION

Plan Purpose

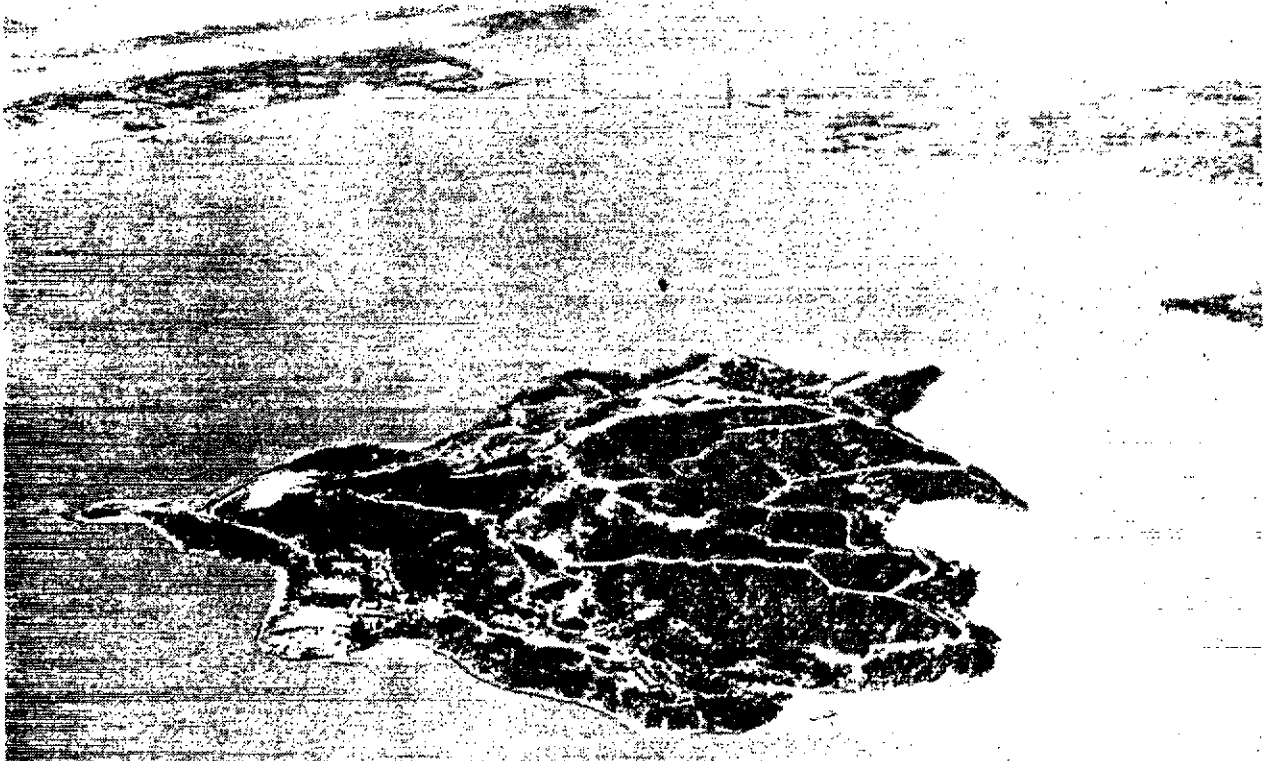
The purpose of the Angel Island Resource Management Plan, General Development Plan, and Environmental Impact Report is to provide a document that will guide the responsible use and management of resources at Angel Island State Park. To achieve this, the park's cultural and natural resources have been inventoried and evaluated. The inventorying is an ongoing process that continues to add new information to the resource knowledge, but the status of the present collection of knowledge is deemed adequate for judgments required in this planning process. Expanded inventories will help provide richer interpretive programs.

All recommended actions are within limitations imposed by environmental factors and cultural resource sensitivities.

General Description

Angel Island State Park is located in the San Francisco Bay, just south of the Tiburon Peninsula. The island represents a unique phenomenon in the State Park System, by virtue of its "islandness" and isolation. This setting presents an unusual opportunity for enjoyment of passive recreation, boating experiences, and other appropriate forms of recreation. Visitors enjoy themselves in a quiet and leisurely atmosphere, viewing some of the most outstanding vistas of the San Francisco Bay Area that can be experienced.

View of Angel Island looking southwest. Marin County is on the right, San Francisco to the left.





Pier at Ayala Cove

The only developed access available to the public is at Ayala Cove, which provides facilities for both private boaters and commercial ferries. Ferries come from Tiburon, San Francisco, and Berkeley. A pier at Point Blunt serves federal staff maintaining the lighthouse there.

The island is about one mile from Tiburon, two miles from Sausalito, three miles from San Francisco, and seven miles from Berkeley. It has a shoreline of six miles, one mile of which is usable beach frontage.

The island has generally steep terrain, rising sharply from sea level to 776 feet at the top of Mt. Livermore. It is a large block of Franciscan sandstone, and contains interesting rock formations.

Plant life consists of many native and non-native species. Exotic species are located primarily at Ayala Cove and North and East Garrison. There are deer on the island, and bird life is abundant.

The natural character of the island has been maintained since it became a unit of the State Park System.

The cultural resource significance of the island is indicated by existing structures which date from 1863. Indian middens give evidence of Native American use of the island. The island has been influenced by cultures from countries as diverse as Spain, China, Japan, the Philippines, Great Britain, Russia, India, Germany, and Italy.

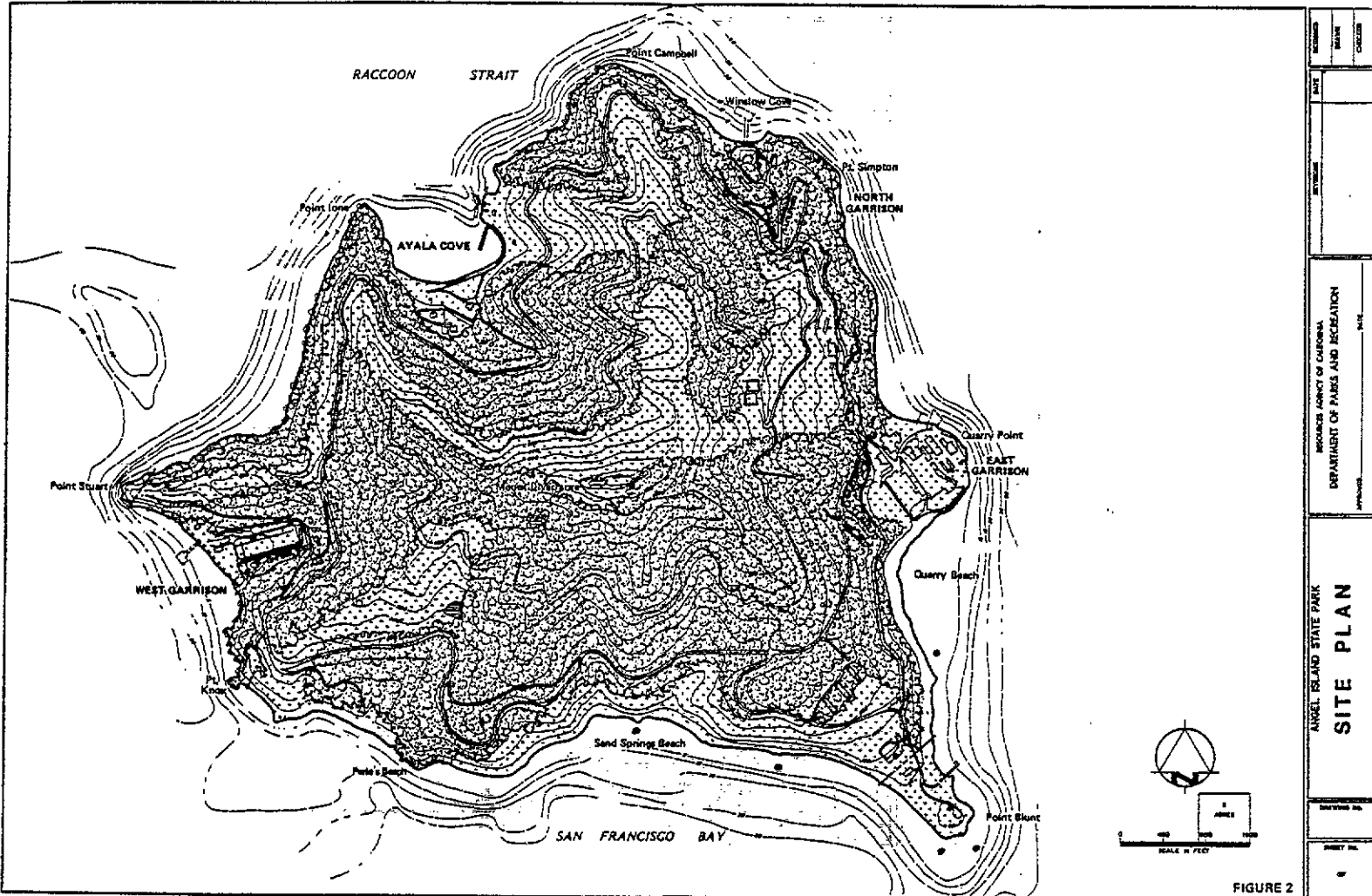


FIGURE 2

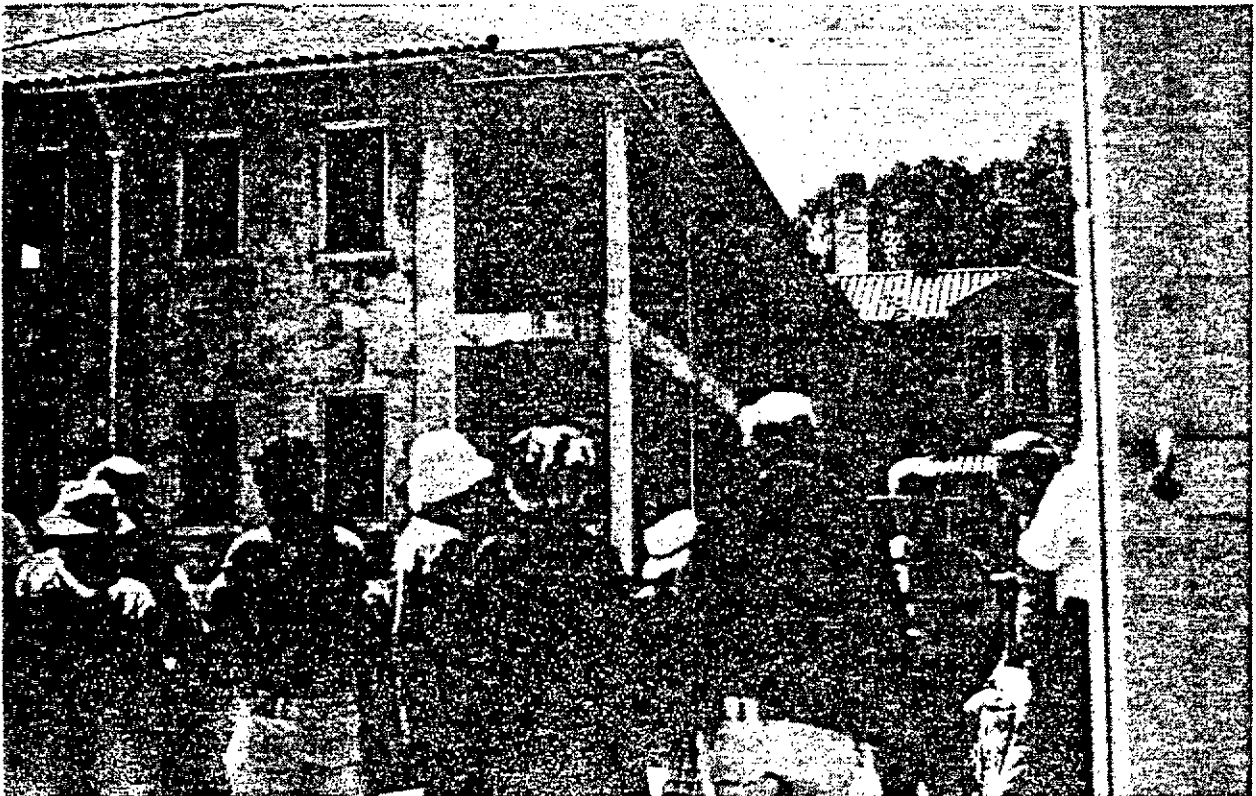
REVISION	DATE	BY	CHECKED
BRONZE COUNTY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION			
PROJECT NO.		DATE	
ANGEL ISLAND STATE PARK SITE PLAN			
DRAWN BY		SCALE	
SHEET NO.			

Some of the buildings on Angel Island



Most of Angel Island's 740 acres were deeded to the State Department of Parks and Recreation by the federal government. In 1955, the island contained some 200 buildings, in various stages of decay and disrepair. Many have historical value.

The lands were transferred with patents from the U.S. Government, specifying the use of Angel Island "... for historical monument site purposes only..." The department will emphasize interpretation of the island's natural and cultural history, with a slant toward making it accessible to the public for other recreational purposes as well.



The Department will emphasize interpretation of history.



Angel Island

Historical Background

Graced with sun and water, adorned with trees and other floral treasures, its shores ripe with edible creatures and fur-bearing mammals, its location ideally suited for protection of territorial claims and isolated from mainland activities, Angel Island invited human habitation.

The Native Americans came first. We cannot know who the very first residents were, but a people we now call Coast Miwok lived on the island at the time of Spanish penetration.¹ Other native groups resided around the bay. Foodstuffs and other materials found on the island or elsewhere provided them with life's necessities for hundreds, perhaps thousands, of years.

The Native Americans living around the bay were perhaps unaware of the tide of European history sweeping toward them. In the end, faced with powerful, aggressive intruders, weakened by strange diseases and foods, and forced into debilitating work, they died, fled inland, or were incorporated into Spanish society.² In 1769, members of the Portola Expedition stood atop the hills of the mainland and gazed out on the bay. In 1775, the Ayala Expedition dropped anchor in the protected waters of the finest cove of "Isla de los Angeles"-- Angel Island. When Ayala's navigator finished mapping the bay, this new land entered the dominion of the Spanish Empire.³ The first bay area mission was constructed in 1776.⁴

During the Spanish era, island activities were sporadic. While the Spanish were involved with military activities and building of missions in California, French and British explorers passed through the bay area. In passing, they noted Angel Island. It was easily accessible to vessels, and became a source of fuel and water.⁵ Russian and Aleutian hunters were at that time hunting the sea otter.

During the Mexican era, island activities changed and increased. In 1839, Antonio Osio was granted ownership of the island by the Mexican governor. Osio brought cattle and horses, establishing a rancho which dominated island activities for twenty years. Fur hunting ceased with elimination of the otter. Wood became less available, as trees were cut down by crews of passing ships. The water supply was claimed for use by livestock and rancho residents. Squatters moved onto the island, and gentlemen from across the bay came to duel for their pride.

The Mexican era passed as a relative ripple--tranquil, in contrast to later events. The American era commenced at once as a grand flood of events, first swirling about the island and finally focusing on it, changed its role in human affairs; changed its very face.

In 1850, President Fillmore made official what had long been realized about the potential of Angel Island--he declared it a military reserve.

The military presence began in 1863-64, with the arming of Points Stuart, Knox, and Blunt. At this time, the first buildings went up at Camp Reynolds and Hospital Cove.

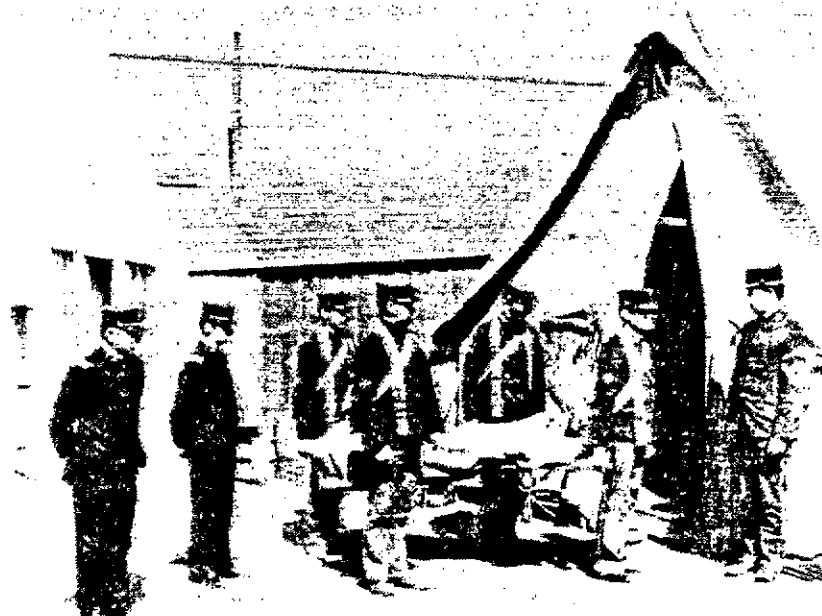
Camp Reynolds (later West Garrison) and the fortifications were established to complete the San Francisco Bay Defense System. Because of the potential of Confederate Ships entering the bay, this need became particularly acute during the Civil War. Except for temporary abandonment in 1866, Camp Reynolds served as a garrison for artillery companies and infantry companies, as a transfer station, and as a discharge depot. It was the principal garrison until new quarters were erected elsewhere in 1910.



Left: Old painting of Camp Reynolds in the 1860's

Below left: Battery B. First California Heavy Artillery in formation

Below: Hospital Corps detachment at discharge camp dispensary





Immigrants arriving on Angel Island.

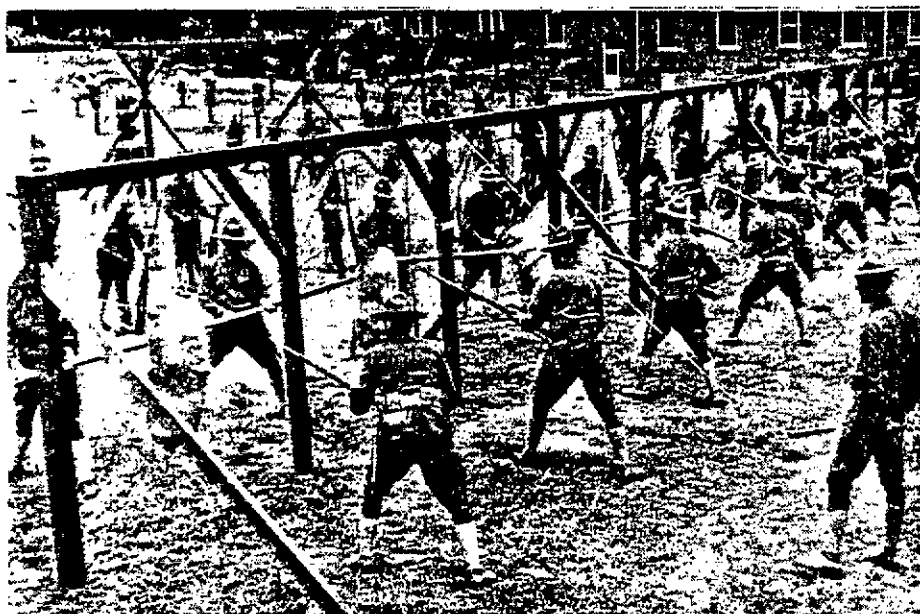
Hospital Cove (formerly Raccoon Cove, now Ayala Cove) originally contained a military hospital. In 1892, the land and buildings were turned over to the Marine Hospital Service for use as a quarantine and decontamination station. The greater significance of this cove, however, arises from early California history; it was here that Ayala landed while exploring San Francisco Bay.

Quarry Point (East Garrison) was used as a rock quarry during the close of the last century. In 1899, a temporary quarantine station was set up to handle ill soldiers returning from the Spanish-American War. With construction of East Garrison in 1910, this area assumed a major role in troop movements and training. In its time, it was one of the largest depots in the country.

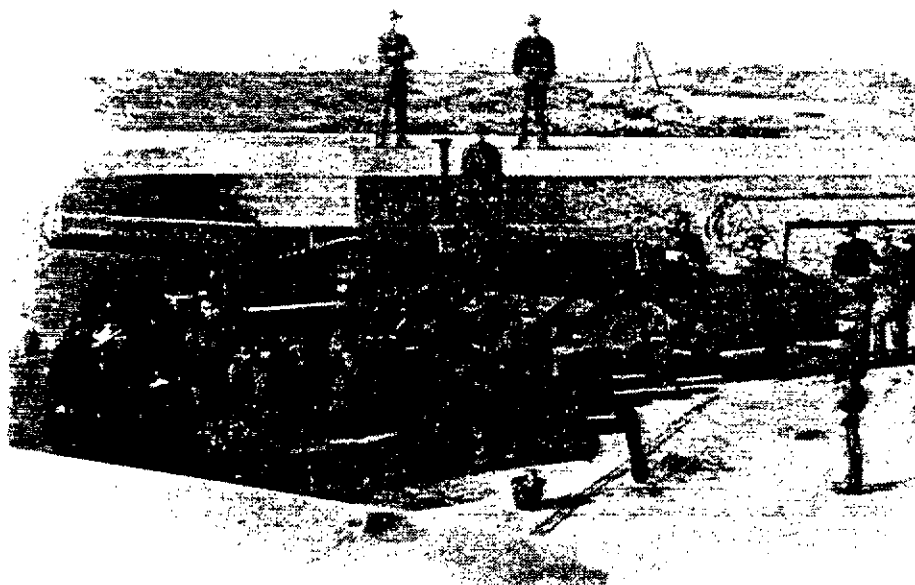
The immigration station at Winslow Cove/Pt. Simpton was opened in 1910. It was built here, in island isolation, as a replacement for an older station in San Francisco. For thirty years, it served as the principal entry point for Asian immigrants. World War I and subsequent events kept it from being a major receiving point for European immigrants, as originally planned. During World War I, it housed enemy aliens; during World War II, it held Japanese and German POWs. The station also served as a detention facility for federal prisoners before Alcatraz was opened. This area was renamed North Garrison in 1941, and was used to house army troops.

The fortifications provide interesting glimpses of military technology. The original emplacements were erected during the Civil War. In 1886, the Endicott Board found these defenses woefully inadequate and obsolete. During the Spanish-American War, new weapons systems were installed on the island; these were decommissioned in 1909, because they were obsolete. In 1955, a Nike missile base became operational; in 1962, it was dismantled as obsolete.

Control over Angel Island has varied considerably since the army officially deactivated the post in 1946. The U.S. Army District Engineer took control first, after the island was declared surplus. In 1947, the War Assets Administration assumed responsibility for disposal of the island. In 1948, the Interior Department was given disposal responsibility, through the National Park Service. In 1950, the U.S. Navy was given control over three North Garrison structures for use as a degaussing station.



Old photograph showing men of the Reserve Officers' Training Camp at bayonet drill



Artillery emplacement at West Garrison

EXCEPTED BUILDINGS

- 17 Electric Substation
- 24 East Garrison Wharf
- 46 Reservoir No. 1 - 500,000 Gallons
- 56 Reservoir No. 2 - 500,000 Gallons
- 138 Water Tank - 200,000 Gallons
- 139 Water Tank - San - 50,000 Gallons
- 140 Water Tank - Salt - 50,000 Gallons
- 144 Electric Substation
- 234 Water Tank - 120,000 Gallons
- 236 Water Tank - 120,000 Gallons
- 314 Control Building - Pump House
- 325 Reservoir - Salt - 50,000 Gallons
- Cable House - Raccoon
- Underground Vault - Telephone
- Well No. 3

RACCOON

WEST GARRISON AREA

STRAIT AYALA COVE AREA

PERLE'S BEACH

POINT CAMPBELL
NORTH GARRISON AREA

POINT SIMPTON

RESTRICTIONS, RESERVATIONS AND EXCEPTIONS

SCHEDULE OF ACQUISITION									
PARCEL NO.	TRACT NO.	HOL.	GRANTOR	DOCUMENT	DATE RECORDED	BOOK & PAGE	ACREAGE	TOTAL AC.	
1	38	U.S.A.		DEED	3/10/78	47/34/73	961.58	272	36.96(1)
2	37	U.S.A.		PATENT	12/28/80	8/256/39	1,038.02	373	188.82(1)
3	36	U.S.A.		PATENT	3/27/83	8/112/83	174.02	170	317.24(1)
4	WYLA COVE	STATE LAND	COND.	ORDER OF	11/17/84	107/100000	100.00	100.00	100.00

RESTRICTIONS

USE
All lands on the parcel included in this plan are to be used only for National Monument purposes. The restrictions and easements for the following parcels:
Parcel 1 - 20 years - National use report required.
Parcel 2 - 25 years.
Parcel 3 - in perpetuity.

SALE
The land, lease or other interest in the land on the parcel included in this plan is prohibited. The restrictions and easements for the following parcels:
Parcel 1 - 20 years.
Parcel 2 - 25 years.
Parcel 3 - in perpetuity.

DISCRIMINATION
The acquisition of interests in the parcel on the land on the parcel included in this plan is prohibited. The restrictions and easements for the following parcels:
Parcel 1 - 20 years.
Parcel 2 - 25 years.
Parcel 3 - in perpetuity.

RESERVATIONS

MINING AND MINERAL RIGHTS
All mining and mineral rights for the lands on the parcel included in this plan are reserved to the United States Government.

RIGHTS OF WAY
Rights of way for access or egress guaranteed by the property of the United States are reserved to the United States Government in parcels 1 and 2.

UNITED STATES ARMY
These are certain easements and unincumbered lands reserved to the U.S. Army in parcels 1 and 2.

EXCEPTIONS

UTILITY LINE EASEMENTS
Necessary easements for utility lines are reserved from parcel 1.

PARCEL 3
The following exceptions apply to parcel 3 only.

UTLITIES, BUILDINGS, ETC.
All of the buildings, structures, and improvements, unincumbered and unincumbered, and all other interests in the land on the parcel included in this plan are reserved from the acquisition of the land.
Also reserved from the acquisition in this plan is the use and enjoyment of a strip of land 700 feet wide in the eastern boundary corner of the parcel and the right to use the existing East Garrison wharf and other wharves, piers, and all existing streets, roads, paths, and trails, in whole or in part.
(Commission Order No. 10047 12/22/79, parcel 1.)

REVERSION

This is the parcel described above and so shown on this map as a part of the parcel 3656 revert to the United States on the expiration of any of the restrictions, reservations or easements contained in the deed to parcel 1, patent 1197998 (patent 2) or patent 1237079 (patent 3) as outlined above.

- LEGEND**
- - - STATE PARK BOUNDARY
 - - - PARCEL BOUNDARY
 - ② PARCEL NUMBER
 - □ BUILDINGS ETC. SHOWN BY VISUALS
 - - - UTILITY LINES COVERED BY EASEMENTS

SAN FRANCISCO BAY

POINT BLUNT WIDE

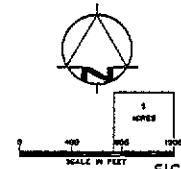


FIGURE 3

PREPARED BY: DATE: CHECKED: CALVIN
 REVIEWED BY: DATE: CREAGER
 APPROVED BY: DATE: APPROVED: JAMES
 DEPARTMENT OF PARKS AND RECREATION
 ANGELE ISLAND STATE PARK
 OWNERSHIP MAP
 DRAWING NO. 1668
 SHEET NO. 9

In 1953, the California Division of Beaches and Parks took control of Hospital Cove. In 1954, the Secretary of the Interior returned control of Angel Island to the army for the Nike missile site, except for the holdings by Beaches and Parks, the Navy, and the U.S. Coast Guard (which used Points Blunt, Knox, and Stuart for navigation equipment). In 1958, the State of California took control of 184 acres behind and above Hospital Cove, including Mt. Livermore (then Mt. Ida). In 1963, the state received full control of the island, with some specific deed restrictions, and except for Coast Guard units at Points Blunt, Knox, and Stuart.

Establishment of the Park

The military began to phase out its involvement on the island by declaring thirty-five acres (parcel 1) around Ayala Cove as surplus land in 1953/54. A group of interested citizens, pulling together from many private organizations to form the Angel Island Foundation, persuaded the State Park and Recreation Commission to acquire Ayala Cove. This parcel of land had a deed limitation of use as a historic monument for twenty years; the limitation expired March 10, 1975.

The second parcel, 184 acres, was transferred by patent from the Bureau of Land Management to the state on December 10, 1958. Its patent limitation of use for historic monument purposes will expire December 10, 1983.



Governor Knight accepts the deed for Angel Island for the State of California

In 1963, most of the island was turned over to the State of California for park purposes. This third parcel, 517 acres, has no expiration date on use for historic monument purposes.

The Point Blunt Coast Guard Station, Point Stuart, and the Point Knox Coast Guard Station are owned by the Federal Government. The Department of Parks and Recreation has an annual use lease for buildings and lands within the Point Blunt area.

In 1972, the President's signature on Public Law 92-589 established a massive National Park Service planning effort in the San Francisco Bay Area, involving federal, state, county, and local lands. Because several state park units fell within the Golden Gate National Recreation Area study area, they were included in this planning program. Assembly Bill 2584 (Wornum) authorized the Governor to direct the transfer of several state parks, including Angel Island, to the National Park Service.

A special study group, including officials from the Resources Agency, participated in a survey in December 1975. The task was to determine if it was in the best interest of the people of California to transfer the state properties to the National Park Service, as proposed by AB 2584. The group's findings, contained within the "Golden Gateway State Urban Park Study", identified Angel Island's vast potential to four and a half million urban residents surrounding this park, and recommended the department's retention of the island.

Governor Brown directed transfer of the other state park lands, while reserving the right to transfer the island later, if it is in the best interest of the citizens of the state. In an August 26, 1976 communique to Congressman Phillip Burton, Governor Brown stated his intention to retain Angel Island as part of the State Park System. With this in mind, the Department of Parks and Recreation embarked on preparation of this Resource Management Plan, General Development Plan and Environmental Impact Report.

In keeping with the federal interests in Angel Island, the state has been working with both National Park Service and Bureau of Land Management representatives, soliciting phased reviews of DPR work.

Planning Process

A previous plan, "The Plan for Angel Island State Park" was prepared during 1968 by the department. This plan was approved by the Park and Recreation Commission April 11, 1969. Although it remains as the approved General Development Plan, it was unpopular. The 1969 plan was revised in 1971, to reflect needed changes. Although the intensity of recommended development and activities was reduced with the 1971 revisions, the amount of development proposed remained unpopular with citizens in the Bay region.

The current planning was initiated by a series of public pre-planning meetings early in 1977. They were conducted during January, February, and April, in Tiburon, San Francisco, Oakland, and San Rafael.

Public meetings held in October 1977 in San Francisco and Marin County provided both the public and the department with additional valuable information relevant to the preliminary General Development Plan's components, such as land use, carrying capacity, and the value of existing buildings.

Throughout the planning process, citizens have presented various proposals for recreation and related opportunities, ranging from educational programs to suggestions of additional moorings. All proposals have had benefit of public review and discussion with Department of Parks and Recreation staff. The General Development Plan is intended to be flexible enough to allow for adoption of such proposals as are worthwhile, and are within the restraints of the "Policies, Rules, Regulations and Orders" of the California State Park and Recreation Commission and the department.

The Resource Management Plan, General Development Plan and Environmental Impact Report for Angel Island State Park are scheduled for presentation to the State Park and Recreation Commission at a public meeting in May 1978.

Resource Management Plan





Above: View from Angel Island toward San Francisco

Below: View of Angel Island from Tiburon peninsula



RESOURCE MANAGEMENT PLAN

Introduction

Angel Island was classified as a state park by the State Park and Recreation Commission in 1962, under authorization of Section 5001.5 of the Public Resources Code.

The Public Resources Code defines and describes state parks and the parameters concerning their use and development in the following manner:

"(c) State parks. State parks... consist of relatively spacious areas of outstanding scenic or natural character, oftentimes containing also significant historical, archaeological, ecological, geological or other such values. The purpose of state parks shall be to preserve outstanding natural, scenic and cultural values, indigenous aquatic and terrestrial fauna and flora, and the most significant examples of such ecological regions of California as the Sierra Nevada Mountains, northeast volcanic, great valley, coastal strip, Klamath-Siskiyou Mountains, southwest mountains and valleys, redwoods, foothills, low coastal mountains and desert mountains.

Each state park shall be managed as a composite whole, to restore, protect, and maintain its native environmental complexes to the extent compatible with the primary purpose for which the park was established.

Improvements undertaken within state parks shall be for the purpose of making the areas available for public enjoyment and education in a manner consistent with preservation of natural, scenic, cultural, and ecological values for present and future generations. Improvements may be undertaken to provide for such recreational activity as, but not limited to: camping; picnicking; sightseeing; nature study; hiking; and horseback riding, so long as such improvements involve no major modification of lands, forests, or waters. Improvements which do not directly enhance the public's enjoyment of the natural, scenic, cultural, or ecological values of the resource, which are attractions in themselves, or which are otherwise available to the public within a reasonable distance outside the park, shall not be undertaken within state parks.

State parks may be established in either the terrestrial or underwater environments of the state."

Deed and patent restrictions on acquisition of the island from the United States Government specifically require the state to manage the resource for ". . . historical monument purposes only. . ."

The General Development Plan should emphasize the natural and historic features.

Resource Objectives

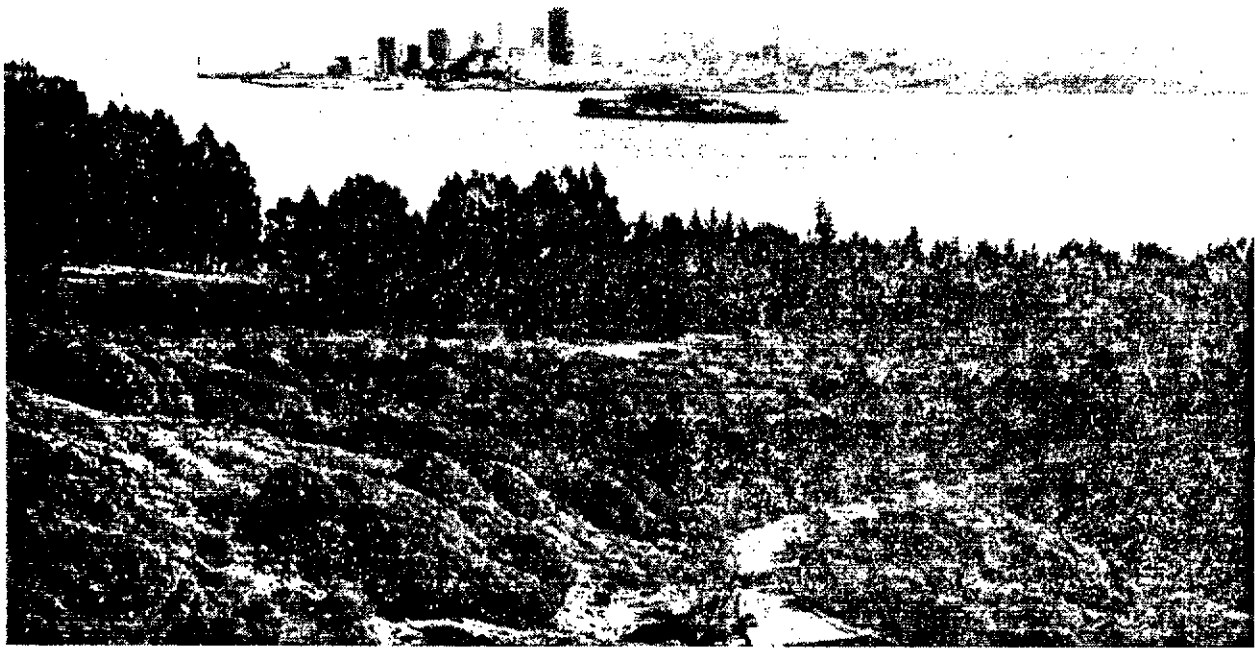
1. To preserve and perpetuate the history of Angel Island, through reconstructing, restoring, maintaining or stabilizing, and interpreting the historic cultural developments found on the island.
2. To protect, preserve, and interpret the archeological sites.
3. To perpetuate, maintain and interpret the scenic and natural beauty of Angel Island.
4. To maintain, protect, and encourage native vegetation in all natural areas that have not been modified by human use of the island, and to interpret these natural areas.
5. To control and/or eliminate aggressive introduced plant species that are not a part of either the natural or historic environment, but are extending their ranges and crowding out native species.
6. To maintain desirable introduced and exotic plant species at their original planting sites, when associated with cultural values.
7. To prevent importation to the island of new species or sub-species of plants that are not already present, and are not part of the island's historic past.
8. To manage and regulate animal populations when necessary, so they are in balance with their natural food supplies, without allowing them to destroy or deplete the native or desirable introduced flora or native fauna.
9. To keep wild animals in a natural condition, so they will rely on natural foods, and to prevent them from relying on artificial sources of food.
10. To refrain from introducing animal species or sub-species not already present on the island.
11. To control erosion caused by excessive human or animal use, and to heal human scarring by appropriate soil conservation methods.

Resource Use, Management, and Protection Philosophies

Plant Management

Native plant growth on undeveloped land of the island should be encouraged by controlling animal populations and aggressive plant exotics, and re-establishing native plants where feasible. Planted exotics should be left in the places planted for landscape purposes, provided they were part of the historic setting and are not threatening or causing damage to buildings or other structures. If research indicates an exotic species was planted around historic structures at the time of their use, but has now disappeared, it would be permissible to reintroduce such a plant for authenticity.

Continue the program to control non-native aggressive brush species, such as French and Scotch Broom, that crowd out native species and grow and reproduce



Non-native trees dominate the vegetation of the island.

out of control, to the extent that they visually impair the view or dominate the vegetation of the island. A similar control program should be instituted on some exotic tree species such as Eucalyptus, to keep the present growth from blocking out scenic vistas or historical developments, or threatening the more fragile wooden structures, and from taking over additional natural areas.

Past and future developments should not result in removal of plants, if such removal leaves unnecessary scars on the island that are visible from boats or from the shore. Existing scarring not associated with historic development should be revegetated, through soil conservation practices and replanting. In some places where revegetation may not be feasible, screen-type plantings may hide the scarring from distant viewing.

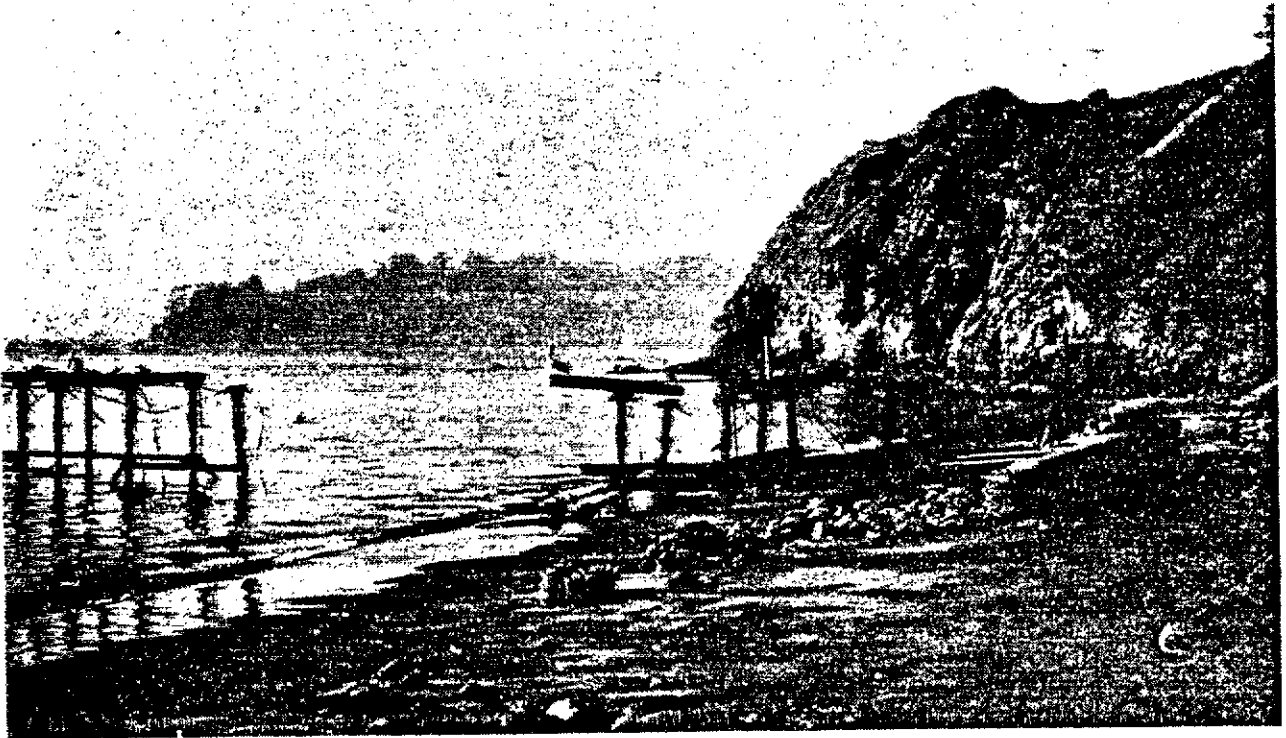


Eucalyptus trees



Non-native plants

Old pier pilings at West Garrison are an important resting place for brown pelicans.



It might be feasible in the future to use controlled burning to maintain a better and more thrifty wildland area, if air pollution control restrictions can be met. Much of the vegetation is mature and decadent, and it would be better if the vegetation represented various age classes. This would also greatly reduce the present fire hazard that exists on much of the island.

Wildlife Management

Wildlife populations on the island should be managed as necessary, so animals do not deplete the flora; do not get out-of-balance with their food supplies; remain in a thrifty and healthy condition; and can be seen as wild animals rather than as begging animals under very artificial conditions.

The assistance of the State Department of Fish and Game will be used to accomplish the management of wild animal resources.

All efforts will be made to make garbage unavailable to wildlife by developing a garbage collection system that keeps animals from getting to this unnatural source of food. Animal-proof garbage containers should be an important consideration in meeting these objectives.

Every effort will be made to keep visitors from hand-feeding animals.

Since the old pier pilings at West Garrison are an important resting place for the brown pelican (an endangered species), as well as for many other birds, these pilings should be left intact and not removed, as long as they are not a navigational hazard.



Hikers

Erosion Control

An erosion control program must be established to correct erosion problems where they occur.

On road cuts and similar exposed areas subject to erosion, terracing could be accomplished, and native plants should be planted. This program of planting native plants should be done only if the deer population can be controlled so it will not negate the planting effort. A concentration of this program on the road system will help to soften the scarring, as seen from the mainland and passing boats.

Particular attention should be focused on improving existing trail alignments, to establish trails in such locations that trail cutting will not tempt users. This can be done by avoiding switchbacks in places where trails are clearly visible above or below, such as presently occurs on the ridge trails. If switchbacks are made in dense brush or poison oak, they are much less likely to be misused. Developing trails through a variety of open and dense vegetation will expose visitors to more habitat and a greater diversity of plant and animal life.

Specifically, trails leading to Mount Livermore need realignment where they go up steep open ridges, because of trail cutting and erosion. Switchbacks need to be longer, and should be away from the ridge top.



Buildings unsafe for public access will be appropriately designated.



Visitor Use Intensity

Allowable use intensity in the cultural zones at Angel Island will vary from no use to heavy use, depending on the individual structures or features present. Buildings or structures that are unsafe for public use, those that have only an outside shell restored, or those that are not ready to be opened, will be closed to public use. Buildings or structures that are closed to use will be appropriately designated. This may be done by any of a number of methods, including closing or boarding up the building, closing off access, and/or signs to tell of the closure. Archeological areas, if exposed and apparent, or those subject to depredation or physical degradation, may also be totally closed. Others that are in no danger of being destroyed may sustain light or even moderate use.

Some cultural buildings and structures may be capable of sustaining only light or moderate use. These can include areas where environmental living could be practiced under controlled conditions, and places where visitors could observe, but where they would be excluded.

Heavy use would be allowable on walkways and roads around cultural features and buildings/structures open to the public. Heavy use will be expected at all points of entry and departure.

In the natural areas, use intensity should be light, except where roads and trails are present; here, the allowable use could be moderate to heavy.

The endemic Angel Island mole is found on suitable soils throughout the island, with concentrations in the lawn area at Ayala Cove and in the grass areas along the North Ridge Trail. Since the lawn area has had extremely heavy use in the past, and this has not affected the mole population, no special use intensity seems necessary to protect this unique species, provided the lawn area is not modified.

The rare plant Snakeweed (Gutierrezia californica) is found on sparsely vegetated serpentine soils, where light use has been experienced in the past. This should remain a light-intensity use area.

Areas on the island that have been disturbed, or where exotic plants have been planted or have escaped, that are not within the immediate cultural zone areas, could be used for moderate to heavy-use intensity.

Resource Evaluation

Natural Values

Angel Island is about 303 hectares (740 acres) in size, and is located about one mile off the Tiburon peninsula in San Francisco Bay. The area is located in the Coastal Landscape Province.

The ecological entities have been greatly modified by humans through the years of use and development that have taken place on the island. It is difficult to determine exactly what effect each development has had on flora and fauna, but the whole complex has changed considerably from pristine times.

From accounts of the early 1800s, it appears that many mature trees present on the island were cut for firewood to fuel ships. This was followed by about twenty years of livestock grazing. After the arrival of the U.S. Army, military development caused many changes to the environment. Besides the very important physical developments, the introduction of many exotic plant species has had a tremendous effect on the native vegetation. The buildup in the deer population has had a great effect on palatable plants, and many of the browses have been severely hedged, to the point that they have become decadent and are dying. New shrubs are eaten off as soon as they emerge.



Angel Island deer



Bushes showing the effects of deer over-browsing

The fauna on the island are quite interesting, since many species found on the mainland are not present. An early guide in 1865 mentions that there were about twenty-five deer on the island. It is not positively known whether these deer were brought to the island or whether they were original residents.

It is possible that these deer were started from stock brought from Arizona, which would have been either mule deer or white-tailed deer. Black-tailed deer were introduced in 1915. Undoubtedly, the government had some control programs to regulate undesirable or unwanted animal species. It is not known how successful these programs were, or if they might have been responsible for the lack of some species on the island that are found on the adjacent mainland. In any case, some notable animals are not present, including shrews, rabbits, tree squirrels, ground squirrels, pocket gophers, white-footed mice, wood rats, skunks, gray foxes, coyotes and bobcats. There are a number of different species of snakes on the island, but rattlesnakes are not present.

With no predators or other population control, some animal species tend to fluctuate widely in numbers. This is especially true of the deer herd and, to a lesser extent, the raccoon population. The flora on the island show a definite over-browsed condition from heavy use by deer. The deer themselves have been in very poor condition, and the same is true for raccoons.

Cultural Values

Angel Island State Park has been surveyed for archeological values. In surveys to this date, nine sites have been located. Other prehistoric and historic archeological sites may exist undetected at present. If discovered, these archeological resources will be protected and/or professionally studied, to preserve their values. When found to be of appropriate significance to meet criteria adopted by the department, they will be included in applicable programs for preservation, investigation, and interpretation.

Themes and eras of California history have been identified in the California History Plan. The cultural resources of the unit will be used to interpret people and events of these theme periods.

Angel Island State Park is related generally to the political and military affairs theme of the American era (1848 - present). Specifically, emphasis of the cultural parts of the unit should reflect the army of the post-Civil War West; the military of the period of American rise to world power; and the story of immigration to the United States.

The California History Plan indicates deficiencies in interpretations of the U.S. military's role in American settlement and expansion of the United States as a world power. Public interest in these themes, which waned in the 1960s, has shown recent growth. The California History Plan likewise reveals deficiencies in the study of immigration and the assimilation/separation of ethnic groups in the general flow of California economic and social life. These theme areas have also received increasing interest from the general public during the last decade. No other State Park System unit interprets these specific themes.

The unit's historic resources relate principally to the period from the mid-19th century through the first half of the 20th. Historic resources of widely varying condition and significance have been identified throughout the island. They consist of buildings, structures, areas, and sites related to various military activities and to the other federal stations. The principal historic resources are located in four main historic areas. These areas are isolated from each other, although connected by roads.

The four areas are the original Camp Reynolds (1863-1900), re-named Fort McDowell (1900-1910) and referred to as West Garrison; later developments built on the east side of the island, also called Fort McDowell (1910-1946), referred to as East Garrison; the immigration station (1910-1946), known as North Garrison; and the quarantine station at Ayala Cove. Other structures and sites exist in nearby areas; they are directly related to the four prime areas. Examples are the various harbor defense installations of the 1863-1866 and 1899-1909 periods.

Buildings and other developments are in various stages of repair and condition, ranging from well kept to very run-down, or removed with only a foundation or in some instances no trace at all. Some buildings are in such poor condition they are not safe to enter. Over the years, many unmaintained buildings have collapsed, and some have been removed.

the department's Resource Management Directives will be followed in treatment of all significant cultural resources. A detailed listing of cultural resources at the unit is on file with the department in Sacramento.

Declaration of Purpose

"The purpose of Angel Island State Park is to provide for all people opportunities to enjoy forever the great scenic and natural values of this largest island in San Francisco Bay, replete with historic installations and associations, located in the midst of the San Francisco metropolitan area yet uniquely isolated by the waters of the Bay from the rush of modern transportation and pressures of modern civilization.

"The function of the Division of Beaches and Parks at Angel Island State Park is: to preserve and protect the natural and historic values of Angel Island; to provide appropriate interpretive services and facilities; to defend the geographical isolation of the island, in order to preserve the unique experience for visitors which is dependent on such isolation; to provide appropriate recreational opportunities for visitors; and to provide such facilities for public service, consistent with the purpose of the park, as may be necessary for the full enjoyment of the park by the people."

The above Declaration of Purpose was approved by the (then) State Park Commission on May 16, 1963, and adopted by the (then) Chief of the Division of Beaches and Parks on the same date.

Resource Management Policy

Natural Values

The remaining natural beauty of Angel Island shall be preserved, and future development shall not result in visible scarring that can be seen from a boat or from the mainland.

Human intrusions on the natural landscape, such as roads, developments, and structures that are part of the cultural and historic past, will remain. If there are ways to soften their impact through plantings that are compatible with the historic setting, that should be accomplished. The electrical pole line, that is not historically important and that is now replaced by underground electrical lines, should be removed.

Human-caused erosion problems, or those caused by an over-abundance of deer, should be corrected through soil conservation practices.

The animal population should be regulated and managed so that plant life is not destroyed or harmed, and so that animals remain in a healthy condition. The State Department of Fish and Game has been authorized to prepare a deer management plan for the Angel Island deer herd, and this plan will be followed.

Aggressive exotic plants that are extending their range from the original planting sites on the island will be controlled. This will also include control of exotic trees such as Eucalyptus that are growing taller and excluding views from the island, as well as displacing native species, many of which are important to the fauna of the island.

Rare and endangered plants and animals and their habitats will be preserved and protected. The endemic Angel Island mole should be closely monitored to see that its numbers are not diminishing with changes brought on by development. The mole and its habitat shall not be molested. The serpentine habitat of the rare snakeweed plant should not be used for development purposes.

Plant and animal species not presently on the island will not be artificially introduced, unless they are known to have been historically present.

Cultural Values

The Office of Historic Preservation and the department's Cultural Heritage Section will recommend what buildings and structures are historically significant and should be saved.

No buildings or structures will be removed without the approval of the director.

Since many of the buildings and other developments are in various stages of deterioration and it is not financially feasible to restore them all to their original states, the department will develop an overall plan for reconstruction, restoration, maintenance or stabilization.

Before any development at the unit that may affect cultural resources, a thorough study will be conducted. The correct time period of each structure or site will be determined, not only as an individual entity but as it relates to the total cultural environment. Historical research and archeological investigation will be part of this study.

Budgeting has been approved for stabilization and restoration of the immigration barracks at Winslow (China) Cove.



*East Garrison buildings
are in various stages of
deterioration.*

If stabilization is required to prevent loss or deterioration, it will be undertaken only in ways which will not threaten archeological, historical, or related environmental values.

Certain buildings within the several zones of cultural significance should be restored. Restoration priorities will be determined by general research, coupled with specific research into designated candidates for restoration. Restoration priorities should be determined in part by aesthetic quality and potential functions such as house museum, visitor center, or some sort of environmental living program.

Most archeological sites or areas in Angel Island State Park are located close to the zones of cultural significance. Some of these sites are close to existing structures, such as the former barracks at Camp Reynolds (West Garrison). Most are located short distances away, such as the coastal defense batteries (1899-1909) or the National Guard summer camps, which also served as detention camps during and after the Spanish-American War. These sites should be preserved and protected. Where possible, aboriginal sites should be preserved in their present conditions. Future development will be planned to minimize direct and indirect negative impact on these resources.

Natural erosion threatens the massive bulk of Battery Ledyard. Batteries Wallace and Drew, while more obscure from the Camp Reynolds Road, are a more lasting resource for interpretation of military technology and coastal defense.

A possible Civil War gun pit on Point Stuart should be preserved until it can be evaluated through historical and archeological testing. This gun emplacement may be the only existing specimen of this type and period on the west coast. If this pit proves to be a barbette type emplacement, restoration and interpretation of this unique feature should be carried out.

Some areas of Angel Island State Park could be used for recreation. Most of these areas are near the zones of cultural interest, and should be carefully controlled. The areas known historically as Camp Thomas, Alcatraz Gardens, Pearles Beach, Hermit's Dell, and North Garrison (i.e., that part above the immigration station hospital) are suitable for moderate public use. These areas were originally prepared to handle tent cities. They were the quarters for thousands of men. Research should be conducted before any further alterations of these sites. It should be noted that most of the area east of



Tent cities were quarters for thousands of men.

the immigration station, known as North Garrison, has been heavily bulldozed in anticipation of establishing a picnic area. A great deal of recreation took place on the island historically--especially at East and West Garrisons, which catered to adult and children recreation areas. Recreation is an important visitor use, and is historically authentic.

Angel Island has experienced heavy human intrusions as part of the military use of the island. Another violation of historical integrity has been the changing of place names. While the new names honor persons who deserve recognition, historic place names should not be eradicated to pay tribute to modern day activities not directly related to the history of the unit. Research can determine established appropriate place names. Desirable changes should be recommended to the U.S. Board of Geographic Names. If it is necessary to honor those who helped preserve the island and its resources for public use, a fitting memorial should be placed in a visitor center. Winslow Cove was known as Old Tank, more commonly Schofield's Beach, and later as China Cove, due to the Chinese shrimp fishing camp there. Point Campbell was originally known as Point Wright; Point Stuart is apparently an alteration of Battery Stuart at Point Louise. Ayala Cove, formerly Hospital Cove, was known earlier as Glenn Cove and occasionally as Morgan's Cove. Mt. Livermore was formally called Mt. Ida.

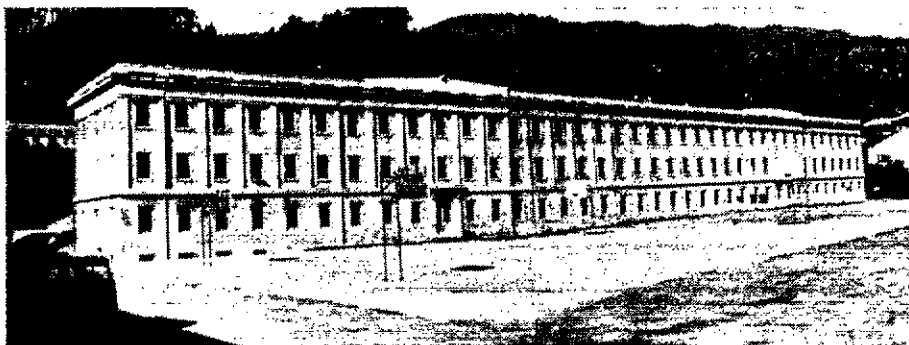
Buildings and structures that people are allowed to go into or to pass by must be made structurally safe, so that there is no danger to the visiting public. Dangerous hazards must be eliminated; so long as they are present, there must be adequate safeguards to protect the public from injury.

Except for limited items, artifacts for the various periods of Angel Island history are almost completely lacking in the department's collection.

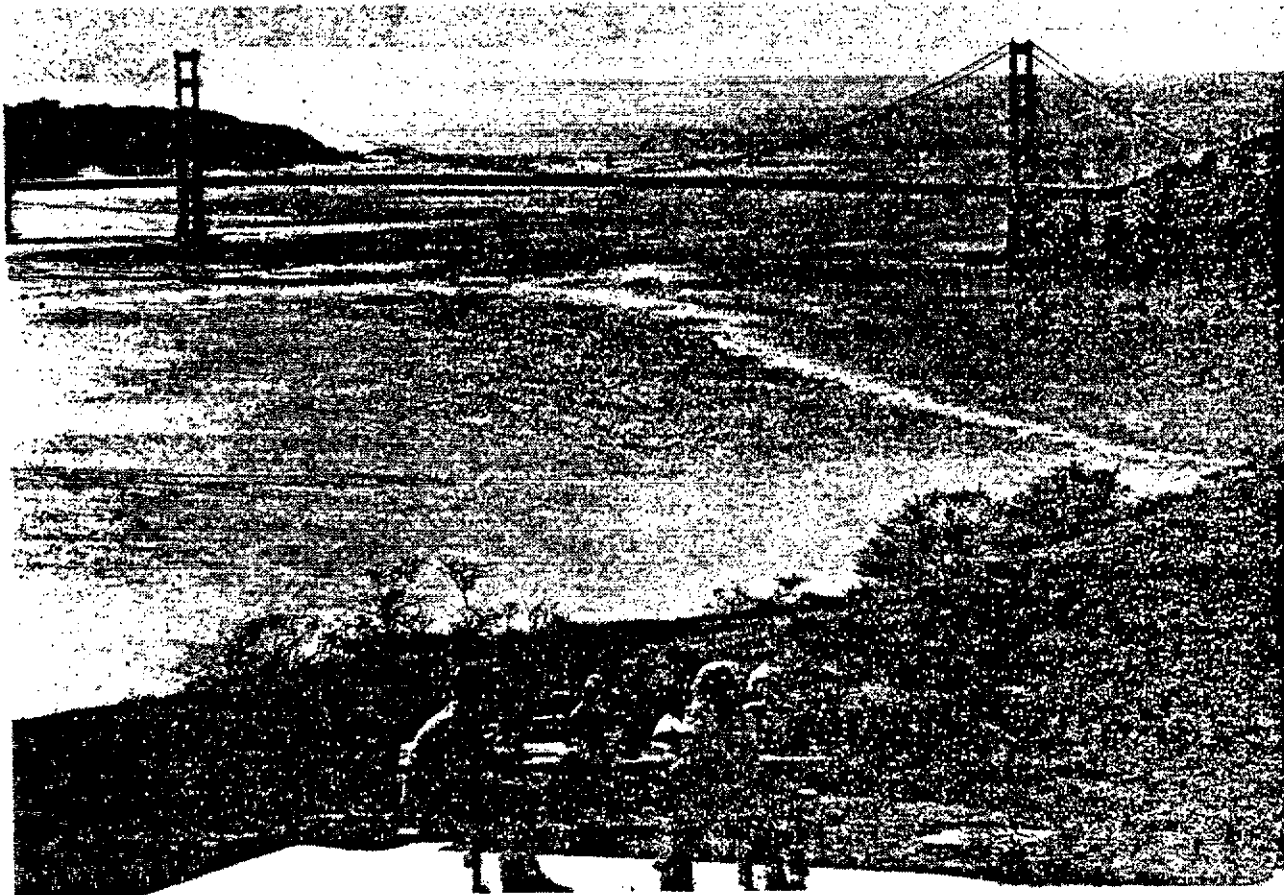
Recreational Values

Recreational development should have its prime effort directed toward the historic and cultural features of the island. Recreational opportunities that are compatible with the historic and cultural features of the island can be provided; i.e., baseball and other athletic sports on the field at East Garrison, which was used for this purpose by the army.

Recreation features such as beaches, natural areas, and the uplands of the island require trails to enable visitors to fully realize the potential of these areas. Many of these access trails (and roads) are already in



East Garrison basketball courts



A view of the Golden Gate Bridge from Angel Island

existence. Any new trails constructed, or those presently in use, should be designed so they will not cause additional erosion problems, or be noticeably visible from off the island.

Picnic facilities at Angel Island are a recreational necessity, as has been shown by past experience. Most visitors spend a number of hours on the island that usually overlap a meal period. Picnic facilities or areas for overnight use, developed in places where trees are present, should have definite boundaries so visitors can be contained within a safe zone where tree hazard control can be maintained.

Motorized vehicles for private use shall not be allowed on the island. This does not restrict vehicles used for state business, or associated with the mass movement of visitors on historic routes only.

Interpretive Policy

Interpretive objectives and guidelines are to be in harmony with the declared purposes of the unit. All resources preserved, restored, or reconstructed shall be interpreted effectively. All conceptual interpretation will be in support of cultural and natural resources features and historic events.

Visitors should be made aware of the uniqueness of the unit as an island, as well as the natural and cultural histories that make this a unique part of the

State Park System. The Interpretive Prospectus for Angel Island State Park will present guidelines, interpretive periods, and themes for achieving these objectives.

Archeological investigation, cultural history research, and natural history research should be performed before stabilization, restoration, and reconstruction occurs, whenever it is necessary to develop a comprehensive information base for the work, or to guide mitigation for work which may endanger the integrity of resources.

The following general policies will be observed to help implement general resource management goals at the unit.

1. Aboriginal sites: It is appropriate and desirable to identify aboriginal use, and to interpret selected aspects of aboriginal occupation of Angel Island. Archeological resources and sites proposed for development, or subject to impact through other means, should be professionally studied to document their intrinsic and interpretive values.
2. Historical Sites: The cultural history, which includes occupation, use, and manipulation of Angel Island by various groups, is a primary interpretive resource of this state park. Sites, foundations, stabilized ruins, restorations, and reconstructions are all part of the physical evidence of several hundred years of human involvement with this island. The social history links human interest in the island with these highly visible remains.

The interpretive policy will be to identify, enhance, and interpret selected sites, structures, and stories dealing with human use of Angel Island, based on evaluation of those features as to their: (1) uniqueness in design, construction, use, and/or involvement with historically significant events and people; (2) structural conditions, as determined by the ability of structures to be stabilized and restored; (3) value as representative aspects of the various periods and activities during the flow of cultural history of the island; (4) individual values, to help provide a setting of mood while accommodating adaptive use for operational maintenance and/or concessions functions; and (5) advisability of public access for interpretation, as dictated by safety for visitors.

The presence, use, and availability to the public of any cultural resource should be in support of the interpretive themes for Angel Island State Park.

The natural setting is important to the quality of the "islandness" of Angel Island, and is an important interpretive feature. The open space becomes even more important, because Angel Island is located within a densely developed urban center.

The introduction of exotic plant species and their problems, along with any other resource management programs, should be interpreted as part of the island's story.

Historically, recreation was part of the human activity on Angel Island. Recreation of a historic type can be part of visitors' experiences, within the limits of impact the island can withstand. Where recreation activities encroach or adversely affect the identified cultural resources, they should

be eliminated. Other recreation pursuits can be employed to aid in the interpretive program. Hiking, photography, sightseeing, and touring by bicycles or other people-moving means could be used to promote a better interpretive experience, by either getting people to areas of interpretive importance or by increasing the quality of their on-site experiences.

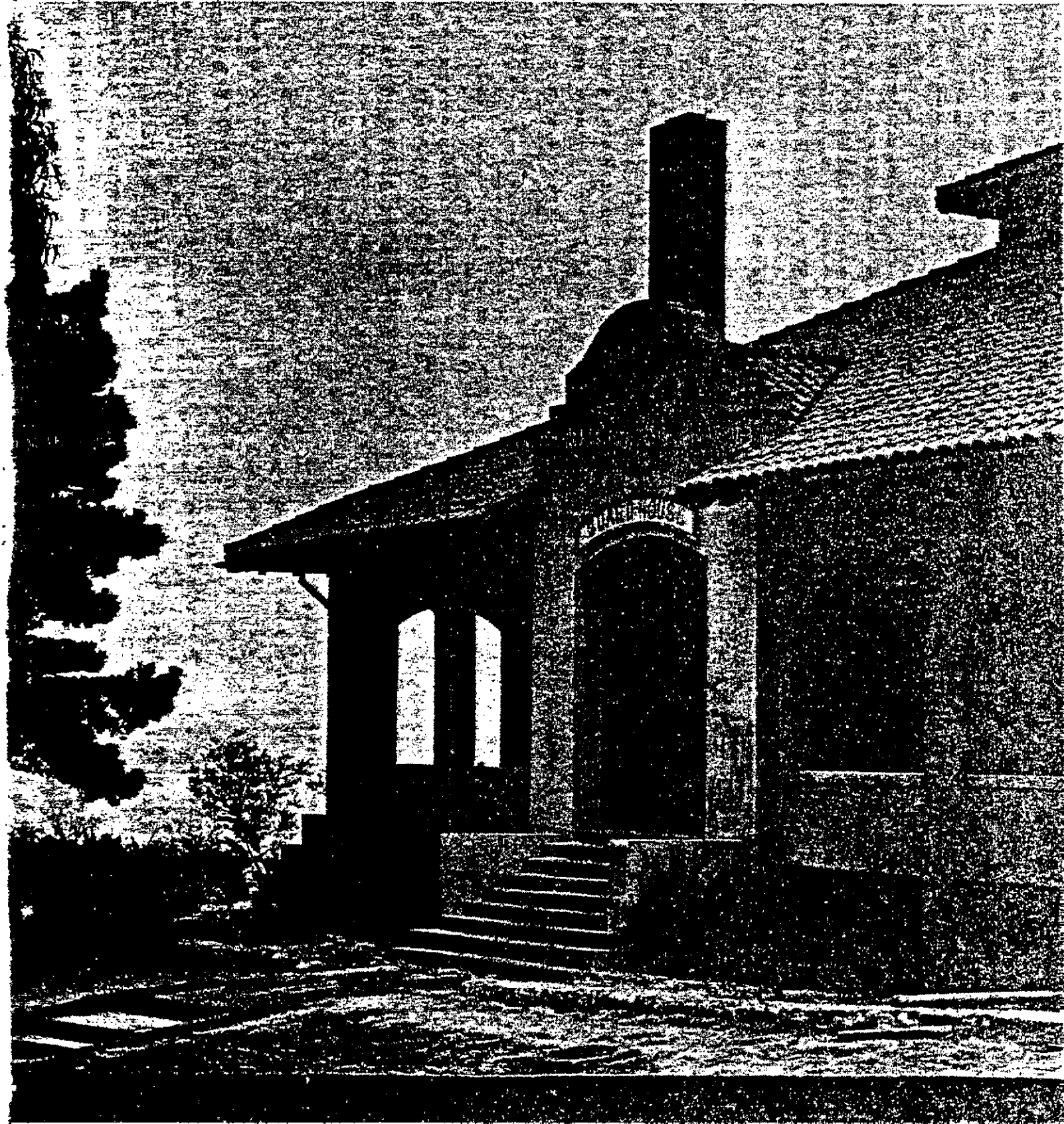
Many natural features lend themselves to self awareness and experience. Hiking and bicycling for pleasure are important parts of the experiences on Angel Island. The relaxation and reduced population afforded by open space are important feelings for visitors. Just being able to experience an island setting at one's leisure can be an emotional educational experience and interpretation in itself. Natural features such as deer, birds, fish, and marine mammals offer many hours of active and passive interpretation through casual sightseeing, serious observation, and fishing.

Boating and boats have been an integral part of the island's history. Through history, boats were used for business, pleasure, and transportation, and it is so today. Pleasure boating and sightseeing are the two main recreational uses of boats visiting the island. Water resources should be managed, to continue and expand access to the island by boat (private and commercial). If docks, wharves, etc., are to be constructed, they should be placed in historical locations where possible, and the setting of landing places should be considered as an opportunity to help set the mood or feeling of a historic as well as natural island.

Limitations on Land Use: To provide a quality interpretive experience for visitors, the "isolated" or possibly "insulated" feeling of the island is of great importance. Providing a place of relaxation and peacefulness will be one of the major objectives. The historic scene was one of heavy but highly controlled use. The present-day impact of numbers of people and types of use allowed should not destroy the cultural resources present. Visitors should not be concentrated at one point on the island, but should be encouraged to disperse over the island. Adequate facilities and interpretation programs throughout the island would encourage this lower density use. Management of numbers of visitors, their use patterns, and protection of resources can be greatly facilitated through quality interpretive efforts. If such efforts are to exist, adequate staffing is imperative.

As has been stated previously, modern functions should be housed in historic structures where possible. Interpretation, operational and maintenance considerations should have first priority, if there is competition for building space. Every attempt should be made to fit modern uses to historic uses. Concessions should include only those required to fill visitors' needs; they should provide these functions with the least intrusion possible. The primary function of concessions is to enhance the quality of visitors' experiences through providing compatible services or interpretation, and they should not detract from that experience. Any structures or other facilities that cannot be accommodated by historic cultural features should be appropriate to the setting, and intrusions should be mitigated as much as possible through site work, etc.

General Development Plan



Remnants of West Garrison pier.



GENERAL DEVELOPMENT PLAN

Introduction

The General Development Plan is a description of facilities that will be provided at Angel Island State Park. Its goal is to enhance public enjoyment of the park's natural and cultural resources, while exercising controls to preserve these values and encourage a more year-round use by visitors.

In the process, inventories of various resources--scenic, natural, and cultural--were used. Allowable-use-intensity determinations were set, as a foundation for visitor use proposals. On that foundation, a land use plan was developed, to suggest types of use appropriate to visitor enjoyment of the basic resources. This information resulted in a General Development Plan which includes four facilities/use elements: developed overnight-use areas, developed day-use areas, interpretive-use areas (four of cultural significance and one of natural significance), and service and administrative areas (operations areas). Consideration is given to an overview of utilities, transportation, and concessions, as they relate to the four facilities/use elements presented.

Resources

Biological Features

Angel Island has a diverse collection of plants and animals, resulting from natural influences and human activities.

Several distinct native plant communities have evolved. Such factors as water (fog, rain, springs, ocean), solar exposure, temperature, and soil conditions have favored growth of typical California coastal communities: grassland, scrub, mixed evergreen forest, chaparral, coastal strand, and riparian.⁶

Native trees such as Coast Live Oak, Madrone, and California Bay are commonly seen. Native shrubs occurring frequently are Poison Oak, Manzanita, Chamise, Gooseberry, and Currant. Wildflowers, many of which are native, bloom extensively in the spring. Some of the more common ones are Soap Plant, Milk-Maid, Monkey Flower, California Poppy, Lupine, Shooting Star, and Fremont Star Lily. Several native grasses inhabit the island slopes, including Stipa pulchra (Purple Stipa), Poa scabrella (Pine Bluegrass), Hordeum brachyantherum (Meadow Barley), Festuca Californica (California Fescue), Bromus carinatus (California Brome), and Melica torreyana (Torrey Melic).⁷ Human activities brought changes to the natural environment. During the first half of the 1800s, the island was almost completely denuded of tree cover by wood gathering. Annual European grasses replaced slower-growing native perennials--a process hastened by grazing livestock. Immigrants and military personnel brought plants and seeds from distant lands, adding exotic species to the landscape.

With the disappearance of grazing, cessation of tree cutting, and cessation of further introduction or cultivation of exotics, some native species have recovered to various degrees. Two introduced species, Eucalyptus and Broom, now pose a real threat to other vegetation, because of their ability to grow and spread rapidly; Acacia may also pose this threat. Many other introduced plants have also become well-adapted. Some of these are Ice Plant, Century Plant, Pride of Madeira, Monterey Pine, and Monterey Cypress.

Animal life provides a pleasing diversity, including marine and terrestrial species. Many birds brighten the island with song and activity; robins, scrub jays, hawks, grebes, cormorants, and pelicans are common. Sea lions bask in the sun on the rocks of Pt. Blunt. Raccoons reside among the trees and hollows. For the curious, the mysteries of littoral life are observable.

Many deer live on the island. Most are descended from deer introduced in 1915; however, some may have arrived on the island by swimming from the peninsula.

More than a mere presence, the deer have become a serious problem. Without predatory control, their numbers have expanded beyond the island's carrying capacity. Left unattended, the situation would provide a graphic example of natural methods of population balance. However, the Department of Parks and Recreation in conjunction with the Department of Fish and Game is seeking a method of control.

The island contains one truly unique animal--the Angel Island mole. Scapanus latimanus insularis, somehow, has come to exist on the island. As a sub-species, it reflects island isolation and evolution.

A final biological feature is the island's naturalness as a whole, or its ecological "wholeness". Much more than a place to observe or study some separate aspect of the natural environment, this park's natural uniqueness lies in its existence as an area of ample open space, isolated by its "islandness," in the middle of a major urban area. In this day of growing environmental awareness, this park can provide a focus point to experience and study the "wholeness" of the natural world; to study the interactions between urban, industrial life, and natural systems; and to comprehend the urban world as a dependent part of the natural environment.

Physical Features

Geology - Laid down originally as marine sediment, uplifted over millions of years of folding and faulting, separated from the Tiburon Peninsula by the ancient Sacramento River as it also cut Carquinez Strait and the Golden Gate, and isolated by the bay waters as the great continental glaciers melted, Angel Island stands before us today as nothing more, or less, than one brief moment in the unending sequence of awesome events shaping and reshaping the earth's surface.

The island consists of sedimentary and igneous rocks, the latter metamorphosed. As the sandstone mountain arose, it was intruded with magma from below. As a result, the western point is largely igneous in origin; the ridges running from Mt. Livermore to Points Ione and Campbell are similarly igneous. The igneous character of the western point is highlighted by a dyke of serpentine--the California State Rock. The most prevalent rock type, however,



Igneous intrusions

is Franciscan sandstone. Quarry Point consists of construction-quality sandstone, and was used accordingly around the Bay Area during the late 1800s.

Water - Angel Island is surrounded by the waters of San Francisco Bay. Fresh water flowing through the Bay comes from a drainage area of about 63,000 square miles, or about forty percent of the surface area of the state. Daily tidal changes amount to five or six feet, and at times the incoming tide can sound like a roaring river. From the top of Mt. Livermore, one can imagine the liquid continuance with the Pacific ocean and the entire water cycle.

Fresh water on the island is available from springs and wells.¹⁰ In earlier times, the springs were a main attraction to passing ships in need of fresh water. Later, wells were drilled by the army, drawing from ground water stored in fractured bedrock and alluvial deposits. The army also brought fresh water to the island by ship.

Topography - The shape of the island is roughly pyramidal, with steep ridges extending downward from central Mt. Livermore. Between the ridges are canyons, which fan out into coves at the water's edge. The peak is about 780 feet above sea level; the island's area is about 740 acres.

Climate - The island's climate is characterized by moderate yearly temperatures, due to the marine influence. It has dry summers with morning fog, and wet winters with an average rainfall between twenty-five and thirty inches.¹² A prevailing westerly wind blows through the Golden Gate and across the island.

Structures - An obvious feature is the presence of numerous buildings. They are concentrated in the main garrison areas, at Ayala Cove, and on Pt. Blunt. They were built during, and thus represent, the various island periods since 1863. No structures remain from earlier periods. Several midden sites exist on the island; however, construction projects since 1863 have damaged or eliminated most of them.

When the army left the island in 1946, no further major building occurred afterward (except for the Nike sites, which were built in 1955, and the Ayala Cove pier area, built by Department of Parks and Recreation).

In consideration of the buildings as an important interpretive resource, it is imperative that work proceed rapidly to identify those buildings which are to be interpreted (or otherwise used), and arrest their further rapid deterioration. Historic structures can be used in several ways: for house museums, interpretive centers, or to help complete a historic setting; adaptive use could also be made of restored or reconstructed buildings. Appropriate adaptive uses would include such things as personnel housing, maintenance, operational and sanitary facilities, and concessions.

Environmental Influences

Summer fog is not considered a detriment to visitor activities. Experience shows that typical visitors to Angel Island are undaunted by the morning fog. Design and construction of outdoor displays and building restoration, however, will need to consider the corrosive influences of moist, salt-laden marine air and fog.

At times, the wind may interfere with any talks that might be conducted on Mt. Livermore and Pt. Blunt; otherwise, it is usually no problem for interpretive programs.

Sometimes, historical interpretation can be hampered by intrusion of the "modern day" on the site and historic period of interpretation. The isolation of Angel Island, though only minutes from one of the nation's major urban areas, avoids this problem, with two unfortunate exceptions. One is the new jet-powered ferries, the other is jet aircraft traffic overhead. Aside from these infrequent (but noticeable) intrusions, the physical environs of the cultural resources promote an interpretive experience that can successfully present specific periods. It is noteworthy that the number of different periods involved on the island are conveniently separated by ridges and dense vegetation.

The "islandness" of Angel Island and its steep terrain, however, also have a drawback. Arriving by ferry, visitors must rely primarily on their own two feet to get them around. Currently, most visitors do not venture more than half a mile from the dock at Ayala Cove. As a full interpretive program is designed for this park, methods of transportation must be considered. If the department goes to great expense for interpretation, it is also going to have to reach out to visitors, and facilitate their movement between the several developed areas.

The Ayala Cove area is experiencing accelerated hillside erosion. This is the result of trail cutting and non-use of designated trails--an acute problem here, because the cove is the primary visitation area, and thus is subject to

Hiking on the many trails is a good way to see Angel Island.



intense human impact. If allowed to continue unabated, this will result in gully erosion, loss of vegetation, damage to trails and the prehistoric archeological site, and debris removal problems. Although erosion is a natural process, accelerated erosion due to excessive human use should not be permitted to disturb the natural scene and other interpretive resources. Mitigating measures should include efforts to disperse visitation out of the area to other island areas.

Recreation Evaluation

The Recreation Setting

Angel Island State Park, situated within San Francisco Bay and surrounded by a major urban complex, is uniquely set apart from the mainstream of man's hurried activities. This isolation tends to convey a certain "island mystique" which attracts people to Angel Island. This attractiveness and relative availability to the visitor pose a management challenge in that there is also the need for preserving from overuse the resources which make the island attractive.

Except for a tip of East Garrison that is within San Francisco County, the island is located in Marin County. It is within the California Outdoor Recreation Resources Plan (CORRP), Planning District 4. This is a 9-county planning district surrounding the San Francisco, San Pablo and Suisun Bays. It includes the counties of Marin, Sonoma, Napa, Solano, Contra Costa, Alameda, Santa Clara, San Mateo, and San Francisco.

Although this planning district contains only about six percent of the state's land area (9,473 square miles), it is the home of nearly twenty-three percent of the state's population. The area has a density average of 661 persons per square mile, which is almost double that of the next most densely populated planning district.

It is intended that the recreation setting would convey assurance that expanded opportunities for appropriate use of Angel Island would be utilized.

Recreation Needs (of Angel Island)

The "recreation" needs which should be addressed at Angel Island are those which help the public to enjoy the resources which make this property a part of the State Park System. Recreation opportunities are needed for all age groups (especially the elderly) and all income groups (particularly low income groups) and the handicapped.

Day Use

The day use needs of Angel Island are seen as those that relate to the public's enjoyment of basic values of the island; its islandness, its natural character, its cultural resources. Its present day use needs include general considerations, such as accessibility of the island, in terms of availability of transportation and the cost of same. It includes specifics of better moorage for private boats and docking for ferries in a new location so that the excessive impact of visitation can be relieved at the Ayala Cove area. It includes relocation of picnic facilities to accompany the shift of usage from the Ayala Cove area. Trail improvements are needed. Interpretive facilities and programs are needed to help the public understand and appreciate the resources of the island.

TABLE 1
Summary of Recreation Deficiencies
(Marin County and Planning District 4)

<u>Marin County</u>	<u>Existing Facilities</u>	<u>Projected Deficiency for 1990</u>	<u>Total Facilities Needed for 1990</u>
Camping Units	350	3,266	3,616
Picnic Units	643	4,663	5,306
Boat Access Sites	2,897	107	3,004
Trails (miles)	229	680	909
<u>Planning District 4</u>			
Camping Units	6,571	10,312	16,883
Picnic Units	14,017	10,073	24,090
Boat Access Sites	22,016	2,443	24,459
Trails (miles)	885	3,672	4,557

Other recreation suppliers beside the State Park System will be responding to the above deficiencies.

It is not suggested that Angel Island State Park be managed with a prime objective of satisfying these deficiencies. However, the deficiencies do indicate the need there is for providing related facilities, trails, etc., when compatible with fulfilling basic Angel Island purposes.

Overnight Use

Historically, overnight-use facilities have not been provided on Angel Island State Park.

Principal park-type overnight use facilities servicing the Bay Area are provided at mainland state and federal park units within the region.

However, overnight-use potential does exist on the island. Overnight opportunities on the island offer new dimensions to visitors' experiences. It could be an enriching experience to see the Bay scene from the island in its various moods, from sunset to sunrise. This may also relate to beachcombing at low tide, that comes after the last ferry has returned to the mainland. It may include observation of and interpretation of currents in the Bay. It may include observation of deer or other animals, during their more active periods at dusk or dawn. It may mean that daytime pursuits on the island can be enjoyed without the pressure of getting back to the dock in time to catch the ferry on the same day.

Although there is a marked demand for camping facilities within the Bay Area, it is not appropriate to meet this need by providing major camping facilities at Angel Island State Park. Resource sensitivities and transportation/operation constraints preclude major overnight accommodations on the island.

Proposed Recreation Use

Proposed recreation activities, with their corresponding facilities or programs, will in large part reflect existing use patterns for Angel Island State Park. The boating experience in getting to the island is recreation. A picnic on an island or on a boat is a different experience than a picnic on the mainland. The pace of activity of the island tends to be slowed down, less frantic than on the mainland. Future use should not be of types or volumes as to negate these experiences.

Increased day use, in terms of picnic facilities and natural and cultural interpretation facilities, will be provided at North, East, and West Garrisons, along with limited facilities in the natural areas to accommodate hikers and cyclists. Additional boating use will be accommodated at Ayala Cove, North Garrison, and East Garrison. New interpretive facilities and programs are proposed for the Ayala Cove Area.

The General Development Plan provides for camping near North Garrison, and limited primitive camping opportunities in the natural areas. Resident outdoor environmental education and environmental living program possibilities and boat moorings are other forms of accommodations proposed for overnight use.

TABLE 2
Historical and Future Visitor Use Patterns

Fiscal Year	Visitor Attendance			Total Attendance for Fiscal Year
	Peak Use Season (May-August)	Off Use Season (Apr., Sept., Oct)	Down Use Season (Nov.-March)	
1972-73	88,938	34,992	21,870	145,800
1973-74	113,521	44,664	27,915	186,100
1974-75	112,728	44,352	27,720	184,800
1975-76	113,948	44,382	28,020	186,800
1976-77	122,061	48,024	30,015	200,100

NOTES:

- 1) The above attendance records include estimates of attendance for time periods when accurate tabulation of visitation was not feasible.
- 2) Preliminary editions of the General Development Plan contained data on past attendance that were lower than the actual visitation. The more complete records provided above should put the projected ultimate visitation into a more comfortable perspective, for those who have been concerned that the plans call for large increases in the level of use.
- 3) The recorded attendance is NOT the foundation for determining allowable visitor use levels or carrying capacity. Those levels are essentially based on resource capabilities. Please see pages 22 and 44 for discussion of allowable use intensities, and page 44 for discussion of carrying capacity.
- 4) During the peak use season, approximately 60% of the use is on weekends, and 40% during the weekdays.

The attendance records are used as a general tool. One use of them is to help project possible ultimate annual attendance. Such a projection is of value in establishing accumulative impact of visitor activities, through comparison with the impact that occurs with today's level of visitation. (However, the most critical gauging of future impacts is done on a more specific level, including such things as estimates of the maximum number of people that will be in a given area, what length of time they will be there, what is the nature of the activity, what length of time they will be there, how often such use will occur within a season, and what is the fragility or durability of the resources that will be affected in that area.)

The attendance records also provide insight as to the seasons when visitor concentrations will be high or low and they indicate the general upswing in annual attendance at Angel Island.

The projection of possible ultimate annual attendance was based on assumptions that: recreation demands will continue to climb; funding will be made

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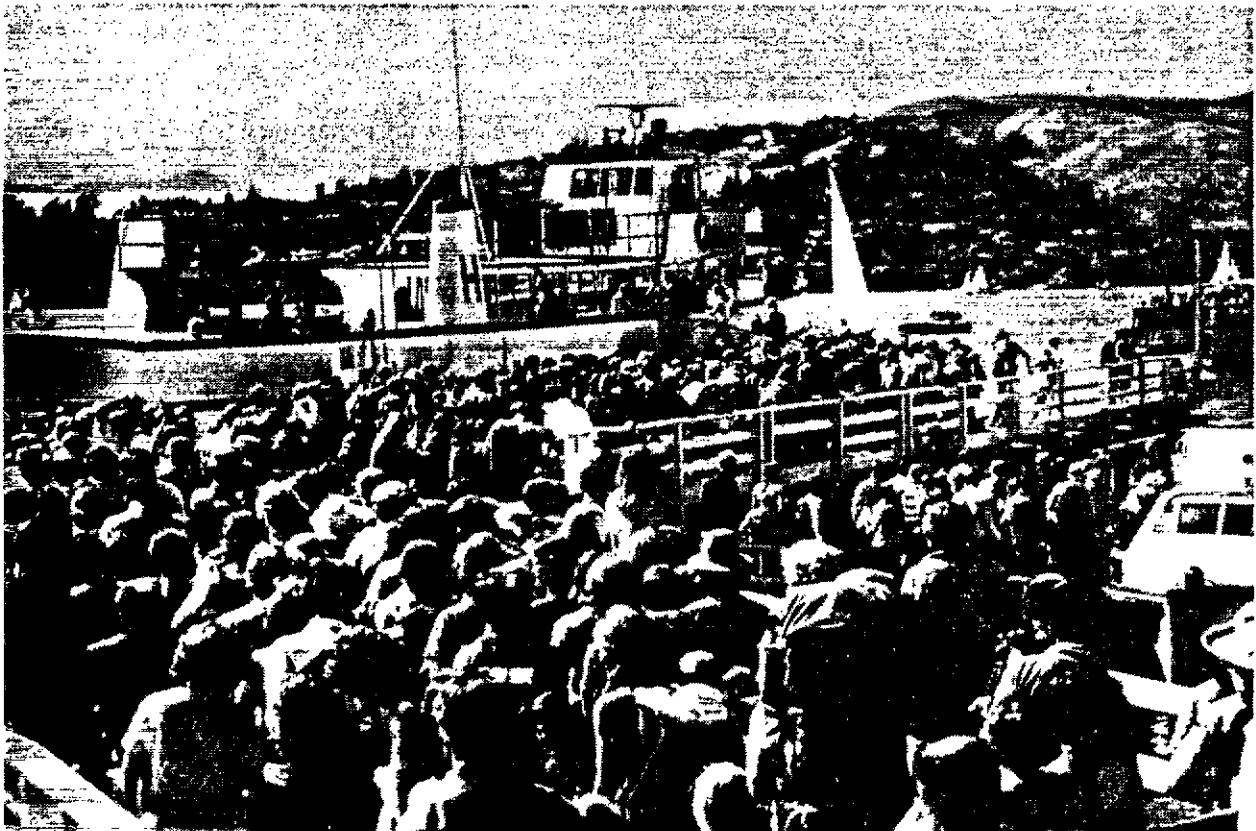
The projection of possible ultimate annual attendance was based on assumptions that: recreation demands will continue to climb; funding will be made

available so that appropriate programs and improvements can be provided to meet recreation demands; developments and programs will be provided up to the level that fully implements the plan for the park (subject, however, to all the constraints that are built into the plans for the preservation of the resources and of the park experience).

Developments will occur in phases. This will provide opportunity to evaluate impacts of developments before succeeding development would be requested.

To arrive at the projection of possible ultimate annual attendance, it was assumed that future patterns of visitor use will parallel current patterns, which show: the park is used at the capacity of its presently developed areas 34 days of the year (with most of the use crowded into the Ayala Cove area) and during those 34 days, 39% of the annual visitation occurs. A figure of 4,560 visitors was figured as the peak daily ultimate capacity of the park, after full implementation of the plans, with visitors dispersed, particularly to East Garrison. Multiplying 4,560 visitors by 34 days, we get a figure of 155,041 visitors projected for the peak days. Treating 155,041 as 39% of the ultimate possible annual attendance, the other 61% would be 242,500 and the total would be approximately 398,000.

The park's potential for serving visitors should be fully utilized, subject to limitations that protect the resources and protect the enjoyment of those resources in an appropriate manner. To help toward that objective, the department will encourage use at other times than the peak days.



Visitors reach Angel Island at Ayala Cove.

Land Use Evaluation

In determining various land use designations within Angel Island State Park, a number of basic studies were undertaken. These studies were: (1) analysis of the Resource Management Plan, (2) analysis of the Resource Inventory, (3) analysis of site characteristics such as topography, vegetative cover, orientation, and scenic values, and (4) development of an Allowable Use Intensity Plan. The synthesis of all of these studies provided most information used in preparation of the Land Use Plan.

Allowable Use Intensity

The Allowable Use Intensity Plan delineates areas within the park that are suitable for various intensities of use. It establishes the approximate capacity of people that each use area can accommodate, without significantly compromising its resource values. The guidelines are general because the various types of use make various impacts on resources.

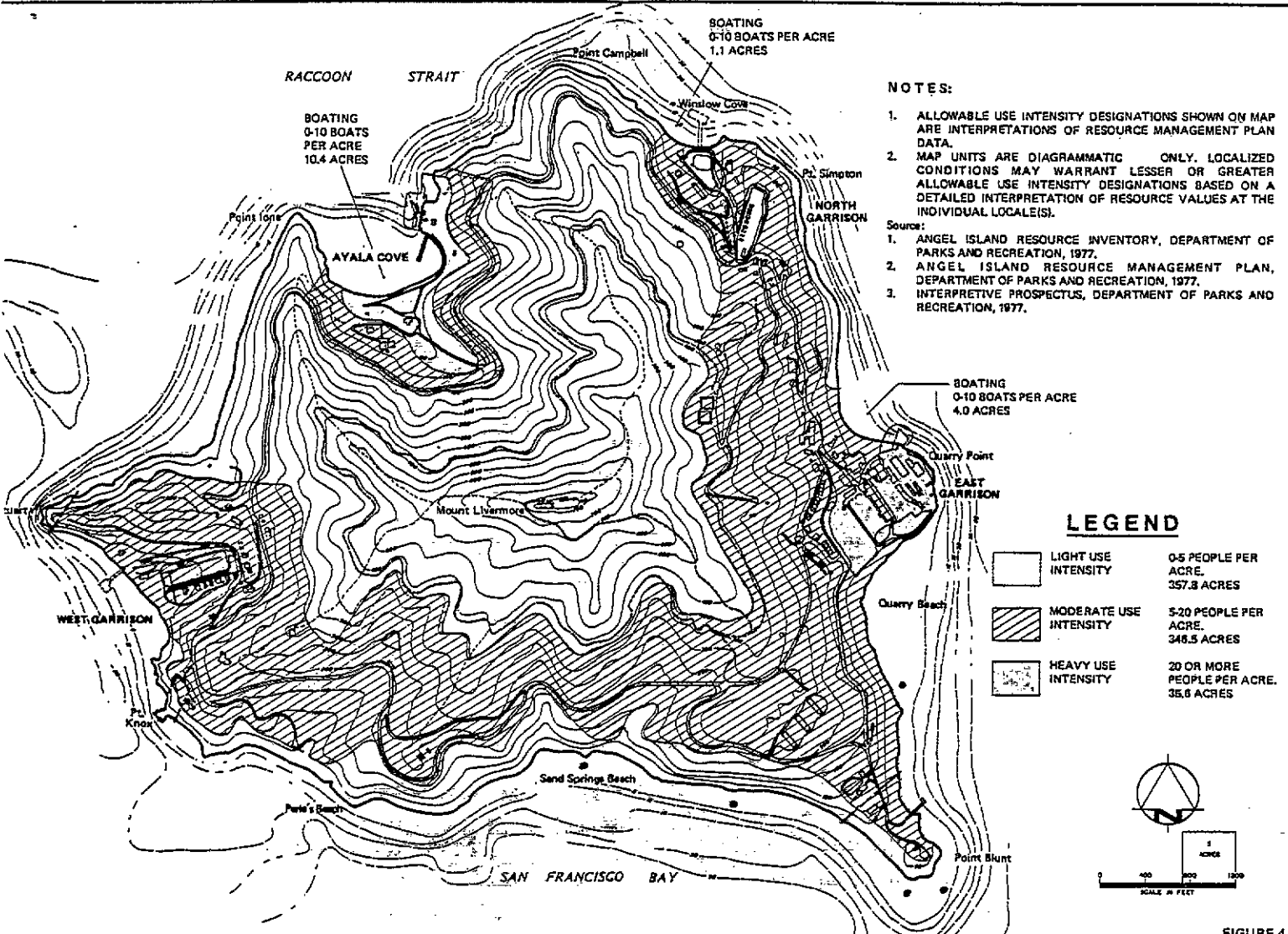
The Allowable Use Intensity Plan is based on the Resource Inventory evaluation.

Three levels of allowable use intensity were assigned to areas in the park: 0 to five people per acre, five to fifteen people per acre, and fifteen or more people per acre. Determination of these levels was based in part on evaluation of existing land use patterns and their impact on the environment. In areas where present use was not a guide, planners drew on their knowledge of various appropriate criteria, such as slope limitation, erodibility of soils, sensitivity of vegetation, and other ecological considerations. The result of these determinations is shown graphically on the Allowable Use Intensity Plan (Figure 4, page 45).

Carrying Capacity

Carrying capacity represents the level of use that will occur if the park is fully developed and all facilities are fully occupied.

For the whole island, this carrying capacity has been determined to be about 7,800 visitors at a given instant.

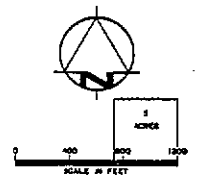


NOTES:

1. ALLOWABLE USE INTENSITY DESIGNATIONS SHOWN ON MAP ARE INTERPRETATIONS OF RESOURCE MANAGEMENT PLAN DATA.
 2. MAP UNITS ARE DIAGRAMMATIC ONLY. LOCALIZED CONDITIONS MAY WARRANT LESSER OR GREATER ALLOWABLE USE INTENSITY DESIGNATIONS BASED ON A DETAILED INTERPRETATION OF RESOURCE VALUES AT THE INDIVIDUAL LOCALE(S).
- Source:
1. ANGEL ISLAND RESOURCE INVENTORY, DEPARTMENT OF PARKS AND RECREATION, 1977.
 2. ANGEL ISLAND RESOURCE MANAGEMENT PLAN, DEPARTMENT OF PARKS AND RECREATION, 1977.
 3. INTERPRETIVE PROSPECTUS, DEPARTMENT OF PARKS AND RECREATION, 1977.

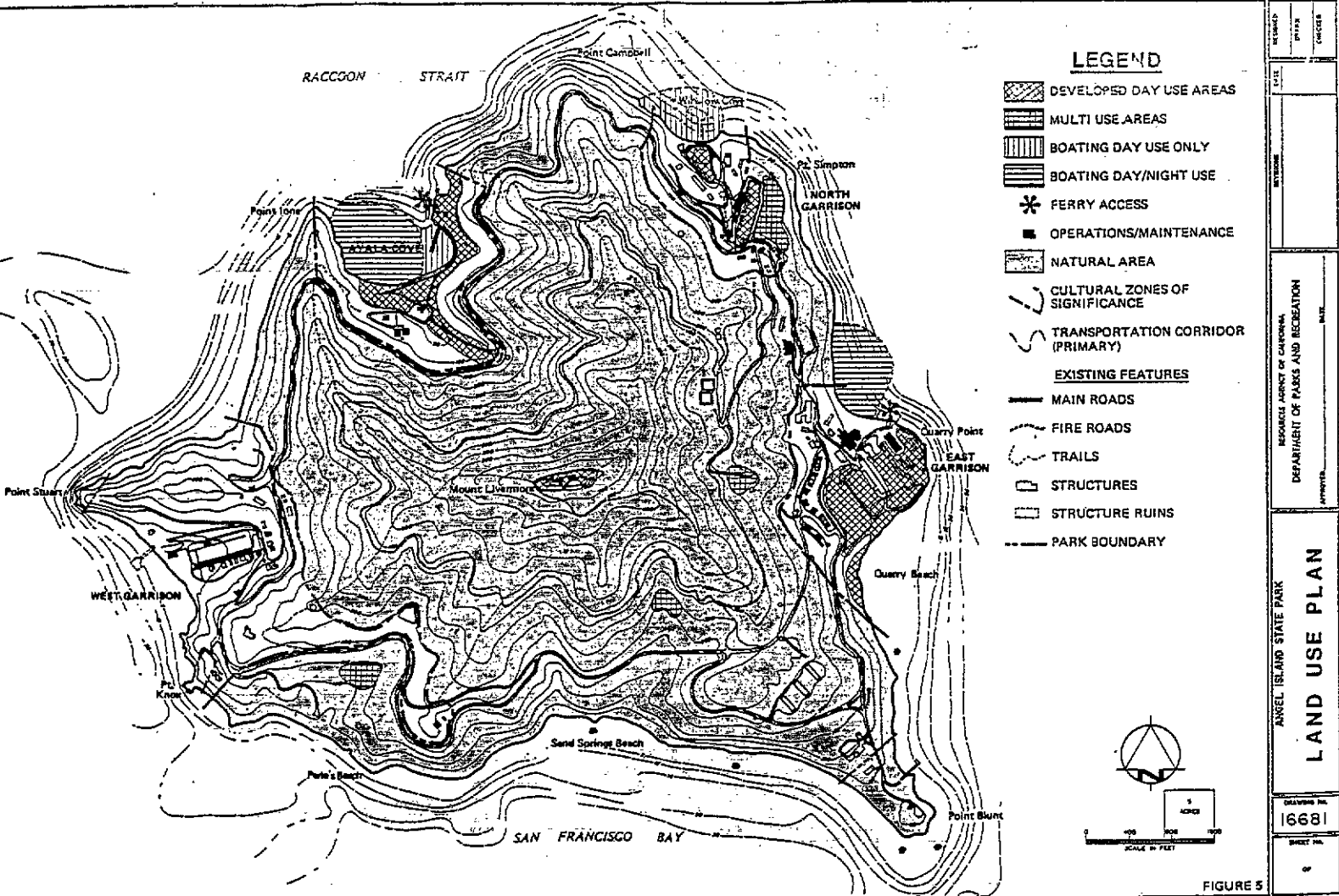
LEGEND

	LIGHT USE INTENSITY	0.5 PEOPLE PER ACRE. 357.3 ACRES
	MODERATE USE INTENSITY	5-20 PEOPLE PER ACRE. 348.5 ACRES
	HEAVY USE INTENSITY	20 OR MORE PEOPLE PER ACRE. 35.6 ACRES



	DATE	REVISION	DRAWN	CHECKED
BUREAU OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION				
ANGEL ISLAND STATE PARK				
ALLOWABLE USE INTENSITY PLAN				
DRAWING NO. 16681				
SHEET NO.				

FIGURE 4



Proposed Land Use

The Land Use Plan (Figure 5, page 46) shows the proposed uses for various areas. In designating uses for particular areas, planners worked within the limitation imposed by normal cost factors, as well as the need to preserve natural and cultural values.

Angel Island State Park can be divided into five basic land uses: developed day use, developed overnight use including multi-use (overnight or day use), cultural resource interpretation, natural resource interpretation, and operations/maintenance.

Developed day use areas are provided at four locations on the island: Ayala Cove, North Garrison, West Garrison, and East Garrison. The principal activities in terms of individual family and/or group facilities will be picnicking, field sports and informal spontaneous play.

The area between North and East Garrisons and selected isolated areas have been designated for developed overnight use, with controlled individual, family, and group camping.

Cultural resource interpretation occurs primarily within the areas of cultural significance. These areas delineate locations of major historical or archeological significance, where restoration and preservation will take place. Interpretive facilities and activities are provided in these areas. There are also possibilities for environmental living programs, outdoor education, and hostel program offerings within these areas. These areas extend overnight use potential.

Natural resource interpretation is provided throughout the island, especially in those areas of the highest natural resource significance. Interpretive activities will provide information on marine mammal life, bay dynamics, geology, etc.

Low-intensity picnicking and seating occur sporadically throughout the island, along hiking and cycling trails.

The operations/maintenance includes administration, maintenance and service areas needed to provide support for park operation. Included in this area are staff residences, equipment storage, etc.

Interpretive Evaluation

Angel Island State Park has a diverse natural and cultural history. In recognition of the realities of present staffing limits, it is suggested that interpretive methods and media emphasize facilities to a greater degree than personal services. When more staff is hired to provide interpretation and contact for an increasing number of visitors, personal services should be emphasized.

Displays, exhibits, maps, dioramas, and interpretive signs can effectively help visitors to visualize past activities and structural arrangements, identify buildings, understand natural forces and features, and fully appreciate the scenic vistas. Multi-lingual texts may very well be appropriate, especially using Spanish, Chinese, Japanese and German.

In view of the extensive structural resources, building preservation and restoration are integral parts of interpretive development. By these methods, visitors will literally be surrounded by a specific period. Furthermore, such action prepares the way for development and use of house museums and an interpretive center. These facilities are important, to allow comparison and contrast of distinctly different periods and to grasp complete theme concepts. An additional visitor center would be appropriate, as East Garrison becomes a significant visitor attraction.

Personal services presently include walks, slide shows, and a tour tram. Because of the terrain, site separation, and structural barriers, the tour train is an effective way to facilitate a full experience for the elderly and handicapped, as well as other visitors. Because of the number of children visiting the island, special programs designed for their benefit can be justified. Demonstrations would be a good way to interpret period activities and equipment usage. Consideration should be given to conducting on-site talks and walks, even though other interpretive methods are primary. These might occur on a limited but scheduled basis, or only if visitor interest warrants the program.

The present trail system should be strengthened with development of a self-guided nature walk; a self-guiding historic and nature trail for bicyclists is another possibility. In addition to on-site facilities, small panels could be placed on the docks and on commercial ferries bringing visitors to the island. They can introduce the various interpretive resources, and spark curiosity.

In response to community group interest in Angel Island, development of an Environmental Living Program and Environmental Education Programs can provide channels for community involvement. These programs would permit participation by school groups, community youth groups, and other interested groups.

The Environmental Living Program can have three interconnected goals. The primary goal would be interpretation of Angel Island History. Skill development (manual and mental) would form the second goal; in the process of learning about life in past times by direct participation in historic activities (along with the pre-visit research), students would gain some basic skill experience. The third goal would be accomplishment of preservation and restoration within the park unit. This can be achieved as a by-product of some activities pursued by the students. It is hoped that these "real" projects will increase motivation to participate and learn, thereby achieving the primary goal of interpretation.

Because an ELP is designed primarily for student groups, other environmental education programs can permit participation in park activities by other interested groups. Not only does this enlarge citizen involvement, it increases the visibility and drama of the interpretation program, and might also help in the preservation and restoration of the park.

Research Considerations

Detailed research is required for these subject areas:

1. Osio's Rancho
 - A. Where were the main buildings located?
 - B. What was life like then?
2. Native American occupation and use of the island.
3. Biotic concerns:
 - A. Angel Island mole
 - (1) How did it get there?
 - (2) What factors are involved in its evolution as a sub-species?
 - B. Why are there no squirrels or rabbits?
 - C. How did the raccoons get there?
 - D. Exotic and native plants.
4. Military occupation
 - A. Daily and personal life of military personnel.
 - B. The role of infantry companies assigned to Angel Island, 1865 to 1898.
 - C. Army medicine, 1863 to 1946.
 - D. San Francisco Bay Defense System

Acquisitions

If interpretive centers are to be developed, extensive acquisition of general artifacts and documentary materials is required. With the barest exceptions, there are no such resources on Angel Island pertaining to any of the interpretive themes.

Interpretive Priorities

This section lists interpretive services in order of suggested development priority. The list is divided into short-term and long-term priorities.

Short-term priorities:

1. Complete self-guided bicycle trail.
2. Ayala Cove visitor center
 - Move the park administration offices upstairs or to a new location, to expand interpretive efforts downstairs.
3. Self-guided nature walk.
4. Stabilize buildings and archeological sites as needed. Make all areas safe for public access and viewing (this does not necessarily include building entry).

5. Panels, displays, interpretive signs, dioramas.
These are to be placed as appropriate locations are made safely accessible; not necessarily in the same order as priority for complete garrison preservation/restoration.
6. Protection against further deterioration of structural resources.
7. Mt. Livermore--interpretation of geology, tidal and climatic factors, and scenic view.
8. Panels on commercial ferries.

Long-Term priorities

1. Complete restoration of immigration barracks; development as house museum.
2. Winslow Cove--clean up debris, interpret exotic plants.
3. Continue restoration of West Garrison (Camp Reynolds).
4. Develop interpretive center for immigration station.
5. Develop interpretive center for Camp Reynolds.
6. Restore Battery Drew; interpret defense of the bay; maintain Batteries Ledyard and Wallace in state of arrested decay.
7. Begin restoration of East Garrison.

Other Considerations

1. Contact outside organizations with an interest in Angel Island history, and negotiate for assistance with materials collection, labor, planning, research and the setting up of a docent (volunteer) program.
2. Try to obtain permission from the U.S. Department of the Interior to use Pt. Blunt for interpretation.
3. Nature Center: an interpretive center that presents natural history themes is appropriate for Angel Island because of its natural history, unique location, and an expressed community desire for an environmental education program.

Such a nature center could be more than an exhibit museum. It could provide work/study facilities for students undertaking directed field studies; serve as an assembly area for guided walks; present audio-visual programs and talks; contain exhibits dealing with park natural history and the broader environmental issues; make available publications which deal with environmental issues and natural history; and encourage park participation in the FEA/NRPA public education program, "Park Project on Energy Interpretation."

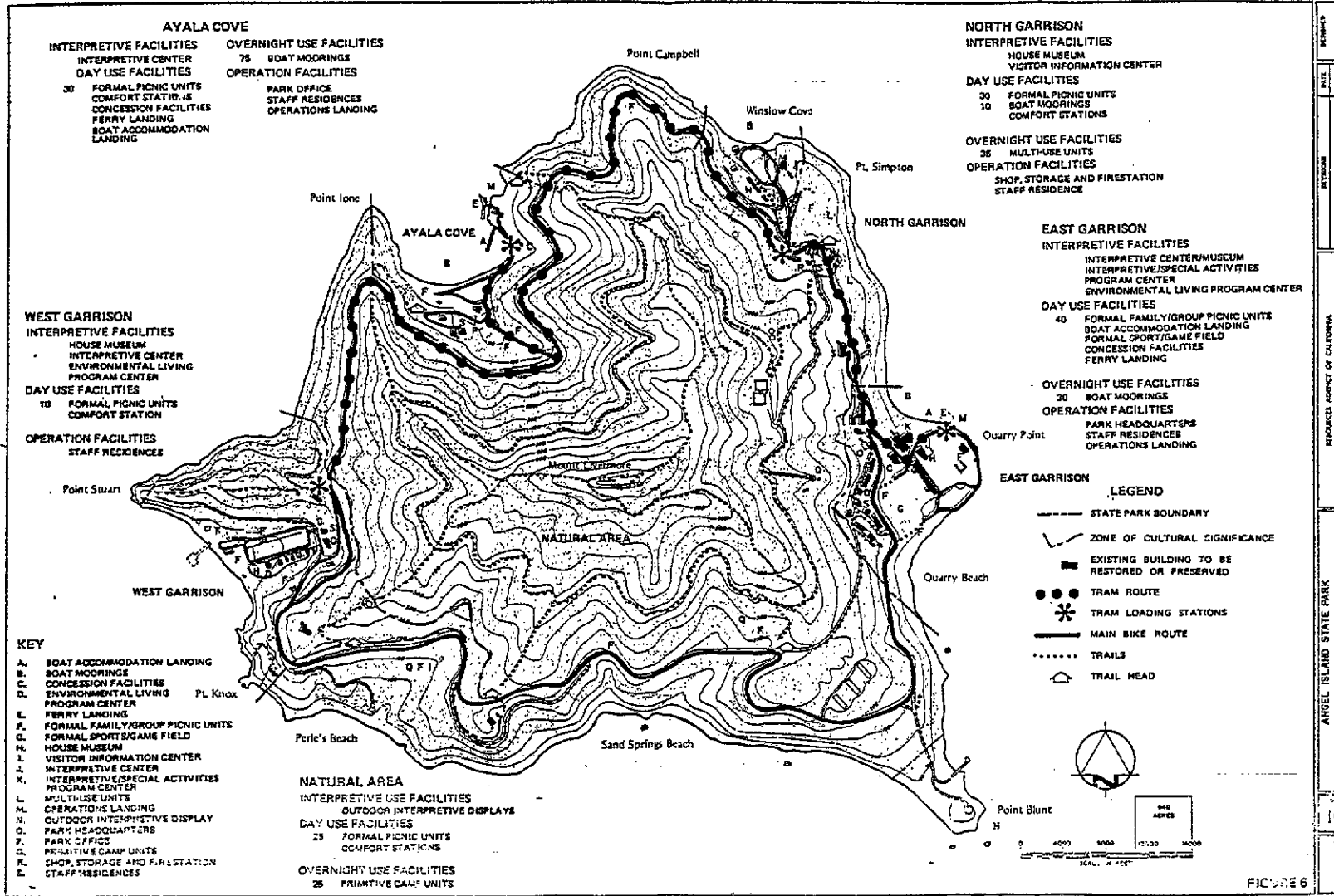


FIGURE 6

The staffing of this center might include one or two new permanent positions, plus volunteer assistance from various environmental groups and schools around the Bay Area.

This nature center could have some important benefits. It could add further depth to the urban park concept by serving the community with educational opportunities; promote protection of park resources through resource awareness; and participate in the important and necessary task of developing an environmental ethic for the urban dweller.

An appropriate site and building should be identified, based upon the thematic uses of various areas considered.

Interpretive Collection

Based on a preliminary analysis, the Angel Island interpretive collection is extremely limited and requires extensive research and acquisition.

Discussion by Area

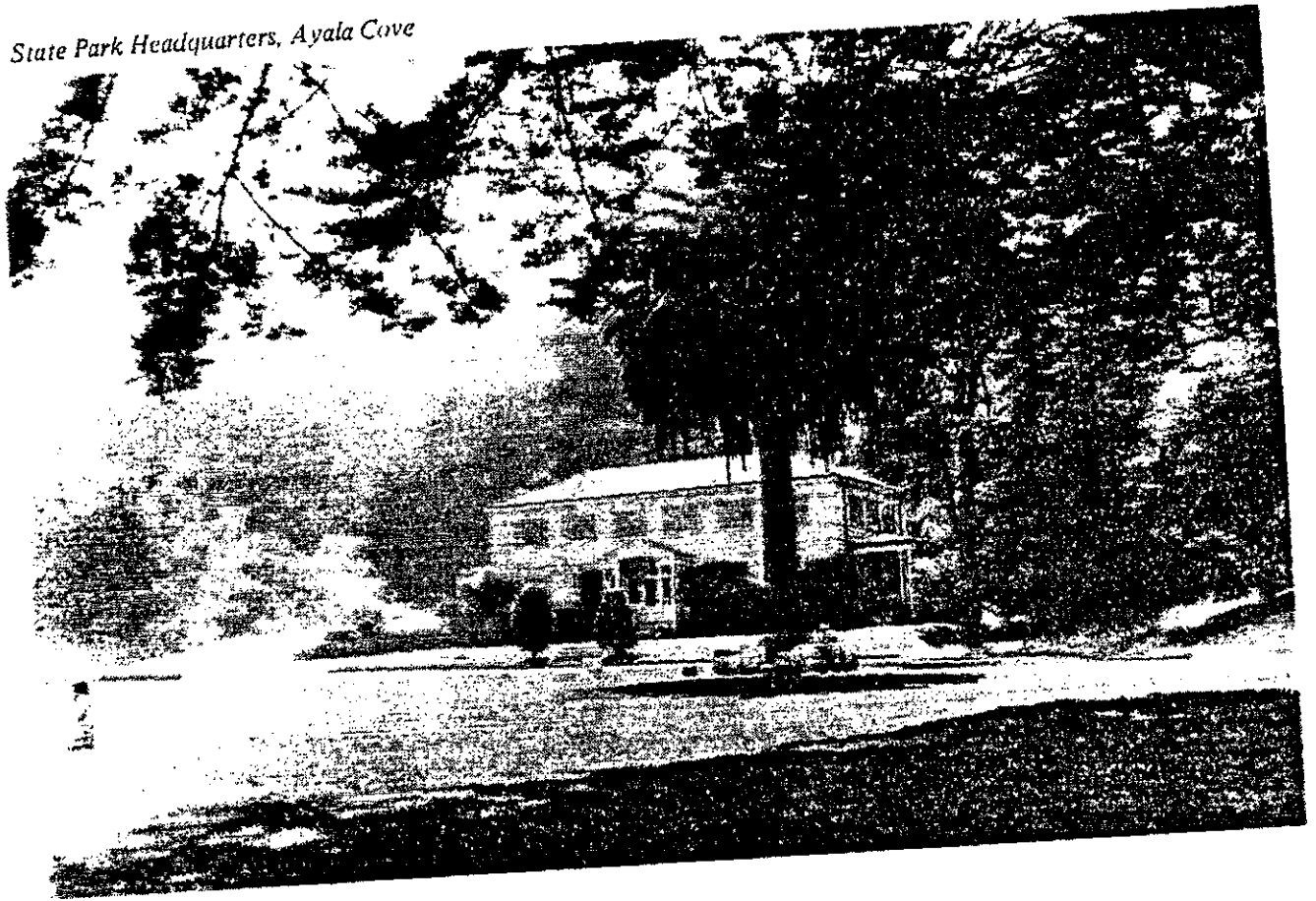
Angel Island has been divided into five planning areas. The designation of these areas is based in part on topography, viewshed, vegetation, and interpretive values (natural and cultural resource themes). Each area will be dealt with in a separate section. The organization of these sections includes: interpretive themes and facilities; developed day use and overnight facilities; and service/administration (operations) facilities. Specific references to existing structures are contained in Appendix D, Existing Facilities Evaluation.

Ayala Cove

Ayala Cove pier and marina



State Park Headquarters, Ayala Cove



Ayala Cove

Ayala Cove Area

Interpretation

Interpretation emphasis within this 23.5-acre area will be shared between natural/cultural resources and visitor orientation to the island setting. The principal interpretive effort will be made at the bachelor officers' quarters, the existing park headquarters (bldg. #328). Audio/visual and other exhibits depicting the themes listed below will be provided. In addition, self-guiding tour brochures will be available. Ayala Cove is presently the access point to the island, and much of the interpretive effort here will be geared to visitor orientation to an overview of the whole island. The exploration, discovery, and quarantine station themes will be presented.

Natural History - Due to soil and climatic conditions, several unusual plant habitats have developed on the island. Many of these will be part of the natural science self-guided tour, to include: pygmy oak/bay forest; fern grotto; wildflower concentrations; wind pruning effects; the serpentine dyke which runs through the island, the geologic composition, as evidenced by quarrying; year round streams; tide and current patterns; fog drift patterns; the Angel Island mole; intertidal life; and marine mammals.

Native American History - Although the Coast Miwok, who were the first people to use the island, weren't believed to be permanent residents, many of their middens are evident throughout the island.

Exploration and Discovery - Juan de Ayala, a Spanish captain who anchored in Ayala Cove in 1775 to map San Francisco Bay, named the island "Isla de Los Angeles" - Angel Island. The Spanish period represents an important part of the island's history.

Quarantine Station - In Ayala Cove, the hospital and other buildings were used by the Medical Corps to house soldiers returning from the Philippines and other Pacific campaign areas during the Spanish American War; this is another important historical period.

Existing buildings are used primarily for operations purposes, and are anticipated to remain in such use. The park headquarters will receive exterior restoration and adaptive interior finishes to accommodate an expanded visitor orientation and interpretive center. Park administrative activities within the building will be reduced, in anticipation of relocating the primary administration facilities to East Garrison.

Other buildings include existing park staff residences in the bachelor officers' quarters (nos. 329, 330, and 331). They are recommended for preservation treatment and continued use.

Three existing concessions buildings are presently within this area; two are active. There is a snack bar. Next to the present snack bar is a ticket sales kiosk, and a now-vacant bicycle rental building.

Day Use

Thirty formal picnic units (with tables) are provided within this area to accommodate visitors' needs. They will be placed throughout the tree-covered areas, next to the existing lawn areas. Individual picnic units will be grouped one to five tables per setting, which will accommodate individual and group picnicking. Twenty of the existing fifty picnic units will be removed, and the balance of thirty units will be renovated to bring them to current standards.

Water, trash facilities and two comfort stations will be provided within this area.

The existing ferry landing facilities, including the pier, the contact station, and the staging area, and a twenty-five-unit finger pier/boat accommodation dock, will remain.

Appropriate concessions development will be provided in the area. The existing concessions operation and facilities will remain until such time as a comprehensive evaluation of visitor concessions needs has been made.

Overnight Use

Twenty existing moorings will continue to be provided for overnight boating use of the island. Fifty-five additional moorings will be added, to enhance and expand this use in the area.

Operations Facilities

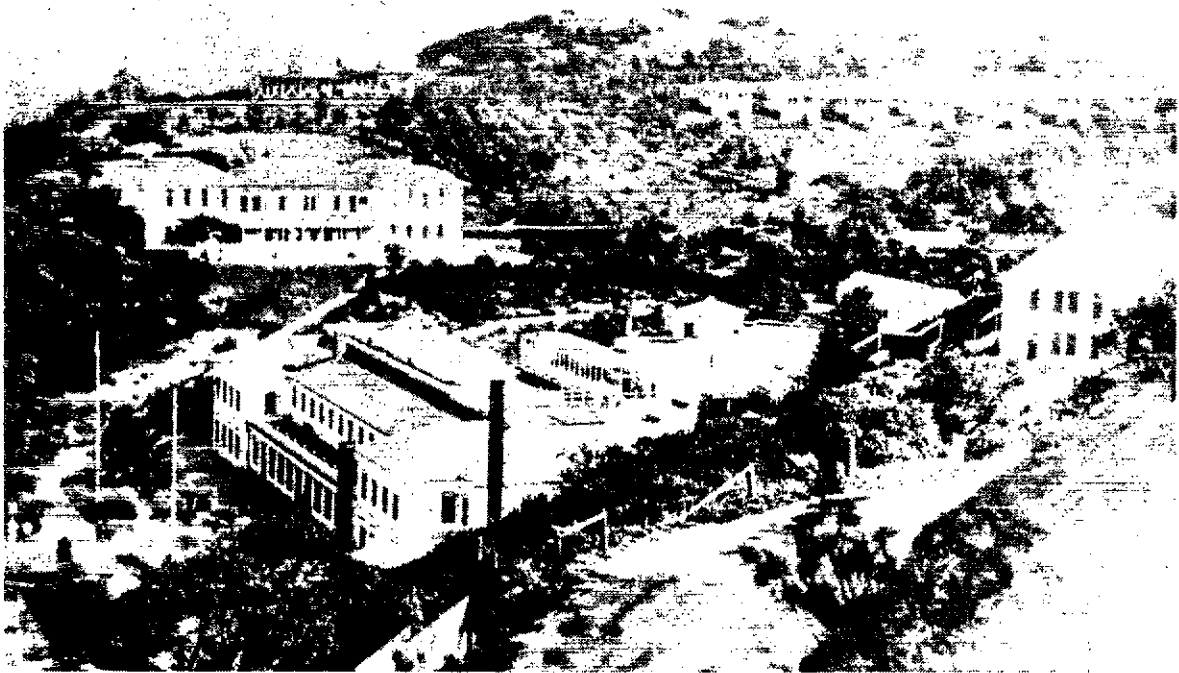
The existing park headquarters (bldg. 328) will remain in its present use until such time as the East Garrison administration building (bldg. 16) is developed as the park headquarters. At that time, operations space in building 328 would be reduced to a minimum.

The existing quarantine station residences (bldgs. 329, 330, and 331) will remain in use as park staff residences, which will provide for twenty-four-hour supervision and control of this high-use area.

Existing operations landing facilities, including the pier and boat launching ramp, will remain. Ayala Cove will continue to serve as the island's principal operations transportation site.

The usable wells and water tanks in this area will receive routine maintenance and continue in their present use until the need for their removal is established. All other structures are considered to be in a studied neglect category until the need for a higher level of maintenance/restoration is established.

North Garrison



North Garrison Area

Interpretation

Interpretive emphasis within this 27.6-acre area will be placed on the immigration station period (1910-1947), a period during which Asian immigrants, prisoners of war, and aliens were processed.

Active interpretation of this area will include guided tours through the immigration barracks (bldg. 317). Information brochures and outdoor displays will be provided to describe Native American and natural history themes within the area. "Self-discovery" will be one of the most important methods of interpretation here.

Immigration Station History - A tour of the immigration barracks will reveal the engraved writings on the wall, which are the remains of its occupation by Asian immigrants, P.O.W.s, federal prisoners, and enemy aliens.

Native American History - This theme will be presented, as appropriate, within the context of the North Garrison setting. "Why Native Americans selected this site" and "what they did in this cove" will be the core concepts for these interpretive materials.

Natural History - This area is particularly rich in varied exotic plant materials, which are a living record of visitations to Angel Island by peoples of many nations. This contrast between native and exotic plants will be the major natural history theme.

One of the prime buildings of interpretive significance is the immigration station barracks (bldg. 317), scheduled for complete restoration. On completion, it will be used as a house museum. The other structure of prime value is bldg. 313, the horse barn/linen storage building. With exterior restoration and an adaptive interior treatment, it could have adaptive use potential.

Two buildings of secondary interpretive significance in the area (bldg. 233, the kitchen/mess hall, and bldg. 314, the heating plant) are in critical condition, and will be preserved. Both will remain closed to public use. Building 233 is considered for future use as a visitor center, providing visitor orientation and interpretive facilities. The central heating plant (bldg. 314) is considered for future interpretive programs and restoration.

The three buildings of tertiary interpretive significance, barracks (bldgs. 241 and 242) and the hospital (bldg. 316), will receive preservation treatment, and will remain closed to public use.

Building 95 (N.C.O. quarters) is currently used for staff housing, and is in need of only routine maintenance. On a knoll south of North Garrison is an existing service area, which is scheduled to remain in this use. The fire house (bldg. 231) serves as both a fire station and staff residence. Although no treatment is felt to be needed at this time, the building is considered of prime interpretive significance for restoration or an adaptive use. This area will be provided with a fenced maintenance yard.

The other buildings in this complex, barracks (bldg. 204) and the orderly room (bldg. 200), need preservation, while the warehouse (bldg. 228) is not felt to require any treatment at this time. The tool house (bldg. 318) will not undergo any treatment until research has been completed to determine its significance. All other structures are considered to be in a studied neglect category until the need for a higher level of maintenance/restoration is established.

The E. M. barracks (bldg. T-39) and WAC barracks (bldgs. 80, 81) are of little value, and should be removed to eliminate the public hazard. A photographic record and measured drawings will be compiled for each building.

Day Use

Thirty formal picnic areas (with tables) are provided within the North Garrison area to accommodate visitor needs. Ten of these units will be placed around the open area bordering Winslow's Cove. The balance of the units will be situated in an area close to the North Garrison entrance..

Water, transportation accommodations, and two comfort stations will be provided at convenient service locations within the area. Moorings will be provided for ten boats.

Overnight Use

The ridge at Point Simpton was used in the late 1800s as a tent camp. This area is now cleared of structures, sheltered from wind, and screened from the view of passing boats. Multi-use development is planned, to accommodate up to thirty-five camping (or picnicking) families and groups. Facilities will include a comfort station (no showers), stoves, and tables. Use of these units will be by reservation only. These individual and group camping activities will be put on a trial basis for three years.

Operations Facilities

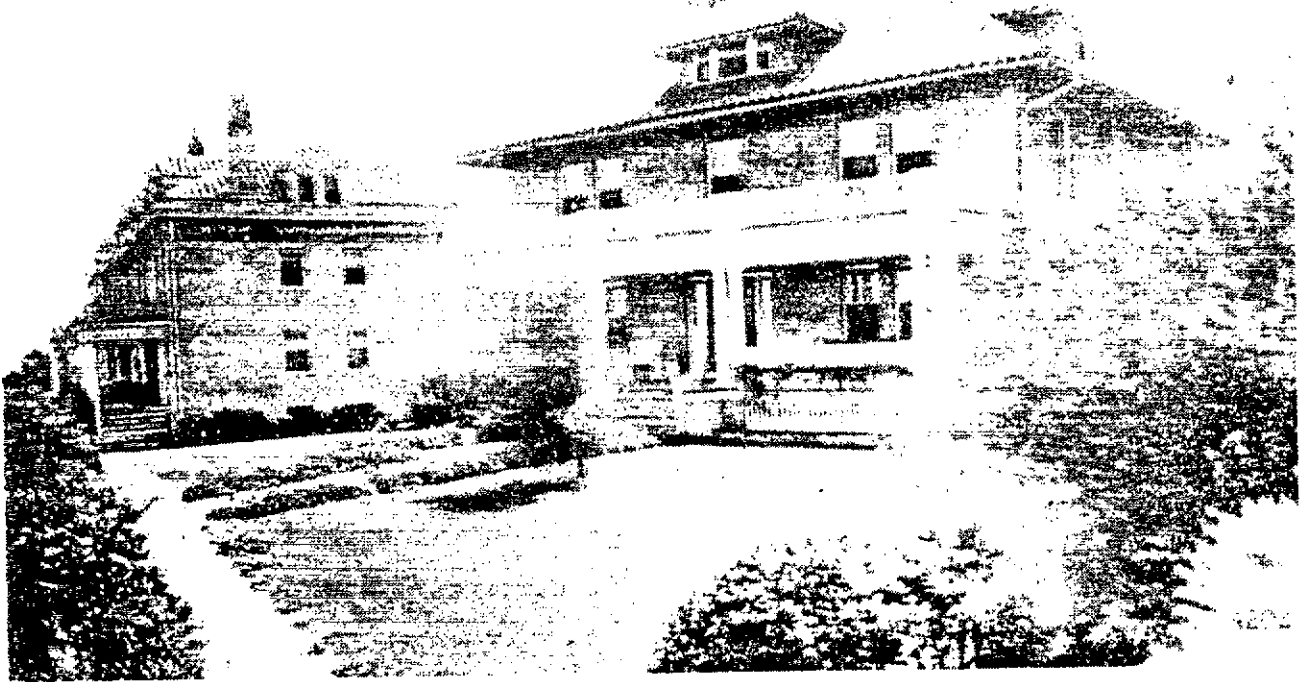
Operations activities are presently housed in a number of buildings within this area which will remain and/or be enhanced. The continued use of the barracks and orderly room buildings (bldgs. 200 and 204) for storage and shops; fire house (bldg. 231) for fire fighting and residence purposes; and the N.C.O. quarters (bldg. 94) for residences will be provided.

A small fenced service yard will be provided in the area just south of the fire station. This facility is required to secure park equipment and materials.

East Garrison



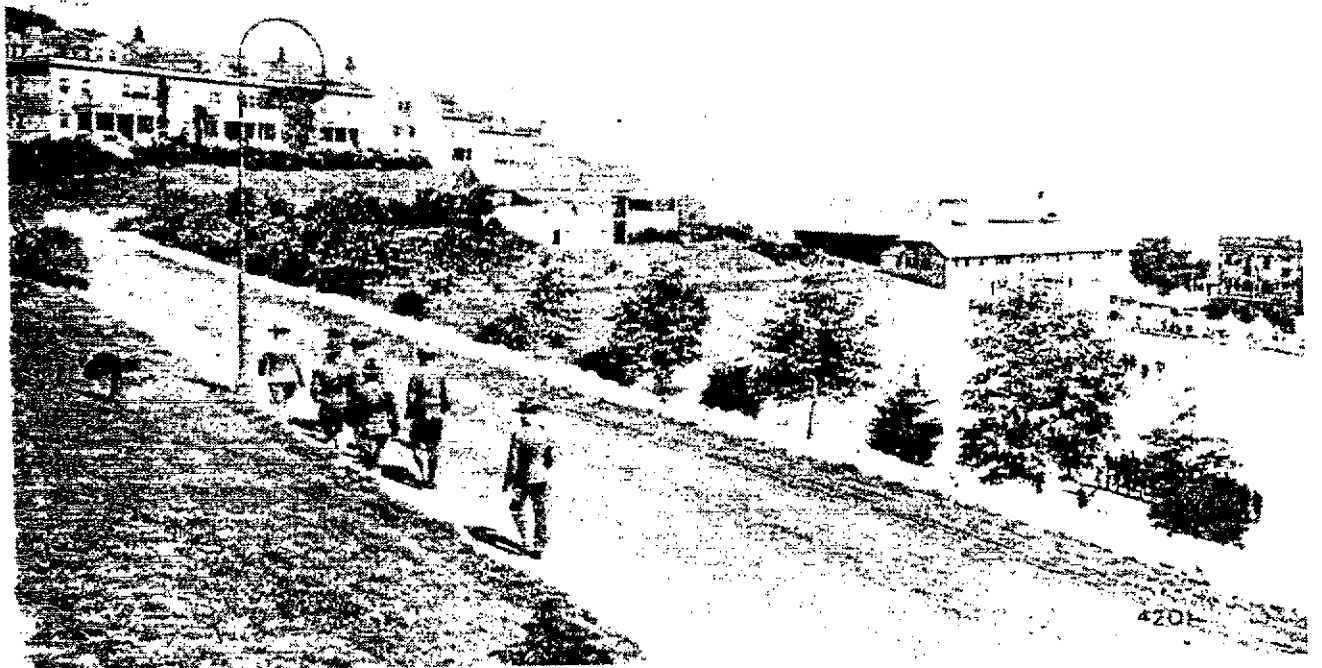
A View From the Guard House to the Mess and Drill Hall



East Garrison officers quarters

East Garrison, Ft. McDowell

East Garrison, Fort McDowell, Cal.



East Garrison

Interpretation

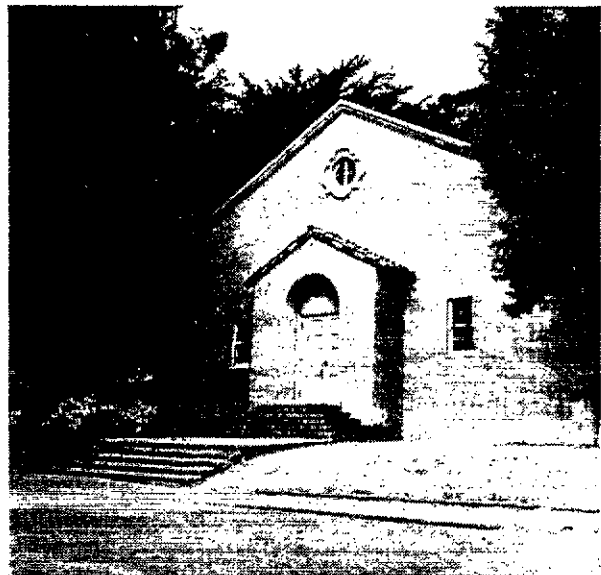
Selected buildings within this area provide an important setting to tell the story of the army transfer and termination station which existed from before WWI through WWII. This area of about 41 acres will provide the major visitor access to the island. Interpretive activities anticipated to occur here are: self-guided walks; ranger-led tours; a tram terminus; and an interpretive and visitor orientation center in the guard house (bldg. 20).

The Army's Mission on Angel Island - The army's mission and purpose for the military use of this island will be told. Audio/visual programs should be combined with other graphic means to interpret this large and active installation. Any adaptive use of existing structures for historic purposes will help present a more complete theme for visitors.

Natural History - The beach and waterfront provide an excellent opportunity for examination of marine ecology, dune plant communities, physical force and patterns of tides, currents, and river flow within the San Francisco Bay. An Environmental Education Program emphasizing natural resource studies is recommended for East Garrison. The objective would be to involve classes in an overnight and/or daytime program, dealing with the natural and physical systems that created Angel Island, the resulting plant and animal communities, and their relation to people who have lived on the island.

General Orientation - General visitor information and orientation to the island will be provided at East Garrison. The interpretive center will include information regarding the island's major interpretive themes.

Of the fifteen buildings which comprise officers' row, buildings 2, 3, 9, 10, 12, 13, and 14 are recommended for an Environmental Education Program. Initially, buildings 2, 3, 9, and 10 are recommended for exterior restoration and adaptive interior finishes. Buildings 12, 13, and 14 will receive preservation treatment, and will be stabilized for future use opportunities.



Chapel at East Garrison



The Guard House could serve as an interpretive center and house museum

Another prime building is the guard house (bldg. 20). With exterior restoration and adaptive interior finishes, it could serve as an interpretive center and house museum. The post exchange (bldg. 19) is recommended for preservation treatment, with future use as a concession facility as conditions warrant.

Preservation treatment is recommended for the hospital (bldg. 18), the 600-man barracks (bldg. 21) and the hospital annex (bldg. 2), with possible future adaptive uses. The N.C.O. quarters (bldgs. 25, 26, 27, 28, 32, 34, 35, and 36), the firehose shed (bldg. 156), the wharf (bldg. 31), the P.E. shop and warehouse (bldg. 147), and the valve building (bldg. 137) are all in need of further research to determine historic significance.

The chapel (bldg. 59) is recommended for exterior restoration and adaptive and interior finishes, and will be available for appropriate religious services.

Of the fifteen buildings that comprise officers' row, only two are presently in use as staff residences. All are recommended for exterior restoration.

One of the concepts of this General Development Plan is to shift the visitor and use emphasis to East Garrison. Thus, the need for more staff residences is anticipated. Buildings nos. 1, 4, 6, 8, 11 and 15, with adaptive interior finishes, will satisfy this potential need.

When East Garrison is opened as the main visitor access point, the administration building (bldg. 16) will be used as the main park administration

facility. The recommended treatment is exterior restoration with adaptive interior finishes. The administrative building annex will be removed.

The electric substation (bldg. 17) and the ambulance shed (bldg. 151) are not recommended for treatment. Building 151 is scheduled for continued DPR use. The electric substation could continue in its use. DPR staff now residing in bldg. 17 will be relocated to a restored residence in officers' row. Preservation treatment is recommended for the coal bunker (bldg. 132).

The major operations storage and warehousing takes place in the quartermaster's office and warehouse (bldg. 129), recommended for preservation treatment. This building should continue to serve this function, until East Garrison restoration is complete. At that time, materials stored there could be shifted to the mess and drill hall (bldg. 22). Building 129 should be removed at that time.

The ground floor of building 22 will be the major park operations facility on Angel Island. A rear access road could provide entry for maintenance vehicles, while not disrupting visitor enjoyment of the park. Internally, the building could easily house the proposed modular sewage treatment plant, maintenance shop space, storage, and warehousing. Although the second floor is anticipated to remain closed to public use at this time, the third floor will be used for basketball, badminton, a movie theater, dances, and other historically accurate or adaptive uses.



Preservation treatment is recommended for the Hospital (right) and hospital annex (left).

The finance and signal office (bldg. 148), the post engineer's office (bldg. 61), the incinerator (bldg. 33), the material shed (bldg. 64), the storehouse (bldg. 62), paintshop-engineers (bldg. 142), the paint shed (bldg. 104), the trash burner (bldg. 127), are currently vacant and of little cultural value. They should be removed to eliminate possible public use hazards, to improve visual quality of the entry to East Garrison, and to provide open space for public use. All other structures are considered to be in a studied neglect category until the need for a higher level of maintenance/restoration is established.

A contact station and staging area will also be appropriate. Concessions developments will be provided in the area, after an evaluation of visitor needs has been made.

Day Use

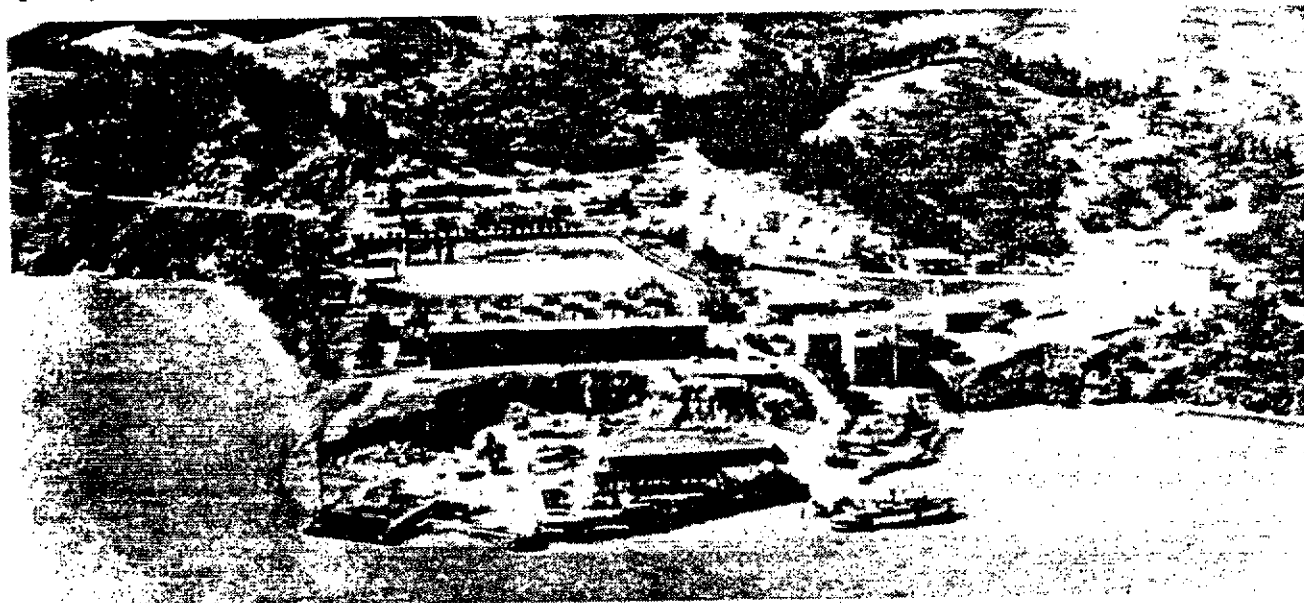
Forty formal family picnic units, (with tables) are provided at East Garrison. They will be located in the areas to the east and west of the recreation field, and east of the main Parade Grounds. A 500-person capacity group use picnic facility will be provided to accommodate existing user needs. A sports/games field will be provided, for both organized and spontaneous play. Two comfort stations will be provided at convenient locations within the area.

Overnight Use

No overnight camping facilities are provided at this time. However, twenty moorings are provided for overnight boating use.

Operations Facilities

The park operations office will be housed in the administration building (bldg. 16). The staff housing will be placed in the officers' quarters (bldgs. 1, 4, 6, 8, 11, and 15). Pier space for park operation needs will be accommodated with the commercial ferry facilities. Other building and grounds space, as appropriate for future operation needs, will also be available.

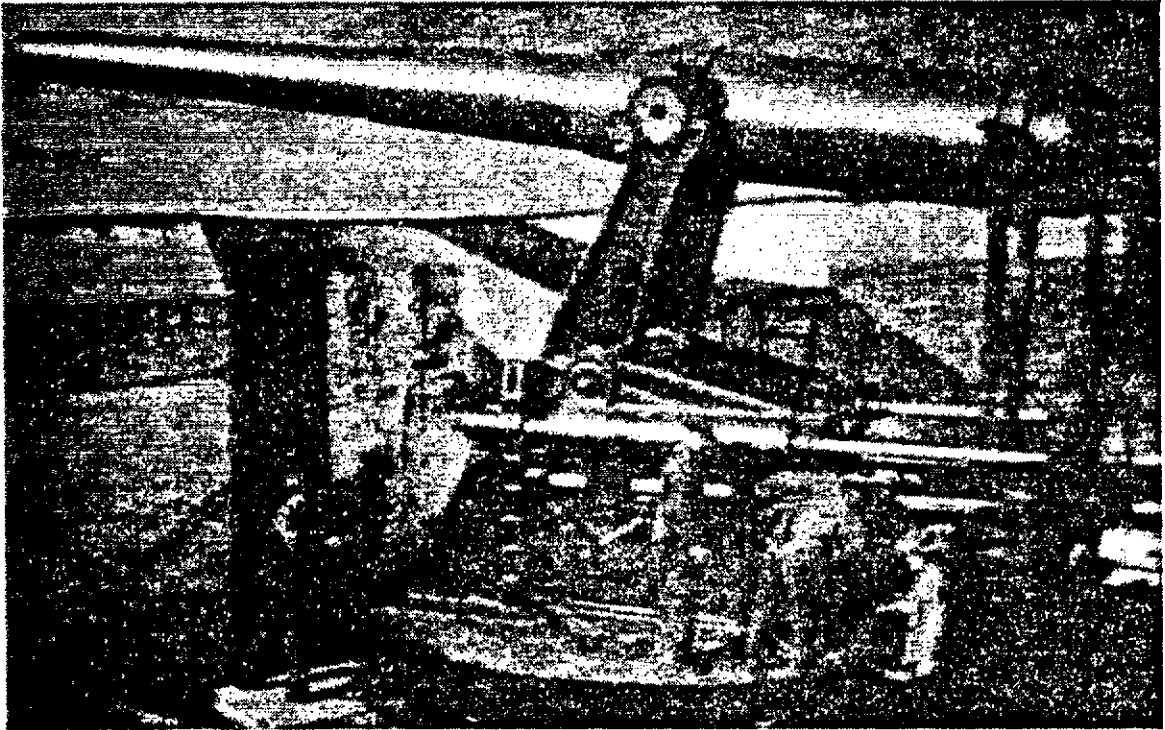


Old photo showing over-all view of East Garrison

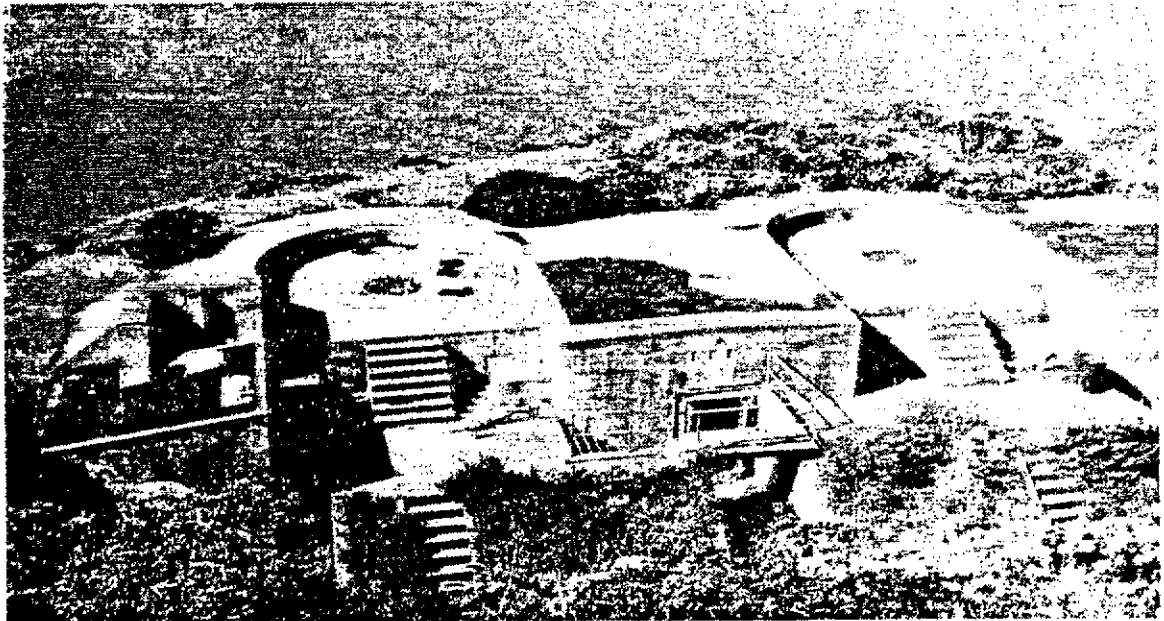
West Gappison



Quarter Masters Warehouse (#84)



Battery Drew



Battery Ledyard

West Garrison

Interpretation

Interpretive emphasis within this 60-acre area will be placed on the island's Civil War and post-Civil War period influence, ca 1863-1910. Self-discovery walks will be the primary method of interpreting this Civil War installation. The garrison should undergo exterior restoration as needed, and interior restoration of a few selected buildings should be completed for house museum and environmental education programs. The office and barracks (bldg. 82) will be the interpretive center, providing information on: West Garrison history; specific buildings; lifestyles of the soldiers stationed there; and the shore batteries. The theme is:

Bay Defense - The establishment of U.S. military installations on Angel Island began with the arming of Points Blunt, Knox, and Stuart, and the construction of West Garrison. The gun batteries completed a triangle of gun positions--Fort Point, Alcatraz, and Angel Island--to protect the Bay from attack by sea. The original gun emplacements, and Batteries Drew, Ledyard, and Wallace, have never been used in battle. West Garrison was in service from 1863 until East Garrison became active in 1910.

An Environmental Living Program is envisioned for this area, in which students would re-enact the lifestyle of the period. School classes could plan and carry out role playing of soldiers in this historic setting, using authentic materials and activities.

Structures

Fifteen of these buildings were given preservation treatment in 1973, and all eighteen will be maintained at their present level.

The hospital (bldg. 82), commissioned officers' quarters (bldgs. 52 and 53), and C.O. quarters (bldg. 43) will receive a higher level of restoration.

Suggested for use as an interpretive center on the bottom floor, the hospital is scheduled for adaptive uses on the upper two floors (Environmental Living Program, park staff residence, and storage). This building is a candidate for exterior restoration with adaptive interior finishes. Buildings 43 and 52 are recommended for use in an environmental education program, and thus require exterior restoration with adaptive interior finishes. The chapel (bldg. 74) and the mule barn (bldg. 69) have potential, if provided with more than exterior restoration, to also be used for the environmental education program at West Garrison. Currently, they are scheduled to remain closed to visitor access, and to undergo preservation treatment in ten years.

The C.O. quarters (bldgs. 44, 45, 46, 47, 48, 49, 50, and 51), the band master's quarters (bldg. 55), the bakery (bldg. 63), and the steward's quarters (bldg. 79) are currently vacant, and scheduled for preservation treatment when needed. No direct public use is considered at this time, but future program opportunities are open.

All outbuildings are to receive the same level of restoration recommended for the main dwellings, which will occur at the same time.

Reconstruction of an enlisted men's barracks and the music stand are considered essential to interpretation of the West Garrison military theme. This reconstruction will be undertaken only after existing West Garrison and other island structures have been dealt with.

Three other elements of interpretive concern are the gun emplacement above Pt. Stuart, the cemetery south of the chapel (bldg. 74), and the foundations by the water tank overlooking West Garrison. Their recommended treatment will be based on future study findings and recommendations.

Of the three batteries, Drew is recommended to have the highest potential for interpretation, and should receive restoration treatment. Ledyard, because of its tenuous condition, should be discouraged from visitor usage, and should be secured by restricting access. Wallace is a tertiary interpretive element, and will receive preservation treatment.

The still-functioning water tank just south of West Garrison should undergo restoration and continue in use.

The subterranean cable vault on the beach should be secured, preventing visitor access. This should be done in such a way as to allow future interpretive efforts.

The remnants of the old steamer pier, a resting place for migratory waterfowl, will remain as a roost.

The existing handball court should be preserved.

To increase the security of these valuable resources, the commissioned officers' quarters (bldg. 53) is recommended, with exterior restoration and adaptive interior finishes, for use as a DPR staff residence.

Currently in use for minor storage, the quartermasters' warehouse (bldg. 84) could be used for operations purposes in facilitating West Garrison restoration. On completion, and if no longer needed for this activity, bldg. 84 should be converted to an adaptive interpretive use, a museum, or part of an environmental education program.

All other structures are considered to be in a studied neglect category until the need for a higher level of maintenance/restoration is established.

No structures will be removed at West Garrison.

Day Use

While this area offers many worthwhile picnic sites, picnic activity will be situated so as not to compete with this thematic garrison setting. Ten formal picnic sites are recommended for placement at higher elevations to the north or south of the garrison.

Water, trash facilities, and one comfort station will be provided at a convenient service location within the area.

An Environmental Living Program will be provided at West Garrison. One class of thirty children per week, thirty-two weeks per year, will afford 960 local school children the opportunity to experience a Civil War garrison lifestyle.

Complete support facilities, such as restrooms, sleeping, and food preparation areas, will be provided. No other form of overnight use will be provided at West Garrison

Operations Facilities

As previously stated, commissioned officers' quarters (#53) will be restored to provide a DPR staff residence.

The electric substation (#144) will receive routine maintenance and continue in its present use.

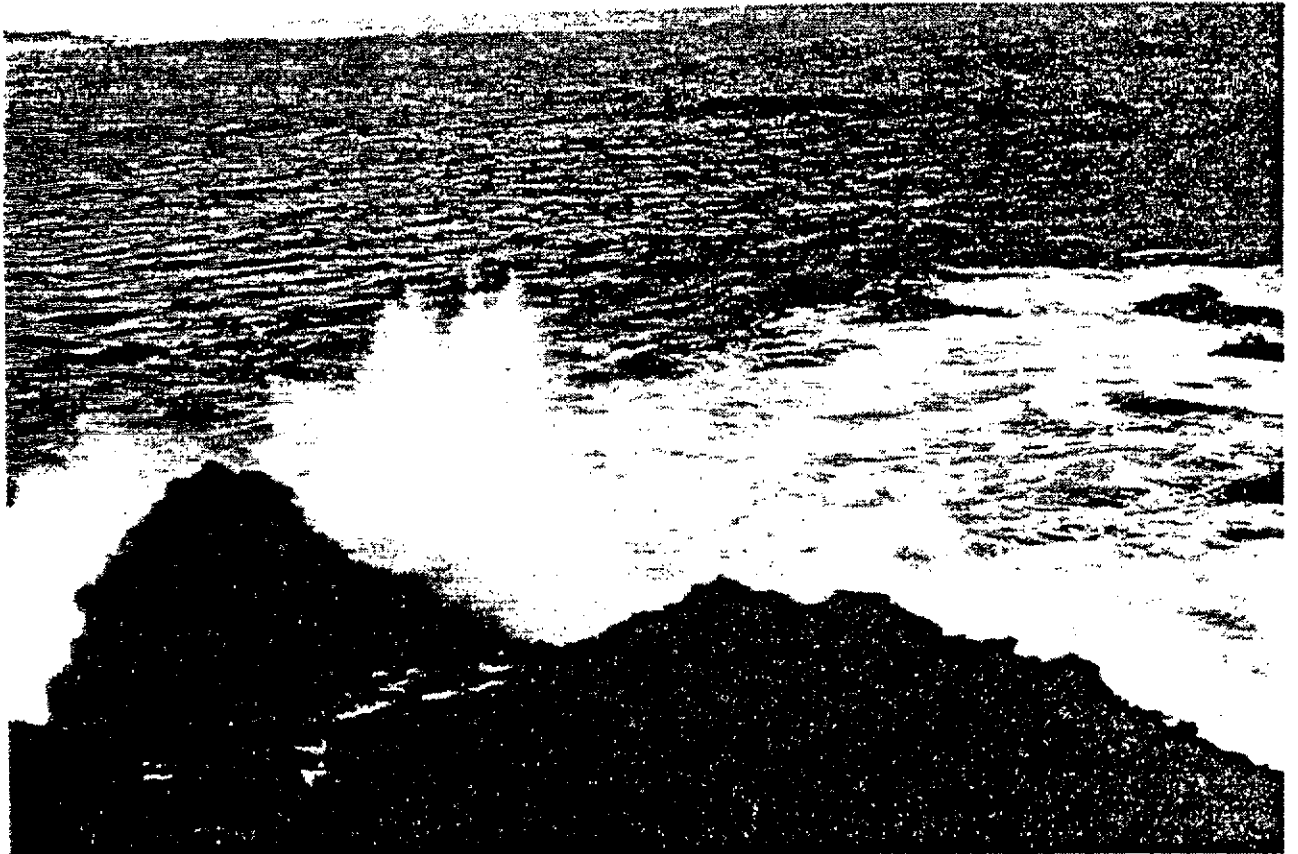
All usable wells and water tanks will receive routine maintenance and continue in their present use until an alternate future use or the need for removal is established.



Aerial View of Angel Island

Natural area





Rocks and surf

Natural Area

Interpretation

Interpretive emphasis within this 386-acre area will be placed on natural and Native American history. Two major sites will be used in this area to interpret these themes; they are Mount Livermore and Point Blunt. Outdoor displays, guided tours, and self-guided tour brochures will be provided to present the themes listed below.

Mount Livermore

This is the highest point on the island, at 780 feet above sea level. Themes to be interpreted include:

Natural History - The San Francisco Bay's hydrologic patterns can be dramatically interpreted from this vantage point. The commanding view of the mainland facilitates interpretation of what "islandness" means. The unobstructed view of the island provides an opportunity to interpret the unique natural qualities and resources found on Angel Island, as well as those of the surrounding Bay Area.

Native American History - The Coast Miwok Indians' use of this possibly sacred high place, and other island sites, will be interpreted.

Point Blunt

The major interpretive theme here will be the marine environment. The presence of marine birds and mammals at Point Blunt provides an excellent opportunity to discuss the marine environment and its relationship to the rest of the San Francisco Bay.

Interpretation will depict the special needs of the delicate marine environment. Visitors will be restricted from areas close to the water's edge, at times when appropriate for wildlife protection.

The seal and sea lion haul-out will be one interpretive element presented here.

The Nike missile silo site, although not of natural or Native American historical significance, will be preserved and interpreted as an isolated element within the natural area.

The rock crusher (circa 1920-1930) is considered to be a prime interpretive element, and will be restored.

Point Blunt has the largest quantity of buildings used for operations purposes in the Natural Area. The duplex, a staff residence, and two storage facilities are all in use. When these buildings are in need of significant repairs, consideration should be given to their removal. This 7-acre site could then be opened for public use, providing access to the beach area on the northeast and southwest, and an opportunity to observe the marine mammal haul-out area.

The present operations functions could be moved to and accommodated in the mess and drill hall (bldg. 22), East Garrison. The automated Coast Guard lighthouse is expected to continue to provide navigational guidance. The pier is anticipated to continue to provide Coast Guard access to that facility.

Two redwood water tanks (nos. 234 and 235), are recommended for restoration and reactivation, helping to provide water to North Garrison. Presently, the two 500,000-gallon water tanks above East Garrison provide much of the island's water supply.

On Mount Livermore, the existing helicopter pad will be removed. The concrete block building that houses the radio relay station should be considered for removal and relocation further down the slopes, and should be vegetatively screened from the Mount Livermore view.

The remaining concrete foundations on Mount Livermore should be considered for removal. If this proves to be an extremely expensive project, a similar design effect could be achieved by providing soil to regrade the summit in a more natural configuration.

The subterranean cable vaults at Perle's Beach should be secured, preventing visitor access. This should be done in such a way as to allow any future interpretive efforts.

In the Point Blunt area, opened to visitor use, an interpretive area is proposed to interpret marine mammals. Included here would be seating for ten persons, and handrails.

Scenic overlooks on the northeast ridge at Ayala, along the perimeter road overlooking Point Campbell, and along the perimeter road just east of Hermit's Dell will be provided to observe city skylines, the island, and the dynamics of the Bay.

Natural and cultural themes will be emphasized and put into perspective, as visitors walk along developed trails with these specific orientations. Whether guided by interpretive staff or through self-discovery, visitors will be encouraged to hike Angel Island State Park. Hiking provides an intimate look at the island's resources. Interpretation elements will also be provided along bicycle and tram routes.

Nine and one-half miles of hiking trails and five miles of bicycling trails are existing, and will be upgraded within the Natural Area.

Day Use

Twenty-five formal picnic units (with tables) are provided within the Natural Area to accommodate visitors' needs. They will be placed in groups of five, at key locations along the trails and near points of interest, out of view from the passing boats.

Water, transportation facilities, and three comfort stations will be provided at locations convenient for visitor use and for servicing.

Natural Area

Interpretation

Interpretive emphasis within this 386-acre area will be placed on natural and Native American history. Two major sites will be used in this area to interpret these themes; they are Mount Livermore and Point Blunt. Outdoor displays, guided tours, and self-guided tour brochures will be provided to present the themes listed below.

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Interpretation will depict the special needs of the delicate marine environment. Visitors will be restricted from areas close to the water's edge, at times when appropriate for wildlife protection.

The seal and sea lion haul-out will be one interpretive element presented here.

The Nike missile silo site, although not of natural or Native American historical significance, will be preserved and interpreted as an isolated element within the natural area.

The rock crusher (circa 1920-1930) is considered to be a prime interpretive element, and will be restored.

Point Blunt has the largest quantity of buildings used for operations purposes in the Natural Area. The duplex, a staff residence, and two storage facilities are all in use. When these buildings are in need of significant repairs, consideration should be given to their removal. This 7-acre site could then be opened for public use, providing access to the beach area on the northeast and southwest, and an opportunity to observe the marine mammal haul-out area.

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Natural and cultural themes will be emphasized and put into perspective, as visitors walk along developed trails with these specific orientations. Whether guided by interpretive staff or through self-discovery, visitors will be encouraged to hike Angel Island State Park. Hiking provides an intimate look at the island's resources. Interpretation elements will also be provided along bicycle and tram routes.

Nine and one-half miles of hiking trails and five miles of bicycling trails are existing, and will be upgraded within the Natural Area.

Day Use

Twenty-five formal picnic units (with tables) are provided within the Natural Area to accommodate visitors' needs. They will be placed in groups of five, at key locations along the trails and near points of interest, out of view from the passing boats.

Water, transportation facilities, and three comfort stations will be provided at locations convenient for visitor use and for servicing.

Overnight Use

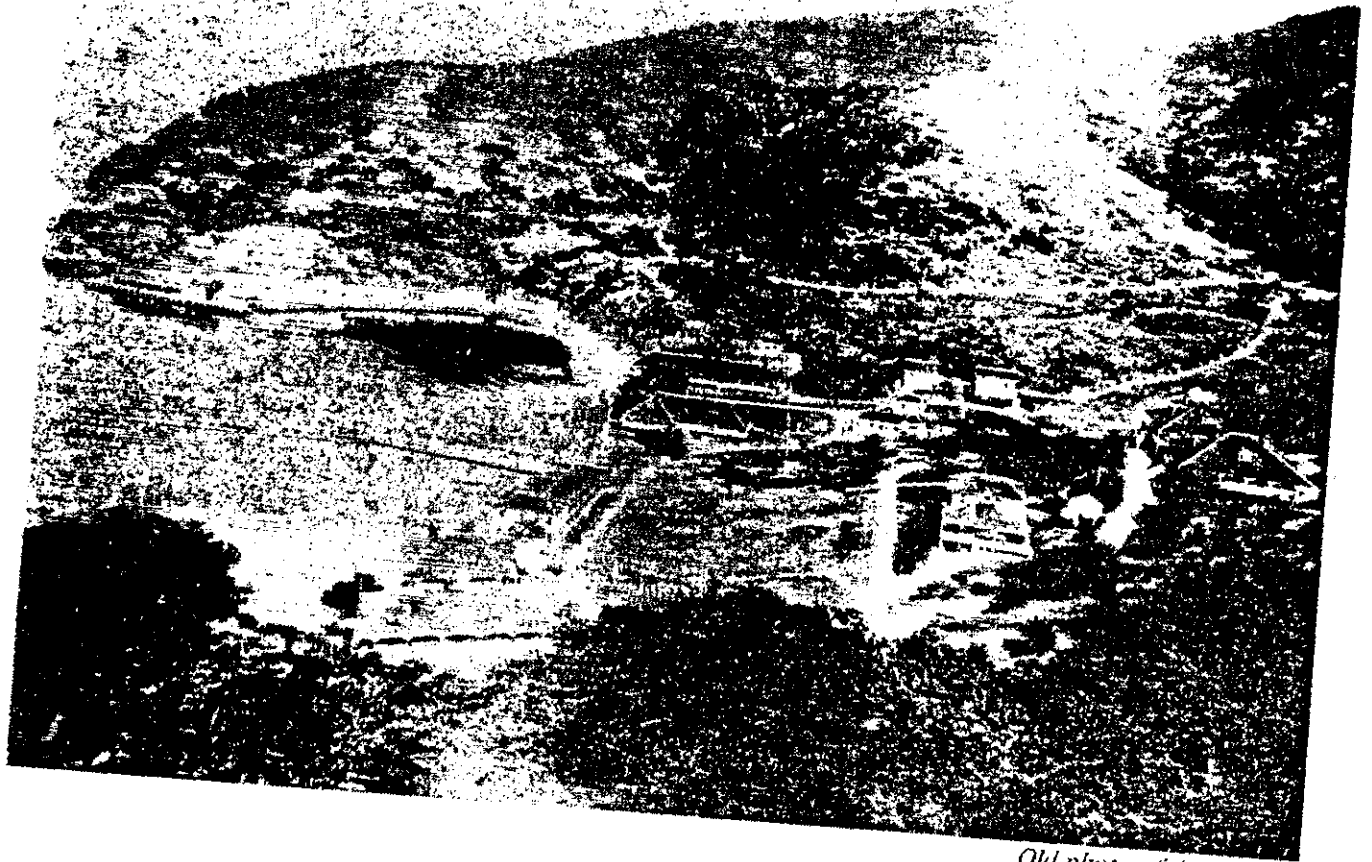
Twenty-five primitive camps are to be provided within the Natural Area. Alcatraz Gardens will be the principal location within the Natural Area for visitors to experience an evening on Angel Island. Visitor use will be by reservation only. These individual and group camping activities will be put on a trial basis for three years.

Operations Facilities

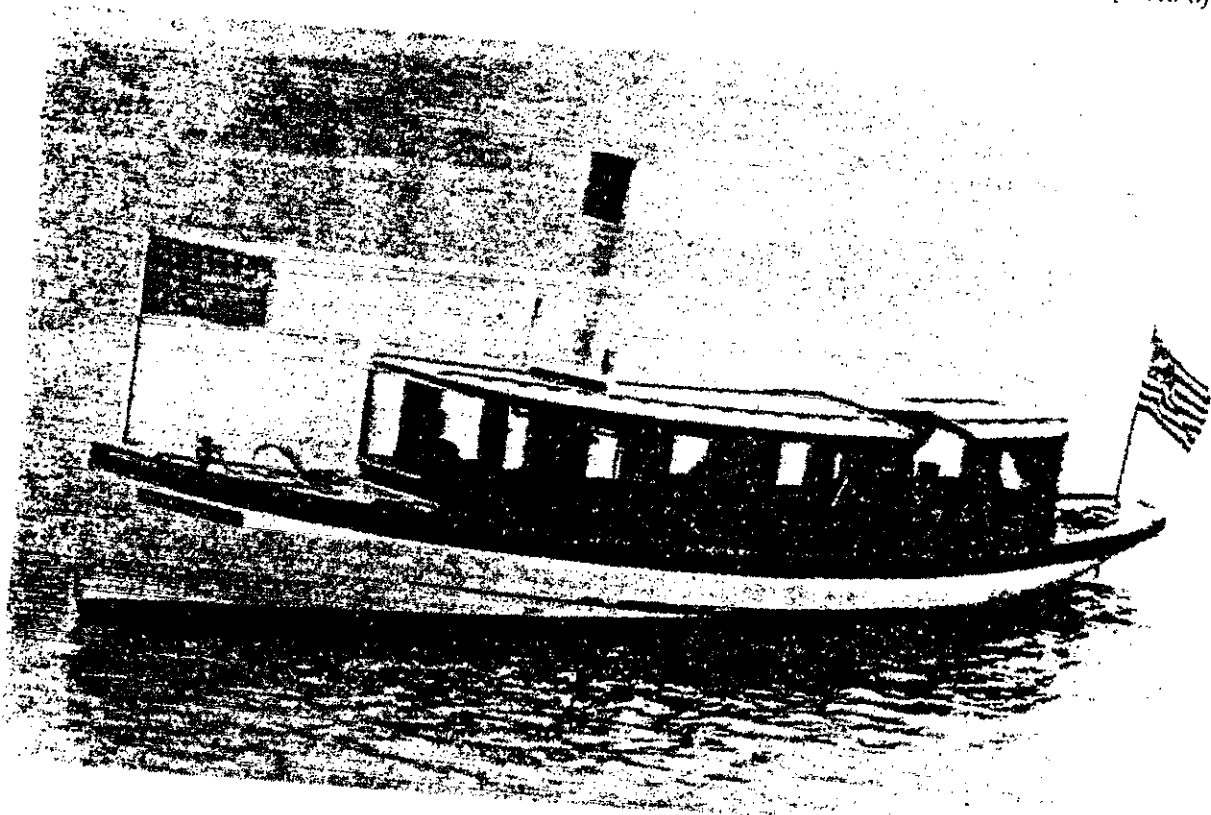
Operations facilities development considerations for this area will be limited to providing adequate control and maintenance access to the interpretive, day-use and overnight use facilities identified above. Facilities design in all cases will emphasize these considerations, while not diminishing the visitor experience.

The two 500,000 gallon water tanks will receive routine maintenance and continue in their present use. Securable fencing will be provided in this area. All other usable water tanks and wells will receive routine maintenance and continue in their present use until an alternative future use or need for their removal is established.





Old photo of Ayala Cove



Steam launch Bacillus, used by the U.S. Quarantine Station

Utilities Considerations

Water

The water supply for Angel Island is provided by four active wells and one spring. Covered storage capacity, provided by four primary reservoirs, exceeds 1.2 million gallons. Storage facilities are in good condition and even though the driest years of record are being experienced in California, there has been no problem in keeping all storage reservoirs full of water.

Power

Power, provided by PG&E, is transmitted to the island by two submarine cables with a capacity of 12 KV each. From West Garrison past Ayala Cove to East Garrison, the power cable is underground. From East Garrison, power is transmitted on overhead lines running more or less along the fire road back to West Garrison to complete a loop. These power facilities are in good condition and have sufficient capacity to serve the anticipated use set forth in the General Development Plan.

Sewer

The existing sewer system consists of septic tanks, holding tanks, ocean outfalls, leach fields, and pit privies in remote locations. These facilities do not satisfy current waste discharge and treatment requirements.

As a short-term solution, a package treatment plant will be installed at Ayala Cove to improve the sewage discharged through the outfall at Point Ione. Also, septic tanks will be installed in the two direct discharge outfalls at East Garrison. In the long term, sewage facilities will be designed and constructed that satisfy requirements of the General Development Plan, and will meet or exceed Regional Water Quality Control Board waste discharge and treatment requirements.

Telephone

Telephone service is provided by Pacific Telephone through a submarine cable from Tiburon. Service is provided to Ayala Cove, the fire station, East Garrison, and Point Blunt. The existing cable and service are of sufficient capacity to satisfy anticipated needs resulting from the General Development Plan.

Conservation

Although the energy source for the island is more than adequate to meet future development and visitor use needs, conservation measures will be employed to reduce overall island consumption to the lowest possible limit.

Case-by-case studies will be undertaken for all development elements (buildings, drinking water facilities, etc.) identified in the General Development Plan, as they are considered for implementation. Studies will be aimed at employing currently available energy conservation systems, such as thermal insulation, low-water-use plumbing fixtures, active and/or passive solar systems, composting sanitary waste disposal systems (where applicable), and other conservation methods and systems, as appropriate technology warrants.

Transportation Considerations

Visitor services and operational needs of this unit of the State Park System are supplied by boat. Transportation, as it relates to Angel Island, is not just an on-island concern. The scope of transportation involves both surrounding regional problems that affect access to the island and on-island distribution (in terms of ferry access, tram routes, and hiking and bicycling trails). A further concern of major importance is a mainland base for operations. The present base in Tiburon is inadequate, and is in jeopardy from planned development of the downtown area. An in-depth study of transportation is recommended, to include different modes, location of facilities, and cost/benefit considerations.

Regional Transportation

Because of its isolated location within San Francisco Bay, Angel Island is dependent on transportation via water (see figures 16 and 17). The major responsibility of providing transportation services for the island is borne by commercial carriers, with mainland ferry terminals located around the Bay. The California Outdoor Recreation Resources Plan of 1974 estimates that more than eighty percent of Angel Island users come from the Bay Area. It is especially important to bring the broader regional transportation question into sharper focus, in identifying Angel Island's present and future transportation needs. Presently, about ninety-six percent of the region's recreation travel is by auto, and roughly four percent is by other modes (mass transportation, bicycling, etc.). This poses a problem, in terms of auto circulation, congestion, and parking. Attempts to ease the problem, such as increasing vehicle occupancy and promoting alternative transportation, have had only a marginal effect. What may be needed is a broader base of support, and emphasis on conversion to other modes of transportation.

Within this setting, there is a vital need for increased public transportation to ease some of the recreational transport problems. A deficiency exists in terms of "selling" public transportation.

Hiking and biking take place around the Bay, and these and other possible modes of transportation could be emphasized. Bike trails are being developed rapidly throughout the region. Inter-connection between hiking and biking trails and public transportation is necessary, to facilitate convenient access to the ferry terminals and Angel Island.

Water-borne access to the island includes private boating and commercial ferry. At present, private boating access accounts for about twenty-seven percent of the total annual visitation.

Existing facilities, for private boats and commercial ferries, are provided at Ayala Cove. Some anchorages are located at North and East Garrisons. The 1977/78 General Development Plan recommends moorings at all these locations. Presently, Angel Island is served by two ferry lines, with embarkation points at Tiburon, San Francisco, and Berkeley. From May to August, daily scheduled trips run from Tiburon and San Francisco, while Berkeley provides service only on weekends. During the winter, service from Tiburon and San Francisco is restricted to weekends only, and the Berkeley service does not operate.

Utilities Considerations

Water

The water supply for Angel Island is provided by four active wells and one spring. Covered storage capacity, provided by four primary reservoirs, exceeds 1.2 million gallons. Storage facilities are in good condition and even though the driest years of record are being experienced in California, there has been no problem in keeping all storage reservoirs full of water.

Power

Power, provided by PG&E, is transmitted to the island by two submarine cables with a capacity of 12 KV each. From West Garrison past Ayala Cove to East Garrison, the power cable is underground. From East Garrison, power is transmitted on overhead lines running more or less along the fire road back to West Garrison to complete a loop. These power facilities are in good condition and have sufficient capacity to serve the anticipated use set forth in the General Development Plan.

Sewer

The existing sewer system consists of septic tanks, holding tanks, ocean outfalls, leach fields, and pit privies in remote locations. These facilities do not satisfy current waste discharge and treatment requirements.

As a short-term solution, a package treatment plant will be installed at Ayala Cove to improve the sewage discharged through the outfall at Point Ione. Also, septic tanks will be installed in the two direct discharge outfalls at East Garrison. In the long term, sewage facilities will be designed and constructed that satisfy requirements of the General Development Plan, and will meet or exceed Regional Water Quality Control Board waste discharge and treatment requirements.

Telephone

Telephone service is provided by Pacific Telephone through a submarine cable from Tiburon. Service is provided to Ayala Cove, the fire station, East Garrison, and Point Blunt. The existing cable and service are of sufficient capacity to satisfy anticipated needs resulting from the General Development Plan.

Conservation

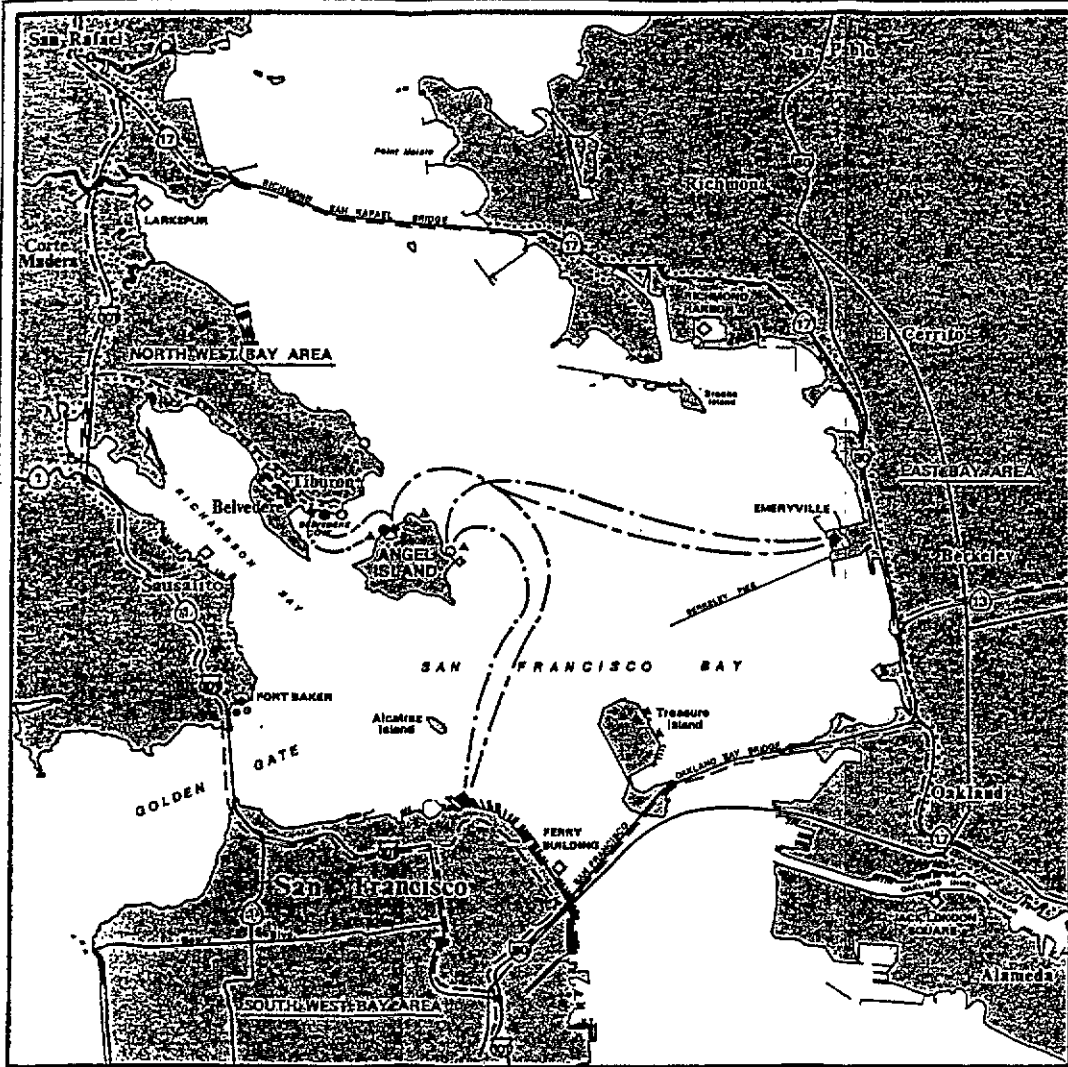
Although the energy source for the island is more than adequate to meet future development and visitor use needs, conservation measures will be employed to reduce overall island consumption to the lowest possible limit.

Case-by-case studies will be undertaken for all development elements (buildings, drinking water facilities, etc.) identified in the General Development Plan, as they are considered for implementation. Studies will be aimed at employing currently available energy conservation systems, such as thermal insulation, low-water-use plumbing fixtures, active and/or passive solar systems, composting sanitary waste disposal systems (where applicable), and other conservation methods and systems, as appropriate technology warrants.

REGIONAL TRANSPORTATION SURVEY

SOUTHWEST BAY AREA		EAST BAY AREA		NORTHWEST BAY AREA																	
EXISTING TRANSPORTATION MODES	REMARKS	EXISTING TRANSPORTATION MODES	REMARKS	EXISTING TRANSPORTATION MODES	REMARKS																
FERRY SERVICE																					
RED AND WHITE FLEET HARBOR TOURS, INC. PIER 41, SAN FRANCISCO	PASSENGERS (1976) PEAK SEASON (MAY-AUG) 38,433 OFF SEASON 21,202 TOTAL 59,635 MAINLAND SUPPORT FACILITIES PARKING (STREET): LIMITED RESTROOMS: LIMITED STAGING AREA: LIMITED ORIENTATION/SIGNAGE: LIMITED	RED AND WHITE FLEET HARBOR TOURS, INC. PIER 41, SAN FRANCISCO (VIA BERKELEY YACHT HARBOR)	PASSENGERS (1976) TOTAL 16,400 MAINLAND SUPPORT FACILITIES PARKING: (MUNICIPAL) RESTROOMS: NONE STAGING AREA: LIMITED ORIENTATION/SIGNAGE: LIMITATION	MCDONOUGH FERRY, TIBURON	PASSENGERS (1976) TOTAL 48,000 MAINLAND SUPPORT FACILITIES PARKING: (MUNICIPAL) RESTROOMS: (NONE) STAGING AREA (LIMITED)																
PUBLIC TRANSIT SERVICE																					
BAY AREA RAPID TRANSIT (BART)	EMBARCADERO STATION ABOUT 4 MILES FROM PIER 41 WITH GGT AND MUNI CONNECTIONS AVAILABLE.	BAY AREA RAPID TRANSIT (BART)	NORTH BERKELEY STATION ABOUT 3 MILES FROM YACHT HARBOR.	GOLDEN GATE TRANSIT	PRINCIPLE ROUTE: NO. 10.																
MUNI BUS ROUTE	PRINCIPLE ROUTES: LOMBARD AND VAN NESS STREET (NO. 84).	AC TRANSIT	PRINCIPLE ROUTES: UNIVERSITY AVENUE NO. 51; AT WEST BERKELEY F.H. 8 AND NO. 58.	PRIVATE TRANSPORTATION ACCESS																	
GOLDEN GATE TRANSIT (GGT BUS ROUTE)	PRINCIPLE ROUTES: EMBARCADERO (NO. 32), COLUMBUS (NO. 50), AND HYDE STREET (NO. 80).	PRIVATE TRANSPORTATION ACCESS		AUTOMOBILE	SEASONAL PARKING PROBLEMS, PRINCIPLE HIGHWAY: HIGHWAY 101.																
PRIVATE TRANSPORTATION ACCESS		AUTOMOBILE	PRINCIPLE HIGHWAYS: INTERSTATE 80 AND HIGHWAY 17.	BIKING AND HIKING	MAIN TRAILS ALONG TIBURON BOULEVARD.																
AUTOMOBILE	SEASONAL PARKING PROBLEMS PRINCIPLE HIGHWAYS: HIGHWAY 101 AND HIGHWAY 80.	BIKING AND HIKING	MAIN TRAILS FOLLOW BAYSHORE	BOATING	AVAILABLE AT VARIOUS LOCATIONS THROUGHOUT THE NORTHWEST AREA.																
BIKING AND HIKING	EMBARCADERO STREET HAS DIRECT ACCESS TO PIER 41.	BOATING	AVAILABLE AT VARIOUS LOCATIONS THROUGHOUT THE EAST BAY AREA.	POTENTIAL TRANSPORTATION FACILITIES																	
BOATING	AVAILABLE AT VARIOUS LOCATIONS THROUGHOUT THE SAN FRANCISCO AREA.	POTENTIAL TRANSPORTATION FACILITIES		FERRY TERMINAL	SITES SUITABLE FOR FUTURE TRANSPORTATION NEEDS: FORT BAKER LARKSPUR SAUSALITO																
POTENTIAL TRANSPORTATION FACILITIES		FERRY TERMINAL	SITES SUITABLE FOR FUTURE TRANSPORTATION NEEDS: RICHMOND HARBOR EMERYVILLE MARINA JACK LONDON SQUARE	OPERATIONS																	
FERRY TERMINAL	SITES SUITABLE FOR FUTURE TRANSPORTATION NEEDS: FERRY BUILDING	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">EXISTING FACILITIES</th> <th style="text-align: left;">REMARKS</th> </tr> </thead> <tbody> <tr> <td>FORT BAKER:</td> <td>LEASE SPACE FROM U. S. ARMY</td> </tr> <tr> <td>TIBURON:</td> <td>COMBINATION DOCKING FACILITIES WITH COMMERCIAL FERRY.</td> </tr> <tr> <td colspan="2">POTENTIAL FACILITIES</td> </tr> <tr> <td>NET:</td> <td>OLD U.S. MILITARY DOCKING STATION, NEW FACILITIES NEEDED.</td> </tr> <tr> <td>FORT BAKER:</td> <td>EXPAND AND SECURE PERMANENT FACILITIES.</td> </tr> <tr> <td>TIBURON:</td> <td>SECURE DPR DOCKING AND SUPPORT FACILITIES.</td> </tr> <tr> <td>RICHMOND HARBOR:</td> <td>NEW FACILITIES NEEDED.</td> </tr> </tbody> </table>				EXISTING FACILITIES	REMARKS	FORT BAKER:	LEASE SPACE FROM U. S. ARMY	TIBURON:	COMBINATION DOCKING FACILITIES WITH COMMERCIAL FERRY.	POTENTIAL FACILITIES		NET:	OLD U.S. MILITARY DOCKING STATION, NEW FACILITIES NEEDED.	FORT BAKER:	EXPAND AND SECURE PERMANENT FACILITIES.	TIBURON:	SECURE DPR DOCKING AND SUPPORT FACILITIES.	RICHMOND HARBOR:	NEW FACILITIES NEEDED.
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TIBURON:	SECURE DPR DOCKING AND SUPPORT FACILITIES.																				
RICHMOND HARBOR:	NEW FACILITIES NEEDED.																				

FIGURE 1



LEGEND

EXISTING FACILITIES

- ◆ FERRY TERMINAL
- FERRY ROUTE
- D.P.R. OPERATIONS BASE
- ▲ PRIVATE BOATING ACCESS
- - - BUS ROUTE
- BART ROUTE AND TERMINALS
- BIKE TRAIL
- PRINCIPLE HIGHWAY

POTENTIAL FACILITIES

- ◇ FERRY TERMINAL
- - - FERRY ROUTE
- D.P.R. OPERATIONS BASE
- ▲ PRIVATE BOAT ACCESS

NOTE:
REFER TO APPENDIX FOR
ADDITIONAL TRANSPORTATION
INFORMATION

SOURCES
TRAILS TO THE SEA,
REGIONAL TRAILS PLAN
MARIN COUNTY WIDE PLAN
MARIN COUNTY BIKEWAY

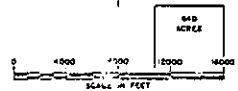


FIGURE 8

REPORT SHEET EXTENSION
 PROPOSED AGENCY OF CALIFORNIA
 ANGEL ISLAND STATE PARK
 16

The commercial carriers serving Angel Island State Park should provide a family rate with the children's rate extended to age 16.

The existing ferry system providing service to Angel Island is adequate in terms of handling visitor volume. But the ability of mainland embarkation terminals to accommodate present levels of visitor traffic is questionable. For example, the future of the Tiburon terminal as a North Bay access point is uncertain. Some existing parking which serves the terminal is in jeopardy of being displaced by residential and commercial development. There may be a need for an alternate terminal site, convenient to North Bay residents.

Visitor services provided at the San Francisco and Berkeley Yacht Harbor ferry terminal sites are also in need of reevaluation.

The San Francisco Terminal (presently located on the Embarcadero, Pier 43) suffers from a combination of minor problems that limits its potential effectiveness for access to the island. The existing facilities: (1) need stronger identity and visibility as an Angel Island transport means, (2) are devoid of adequate parking, when viewed against the backdrop of competing recreation use in San Francisco's Fisherman's Wharf/Embarcadero District; and (3) lack adequate support facilities such as restrooms, seating, and other conveniences. The San Francisco terminal presently accounts for about one-third of the total annual visitation to Angel Island.

The Berkeley Marina Terminal (located at the bay terminus of University Avenue) similarly suffers from a combination of minor problems. The existing facility needs a stronger identity and visibility as an Angel Island transport means. Support facilities, such as restrooms, seating, and other conveniences, are non-existent. At the present use level, parking does not present a problem, and no serious parking competition exists in the area. The Berkeley Marina Terminal accounts for about eight percent of the total annual visitation to Angel Island.

Since most visitors are dependent on the ferry service for access to the island, it is recognized that transportation is a major factor in use of Angel Island. Upon reviewing the relationship between the island's dependency on ferry service and the nature of the ferries' relationship with other Bay Region transportation systems, many issues are raised and remain unresolved. It is recommended at this time that a joint effort be undertaken by the Department of Parks and Recreation, regional recreation and transportation agencies, and other interests within the Bay Area, to comprehensively define and evaluate the full range of transportation issues surrounding recreation travel needs within the Bay Region as they relate to Angel Island State Park. Included in this study should be other state park units bordering the Bay.

It is felt that until such a time as a comprehensive evaluation is made, no substantive proposals for altering or otherwise enhancing the present regional access to Angel Island can be implemented. Existing regional access capabilities are adequate for interim use, until evaluations are finalized and recommendations are made and implemented.

On-Island Transportation

Ayala Cove is now the only commercial access point on Angel Island. Several thousand visitors have been concentrated in the Ayala Cove area at one time. This concentration has impacted the area in such a way that preservation of the resources is threatened. In light of this problem, on-island transportation proposals will be considered to facilitate visitor access to the rest of the developed part of the island. Dispersal of visitors to other locations on the island will reduce impact to the Ayala Cove area (see Figure 18).

The proposed addition of a ferry landing at East Garrison will relieve the concentration at Ayala Cove. Visitor impacts on resources will be controlled by ferry service schedule shifts, and by limiting the number of visitors per day.

The primary vehicular transportation mode is a tram, owned and operated by a concessionaire; it is used for interpretive tours of the island. It is recommended that the tram be used as a transportation vehicle, for distribution as well as interpretation purposes. Trams will be equipped to accommodate the handicapped and visitors' picnic hampers/parcels. The tram route would serve the island ferry terminal points at Ayala Cove and East Garrison, and would extend to West Garrison and North Garrison. The route is recommended to run from West Garrison north to Ayala Cove, then to North Garrison, with a turn-around at East Garrison. The route would connect all developed areas. With this route, bicycling and walking would be the primary modes of transportation for the southern part of the island. The tram would not run in the southern part of the island, between East and West Garrisons. Studies are needed to determine the potential level of tram usage, and alternative services and schedules.

Biking on the island is very popular. It is permitted along the main perimeter road. Other roads and trails are either too rough or too steep for safe bike use. Signs for bikers should identify hazards and promote public safety, and bike racks are to be provided along routes and within major use areas, to enhance cycling opportunities.

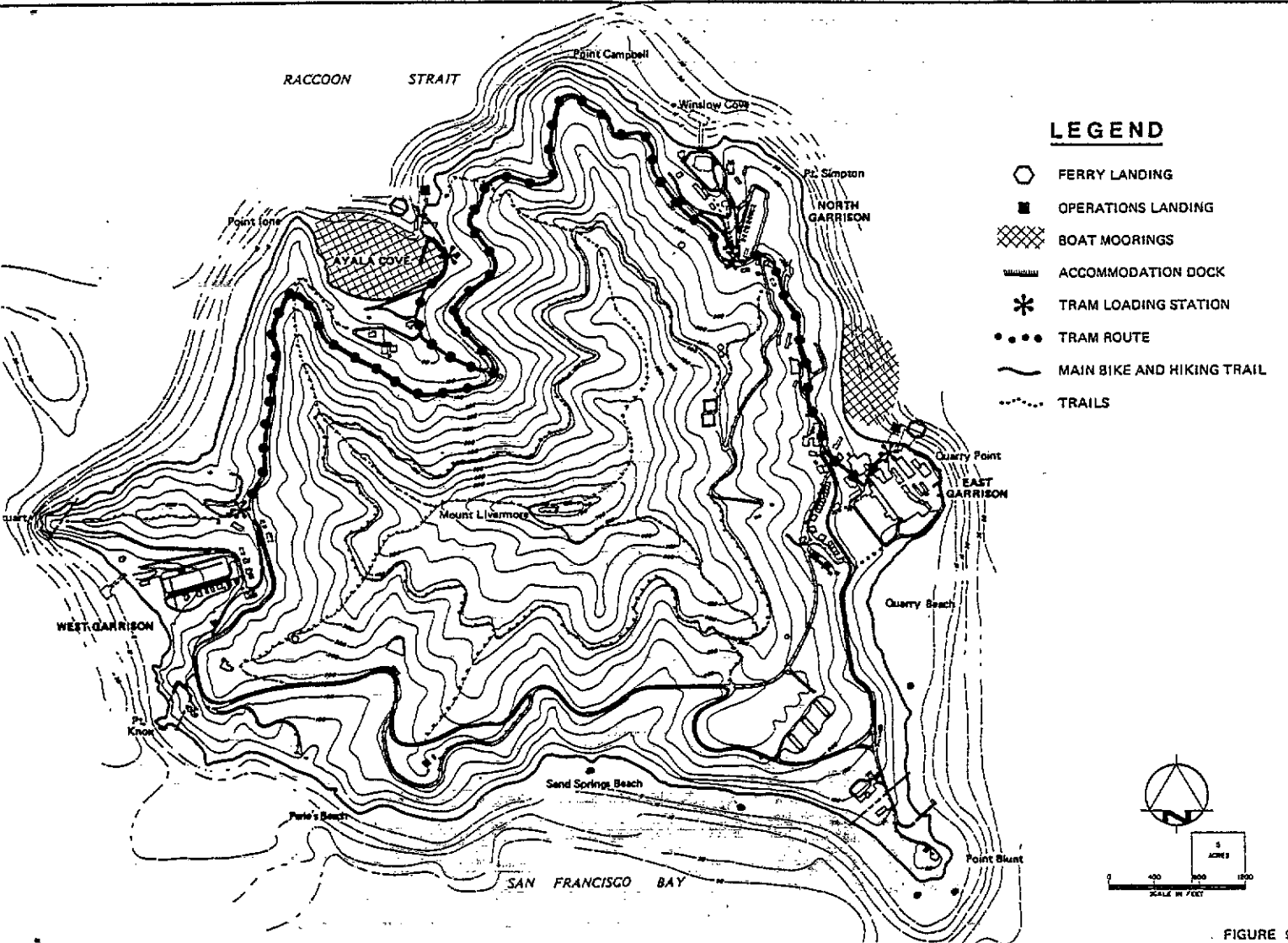
As services increase on the island, accommodation of bikers and their needs should be provided by the commercial carriers.

Hiking trails offer a means for transportation and for quiet appreciation of the island. The perimeter road is the primary island hiking system. Four interpretation trails, each with a different theme, are designated, and will be enhanced with wayside exhibits.

Operations

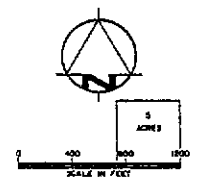
One of the more important aspects of Angel Island's transportation considerations is its mainland operations base. Operations activities occur at Tiburon and Fort Baker. The Department of Parks and Recreation landing barge dumps 5,000 pounds of refuse at Fort Baker each week. From here, the refuse is picked up by a DPR trash truck bound for a dump site in Point Reyes.

A privately-owned pier at Tiburon rents space for DPR to tie up its 36-foot motor launch, the "Ayala".



LEGEND

- FERRY LANDING
- OPERATIONS LANDING
- ▨ BOAT MOORINGS
- ▩ ACCOMMODATION DOCK
- * TRAM LOADING STATION
- TRAM ROUTE
- MAIN BIKE AND HIKING TRAIL
- ⋯ TRAILS



DESIGNED	DATE	BY	DATE	CHECKED
REVISION				
RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION APPROVED: _____ DATE: _____				
ANGEL ISLAND STATE PARK ISLAND TRANSPORTATION TRANSPORTATION INFRASTRUCTURE				
DRAWING NO. 16681				
SHEET NO. 9				

FIGURE 9

There is no storage warehousing available.

Several opportunities exist at present for establishment of a mainland base capable of serving the island. The base would function primarily as a maintenance service base, and would provide: (1) docking facilities for the DPR motor launch; (2) docking facilities for a 57-foot-long DPR L.C.M. 6; (3) storage facilities; (4) a visitor center/contact station; (5) communications facilities; and (6) at least twenty-five parking places for island park staff. Of the sites studied, the following four offer potential, and should undergo an additional study.

Because the Tiburon Peninsula is the closest point to the island, it would be the most naturally desirable place for a mainland operations base.

The former naval net depot on the north side of the Tiburon Peninsula is still in public hands, and is a likely possibility for a future mainland base. At the present time, the U.S. Department of the Interior uses it for an oceanographic studies operation and a base for the U.S. Fish and Wildlife Service.

The Richmond Inner Harbor is currently undergoing redevelopment. The possibility exists that this area could accommodate a DPR facility.

The remaining possibility lies at Fort Baker, at the north end of the Golden Gate Bridge. Here, the army maintains a small yacht harbor and boating facility. Consideration should be given to the possibility of leasing warehouse and docking space, along with some parking area, from the army. It is recommended that selection of an operations mainland base site be included in a special study.

The operations base study, and the previously mentioned transportation study for Angel Island, will require close coordination in formulation of recommendations.

Operations Considerations

Operation of Angel Island State Park has been, and will continue to be, the responsibility of the Department of Parks and Recreation's Operations Division, headquartered in Sacramento. Direct field operations (resource management, park administration and maintenance, and interpretation) will be administered through the District 2 office located in Santa Rosa, with the park unit office at Angel Island handling routine administration. The scope of operations activities will be tailored to various visitor activities, corresponding facilities and management responsibilities identified in the General Development Plan.

A detailed operations plan, identifying the existing level of service, is in use at this time. The existing plan will be augmented with additional detail as development and other programming is expanded and/or implemented.

Concessions Considerations

Providing adequate and desirable services and facilities for the use and convenience of the public at Angel Island State Park is an important departmental objective. However, funds allocated to the department cannot be expected to provide all services and facilities that might be desirable.

Department funds will be primarily used for basic facilities such as utilities, campgrounds, picnic facilities, buildings and equipment required for park operation purposes, preservation, upgrading, and interpretation of natural resources. Relatively little will be spent on ancillary services and facilities such as food services, recreation equipment rentals, ferry access to the island, etc. These needs are expected to be met primarily through the use of private capital investment.

The Public Resources Code, Chapter 1, Article 1.5, Section 5019.10, provides authority for the Department of Parks and Recreation to enter into agreement with private business:

5019.10 - Authority of the Department. - The Department of Parks and Recreation may enter into contract with persons, firms or corporations to construct, maintain and operate concessions within the State Park areas for the safety and convenience of the general public and the use and enjoyment of the State Park System.

Existing concession activities on Angel Island are conducted on a year-to-year lease agreement basis. There are three concession operators now serving Angel Island State Park visitors. Two concessionaires presently provide mainland ferry service, one serving the North Bay from Tiburon and the other serving the East and South Bay from the Berkeley and San Francisco areas. This service is indispensable to visitor use. An on-island interpretive tram is also provided by concession agreement with one of the ferry services.

Concession-operated food services and facilities are now provided only at Ayala Cove. This operation is handled independently of ferry service and tram services by the third concessionaire.

All existing concession operations on the island have developed out of visitor interest and popular demand for the services. It is anticipated that these needs will continue at the present level, and/or will expand as the General Development Plan is implemented.

A comprehensive evaluation of present and future needs, and a recommendation for future concession activities, will have to be made, to insure ferry service to the island, and to provide adequate and reasonable levels of food service and other appropriate services such as equipment rentals and storage lockers.

Emphasis will be placed on incorporating concession services in existing buildings and avoiding new construction.

Once identified in terms of future concessions activities, the scope will be formalized into a concessions report for Angel Island State Park. This document will set forth specific departmental requirements for concession programs and facilities for the island. The department will fill these needs as the opportunities and needs develop. The Department of Parks and Recreation Concessions Section in Sacramento will be responsible for formulation and administration of concession activities at Angel Island State Park.

Boat Shuttle

During public meetings on planning for Angel Island, there was mention of the possibility of ferries or other boats being used to shuttle visitors from one part of the island to another. The application that seems to have the most potential is the shuttling of people between Ayala Cove and East Garrison.

This can be evaluated after a dock is developed at East Garrison, and a substantial visitor use develops there. The simplest application would be to have the two areas served as consecutive stops on the route of a ferry.

Bike Rental

Bikes were once rented on the island, but the service was discontinued because of concerns on the state's part for accident liabilities, and on the concessionaire's part for costs of maintaining bikes and of liability insurance. The latter concern can be overcome by readjustment of rental rates.

Planning staff lists these points in connection with bike rental:

1. It would encourage dispersal of the public from major use areas, reducing adverse impacts.
2. It would help visitors get around the island. There is much to be seen and interpreted; visitors' time for enjoyment of resources is typically limited to part of the day, between arrival by ferry and departure by ferry. For some, visitation of the island is a one-time experience or an infrequent experience. Bikes (and shuttle services) offer these people an option of seeing more of the park than they could on foot.

Visitors' mobility may be limited by their physical ability, as with some elderly people. Bikes or trams can expand experiences for some of these people. A concessionaire should be encouraged to have some three-wheel bikes available.

Bicycling can be a pleasurable experience on Angel Island, and is compatible with other park usage.



Food Services

During public planning meetings, there was some citizen objection to food service facilities with the sentiment apparently being a rejection of things that add commercial atmosphere and detract from natural or historical values. There was some desire expressed to encourage old fashioned picnics by not having food services available.

However, most of the public spoke positively of small-scale food services, such as short-order service. The staff proposes that such services be housed in existing historic structures, and that if practical, food service be in a building where food was historically prepared and served.

At public meetings, a few people expressed interest in having restaurant service on the island, but restaurants were not given much consideration, in view of the public attitude as expressed previously, and because of concern that a restaurant could be an attraction in itself, and therefore not compatible with defined park objectives.

Storage Lockers

It has been suggested that visitors have a need to store things like picnic gear. This would be particularly helpful for heavy or bulky items, which are awkward to carry on hikes, and which should not be left unattended. Such lockers would encourage dispersal of visitors, tending to ease the concentrations of people in certain areas. They are suggested for the Ayala Cove and East Garrison areas.

Trams

Trams were discussed in public meetings. Some opposition was voiced to the impact of machinery on the natural scene, and to the resultant acceleration of the pace of activities on the island; generally, however, trams were considered useful and acceptable. Criticisms were offered as to the quality of interpretive programs presently offered on the tram rides. Along with this, there have been suggestions that the department take over the tram service, to better control interpretation and to provide schedule flexibility in use of the tram to distribute people on the island. The feasibility of this arrangement would require analysis by the department, which will include financial and staffing implications.



Camper Supplies

Food, ice, and incidentals may be offered after camping becomes available on the island. This service would be incidental to another service, probably food service.

Wagon Rides

As an interpretive experience and as a people-mover, horse-drawn or mule-drawn wagon rides have been discussed. No immediate decision has been recommended. Horses are historically accurate on the island, as several areas had stables. This idea requires additional study.

Funding Considerations

To date, these funding sources are identified for Angel Island:

AB 3067 (Foran) - \$250,000

Provided for restoration of the immigration station barracks (bldg. 317 at North Garrison). Contract for working drawings being processed.

Bagley Fund, Chapter 156/72 - \$275,000

Provided for the study and partial remedy of current sewage treatment deficiencies.

1974 Bond Act - \$1,000,000 (programmed for 1979/80 & 1980/81 Fiscal Years)
Will provide for improvements on Angel Island.

General Fund - \$1,000,000 (programmed for 1982/83 Fiscal Year)

In its multi-year program, the department has proposed that this park be a candidate for these additional funds for general improvements.

Application for federal funding, Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500), and the Clean Water Grant Program Regulations (Subchapter 7, Title 23, California Administrative Code) has been made, to further augment sewage system funding.

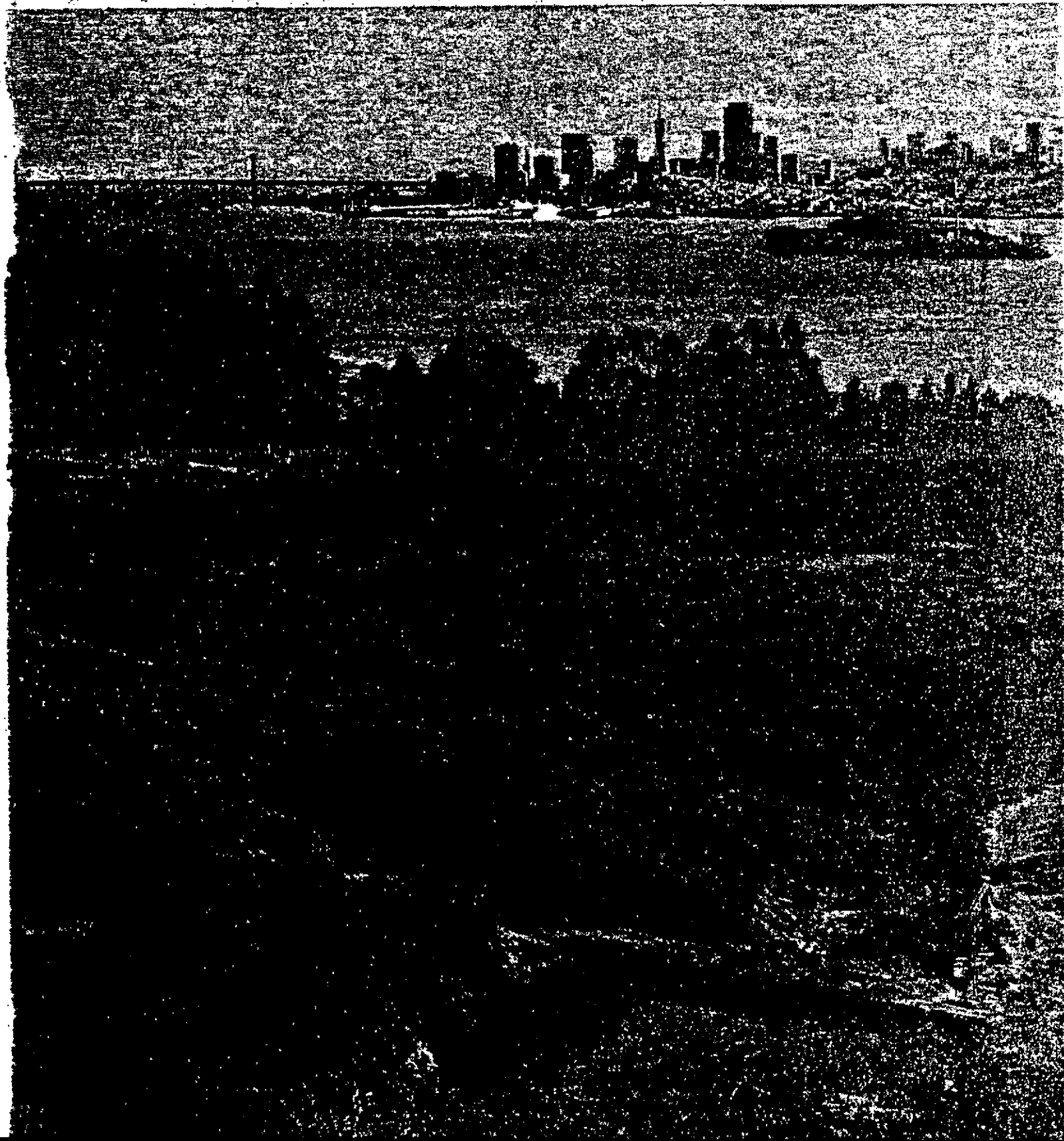
Funding has been sought from House Resolution 11, Title 2, for assistance in correction of hazards, stabilization of structures, control of unwanted vegetation, etc.

Additional sources of funding, as well as donations of labor and materials, should be pursued.

Several state departments warrant investigation for aid in implementation of the programs suggested within the General Development Plan.

1. Department of Navigation and Ocean Development
2. Department of Education
3. California Conservation Corps
4. Department of Fish and Game

Environmental Impact Report



ENVIRONMENTAL IMPACT REPORT

The Environmental Impact Report (EIR) is divided into three sections: (1) description of project, (2) description of environmental setting, and (3) environmental impact. The latter two sections are not detailed, because of the general, broad nature of the project description. Whenever a specific phase of the overall plan is budgeted and proposed for implementation, a more detailed and specific environmental assessment will be prepared for that particular project as part of the budget package.

Description of Project

Location: See General Description, page 3 of General Development Plan.

Objectives: See Plan Purpose, page 3 and Resource Objectives, page 18.

Project Description: See page 35 and subsequent pages.

Description of Environmental Setting

Existing Environment: See Resource Evaluation, page 23-25.

Regional Considerations: See page 35.

Environmental Impact

Significant Environmental Effects of the Proposed Project

Figure 10 lists, in the left vertical column, the proposed facilities of the General Development Plan. Each of these was assessed, with environmental factors listed across the top. It was determined that there would not be significant (adverse) environmental effects. Implementations were all found either not to interact, to be beneficial, or to have an insignificant effect. Many of the proposed planning objectives will have a beneficial effect when they are implemented. Refer to the following key for a description of the four categories used in rating the environmental effects.

Figure 10 - Key

- No Interaction: Project implementation does not cause a significant environmental effect, because the proposed development or management does not interact with the environment.
- Beneficial Environmental Effect: The interaction of the proposed development or management with the environment is favorable.
- Nonsignificant Environmental Effect: Although the development or management interacts with the environment, the effect does not cause a substantial adverse change in the environment, or the significant effect will be mitigated by the design.
- ◇ Significant Environmental Effect: The interaction between development or management and the environment may cause a substantial significant (adverse) change in the environment that cannot be avoided if the proposal is implemented as proposed.

The analysis of environmental effect was based on the fact that there will not be a significant increase in peak daily attendance. There will be an indirect beneficial effect by a greater dispersion of park visitors with the addition of the East Garrison ingress and egress point. Greater annual attendance is expected.

The proposed management of natural and cultural resources will have a beneficial effect on the environment.

The short-term effects of restoration of buildings, and the equipment and energy used to implement planning goals, will be beneficial toward promoting the long-term use of Angel Island State Park.

A list has been developed for demolition of nonsignificant structures on the island.

Demolition List

<u>Area</u>	<u>Structure</u>
Ayala Cove	(1) Bicycle rental building (2) Snack bar (3) Ticket sales kiosk
North Garrison	(4) T-39 (5) 80 (6) 81
East Garrison	(7) 33 (8) 61 (9) 62 (10) 64 (11) 104 (12) 127 (13) 142 (14) 147
Mt. Livermore	Concrete foundations (The concrete-block building housing the radio relay station should be removed or relocated.)

Any significant Environmental Effects which Cannot be Avoided if the Proposal is Implemented:

There are no anticipated significant (adverse) environmental effects. However, there are several nonsignificant environmental effects that cannot be avoided as proposed by the plan. These are shown in Figure 10.

Mitigation Measures Proposed to Minimize Significant Effects:

There are no significant effects.

The insignificant effects can be alleviated or minimized, but cannot be entirely eliminated. The following mitigation measures will reduce the anticipated impacts:

Soils Effect Mitigation: Care will be taken not to unnecessarily expose or disturb soils during the construction of facilities, reconstruction, demolition, and other activities by heavy equipment. Trails and roads will be carefully graded and drained. Native vegetation will be used to rehabilitate disturbed soils (see page 21 in the Resource Management Plan).

Energy and Air Pollution Effects Mitigation: Visitors will be encouraged to use public transportation to ferry terminals. Park vehicles will avoid unnecessary use. Conservation of energy in buildings on the island will be practiced.

Fire Hazard Mitigation: The Resource Management Plan (page 20) discusses prescribed burning. This would reduce the buildup of large amounts of fuel. The unit will be protected by trained personnel, and will have fire equipment available.

Noise, Light and Glare, Land Use, and Aesthetics Mitigation: Vehicles parking at terminals for boat transportation would cause these effects. Mass transportation and the distribution of people to several land base terminals will reduce these effects. Having the new port of entry at East Garrison will reduce impacts at Ayala Cove.

Transportation Effects Mitigation: Indirect transportation effects such as traffic congestion will be reduced by alternate transportation terminals. These are described in the transportation study. Public transportation systems would also help the congestion problems at terminals, especially the one in Tiburon.

If Tiburon were the only transportation terminal to Angel Island, the significant effects would occur. Having other terminals will reduce the indirect effects on Tiburon.

Public Services Effects, Mitigation: The public will be urged to use public transportation to terminal points, and to use alternate terminal sites besides the one in Tiburon. This would reduce impacts in Tiburon and the other debarkation ports. The park staff will not increase substantially so as to have an effect on schools, hospitals, etc.

Implementation of the Resource Management Plan, an adequate and competent operations staff, and an appreciative public will insure protection and enjoyment of the environment at Angel Island State Park.

Alternative to the Proposed Action: All alternatives to the proposed action should conform to patent limitations that the State Park System unit be used for historic monument purposes, and to California Administrative Code Title 14, Chap. 1, Section 4603, and Public Resources Code, Division 5(e).

The major alternatives to the proposed action are:

1. No project: This would mean continuation of the present condition.
The Ayala Cove area would continue to be over-used, and to suffer the effects of soil erosion. Deterioration of existing facilities and historic structures throughout the island would continue. Sewage problems would continue, and there would be further encroachment of exotic vegetation.
2. A higher magnitude of development: This would further increase daily attendance over existing conditions. The increase in visitors and facilities would have significant effects on the natural and cultural resources of the island, due to over-use.
3. Other location of facilities than suggested in the General Development Plan: This would mean the placement of public-use facilities in other areas; for example, greater intensity at West Garrison or in the Natural Area, and less at East Garrison. This alternative would result in significant impact on the limited resources at West Garrison, and/or on the natural values of the unit.
4. Greater or lesser emphasis on historic structures: Many options are available, such as emphasizing one period of history more than another. Other options might be complete restoration and reconstruction, or the idea of arrested decay.

Several ideas were brought to the attention of the staff during public involvement meetings. Among these were the possibility of including structures that do not conform to the historic purposes of the island.
5. Alternative transportation embarkation points are discussed, and issues are presented, in the Angel Island State Park Transportation Study in the Appendix. This issue has not been completely resolved.

The Relationship between Local Short-Term Uses of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity:

Implementation of the proposed General Development Plan and Resource Management Plan would protect and improve the unit's resources, and would increase the number of areas with facilities for the public. The public should be able to enjoy the historic, natural, and recreational values for many years.

Any Significant Irreversible Environmental Changes That Would be Involved in the Proposed Action Should it be Implemented:

This project will further commit the island to the goals of the project, and will protect its resources. It is too valuable as a historic and scenic place in the San Francisco Bay Area to be used in other ways.

The Growth-Inducing Impact of the Proposed Action:

Construction of recreation facilities and restoration of structures will add to the local economy, because of the proposed work. The project will probably not have a significant effect on growth of development on lands in the Bay Area.

Some indirect growth may result near the terminal points of the transportation system.

Effects Found Not to be Significant:

This project will not cause any significant effects.

ORGANIZATIONS AND REFERENCES CONSULTED

See pages 103-106 of the General Development Plan.

APPENDIX A
GLOSSARY OF TERMS

Included within this glossary are words and phrases peculiar to the Department of Parks and Recreation, and not in common use by other government agencies or citizens.

Interpretive Program and Facilities Terms

Adaptive Use: Using a historically accurate restored or reconstructed structure for other than its historical use. Compatible uses could include such things as:

1. Park residences
2. Operation/maintenance
3. Interpretive centers
4. Concessions
5. Special group functions.

To simplify the examination of existing structures on Angel Island State Park, they have been grouped to reflect the manner in which they appear on the island: Ayala Cove, North Garrison, East Garrison, West Garrison, and the Natural Area.

Boat Accommodation Dock

A dock unit, provided to facilitate boat-in park visitors' access to the island. Finger piers and/or other more permanent berthing features are not normally included.

Day-Use Area

An area in which recommended activities are to occur during daylight hours when the park is open. Examples of some of these types of activities are picnicking, kite flying, field sports, bicycling, etc.

Environmental Education: This term encompasses instruction in protection and conservation of resources in a contemporary setting, including the necessity for protection of the environment, humanity's relation to human and natural environments, and humanity's places in ecological systems.

Environmental Living Program: Environmental living, as the name implies, is an actual living, overnight experience for children that takes place in an authentic cultural, historic, or prehistoric setting, in which the interaction and interdependency of humanity and the environment are presented. The basic concept of the program is surviving. Looking into the past, students gather information and experience in how a particular culture survived in the area where they, the students, "live now".

Formal Picnic Unit

A developed picnic site designed to accommodate one to eight park visitors. Facilities normally include a picnic table (six or eight feet long), and a pedestal barbecue. Water, trash facilities, and a comfort station are provided within the area.

House Museum: A historically accurate restoration or reconstruction of a structure, using furnishings and other artifacts of a specified period of history. The objective is to present activities, events, and people of a particular period in a historically accurate setting.

Informal Picnic Unit

An undeveloped picnic site, generally an area of lawn or natural clearing designated to accommodate one to eight park visitors for blanket-style picnicking. No formal facilities are provided. However, a comfort station, water, and trash facilities are provided within the area. These areas double as open free play spaces when not being used for picnic purposes.

Interpretive Center: A facility or group of facilities dedicated to providing information, orientation, and explanation concerning identified interpretive themes and stories. The center usually employs a number of modern techniques, often including multi-media, and may also include historic artifacts. The facility may contain administrative, operational, and visitor comfort features, artifact storage, and research facilities such as study collections, a library, and work rooms.

Multi-Use Area

An area designed to accommodate several activities, not necessarily occurring simultaneously. Facilities recommended for such an area provide this multi-use potential. In the Angel Island General Development Plan, this term applies to an area which can be used for group or individual use, camping, or day use.

Primitive Camp Unit

A camp unit with minimum improvements and a clear, level tent site pad, designed to retain a primitive nature. The areas are small, with few camp units, which accommodate one to eight (maximum) visitors. Restroom and disposal facilities are to be provided at locations within the general area

Restoration Terms

Exterior Restoration:

1. Repair and/or replace roof frame and coverings.
2. Repair and/or replace windows, doors, and exterior trim and finishes.

3. Prepare and repaint exterior surfaces.

General Restoration:

1. Determine engineered structural requirements, and install corrective pilaster and bond beam network or shear panels, to make the structure able to withstand calculated vertical and horizontal loads.
2. Repair and/or replace roof frame and cover.
3. Repair and/or replace windows, doors, trim, and interior/exterior wall finishes.
4. Repair and/or replace plumbing, electrical, and mechanical, as required.
5. Install new utilities, as required.
6. Remove appendages infringing on the interpretive scope.

Preservation:

1. Repair and/or replace roof frame and cover.
2. Temporarily brace structure to prevent collapse.
3. Secure all openings to prevent further damage by weather or vandals.

Studied Neglect:

1. Safety mechanisms will be employed to allow park visitors to observe the deterioration of structures designated in this category.
2. Some mechanisms that could be employed may be chain link fencing or barricades.
3. Special consideration should be given to these structures with regards to the fire hazard they pose.

Terms Used to Describe Existing Structures

Existing structures were studied for: (1) historic significance, (2) interpretive value, and (3) structural soundness. Evaluations of these three categories led to selection of specific buildings to use in interpreting and operating the island. They were separated into categories which identify their assigned emphasis. The categories are Interpretive, Operations, and Removal.

Interpretation:

Structures listed under this category are felt to be of prime importance historically, architecturally, and culturally. They are significant in interpretation of the island's resources to park visitors. Not all of these buildings are recommended for a high level of restoration treatment at this time. They are, however, suggested candidates for at least preservation. Omitted from this list are some of the buildings at West Garrison that underwent preservation in 1973, and are not recommended for treatment until about 1983.

The concept is to preserve these significant buildings; at a later date, a higher level of restoration may be called for as an appropriate use becomes apparent.

Operations:

This category describes structures for park operations, such as park headquarters, staff residences, maintenance storage, and shops. Some structures now serve in this capacity, while others are vacant and are recommended as candidates for these activities. Addition of buildings to this category should be considered on an incremental basis, reflecting the island's total restoration program. Once the program is complete, some operations structures may be declared surplus, and may be considered for removal.

Removal:

Structures in this category are not felt to be of interpretive significance, are not necessary for park operations (now or in the future), or are in such poor condition that restoration attempts would not be justified. It is recommended that a photographic record and measured drawing of each structure in this category be completed before demolition.

APPENDIX B

FOOTNOTES

- ¹Adam E. Treganza, Archeological Observations at Angel Island, contracted report to California Department of Parks and Recreation, March 1, 1966 (Sacramento: Department of Parks and Recreation, 1966) p. 9.
- ²Jack D. Forbes, Native Americans of California and Nevada, (Healdsburg, California: Naturegraph Publishers, 1969), pp. 27-37.
- ³All historical data not otherwise footnoted was obtained from Marshall McDonald and Associates, Report and Recommendations on Angel Island (Oakland: Marshall McDonald and Associates, 1966).
- ⁴Paul C. Johnson, et al., The California Missions (Menlo Park, California: Lane Book Company, 1964), p.316.
- ⁵Treganza, p.7.
- ⁶James D. Ripley, "A Floristic and Ecological Study of Angel Island State Park, Marin County, California" (unpublished M.A. Thesis, San Francisco State College, 1969), p.23.
- ⁷Ripley, p.30; Beecher Crampton, Grasses In California (Berkeley and Los Angeles: University of California Press, 1974), pp. 36-115.
- ⁸Geologic Guidebook of the San Francisco Bay, Bulletin 154 (Sacramento: California Division of Mines, 1951), pp. 78-84.
- ⁹F. Leslie Ransome, "The Geology of Angel Island", Bulletin of the Department of Geology, Vol. 1, No. 7 (University of California, 1894) pp. 193-233.
- ¹⁰Raymond Pestrong, "Unnatural Shoreline", Environment 16 (November 1974): 27-35.
- ¹¹California Department of Water Resources, Division of Resources Planning, Investigation of Water Supply for Angel Island State Park, San Francisco, December 1960, pp. 1-7.
- ¹²Ripley, p.11.
- ¹³Ripley, p. 14.

APPENDIX C

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County of Santa Clara, County Administration Building
70 West Hedding Street
San Jose, California 95110

Pierre Joske - Director, Department of Parks and Recreation
County of Marin, Civic Center
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Jana Olsen - Trails Coordinator, East Bay Regional Park District
11500 Skyline Boulevard
Oakland, California 94619

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APPENDIX D

EXISTING FACILITIES EVALUATION

The island's historic resources are now in a general state of disrepair. A combination of social, economic, and environmental factors have, over the years, caused the original island improvements to decline to a point where visitors' use and enjoyment of these resources is hampered. With the exception of visitor facilities now in use at Ayala Cove, North Garrison, and West Garrison, most of these resources require some level of attention.

Early in the planning process for Angel Island, it was evident that an inventory and evaluation of the island's historic facilities would be required, to identify and assess the current condition of existing buildings, utilities, and other related site improvements. Several field reconnaissance studies were undertaken early in 1977, to identify and evaluate the facilities' conditions. These studies were conducted by department planning staff, architects and engineers, field operations personnel, and staff historians.

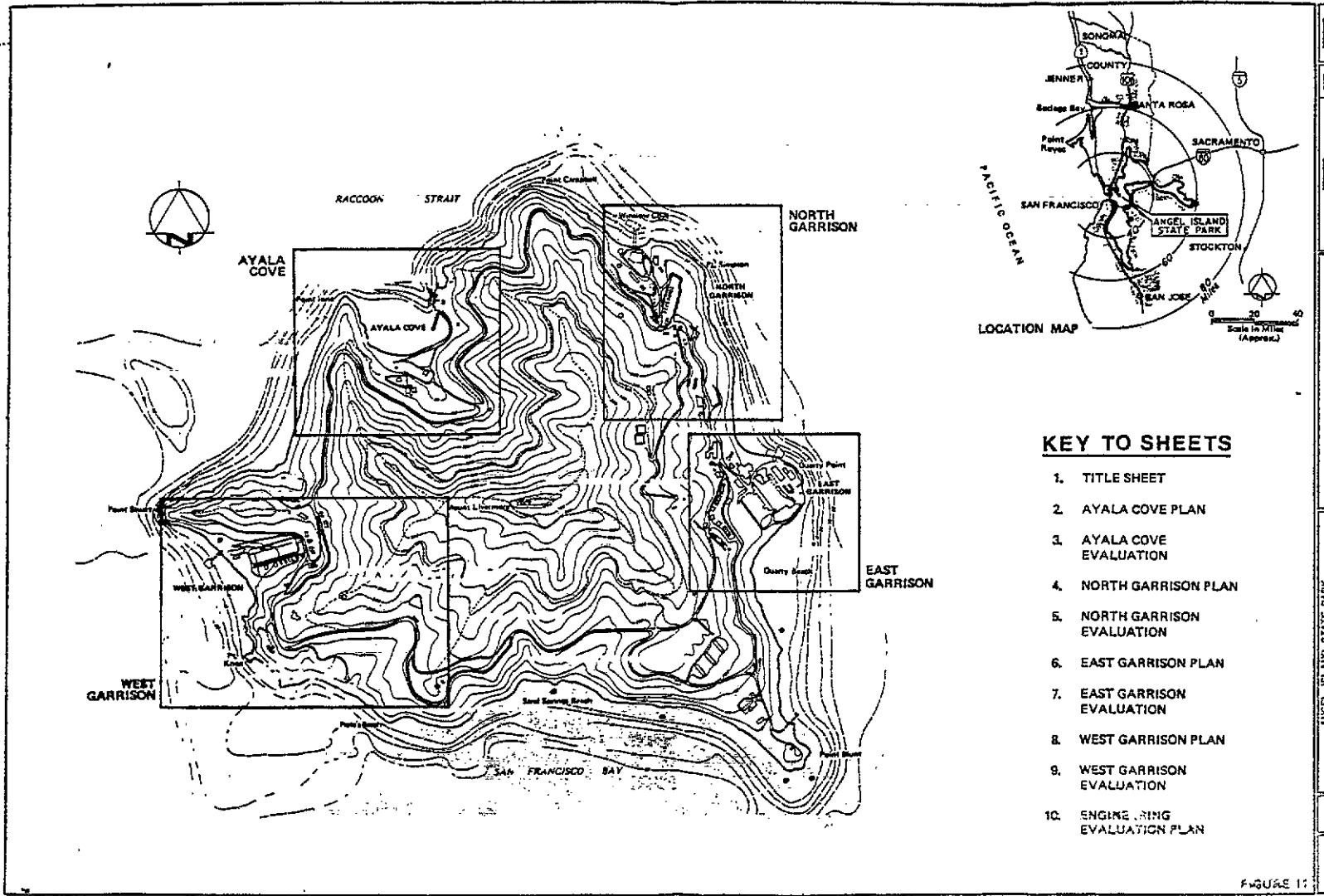
The following discussions and accompanying plans and tables (figures 11 through 19) summarize the evaluations made during the field reconnaissances. More detailed materials are on file at the Department of Parks and Recreation's main office in Sacramento.

Architectural Evaluation

Some 200+ buildings and related structures were reported to have existed through 1955, when the department originally established the park unit at Ayala Cove. Many of these buildings have collapsed, and/or have been removed during the ensuing years. About 93 buildings, foundations, and/or ruins now remain as evidence of the various historic periods and styles.

The principal period styles present on the island include examples of Mission Revival architecture (circa 1910), Greek Revival (circa 1910), cottage style (circa 1918), modified Italian villa and Italian Renaissance (circa 1909), modified Georgian (circa 1925), modified southern Louisiana River (circa 1890), 19th century suburban cottage (circa 1864), transitional renaissance (circa 1869), and various military styles (World War I and World War II), among lesser examples. Many remaining buildings are in usable condition. However, most of them fall short of being usable.

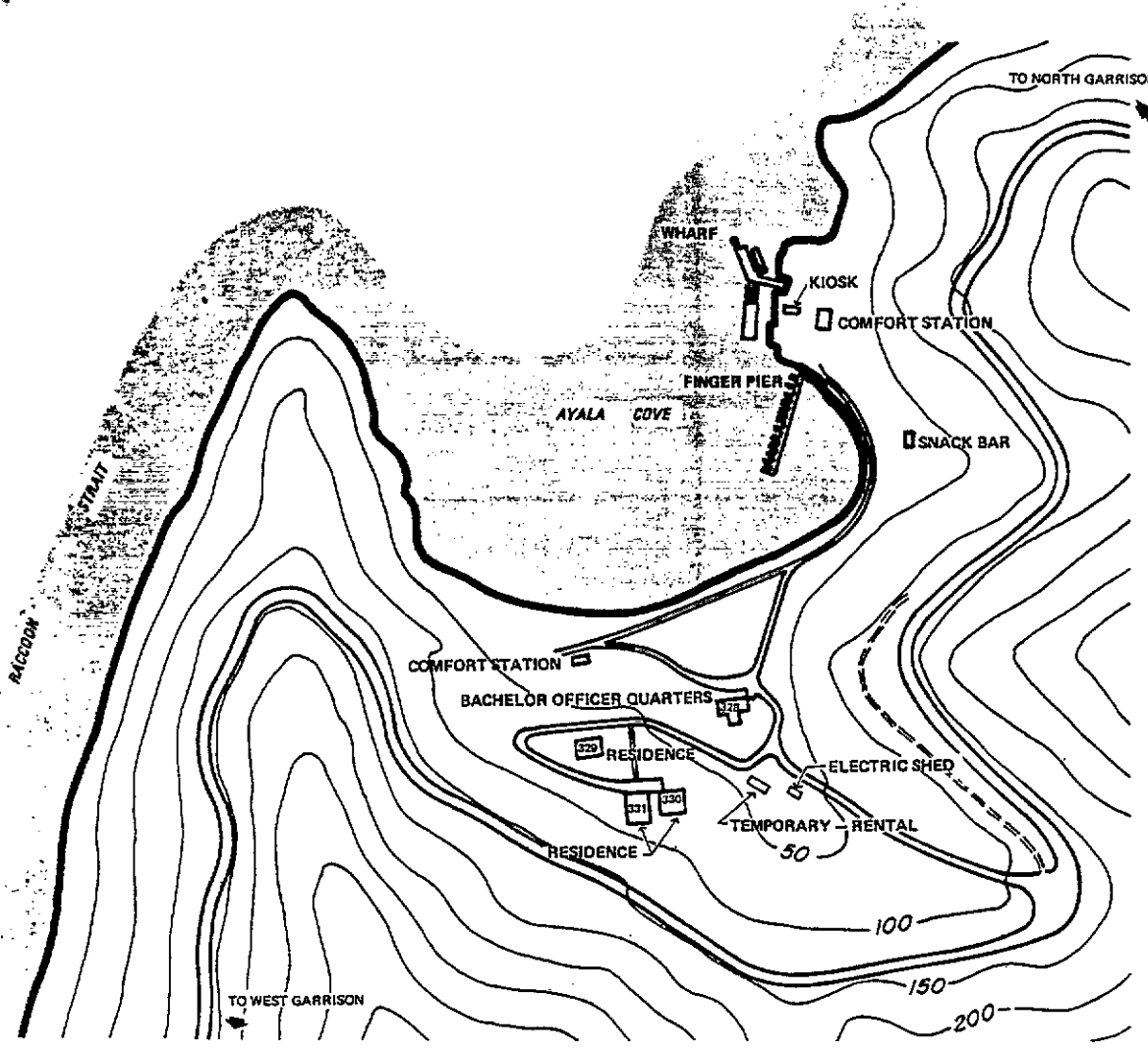
The following plans and related building evaluation tables locate and assess the conditions of these buildings.







KEY TO SHEETS

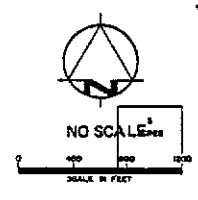
1. TITLE SHEET
2. AYALA COVE PLAN
3. AYALA COVE EVALUATION
4. NORTH GARRISON PLAN
5. NORTH GARRISON EVALUATION
6. EAST GARRISON PLAN
7. EAST GARRISON EVALUATION
8. WEST GARRISON PLAN
9. WEST GARRISON EVALUATION
10. ENGINEERING EVALUATION PLAN

FIGURE 11



- LEGEND**
-  BUILDINGS
 -  RUINS
 -  ROADS
 -  TRAILS

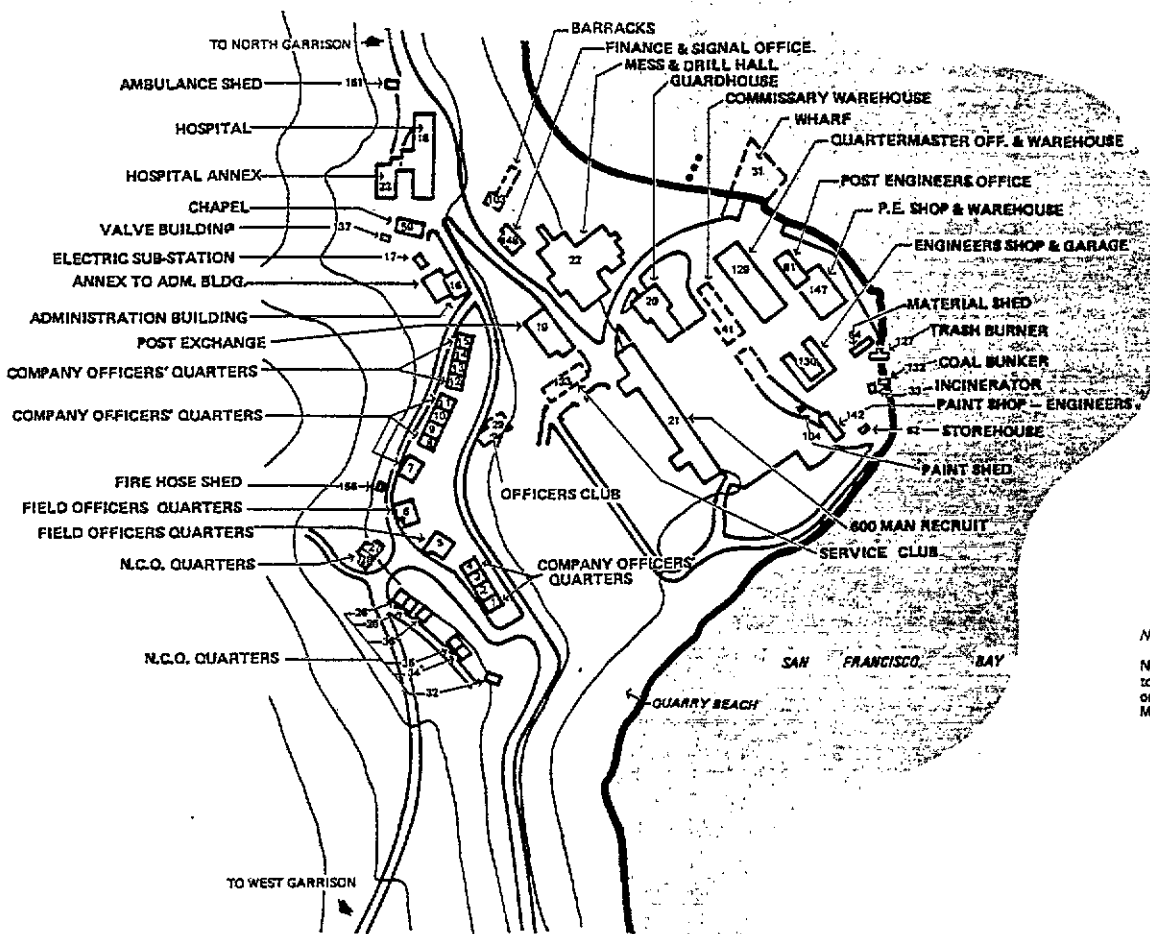
NOTE:
 Numerical Designation (103,29,etc.) Refers to the "Report and Recommendations on Angel Island 1769-1968" By Marshall McDonald and Associates 1968.



	DATE	DRAWN	CHECKED				
SOURCE: AGENT OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION							
ANGEL ISLAND STATE PARK AYALA COVE PLAN							
SHEET NO. 1668							

FIGURE 13

LOCATION	PLUMBING	ELECTRICAL	INTERIOR	EXTERIOR	VEGETATION	DRAINAGE	STATUS	STRUCTURAL CONDITION CLASS	PRESENT USE	HABITABILITY			ITEM	REMARKS
										Habitable W/Minor Repairs	Habitable W/Major Repairs	Non-Habitable		
Open													1	1-4 Habitable
Existing													2	9-11 Habitable
Non-existing													3	12-15 Major Repairs
Gutter & Downspout Sys.													4	
Knob & Tube													5	
Conduit													6	
Romax													7	
Non-existent													8	
Plaster													9	
Cloth W/Wall Paper													10	
Wood													11	
Pressed Board													12	
Unfinished													13	
Plaster													14	
Wood													15	
Corrugated Metal													16	
Concrete													17	
Masonry													18	
Dense													19	
Clear													20	
Good													21	
Bad													22	
Secured													23	
Safe													24	
Hazardous													25	
Critical Stabilization													26	
Urgent Stabilization													27	
Critical Restoration													28	
Necessary Restoration													29	
Minor Repairs													30	
Maintenance Only													31	
Living Quarters													32	
Storage													33	
Museum													34	Protect or Remove
Ruins													35	Protect or Remove
Vacant													36	Protect or Remove
Habitable W/Minor Repairs													37	Removed
Habitable W/Major Repairs													38	Removed
Non-Habitable													39	Removed
													40	Removed



NOTE:
 Numerical Designation (103,29,etc.) Refers to the "Report and Recommendations on Angel Island 1789-1968" By Marshall McDonald and Associates 1966.

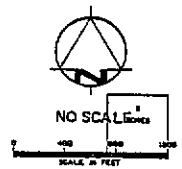
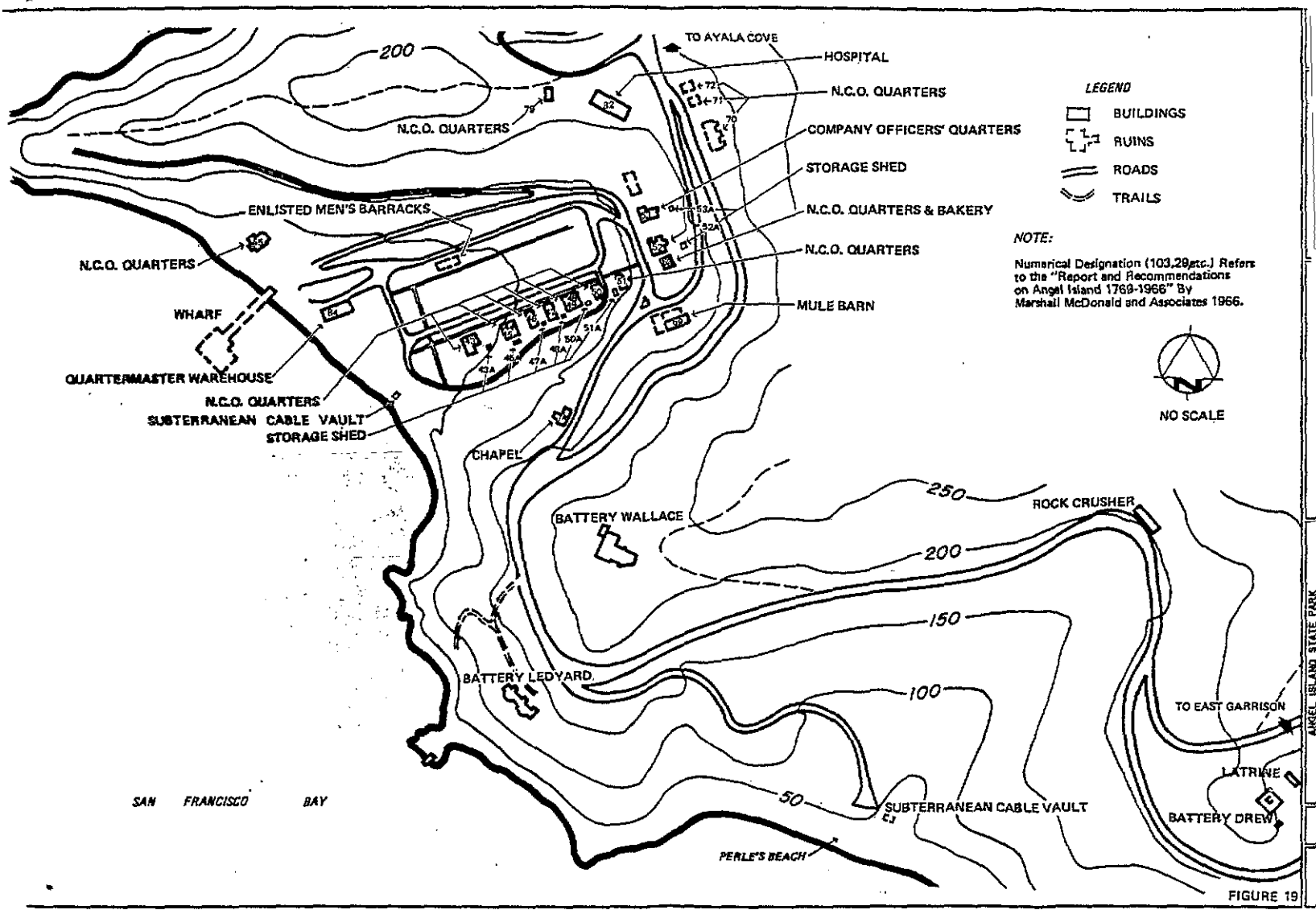
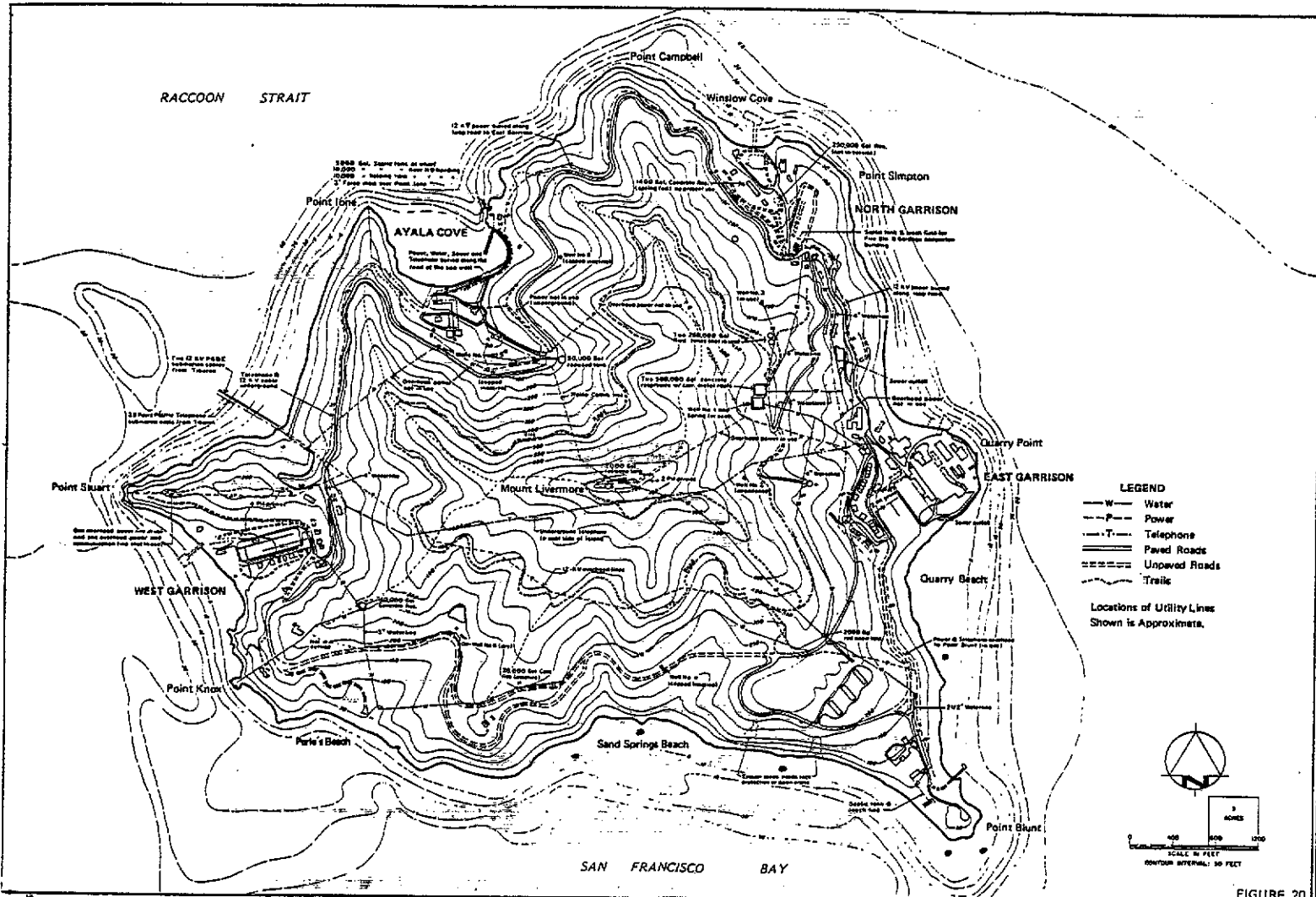


FIGURE 17

REVISION	DATE	BY	CHK'D BY
RECOMMENDED BY CALIFORNIA DEPARTMENT OF PARKS AND RECREATION			
APPROVED		DATE	
EAST GARRISON PLAN			
EXISTING FACILITIES			
DRAWING NO. 16681			
SHEET NO. 8			



ANGEL ISLAND STATE PARK



DRAWING NO. 1668
 SHEET NO. 119
 ANGELE ISLAND STATE PARK
 EXISTING UTILITIES
 DEPARTMENT OF PARKS AND RECREATION
 RESOURCE AGENCY OF CALIFORNIA
 APPROVED DATE
 MAY 1957

FIGURE 20

Engineering Evaluation

An extensive system of utilities, roads, and related site improvements was developed throughout the historic periods, to serve the then-burgeoning use and building construction on the island. Much of what was once developed fell out of use and was abandoned during the post-WW II era, with the exception of minor federal construction in the vicinity of Point Blunt (U.S.C.G. and Nike missile site development).

Although the department has maintained the original systems on the island, much of what remains today is as it was at the close of WW II. The existing conditions and evaluations are discussed below, and graphically depicted on the engineering evaluation plan (figure 20).

Water System

The potential water supply for Angel Island is provided by seven wells and one spring. A description of the wells and their capacities is set forth in a report prepared by the Department of General Services, dated October 9, 1969. The location of the producing wells and three dry wells is shown on the attached drawing. The water supply for the island is presently provided by wells nos. 1, 3, 4, and 7. Well no. 1, and the spring located near the two 500,000-gallon concrete reservoirs, are the primary water sources for the buildings and grounds in the area of the firehouse, East Garrison, Point Blunt, West Garrison, and the summit. Well no. 3, located north of the two large reservoirs, is used on demand to keep the 500,000-gallon reservoirs full. The distribution of this system is shown on the attached drawing.

In addition to the two 500,000-gallon concrete reservoirs mentioned above, the distribution system includes a 2,000-gallon transfer tank above the Nike missile site, a 2,000-gallon storage tank at the summit, and a 160,000-gallon concrete reservoir above West Garrison. These facilities are all in good condition, except for the roof on the storage tank above West Garrison, which needs to be resheeted and resingled.

The water from the two large reservoirs flows by gravity to the 160,000-gallon reservoir above West Garrison and to the points of service discussed above, with the exception of the summit, and terminates at a fire hydrant in West Garrison near the old hospital. A pump at the 2,000-gallon transfer tank provides service to the summit.

The water service at Ayala Cove is developed from wells nos. 4 and 7, which pump alternately into a 50,000-gallon redwood tank near the loop road above Ayala Cove. The wells, the tank, and the distribution system in the Ayala Cove area are in good condition.

Even though the driest years of record are being experienced in California, all reservoirs and tanks discussed above are full of water; as reported by park maintenance, there has been no problem in keeping them full.

With the exception of the pumper truck, immediate fire protection at North Garrison is limited to the area of the shops and firehouse. However, there is an unused underground 250,000-gallon concrete reservoir in North Garrison near the immigration building. While this has been unused for quite some time,

it appears that it could be put into service again with minimum repair. Also in the North Garrison area, above the old immigration building, is a 17,000-gallon concrete reservoir. This is fed by a spring in the immediate area that flows overground into the reservoir. The reservoir has a wooden cover, and the spring has a light flow (less than 1 GPM) at this time.

Consideration should be given to more positive fire protection in the North Garrison area, either by extending water service into the area or by developing the existing large reservoir. There are two 250,000-gallon redwood tanks about 500 feet north of the two large concrete reservoirs. These tanks are not in service but the lumber appears to be in excellent condition. Fire protection and water service on the island would be enhanced by extending the waterline from West Garrison around to North Garrison, to complete a water service loop connecting all facilities.

Power Supply

Power to Angel Island is provided by P.G. & E. It is transmitted to the island by two submarine cables with a capacity of 12 KV each. The cables surface at a location on the northwest side of the island, between Points Stuart and Ione, near the old powerhouse. At this point, one 12 KV power cable and a telephone line are buried in a common trench that runs along the main loop road to Ayala Cove. The joint power trench ends at Ayala Cove, and the powerline alone continues underground along the main loop road to North and East Garrison. At East Garrison, the power is carried on overhead lines to the summit and to Point Blunt. The second 12 KV power cable carries power on overhead lines across the island, more or less along the fire road between East and West Garrison, to complete a loop.

This 12 KV power loop, which was installed in 1971, is in good condition, and has the capacity to service the park for day-use development.

In addition to the above, there are old overhead powerlines on the island which are no longer in use. These are shown on Figure 20.

Telephone Service

Telephone service is supplied by Pacific Telephone, through a submarine cable from Tiburon. The cable was laid in 1964, and has a 25-pair capacity. It surfaces on the island at about the same point as the power cables, and is buried in a common trench with the power cable to Ayala Cove. The telephone line terminates at Ayala Cove. Service to East Garrison, Point Blunt, and the firehouse are provided by an underground 50-pair cable from West Garrison. Pacific Telephone reports that this underground cable was installed by the army more than 50 years ago. Telephone service personnel have experienced some problems in locating pairs, which indicates that some of the pairs in this cable may be corroding. However, Pacific Telephone does not feel that there is any significant problem in supplying telephone service in the future to satisfy day-use development. If more than 25 pairs are required in the future, a carrier submarine cable could be installed to provide additional service to the island.

The main terminal house for telephone facilities on the island is located in the finance building at East Garrison. The telephone company is in the process of moving these facilities to an underground vault near the old administration building, also in East Garrison.

Sewer System

A 5,000-gallon septic tank, constructed in 1968, serves a comfort station next to the wharf at Ayala Cove. The remainder of the wastewater in Ayala Cove is discharged to a 10,000-gallon septic tank, with overflow to a 10,000-gallon holding tank which also receives the wharf area wastewater. Pumps discharge the septic tank effluent from the holding tank through a 3-inch force main over Point Ione. The latter facilities were constructed in 1958, and were improved in 1968.

At East Garrison, a sanitary sewer system has been developed that serves the rangers' residences on Officers' Row and a small ranger residence near the chapel. The collector line is behind Officers' Row, and leads to an outfall through the seawall near the southeastern side of East Garrison.

The ranger's residence between East Garrison and the firehouse has a single discharge line leading directly to the bay. The firehouse located near North Garrison is served by a septic tank and leach field constructed in 1975. The rangers' duplex residence at Point Blunt is served by a septic tank and leach field.

Eight pit privies are now in use on the island. There are two at East Garrison, four at West Garrison, and two at the summit.

Five alternatives to the existing sewer system are under study at this time. It is anticipated that a new system will be constructed in about two to three years that will serve Ayala Cove, North Garrison, and East Garrison. In the interim, the state plans to install a package treatment plant capable of treating 50,000 gallons per day. Currently, on a peak day, 20,000 to 25,000 gallons of waste are generated. It is anticipated that this plant will be located at Point Ione, to serve the Ayala Cove area. The effluent from this plant will be monitored over the next two years, to determine if it is of a suitable quality for reclamation and landscape irrigation.

At North Garrison, the wharf has been removed; however, it was reported by park maintenance staff that there may be some underwater hazards remaining in this area. This will require reconnaissance by divers to determine the extent of any underwater hazards that may be in this area, before placement of pleasure boat moorings.

The wharf at East Garrison is in very poor condition, and would appear to have no further functional use in connection with Angel Island, except the possibility of interpretive value. The substructure, consisting of metal piles with metal braces, is badly rusted throughout. The wooden fender piles at the edge of the wharf, the caps, the stringers, and the deck are all in

very poor condition. The last appraisal of the wharf was made in 1974 by the California Department of Transportation. At that time, considerable bore damage and rot was noted in the caps and piles. No remedial measures have been taken since that time, and the condition of the wharf has deteriorated considerably. The Department of Transportation's 1974 report estimated that it would cost about \$150,000 to repair the parts of the pier that could be used, and to remove the unusable parts.

The wharf at West Garrison has had the deck and a section of the stringers removed, to keep people from climbing out on the old structure. The remaining structure consists of metal pilings with metal braces, all in very poor condition. There are some wooden caps on the tops of the piles. Park personnel indicate that these provide roosting places for migratory pelicans; consideration should be given to leaving these caps in place.

Sea Walls

Three sea walls around the perimeter of Angel Island are located at Ayala Cove, East Garrison, and West Garrison. The sea wall at Ayala Cove is basically in good condition. However, there are some problems with voids in the rock rubble wall that are creating a leaching of the material behind the wall, and are causing subsidence. One problem area is near the east side of the grassy area, in front of the headquarters building. This could be repaired in two different ways: (1) excavate a new footing in front of the wall, place the footing, and grout the voids in the rock wall; (2) excavate behind the wall, place a stabilizing material against the wall, and backfill. Excavation behind the wall presents a problem, since sewer, water, and power lines are buried in that area. There are other areas of the wall where it looks like some guniting or grouting of the voids would be desirable. The sea wall near the Department of Parks and Recreation boat launching ramp is also in poor condition. Part of the decorative rock wall at this point has fallen down, due to subsidence behind the wall. The flat area behind the wall is not in use at this time. However, if this area is to be protected for future use, it will be necessary to make repairs to the sea wall. This will require excavation behind the sea wall, placement of a new concrete footing, reconstruction of the wall that has failed, and backfilling with stabilizing material.

The condition of the seawall at East Garrison is generally good. However, there is a break in the wall at the southwest end near the sandy beach area. At this point, about thirty feet of the concrete wall has fallen over. There is no immediate danger of erosion to slopes behind the wall, due to a twenty-foot stable flat rubble area between the wall and the bluff. However, continued loss of the wall may occur if steps are not taken to repair this area. This can be corrected by repositioning the broken wall and replacing the concrete as necessary. Another point of the seawall under consideration is a spot at the end of the wharf, where subsidence is occurring in a small area. The extent of this problem is unknown, because it is directly under the point where the wharf meets the seawall. Excavation of the subsidence area

will be required to determine its magnitude. Also, north of the wharf about 200 feet, and immediately behind the mess hall/gym building, is a small area where there is an indication of old slippage. There does not appear to be any immediate problem in this area; it should be watched for future movement. This movement appears to have been caused by small particles washing out of the rock rubble seawall at this point. If further movement occurs, the area behind the wall should be excavated, and a stabilizing material should be placed behind the wall.

At West Garrison, the sea wall is broken near the old wharf. There is a span of about 125 feet that has failed completely. Consideration should be given to reconstructing this wall with a wall very similar to the existing rock wall. The existing wall is about 500 feet long, extending south beyond the quartermaster building. The quartermaster building is within 100 feet of the point where the wall is broken, and continued erosion of the bank could put the building in jeopardy in the future. Also, on the seawall and about 200 feet south of the quartermaster building, are two small areas where the wall is showing failure. Subsidence behind the wall has occurred here due to leaching below the wall, causing partial breaks and deterioration of the wall. Replacement and repair of this wall will require construction of concrete footings, reconstruction of the rock wall, and backfilling behind the wall with stabilizing material.

Roads

Roadbeds on the island are basically in good condition. The surface of the main loop road is paved from Battery Ledyard, around the north side of the island, to and including East Garrison. The main loop road on the south side of the island is unpaved. The surface of the unpaved road is in good condition. The surface of the paved road is in fair condition for the most part, but is deteriorating somewhat along its route. Considering that the General Development Plan may be activated some three years or more in the future, consideration should be given to resurfacing the paved road within the next two years. This should consist of a minimum of a slurry seal. The surfaces of the paved roads in the area of the rangers' residences at Ayala Cove and around the parade ground at West Garrison are in poor condition. Consideration should be given to an asphaltic concrete overlay in these areas. The surface of the paved road to the summit is also in poor condition. Application of a double slurry seal or an asphaltic concrete overlay on this road would seem appropriate.

The downdrains and cross drainage for the loop road are generally in good condition. Two areas were noted near the Nike missile site where an erosion problem is occurring on the downhill side. These areas are noted on the attached drawing. Rock protection or additional downdrains should be installed in these areas. Also, after rainfall and drainage return to normal following the drought, it is suggested that an additional reconnaissance covering roads and drainage be requested.

Miscellaneous Structures

There are many concrete drainage structures throughout the island. These were found to be in generally good condition and operating satisfactorily. However, as recommended above, drainage conditions should be reviewed after rainfall conditions return to normal.

There are also many rock and concrete retaining walls throughout the island. Walls that are of importance for protecting existing structures are in fair to good condition, except for the concrete retaining wall behind the PX building at East Garrison. This wall needs to be replaced. In the interim, it is suggested that the area behind the PX be fenced off, to keep the public out of the space between the wall and the building. Also, a rock retaining wall behind the house on the northeast corner of the parade ground at West Garrison needs to be repaired or replaced, for continued protection of the building.

There are numerous broken foundations in the North and East Garrison areas. If these areas are opened to heavy public use, consideration should be given to removal of any foundations that do not have interpretive value, in order to protect the public. Also, the concrete walkways at East, North, and West Garrisons have irregularities due to tilting of the slabs, and the surface in some areas is in poor condition. Consideration should be given to leveling or replacing walkways that will be located in high public-use areas and could present a hazard.

The old rock crusher north of Battery Drew is structurally in poor condition. The only hazard is to climbers, who could fall fifteen to thirty feet to the ground. The protective rock walls in this area are generally in good condition.

Above the rock crusher is an earthfill dam, which was used for the quarry operation. The dam is about thirty feet high, and about 200 feet across at the crest. There is a small earthen spillway channel at the right side (six feet wide, and three feet deep). There is some standing water in the reservoir (six to eight feet deep). The slopes of the dam embankment and around the reservoir are vegetated, and appear to be in stable condition. The dam and surrounding area appear to be in stable condition. If this dam is used in connection with activities on the island, it should be inspected by a consultant or by the Department of Water Resources' Division of Dam Safety.

The wharf at Pt. Blunt, originally used by the United States Coast Guard, is in good condition. This pier could have value as an additional park staff or visitor landing area. It has power and water.

The existing wharf at Ayala Cove is in good condition as are the finger piers, the DPR dock and landing ramp.

Appendix E

ANGEL ISLAND STATE PARK
Comments from Public Agencies and Responses to these Comments

Part I: Comments from Public Agencies

The preliminary plan was circulated to the State Clearinghouse (15 copies), Marin County, Association of Bay Area Governments, Sierra Club State Parks Task Force, and the City of Tiburon.

Comments were received from San Francisco Bay Conservation and Development Commission, Solid Waste Management Board, San Francisco Bay Regional Water Quality Control Board, the Department of General Services, and the City of Tiburon.

Copies of these letters and memoranda are included here and specific responses to each are found on p. 137.



EDMUND G. BROWN JR.
GOVERNOR

State of California
GOVERNOR'S OFFICE
OFFICE OF PLANNING AND RESEARCH
1400 TENTH STREET
SACRAMENTO 95814
(916) 445-0613

March 2, 1978

James M. Doyle
Dept. of Parks and Rec.
P. O. Box 2390
Sacramento, CA 95811

SUBJECT: SCH# 78012362 - ANGEL ISLAND STATE ^APARK GENERAL
DEVELOPMENT PLAN, RESOURCE MANAGE-
MENT PLAN AND ENVIRONMENTAL IMPACT
REPORT

Dear Mr. Doyle:

This is to certify that State review of your environmental document is complete.

The results of the State review are attached. You should respond to the comments as required by the California Environmental Quality Act. You should address your responses to the commenting agency with a copy to the Clearinghouse.

Sincerely,

Deni Greene
Deni Greene
Director
State Clearinghouse

DG/ddt

Attachment

cc: Ken Fellows, DWR
Mary Schell, Library
Edward F. Bielski, BCDC
Albert A. Marino, SWMB
Ronald S. Klimczak, SFBRWQCB
James R. Hargrove, General Services

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION

30 VAN NESS AVENUE
SAN FRANCISCO, CALIFORNIA 94102
PHONE: 557-3686



February 14, 1978

State of California
Department of Parks and Recreation
P. O. Box 2390
Sacramento, California 95811

ATTENTION: James M. Doyle

SUBJECT: Angel Island State Park Plans (SCH #78012362)
BCDC Inquiry File No. MR. AI.6810.1

Gentlemen:

We appreciate the opportunity to comment on the preliminary Resource Management and General Development Plans and Environmental Impact Report on Angel Island State Park. While the Commission has not reviewed the report, the staff has read it in light of the McAteer-Petris Act and the San Francisco Bay Plan, and would like to offer the following comments.

First, we commend the Department for its efforts in preparing these plans to facilitate the development of a unique and well-managed State Park in the middle of the Bay. We feel that these plans, when implemented, will certainly provide a substantial public benefit to the entire Bay Area.

BCDC Jurisdiction

The additional boat access facilities proposed for the Island will involve work within the Commission's Bay jurisdiction. The construction of boat docks and wharves is considered "fill" in the Bay for which a permit will be required. In addition, the Commission has shoreline band jurisdiction on the Island to 100 feet inland from the line of highest tidal action. Any construction or demolition within this shoreline band would also require a permit. We would ask that the final EIR contain some reference to BCDC's jurisdiction over parts of the project, and the fact that BCDC permits would be required.

Bay Plan

The proposals are consistent with the San Francisco Bay Plan Map #10 which specifies:

"ANGEL ISLAND STATE PARK. Use only for camping, picnicking, water-oriented recreation. Access by boat only. No commercial uses except for convenience needs of park visitors."

We do not feel that the alternatives listed on page 93, such as a higher magnitude of development or the possibility of including structures which do not conform to the historic purposes of the Island, would be as acceptable. The report rightly emphasizes the need to disperse the public use over more of the Island and recommends that the Development Plan should "enhance the Island experience, and expand recreation opportunities [only] within the limits of the Island's sensitive resources."

Thank you for the opportunity to comment on the present proposals for the State Park.

Very truly yours,

EDWARD F. BIELSKI
Environmental Planner

EFB/st

cc: L. Frank Goodson, Resources Agency

Memorandum

To : 1. Mr. L. Frank Goodson
Resources Agency

2. Mr. James M. Doyle
Department of Parks and Recreation
P.O. Box 2390
Sacramento, CA 95811


Date : FEB 28 1978

From : **STATE SOLID WASTE MANAGEMENT BOARD**Subject: SCH #78012362 - Draft Environmental Impact Report, Angel Island State Park,
Marin County

We have reviewed the subject draft Environmental Impact Report (EIR) and offer the following suggestions:

1. The concessionaire should stock items which promote litter reduction and represent packaging processes that are more energy efficient, e.g., paper rather than styrofoam, returnable glass rather than metal beverage containers. Recycling of cardboard should also be considered where feasible.
2. A deposit system on beverage containers purchased within the park should be considered. Such a system, if feasible, would decrease problems with litter and conserve valuable natural resources.
3. Development of the park should include programs that address recycling and proper litter control. There is a possibility that funds for recycling programs and litter control may be attainable through the Board from the recently signed SB 650.
4. To aid in the analysis of the potential for implementing a recycling program the draft EIR should contain information on the quantity and composition of solid waste generated within the park. There should also be a description of the solid waste collection and disposal methods utilized by the park.
5. The Environmental Education and Environmental Living Program mentioned on page 97 could include a display on how waste recovery aids in the conservation of energy and natural resources.

Thank you for the opportunity to review and comment on the subject Environmental Impact Report. If you have any questions regarding our review please contact Mr. Ryan Broddrick at (916) 322-3679.


Albert A. Marino
Executive Officer

Memorandum

To : Mary Smalley
Department of Water Resources
Resource Evaluation Office
1416 Ninth Street, Room 215-4
Sacramento, CA 95814

Date: February 1, 1978

File No. 2159.5002 (RSK) vjw

From : San Francisco Bay Regional Water Quality Control Board
1111 Jackson Street, Oakland 94607

Subject: ANGEL ISLAND STATE PARK GENERAL DEVELOPMENT PLAN

Regional Board staff has reviewed the preliminary Angel Island State Park combined Resource Management Plan, General Development Plan and Environmental Impact Report dated January 1978. This report was prepared by the California Department of Parks and Recreation to serve as a general development plan for Angel Island when future improvements are made to accommodate increased public use.

Based on our review of the report, I have the following comments relative to water quality in San Francisco Bay:

- (1) The Regional Water Quality Control Board recognizes the need to improve the existing wastewater disposal systems serving the residents and visitors on Angel Island. Currently, septic tanks with leachfields or bay discharge provide for the disposal of sewage. The bay discharge systems violate Federal discharge standards and the requirements of the San Francisco Bay Basin Plan, and this situation will be compounded by any future increased visitor usage.

The Environmental Impact Report states that the California Department of Parks and Recreation is considering five alternatives for future upgrading of the wastewater treatment systems. We provided this agency with typical waste discharge requirements for both bay discharge and land disposal options on January 3, 1978. Since the Department of Parks is expected to prepare a facilities plan and an implementation time schedule for the selected alternative within the next few months, the subject EIR must evaluate the environmental impacts associated with each alternative prior to plan selection. The costs and environmental impacts of treatment by an oxidation pond with land disposal, a deep water outfall, and other alternatives would have to be evaluated to satisfy prerequisites for grant funding.

Waste discharge requirements will be adopted for the selected alternative including a time schedule of compliance as well as self-monitoring requirements for any discharge, receiving water stations or land disposal areas. I want to emphasize the need for compliance with Federal and State discharge requirements at the earliest possible date.

Mary Smalley
Department of Water Resources

- 2 -

February 1, 1978

(2) I support the proposal to establish an erosion control program to stabilize existing exposed areas and prevent new problem areas from developing.

If you have any questions regarding the above comments, please contact me at 8-561-1255.



RONALD S. KLIMCZAK
Area Engineer

cc: State of California
Department of Parks and Recreation
1416 Ninth Street, Room 1442-7F
Sacramento, CA 95814
Attn: Mr. James H. White

State Water Resources Control Board
Division of Planning and Research
P. O. Box 100
Sacramento, CA 95801
Attn: Mr. John Huddleson

Memorandum

Date : January 26, 1978

File No. :

To : Office of Planning & Research
State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

Subject : Angel Island State
Park EIR, SCH# 78012362

From : Department of General Services - Planning & Development
Office of Facilities
1015 L Street - 95814
445-0780

The Department of General Services has reviewed the subject EIR as a responsible agency for the demolition of State-Owned structures or buildings. The list of structures to be demolished shown on Page 92 of the EIR are said to be non-significant structures (see last paragraph on Page 90). In that same paragraph, it is also stated that each structure will be re-evaluated before being demolished in order to determine its significance. These two statements appear to be in conflict and leave the reader with the impression that some of the structures to be demolished could be significant. Before General Services can proceed with demolition of any of the structures listed on Page 92, conformation as to their significance should be given to this office.

If there are any questions concerning this memorandum, please feel free to call me at 5-0780.



James R. Hargrove,
Sr. Environmental
Planner
Environmental
Planning Section

JRH:ao



April 3, 1978
File No: 3060

3 1147
Director's Office

APR 7 1978

Mr. Russell W. Cahill, Director
California Department of Parks & Recreation
P.O. Box 2390
Sacramento, CA 95811

Dear Director Cahill:

The City of Tiburon is extremely concerned about several policy statements and recommendations which were made in the Preliminary Angel Island State Park Plan (January 1978). Specifically, the issues of transportation and access, impacts on Tiburon, and environmental impacts have not been addressed in sufficient detail to permit proper evaluation by the City.

The Plan suggests that visitor use will increase from a current 113,000 visitor days annually to 479,000 visitor days annually. It is stated in the report that there are other areas of the Island which will be "developed" for tourist use. However, the problem remains (and there is no solution which the City feels is adequate) that most of these visitors presently and, according to the Plan, in the future, will embark at Tiburon to get to the Island.

As you may be aware, the City of Tiburon is located on a peninsula. There is a single two-lane road leading to the downtown area. This road is presently approaching capacity. Our downtown area is compact and parking is limited. For a variety of reasons, several major restaurants do not have any parking space; and this also puts pressure on the existing limited parking. Further, it is not our intention to construct or create parking facilities for Angel Island travel.

For these reasons, Tiburon objects to the Plan in its intent to increase visitor use fourfold over current levels without providing for adequate alternate embarkation points; and secondly, the City strongly objects to the purported EIR which makes absolutely no mention of impacts on Tiburon. This EIR is a mockery of CEQA, both in terms of not dealing with impacts which a fourfold increase in tourist use will create on the Island itself; but also in not even mentioning potential, and in our estimation, extremely serious impacts on the City of Tiburon. We therefore challenge the EIR pursuant to these comments, all of which were adamantly expressed during public meetings held in Tiburon prior to preparation of the Plan.

Russell W. Cahill
April 3, 1978
Page Two

We request that a full-scale EIR be prepared and circulated, and these issues addressed in detail.

Sincerely,



Hal Edelstein
Mayor

/cak

cc: Senator Peter Behr
Assemblyman Michael Wornum
State Clearinghouse - OPR
City Council.

Part II: Responses to Comments

Responses to comments are:

SAN FRANCISCO BAY CONSERVATION AND DEVELOPMENT COMMISSION

The Department of Parks and Recreation recognizes San Francisco Bay Conservation and Development Commission's jurisdiction and will obtain the permits.

SOLID WASTE MANAGEMENT BOARD

Items 1, 2, 3, and 4 will be thoroughly considered by the Department. Several features are in use at present.

Regarding Item 4, five thousand pounds of waste are produced per week with a higher rate in the summer. The composition is generally similar to household solid waste. It is transported to the mainland and disposed through commercial channels.

SAN FRANCISCO BAY REGIONAL WATER QUALITY CONTROL BOARD

A separate Environmental Impact Report specific to the development of wastewater treatment facilities will be written. The Environmental Impact Report will evaluate the alternative treatment systems and the impacts associated with each alternative.

DEPARTMENT OF GENERAL SERVICES

The conflicting language will be removed. Listed structures have no significance and no further evaluation is required.

Demolition may or may not be done through General Services. Department of General Services is not the responsible agency for this.

CITY OF TIBURON

The Final Environmental Impact Report will discuss the possible impacts relating to transportation to Angel Island State Park, recognizing the problems near embarkation points such as in Tiburon. A Transportation Study has been made by our Department which examines transportation problems in detail and suggests possible solutions.