

## T R A N S P O R T A T I O N

### THE APPROACH

Transportation issues are critical, for their resolution will affect how successfully the park provides an enjoyable recreational experience for a diverse group of people. Unless action is taken, expected visitation increases will result in too many people coming to the park by car. More auto traffic will contribute to more congestion, more impacts on adjacent communities, and more frustration for people traveling to the park. Unfortunately, time will not make transportation problems disappear; it will only make them more apparent. Meanwhile, for those without automobiles, a sizable population in the Bay Area, the park will remain largely inaccessible.

The National Park Service, with the cooperation of other interested agencies, must respond to these problems. This section outlines the transportation proposals that the National Park Service feels merit the most consideration--by itself and by other agencies. The aim of these proposals is to alleviate existing problems and minimize potential ones in the interest of making park access as pleasant, safe, and convenient as possible.

No issue facing the future of GGNRA/Point Reyes has been studied as thoroughly or scrutinized as constantly as transportation. The 3½-year Golden Gate Recreational Travel Study (GGRTS) explored this complex subject with the assistance of many agencies and citizen groups. The GGRTS now serves as the basic blueprint for action, describing what transportation changes are needed, suggesting which agencies are responsible, and designating priorities for implementation. With some minor exceptions, this plan coincides with National Park Service thinking and contains the transportation proposals that are essential to proper development of the park. This general management plan contains few proposals that differ from the GGRTS plan; it does, however, more adequately discuss the transportation proposals derived in conjunction with the other park proposals.

The plan will not solve every foreseeable transportation problem facing GGNRA/Point Reyes. Every congested roadway will not be cleared, in many cases because park visitors cause only a portion of a much larger traffic congestion problem. In fact, long-range, more elaborate planning approaches aimed at addressing the whole problem, although attempted by the GGRTS, were troublesome because of projected expense, lack of conclusive data, and the need for a great deal of interagency cooperation. Also, more drastic solutions were difficult to agree upon, both because of a paradoxical public sentiment about cars (I want to drive there, but

everyone else should take the bus) and the real unpredictability of future transportation influences, from gas shortages to new transit systems to available funding.

Because of this, both GGRTS and NPS planning recognize the need to occasionally reevaluate the transportation picture, and each suggests long-range considerations to be kept in mind as more immediate problems are relieved.

This represents a twofold approach to transportation planning. First, immediate consideration has been given to problems that can be alleviated soonest, easiest, and with the least expense. There are recommendations for new transit systems, adjustments in existing transit service, and adjustments in roads and parking. Some of these proposals will have to be implemented through cooperative efforts by several agencies, and some the National Park Service can implement alone. These recommendations are considered to be practical responses to park transportation problems that can be implemented within a 5-year time frame.

Second, long-range strategies have been identified for solving anticipated problems or current problems that are especially difficult to rectify because of expense, general complexity, lack of conclusive data, or the need for extensive cooperation between affected agencies or publics. These options, which would involve many agencies and basic changes in how people travel to recreational sites, may be considered if more immediate actions prove to have little effect on park access problems.

## IMMEDIATE CONSIDERATIONS

### Improve Transit

The National Park Service and other agencies with influence over park-related transportation will work cooperatively to improve transit service to the park. This improved access will serve two main audiences: the transit dependent, many of whom live in neighborhoods with high recreational needs; and park visitors who wish a transit alternative to driving on congested access roads. The goal is to provide some form of transit reaching almost every park site. The proposed transit improvements will be implemented concurrently with proposals for necessary parking and access adjustments discussed in the next section. Proposals for better transit service include the following.

Improve Transit Service to the Park. Better scheduling and direct routing of weekend public transit to the park (in many cases simply extending an existing bus route three to five blocks) will greatly improve the probability of greater reliance on transit for park access. The following improvements are recommended:

Improved service connecting southeast San Francisco neighborhoods and San Francisco parklands; route connections to the Southern Pacific and East Bay terminals.

Extended routes and expanded service from San Francisco to Marin County park destinations (Stinson Beach, Mount Tamalpais, and Point Reyes); route connections to the Larkspur ferry terminal

"Recreation specials" - expanded service by public carriers or charter companies to allow point-to-point travel between specific neighborhoods and the park; weekend express bus service

Bus connections to the Mount Tamalpais unit and Point Reyes from the Larkspur ferry terminal

Provide Transit Service Within the Park. To complement improved transit service to the park, park shuttles are proposed to give visitors a more flexible and complete system for getting around inside the park. These within-park shuttles will connect different park destinations and essentially expand the reach of transit service ending at the park's boundary. They will also help alleviate some of the potential problems in parts of the park where parking deficits are forecast and will extend the range of the hiker by facilitating more one-way outings. They could either operate separately from external transit systems or be an extension of one of these routes into the park. The following shuttles are proposed:

A shuttle connecting the San Francisco bayfront parklands from Aquatic Park to Fort Point and continuing across the Golden Gate Bridge to the Marin Headlands

A shuttle connecting the western San Francisco waterfront of GGNRA, starting in the Ocean Beach unit and terminating at the Golden Gate Bridge toll plaza. This shuttle will allow for transfer to the Marin Headlands shuttle. Eventually, if demand is adequate, this shuttle can also continue to the Marin Headlands

A shuttle to connect the major visitor destinations in the Point Reyes/Olema Valley units: the Point Reyes lighthouse, Drakes Beach, Limantour, Bear Valley, Five Brooks, Palomarin, and Ridgecrest

A shuttle connecting parklands along the northern San Francisco waterfront utilizing the beltline railroad right-of-way. This shuttle, which may utilize historic San Francisco trolley cars, will travel along the existing railroad



- LEGEND**
- RECREATION TRANSIT SERVICE TO BE IMPROVED
  - ▲ STAGING AREA
  - INFORMATION/TRANSFER POINT
  - PROPOSED PARK SHUTTLE
  - EXISTING FERRY ROUTE
  - PROPOSED FERRY ROUTE
  - MARINE RECREATION DESTINATION

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# TRANSPORTATION

## IMMEDIATE CONSIDERATIONS

GOLDEN GATE NATIONAL RECREATION AREA  
POINT REYES NATIONAL SEASHORE

tracks from Aquatic Park to Crissy Field and may be extended as far as Fort Point. This shuttle will be closely coordinated with current considerations by the city of San Francisco to operate a similar system along the northeastern waterfront, which would create a continuous rail link from the Bay Bridge (S.F. terminal and BART station) to the Golden Gate Bridge. Incremental implementation of this proposal will be done only after extensive consultation with neighborhood residents concerned over its potential traffic impacts.

Special shuttles connecting Fort Mason and other special event locations with remote parking areas within the Presidio (coordinate with U.S. Army)

Expand Ferry Service. The increasing weekend traffic on the Golden Gate Bridge is making recreational travel more and more difficult for many park visitors. Ferry service could avoid this problem area and also provide a travel means that people view as part of a recreational outing, not a difficult prelude to one. The following ferry service improvements are recommended:

A new ferry route from San Francisco to Fort Baker. This service will provide access to the Marin Headlands and aim at increasing the appeal of this Marin County park area, possibly diverting attention from more heavily used areas to the north.

Weekend service by the Larkspur ferry on a schedule attractive to those wishing to visit the Mount Tamalpais, Olema Valley, or Point Reyes units. This service would have to be timed to coincide with bus service from the terminal to park destinations.

A ferry terminal located in or near park sites. Two locations in San Francisco (the Embarcadero ferry terminal and Fisherman's Wharf) currently serve ferries and might be used for the new service between San Francisco and Fort Baker until a suitable landing within the park could be provided at one of the Fort Mason piers. Before in-park ferry service is established, the ability of Fort Mason to handle its own traffic will be tested. The option of eventually providing ferry service from this location will be delayed until the traffic situation of an operating park can be analyzed. Initially, the within-park landing would be used as a point of origin for people going to the Marin Headlands via ferry; of secondary importance, but included for consideration in this proposal, is the utilization of this landing as a point of origin for Alcatraz visitors. The estimated number of peak-hour ferry users who would funnel through either Fort Mason or Aquatic Park, depending on which pier was chosen for a landing site, is 1,200--600 bound for or returning from Fort Baker, and 600

bound for or returning from Alcatraz. This estimate assumes that the same percentage of Marin Headlands visitors will continue to come through San Francisco, and that half of the people who use public transit will take the ferry. Modification of one of the Fort Mason piers will be required to adapt one or two slips for recreational ferry use. The three main piers were originally designed for movement of military men and materials and they would require only minor modification. The Alcatraz pier near Aquatic Park would require more extensive modification.

Develop an Information System and Transfer Stations. An important element will be an information program to publicize transit access. In particular, this program will assist schools in using their buses to transport school children to the park and assist peer groups (like senior citizens, teenagers, and neighborhood organizations) in organizing discovery bus programs.

In addition to media publicity, brochures, and communications to neighborhood organizations and service clubs, park access information will be provided by exhibits or onsite personnel at transit transfer stations at the following locations:

Van Ness Avenue (Aquatic Park): Juncture of five Muni lines, extended Golden Gate Transit line, and National Park Service shuttle

Upper Fort Point/toll plaza: Juncture of 97 Golden Gate Transit round trips, Muni recreation line, and National Park Service shuttle

Point Lobos Avenue (Merrie Way): Juncture of four Muni lines and National Park Service shuttle

San Francisco zoo area: Juncture of streetcar line, Muni line, and Golden Gate Transit line

Fort Baker: Juncture of Golden Gate Transit lines, National Park Service shuttle, and ferry system

Larkspur ferry terminal: Juncture of ferry system and Golden Gate Transit line

Bear Valley headquarters: Juncture of Golden Gate Transit lines and National Park Service shuttle

Design and Schedule Transit Systems for Recreational Travel.

Making transit access attractive to a wide range of park visitors will require modifications and innovations in design and scheduling. Transit systems will have to be scheduled to allow ease of transfer

between one route and another. Pricing schedules will also have to be coordinated to permit transfers from one system to another without additional costs. Group rates will be developed. Transit stops will have to be equipped with shelters, benches, and refuse containers. Transit vehicles will be modified to transport bicycles and other forms of equipment visitors will want to use after they reach the park.

#### Improve Auto Access

While the improvement of transit access will have the most effect on visitation to the park units, some proposals for improving auto access can be accomplished which will contribute to making total park access a better situation.

Adjust Parking Capacities. The following parking proposals represent a maximum--they indicate how much parking the National Park Service feels can be supplied onsite without seriously damaging the visitor's enjoyment of the park or the scenic quality of the area. This parking limit may not always be reached; parking will only be developed in response to a demonstrated need, either to relate directly to newly developed facilities or to partially accommodate major visitation increases.

In some park areas, there will not be enough parking to accommodate projected numbers of visitors, but surplus parking in other areas of the park will be connected by shuttle service to special event areas, and if necessary, overflow parking will be provided on lawn areas and along roadsides on a few peak use days each year.

All proposed San Francisco parking lots will be considered permanent, but the situation in Marin is different. There, the availability of transit service will greatly affect the location and size of needed parking areas, and some will be used on an irregular basis; therefore, most parking developed in Marin County will be considered nonpermanent. Grass or gravel will be used instead of asphalt surfacing to allow for relocation or removal as appropriate and to create a more aesthetic appearance when areas are not being fully utilized.

Throughout the review process the parking requirements calculated for the Olema Valley have generated substantial comments of concern from the public. Therefore the final parking capacity of this area will be formulated within the limits of the calculated figure on a site-by-site cumulative basis with the direct involvement of local officials and other concerned people.

TABLE 2. PARKING PROPOSALS

Unit	Number of Parking Spaces	
	Existing	Proposed
Alcatraz	0	0
Aquatic Park	85	0
Fort Mason	514	614
Marina Green	1,200	1,200
Crissy Field	50	400
Fort Point	210	270
Baker Beach	200	330
Lands End	480	480
Cliff House	335	335
Ocean Beach	220	220
Fort Funston	165	300
Marin Headlands	1,480	1,565
Mount Tamalpais	1,946	1,910
Olema Valley	100	400
Point Reyes	2,095	2,595

Relieve Traffic Congestion Points: Cliff House and Stinson Beach. Traffic congestion is currently severe at two park areas as a direct result of visitor traffic. In San Francisco, traffic congestion at the nationally famous Cliff House is compounded by a curve in the roadway, poor visibility, and parking problems created by automobiles and tour buses at this site. To alleviate this problem, some of the car parking space in front of the Cliff House will be removed and replaced in a lot farther east. A tour bus drop-off station only will be available at the Cliff House, and bus parking will be provided in the Ocean Beach lot. Most visitors will reboard their buses in a turnout in the lower Sutro lot. Pedestrian connections across Point Lobos Avenue will be improved.

In Marin County, the village of Stinson Beach suffers from the traffic that must proceed through the town in order to enter the beach parking area. A southern entrance to the Stinson Beach parking area is proposed to divert park-bound traffic from village roads.

Develop a Marin Headlands Staging Area. The Marin Headlands is attracting an enthusiastic and growing group of local, regional, and national visitors. Given the rapid rate of visitation increase and the level of use that this area will receive in the future, a program to restrict auto access during peak times will be implemented before visitor access patterns become too well established. To accomplish this, a staging area with a design capacity of 700 cars will be developed in East Fort Baker, and shuttle bus service will be

provided to locations in Rodeo Valley. The rest of the Marin Headlands will continue to be accessible by auto.

## LONG-RANGE CONSIDERATIONS

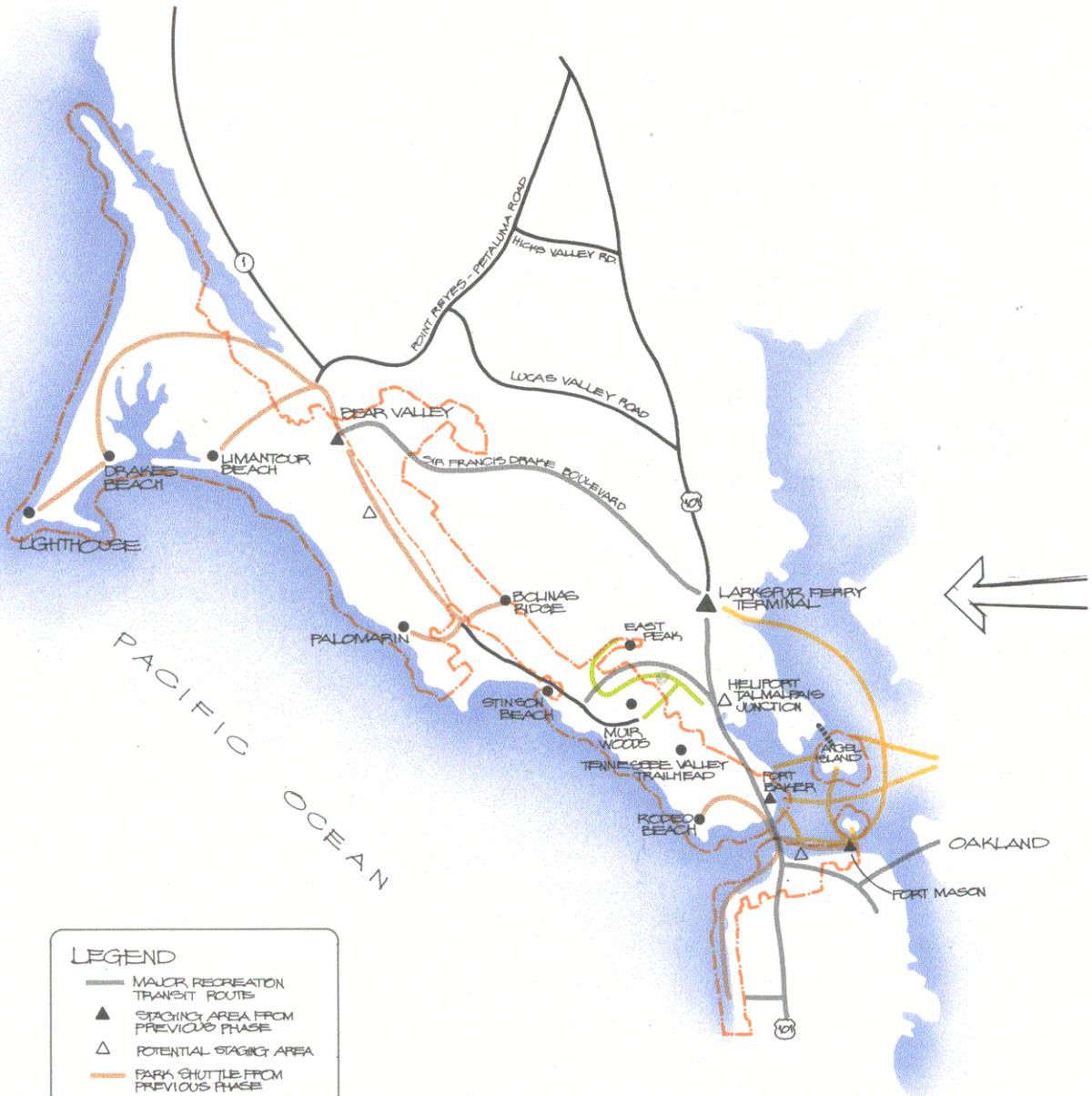
Within the next 10 years, many economic, social, and technological changes, including rising gas costs, more free time, and transit improvements, will probably affect how people travel. These changes will also affect transportation planning for the park. Because of this, the National Park Service has separated the transportation options that appear long range in approach from those that can be implemented more quickly. The considerations contained in this section have been formulated in a tentative way, recognizing the need for continual reevaluation and adjustment.

Long-range considerations reach beyond park boundaries to resolve the potentially extreme transportation problems facing recreational travel. Because in some cases park attractions represent only a portion of the factors that will create future congestion and parking problems, it is recognized that transportation solutions must be regional in nature. Marina Boulevard and the Golden Gate Bridge corridor are two primary places where park travelers will be caught up in traffic largely generated by others. The park's transportation actions can have only limited effect on these problems unless measures are implemented that affect all the contributors to the situation. Regardless, projections indicate that within 10 years the above roads and Route 1 (where park visitors are a more significant element of the problem) will receive heavy traffic congestion. The main question that long-range considerations address is how far the National Park Service can go to resolve these problems, or at least to give park visitors a way around them.

Long-range options to address these problem areas will generally be considered in the following order.

### Expanded Ferry Service

The concept of expanded ferry service addresses some of the large-scale transportation issues related to Marin County access. Emphasizing ferry access would reduce recreational automobile traffic in Marin County park areas and provide a travel means to avoid the Golden Gate Bridge corridor and portions of Marina Boulevard. However, the location of the terminal would create additional traffic related to ferry use in San Francisco areas of GGNRA, in a sense shifting auto traffic out of the north to a ferry terminal in the south.



**LEGEND**

- MAJOR RECREATION TRANSIT ROUTE
- ▲ STAGING AREA FROM PREVIOUS PHASE
- △ POTENTIAL STAGING AREA
- PARK SHUTTLE FROM PREVIOUS PHASE
- POTENTIAL PARK SHUTTLE
- ..... EXISTING FERRY ROUTE
- POTENTIAL FERRY ROUTE
- MARIN RECREATION DESTINATION

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# TRANSPORTATION

## LONG-RANGE CONSIDERATIONS

### EXPANDED FERRY AND SHUTTLE SERVICE

#### GOLDEN GATE NATIONAL RECREATION AREA POINT REYES NATIONAL SEASHORE

Ferry adjustments could include:

Expand ferry service to Fort Baker as Marin Headlands visitation increases and auto access is more controlled

Develop service to Fort Baker from the East Bay

Develop an additional ferry stop at Crissy Field to handle increases in ferry use

Develop ferry service to provide a waterfront loop connecting Fort Mason, Crissy Field, Fort Baker, and Angel Island

Expand ferry service to the Larkspur ferry terminal as bus service to Mount Tamalpais and Point Reyes becomes more available from this point

Have recreational ferries bound for the Larkspur terminal use Fort Mason as a point of departure

Two ferry landings within the park would be considered--Crissy Field and Fort Mason. If ferry use expanded as hoped, ferry users would demand almost all available onsite parking spaces in the bayfront units; these users would compete with visitors to south GGNRA for available spaces. Additionally, traffic in this area would increase. The impact could be adjusted by either reducing site visitation, reducing ferry service, expanding parking, or developing remote parking areas for ferry users.

Crissy Field has some advantages as a park ferry landing, given its relative isolation from residential areas. However, parking would still be a problem. Special ferry parking could probably be provided in the Presidio, and a short shuttle connection could be provided to the ferry terminal (possibly a variation of the bayfront shuttle route). There are also spaces potentially available in the parade ground adjacent to Crissy Field and in the proposed commissary complex. Their use for GGNRA purposes would have to be negotiated with the Presidio. There would be three transfers required, but visitors would be inside the park, and time lags would be minimal.

Another possibility for handling ferry traffic would be to develop remote staging areas--parking places outside the park boundary that would provide shuttle connections to the park ferry terminal. The difficulty with a shuttle for ferry passengers is that a large number of people would need to be accommodated at one time. Also, several transfers would be required (i.e., from car to remote shuttle, shuttle to ferry, ferry to shuttle, and shuttle to destination), and considerable time would elapse before people reached their destinations.

A number of ferry service increases are possible, and given the above conditions, careful decisions would be required about which to expand. The ferry from East Bay to the Marin Headlands would not have a major impact at its landing site, most likely the Berkeley Marina. This ferry could expect reasonable patronage, because almost 25 percent of Marin Headlands visitors arrive from East Bay.

The Larkspur ferry route (connecting to bus access to the park) already has an established terminal (Embarcadero), but relocating it to a park site would be expected to increase its recreational patronage. However, the ability of this route to draw recreational travelers at its current origin should be tested before relocation is considered.

### Transit Preferential Lanes

Increasing transit access to the park would have little advantage to visitors if buses were caught up in the traffic created by automobile drivers. Travel times would be lengthened to such an extent that park visitors would have little incentive to use transit. To give transit riders an advantage as traffic on park access roads increases, the following options could be considered:

For Muni connections to the park, explore the possibility of transit preferential lanes, particularly in the following congested areas: Aquatic Park, Van Ness Avenue, Marina Boulevard, 19th Avenue, and the Cliff House area.

In the Golden Gate Bridge corridor, explore the feasibility of preferential lanes for weekend afternoon southbound buses from San Rafael to the Golden Gate Bridge.

This system, in some cases, would severely tax automobile drivers in order to give transit riders a competitive advantage in travel time. In San Francisco, auto drivers might move to other roadways as main thoroughfares became congested, possibly affecting residential areas. Auto travel time would be extended on the Golden Gate corridor, perhaps significantly, depending on the length and location of the transit preferential lane.

### Expanded Shuttle Service

Unless visitation to the Mount Tamalpais area is stabilized, people traveling along Route 1 can expect increasing congestion, possibly to the point of continual weekend stop-and-go traffic within the next 10 years. Although park-bound visitors do create a significant portion of the problem, the situation is not easily rectified due to the fact that all roads are through-routes to other



**LEGEND**

- MAJOR RECREATION TRANSIT ROUTE FROM PREVIOUS PHASE
- POTENTIAL MAJOR RECREATION TRANSIT ROUTE
- ▲ STAGING AREA FROM PREVIOUS PHASE
- △ POTENTIAL STAGING AREA
- PARIS SHUTTLE FROM PREVIOUS PHASE
- FERRY ROUTE FROM PREVIOUS PHASE
- MARIN RECREATION DESTINATION

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# TRANSPORTATION LONG-RANGE CONSIDERATIONS EXPANDED STAGING AREAS GOLDEN GATE NATIONAL RECREATION AREA POINT REYES NATIONAL SEASHORE

destinations. Any reduction in traffic, however, would help alleviate a growing problem, and long-range transportation recommendations related to this situation could include the following:

Develop shuttle service to this unit from a staging area at Tamalpais Junction where visitors could leave their cars before entering the park. Auto access to East Peak would be closed, and the shuttle would serve this and other Mount Tamalpais destinations. Parking availability at Mount Tamalpais would be gradually reduced to encourage transit access. Information and road signing would direct visitors to the Tamalpais Junction staging area.

Develop shuttle service to Tennessee Valley from the above staging area.

If properly designed, shuttle service from the Tamalpais Junction staging area might provide an alternative way to sightsee in the Mount Tamalpais unit. To make the shuttle successful, additional auto disincentives--high parking fees, limitations on parking time, ticketing for illegal parking, reduced parking areas--would need to be employed. Closed access to East Peak would remove some auto traffic (estimated 800 cars/summer day) and serve as an incentive to utilize the shuttle service. This could dramatically affect well-established use patterns in this unit. The shuttle would provide many advantages for hikers by connecting to various trailheads. The shuttle could not eliminate through-traffic, but it could significantly reduce the presence of moving and parked cars at Mount Tamalpais destinations. The entire system would be very costly and address mainly a summer weekend problem. If the staging area could be utilized for commuter day travel also, the benefit of the project would be extended.

### Remote Staging Areas

Potential remote staging areas would be places that offer good regional and local transit connections and have substantial amounts of existing parking. These areas could serve another purpose on weekdays so long as they were generally available for park visitors on weekends when recreation demands would be greatest. In addition, the intercept sites would be located in the areas that have less weekend traffic congestion than communities adjacent to the park. From the intercept point, expanded shuttle or transit service to the park would be required. Potential locations are listed below:



**LEGEND**

- MAJOR RECREATION TRAVEL ROUTE FROM PREVIOUS PHASE
- POTENTIAL MAJOR RECREATION TRAVEL ROUTE
- ▲ STAGING AREA FROM PREVIOUS PHASE
- △ POTENTIAL STAGING AREA
- PARK SHUTTLE FROM PREVIOUS PHASE
- FERRY ROUTE FROM PREVIOUS PHASE
- MARIN RECREATION DESTINATION

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## LONG-RANGE CONSIDERATIONS

### EXPANDED STAGING AREAS

#### GOLDEN GATE NATIONAL RECREATION AREA

#### POINT REYES NATIONAL SEASHORE

## San Francisco

South city areas - BART station, Stonestown, or San Francisco State (for connection to BART and southern peninsula traffic)

Civic Center (for connection to BART, southern peninsula, and San Francisco traffic)

Embarcadero (for connection to ferry terminal, East Bay terminal, and East Bay traffic)

Upper Fort Point/toll plaza (for Marin visitors to San Francisco and San Francisco visitors to Marin)

## Marin (all located along the Highway 101 corridor)

Fort Baker (parking for Rodeo Valley destinations when transit-only restrictions are in effect)

Tamalpais Junction/Shoreline Highway (as discussed before--see "Expanded Shuttle Service")

Larkspur ferry terminal

San Rafael bus terminal

Marin Civic Center

Hamilton Air Force Base

The general concept of remote auto intercepts raises fundamental questions related to people's attitudes about transit, changing modes of travel, and park arrival. Auto intercepts in areas remote from the ultimate destination might never be fully used simply because visitors would not associate the intercept sites with the park. Proper design of the staging areas and shuttle system would help make this association, but creating a sense of park arrival at the intercept sites would be a difficult task. Intercept sites might be ignored, and people arriving at the park finding onsite parking full might search for spaces in adjacent neighborhoods. Simple modification of an existing bus service might not be readily accepted as part of a park experience. Perhaps transit access to the park could be more easily associated with park arrival if the transit system had a unique recreational characteristic identified with GGNRA (for example, a special bayfront rail system such as the beltline, specially designed buses, or a cog railroad incorporated into existing rail and road systems.)

Directly related to acceptance of a transit ride as a park experience are the number of transfers and the amount of time required to

# CULTURAL RESOURCE MANAGEMENT

## CHARACTER AND STATUS OF CULTURAL RESOURCES

The cultural resources of Golden Gate National Recreation Area and Point Reyes National Seashore are immense. They represent two hundred years of history and an indeterminate amount of prehistory revolving around one of the world's most spectacular seaports. Reflected is the area's evolution from Indian villages to a major metropolitan area. Historic themes include the Spanish Empire frontier, Mexico's legacy, the disruption of California's coastal Indians, America's westward expansion, the gold rush, international relations, a number of wars, the evolution of coastal fortifications, maritime history, military history and architecture, agriculture, commerce, transportation, industry, natural disasters, the development of a great city, and many others.

Today, tangible evidence of these themes can be found throughout GGNRA/Point Reyes. Cultural resources are an integral part of the park environment. The historic sites and structures include military fortifications, a notorious prison, century-old ranches, recreational facilities from the 1890s, lighthouses, and lifesaving stations. Less conspicuous, but also numerous, are archeological resources--buried indications of the park's historic and prehistoric inhabitants.

Prehistoric resources include evidence of aboriginal, or native, occupation of parklands. The complete story of northern California Indians is represented--from prehistory to European contact. One hundred three sites are known to exist within the planning area.

Historic resources follow the history of the area since the arrival of European man. The majority of historic resources relate to one of the following land uses:

Coastal Defense. For 200 years, the San Francisco Bay has been viewed as a key to the defense of the Pacific Coast. Spanish and Mexican governors established and maintained the Presidio of San Francisco as a northern outpost in a network of frontier garrisons. Later the Americans also recognized that the magnificent harbor was essential to defense of the Pacific shores. San Francisco became an important port of embarkation for the Spanish-American War, the Philippine Insurrection, the Boxer Rebellion, World War I, and the Siberian Intervention. Then, during World War II and the Korean War, army installations in the Bay Area evolved into an immense funnel that dispatched millions of troops and millions of tons of supplies to the length and breadth of the Pacific. After the Korean War, Nike missiles reared skyward to protect

the great harbor and its cities. Structures representative of all these events are contained within the former military lands facing San Francisco Bay. The Presidio lands, within GGNRA boundaries but still retained by the army, relate to historic themes beyond coastal defense representative of the Presidio's involvement in West Coast events since 1776.

Agriculture. Early settlers of Marin County recognized the area's suitability for agricultural production. Today, portions of northern park areas depict rural settings typical in American history and provide important reminders of Marin County's agricultural industry.

Maritime. Because of the park's critical relationship to the ocean and the bay, many maritime-related structures are found within its boundaries: lighthouses, lifesaving stations, seawalls, even a collection of historic ships, the largest in the United States. The resources are scattered throughout the park, primarily near important and hazardous navigational points. The maritime museum contains one of the finest maritime libraries in the world, consisting of books, drawings, photographs, and tape-recorded materials, as well as one of the outstanding collections of maritime artifacts in the United States.

Recreation. Leisure-time pursuits were important in the history of the area even before it became a park. Many historic resources, including recreational railroad grades, trails, 1890 recreational facilities, WPA projects, and the site of an international exposition, relate to this theme.

Although these categories are not all-inclusive, they provide a general description of the park's cultural resources. Research to date has focused on properties that may be eligible for the National Register of Historic Places. The national register is an authoritative guide used to identify the nation's cultural resources and to indicate what properties should be protected from destruction or impairment. Approximately 410 structures in the park have been identified as historically significant structures. Many are already contained on the national register; others will be nominated to the national register, either individually or as historic districts.

TABLE 3. STATUS OF CULTURAL RESOURCES  
(November 1978)

Properties on the National Register of Historic Places

Fort Baker, Fort Barry, and Fort Cronkhite  
Fort Point  
Fort Mason  
Alcatraz  
Point Lobos archeological sites  
Haslett Warehouse  
Olema lime kilns  
Historic ships (each ship is a separate entry): Wapama, C.A. Thayer,  
Balclutha, Alma, Eureka, Tugboat Hercules  
Six-inch rifled gun no. 9 (Baker Beach)  
Lewis Ark  
Tubbs Cordage Company office

Properties on the National Register  
(but not administered by Golden Gate)

Angel Island  
Presidio of San Francisco  
San Francisco cable cars system (Aquatic Park)  
San Francisco pumping station No. 2  
Steamship Jeremiah O'Brien

Properties Determined Eligible for the National Register

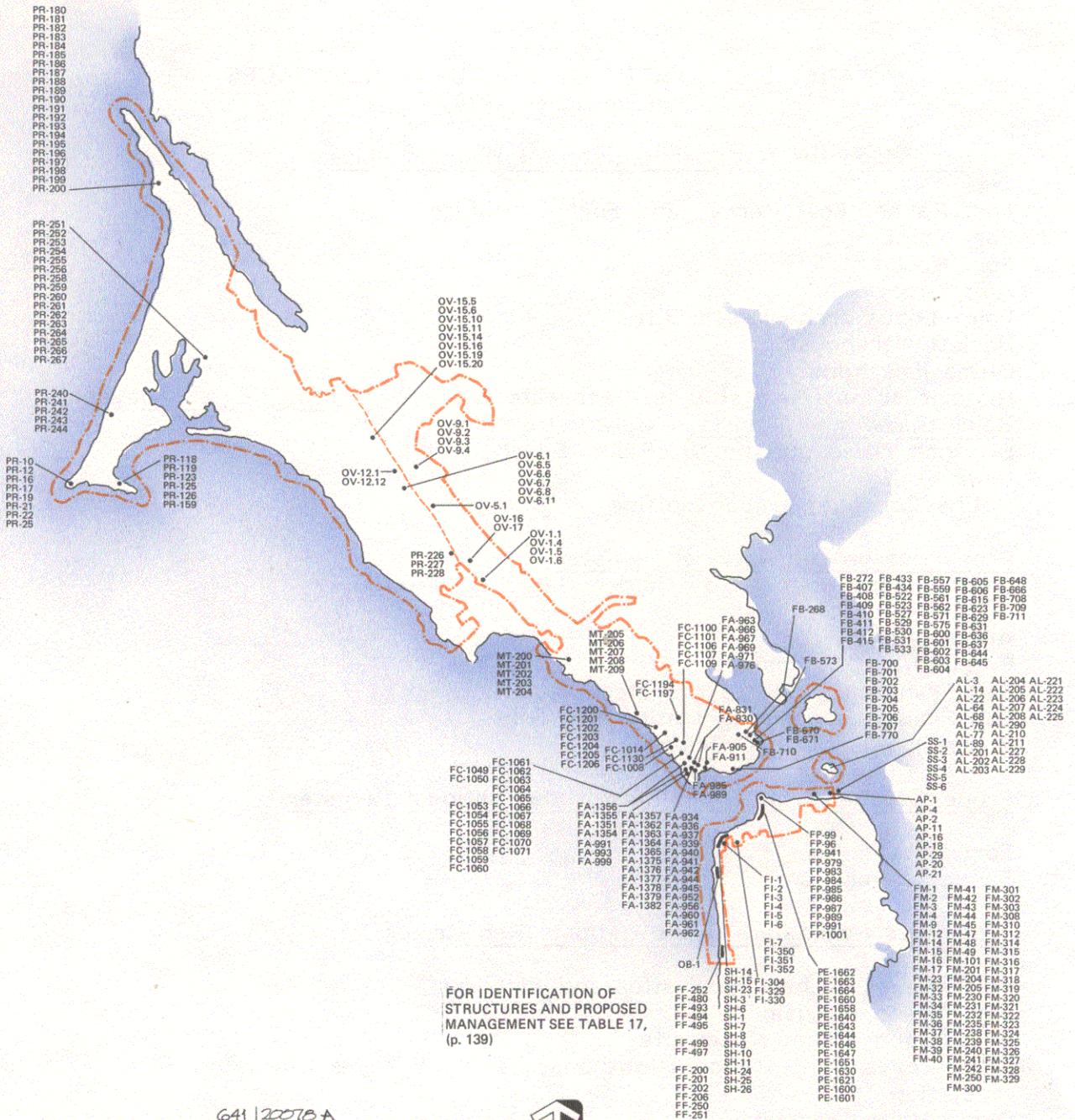
Fort Miley  
Sarah Seaver Randall house

Properties Nominated to the National Register

Point Reyes archeological sites and districts  
Fort Mason (revision)  
Fort Mason archeological sites  
Point Reyes light station (lighthouse) & Point Reyes lifesaving  
station  
Olema Valley ranches  
Aquatic Park historic district  
Point Bonita lighthouse  
Hill 640

Properties in Process of Being Nominated to the National Register

Forts Baker, Barry, Cronkhite (revision)  
Presidio fortifications (to be part of a joint U.S. Army/NPS nomination)  
Point Bonita lifesaving station  
Point Lobos marine lookout station  
Sutro Baths ruins and site  
Sutro Heights Park



# CULTURAL RESOURCES

GOLDEN GATE NATIONAL RECREATION AREA  
POINT REYES NATIONAL SEASHORE

## Properties That Appear to be Eligible for Nomination to the National Register

Pierce Point Ranch  
Home Ranch  
Point Reyes lifesaving stations (2)  
Fort Point lifesaving station  
Point Bonita lifesaving station site  
Point Bonita light station

## PROPOSED MANAGEMENT STRATEGIES

### Historic Structures

The National Park Service recognizes the importance of managing cultural values within GGNRA/Point Reyes. In accordance with the legislation establishing these parklands and the Act of 1916 establishing the National Park Service, all sites, objects, and structures of historic, architectural, or engineering significance will be maintained and preserved. No removal of historic structures is envisioned.

Preservation of historic resources will include stabilization, arresting decay, and/or mothballing to prevent further deterioration. Examples of where this action will be used are the Alcatraz fortifications and prison ruins, the historic ships at Aquatic Park, most of the batteries and fire control stations throughout the park, outbuildings of the Olema Valley and Point Reyes ranches, and various archeological sites.

Adaptive restoration for park use is also proposed for many of the historic structures, which will involve modifications to meet basic life safety codes, structural standards, and handicapped access. Every attempt will be made to design changes to avoid effects on the quality and character that qualifies the property for the national register and to design changes to be reversible in nature. Adaptive use is very important if many of the 410 historic structures are to be maintained and preserved over a long term. Structures to be adaptively used for community program space, hostels, interpretive displays, recreational space, museums, environmental education centers, administrative offices, and other park facilities include the Haslett Warehouse in Aquatic Park, the Cliff House, most military quarters and administration buildings, some fortifications, and the main ranch buildings in the Olema Valley and Point Reyes. Some historic landscape features, such as the Fort Barry rifle range and the Fort Mason parade ground, will be adaptively used in a way that will enable their general historic appearance to be retained.

Restoration, which involves complete rehabilitation of a structure or scene to its most historically significant condition, is the most expensive form of management and will not be applied to many structures. Some places that will be restored are the Point Reyes lighthouse, Fort Point, Sutro Heights Park grounds, and a few fortifications in various key locations.

Many of the structures have deteriorated in their harsh marine environment. Additional studies and evaluations will determine the alternatives, cost, and feasibility of preserving specific structures, and while no historic structures are proposed to be removed, some may be found to be unpreservable. In such cases, consultation with the state historic preservation officer and the Advisory Council on Historic Preservation would be undertaken, in full compliance with the National Historic Preservation Act of 1966.

### Historic Settings

The historic scene around many historic structures is in a highly deteriorated and sometimes hazardous condition. Rubble from demolished structures and remains of former utility systems and foundations have not been removed, and there is widespread crumbling of concrete, advanced deterioration of metal, and undercutting of viewpoints by natural erosion. In these places, action will be taken to improve the historic settings and create a safe environment for people, but full restoration of historic settings is not considered feasible, due mainly to cost and the changes in use which will occur (from military and agricultural to park use). As improvements are made, close and careful consideration will be given to the resources for which the parks were established, to ensure preservation of all cultural, natural, scenic, and recreational values.

New plantings will be compatible with whatever remains of the historic landscape. Minor facilities such as trails, walkways, benches, picnic tables, and comfort stations will be designed and sited in appropriate consideration of historic values and styles.

The open grasslands characteristic of pastoral landscapes, which have long provided a pleasing contrast with the park's forests and brushlands, are not necessarily self-sustaining. The most historically accurate condition for these lands includes the presence of grazing animals. This will be appropriate in some cases, but natural resource management considerations will not support grazing in all areas where it has occurred historically. Consequently the maintenance of grasslands for their historic value will occur only where it is ecologically feasible and may sometimes be accomplished by mechanical means (such as mowing).

### Prehistoric Sites

Prehistoric sites will be preserved, and where natural or human forces are causing erosion of these resources, professional studies will be accomplished to determine how to eliminate the adverse effects. All lands not adequately surveyed for archeological resources will be surveyed prior to beginning projects involving land disturbance. The National Park Service procedures for archeological clearance will be followed for documentation of projects having no effects, and projects involving adverse effects or potential effects will be submitted for consultation under the procedures of the Advisory Council on Historic Preservation.

### Museum Collections

The maritime museum collections will be preserved and carefully expanded to include only objects highly relevant to the subject. Specially trained librarians and curators will be needed to preserve the rare books and maintain the historic ships.

## RESEARCH

Archeological and historical studies of GGNRA and Point Reyes have located, inventoried, and identified a great variety of cultural resources. These studies have also designated resources that may meet the criteria of the National Register of Historic Places. Where necessary, future research will be conducted to determine an appropriate level of treatment for individual structures based on their present condition and degree of significance. The following research programs have been completed or will soon be completed.

### Archeological Overview

This study focuses on the understanding of cultures through the technological materials of both prehistoric and historic periods. Prehistoric times--periods lacking in historical documentation--and more recent centuries when records were made combine to form a very long period during which parklands were occupied by various peoples. The overview identifies already known or potential resource locations where archeological mapping, testing, description, and comparison can be used to more fully evaluate cultural resources.

Prior archeological research within GGNRA has been limited, particularly in San Francisco areas. Although within the past 100 years 31 archeological sites have been recorded within the city and county of San Francisco, only 6 remain. Research in Marin County

has been more extensive, but the total data base of aboriginal presence within the park has been severely damaged over time. However, additional aboriginal sites may be discovered because much of the area, especially interior valleys, ridges, and drainages, has not yet been sampled or extensively examined. Consequently, the archeological overview study recommends further research and survey, especially prior to any park development that might affect an area's cultural resources. So far, specific management and research recommendations of this study include:

#### Intensive Surveys

Wilkins Gulch to Stinson Beach  
Rocky Point and Slide Ranch  
South Rodeo Lagoon and Bird Island coastal areas  
Buried coastal fortifications of Fort Baker

#### Sample Surveys

Eastern Olema Valley (stratification between ridge and stream-side environments)  
Uplands between Route 1 and Ridgecrest Boulevard  
Uplands of Mount Tamalpais  
Green Gulch  
Redwood Creek to Muir Woods National Monument  
Coyote Ridge  
Ridges between Gerbode Preserve and Tennessee Valley  
Rodeo Creek drainage and Gerbode Preserve  
San Francisco coastal headlands and Baker Beach

#### Action Plans for Resource Management

Angel Island  
Alcatraz Island  
Fort Point (for preservation of buried deposits and structures)  
Point Lobos (vertical and horizontal mapping of archeological sites)

#### The Exercise of Caution During Any Land Alteration

Aquatic Park  
Fort Mason  
Marina Green/Crissy Field

In contrast to GGNRA, Point Reyes is well along in archeological research. Approximately 70 percent of the peninsula has been adequately examined, yielding a total of 95 archeological sites. About 36 of these sites have been tested, extensively examined, or sampled by archeologists who were largely motivated by interest in Drake's landing.

As a general management action, the archeological overview recommends formulation of a parkwide system for identification, description, and preservation of all archival documents, archeological specimens, and resource terrain, as well as continued use of the national register and compliance procedures as a planning tool.

### Historic Resource Study

This study presents a thorough park history. Although overlapping with some areas of the archeological study, this research focuses primarily on post-aboriginal settlement, or historic periods with written documentation. The study includes a description of intangible park historic resources such as folklore, lifestyle, and traditions. Additionally, the report identifies physical historic resources, analyzes their significance, and completes necessary nominations to the National Register of Historic Places.

The historic resource study will be a major aid in future planning, management, and interpretation. This study has not included resources within the parts of GGNRA not under the administration of the National Park Service. The study will be enlarged to include them only if they become the management responsibility of the National Park Service.

### List of Classified Structures

The history of GGNRA/Point Reyes is richly portrayed by some 1,500 park structures. Many of these structures are historically valuable because of their associations with military, agricultural, or recreational land use. The list of classified structures documents these resources through photograph and physical description. This list analyzes the significance of each structure and recommends a future management treatment (e.g., preservation of the structure in its current condition, restoration to its former historic appearance, or reconstruction). The 410 park structures now on this list will be treated as though they had been nominated to the National Register of Historic Places until a final determination of their eligibility is made. This list does not contain any structures from the state parklands within GGNRA, but initial recommendations regarding significant structures in these areas have been made. These structures will be added to the list of classified structures only if the state parklands are transferred to the National Park Service.

## INTERIM PROTECTION OF RESOURCES

As cultural resources are tentatively identified, it will be necessary to maintain their current character until they have been fully evaluated in relationship to national register criteria and the detailed planning proposals of the general management plan. Even now, as previously private or military structures are transferred to the park, interim vacancies raise their susceptibility to vandalism. Numerous actions will be required to maintain these structures. Possible actions include public education about cultural resource values, restriction of visitation in sensitive resource areas, guarding by uniformed personnel, formulation of compatible maintenance activities, and adaptive use of structures.

## AUTHORITIES

The cultural resources of GGNRA/Point Reyes will be managed in accordance with the Antiquities Act of 1906, Historic Sites Act of 1935, Historic Preservation Act of 1966, National Environmental Policy Act of 1964, Historical and Archeological Data Preservation Act of 1974, Executive Order 11593, and the American Indian Religion Act of 1979.

The federal regulations, standards, and guidelines of the secretary of the interior (established to carry out the above cited legislation) will be used.

The National Park Service management policies, standards, directives, and procedures for cultural resource management will also be applied. The latter includes the "Policy Guidelines for Native American Cultural Resource Management."

# N A T U R A L   R E S O U R C E   M A N A G E M E N T

## CHARACTER OF NATURAL RESOURCES

Much of Point Reyes National Seashore retains its natural character, but most of the land in GGNRA has been altered by man in some way. Coastal defense installations have reshaped much of the shoreline and have introduced many new species of trees and shrubs. On the San Francisco side there remains only a few hundred feet of original bay shoreline. Waterfront areas such as Aquatic Park and Crissy Field are in fact constructed out into the bay on large landfills. In the Marin areas of GGNRA most of the parklands have historically been grazed or cut over since the days of early Spanish habitation. Through the years, only a few areas like Muir Woods have been spared some form of economic utilization.

Fortunately, most of these past uses have neither compromised the spectacular visual qualities of these parklands nor reduced their potential for recreational opportunities. In fact, the park characteristics we enjoy today and perhaps assume to be natural are, in most cases, the result of some degree of human intervention with natural processes. Most of the trees at Baker Beach and Lands End, for example, were planted by the army, and the steep open grasslands so characteristic of coastal Marin may have been in some measure perpetuated by livestock grazing. To maintain these qualities as we know them may require continued intervention or management.

Even natural settings such as Muir Woods and Point Reyes will require some manipulation of the environment to assure that future generations of visitors will be able to enjoy them. In the future, careful management will also be needed to protect areas such as campgrounds and trails from overuse. Campgrounds, for example, may have to be relocated from time to time.

## PROPOSED MANAGEMENT STRATEGIES

Different landscapes invite different experiences. For example, the Monterey cypress trees at Baker Beach provide shelter from the wind and an excellent setting for picnicking. The following types of landscapes will be favored, and the park staff will develop a plan of management actions to maintain these various settings. First consideration should always be given to native species for any new plantings in the park.

The natural appearance of Ocean Beach, Fort Funston, East and West Fort Miley, Lands End, and Baker Beach will be maintained. Wooded areas from the Golden Gate Bridge to the Cliff House will be

protected, and wherever possible along the ocean shoreline the dune environment will be restored. These lands will continue to have a relatively natural character, but intensive management actions such as reforestation of the Monterey cypress stands may be required to preserve wooded areas. This part of the park will attract people seeking closer contact with nature within the city.

Crissy Field, Fort Mason, Aquatic Park, Alcatraz, and Sutro Heights Park will be developed and managed as urban park settings, with special attention given to preserving the historic character of many of these areas. Sutro Park, for example, will have its traditional formal gardens partially restored, and Crissy Field will receive new turf areas and tree planting for wind protection and recreational activities. These areas should draw the most people and will be intensively managed to encourage a variety of park programs and activities.

The GGNRA land in Marin County south of Olema Valley will be managed to preserve a diversity of settings. The mosaic coastal scrub and prairie will be maintained. To achieve this may require a prescribed program of mowing, grazing, and burning. It is particularly important that grasslands be maintained or even expanded near facilities in the Marin Headlands and along access roads to encourage casual uses of open space.

Muir Woods will be managed to protect and interpret the large redwood trees. To do this will require continued intervention in the normal ecological succession of the forest. This may involve, for example, the planting of new trees and the selective thinning of old stands, or even prescribed burning.

The pastoral landscape of the northern Olema Valley reflects the important role that dairying has played in the cultural history of the valley. This area will be managed to preserve the visual contrast between woodland and open grassland so characteristic of a pastoral setting.

Most of Point Reyes National Seashore is either legally designated as wilderness or is under lease or permit for grazing purposes in accordance with its enabling legislation. Within the legal and administrative constraints imposed by these two designations, the unusual variety of scenic qualities and biotic communities that make the seashore attractive to scientists as well as recreationists will be aggressively maintained. Although the majority of the seashore is generally viewed as a wild area where natural processes are allowed to predominate, manipulation of those processes through methods such as selective thinning, burning, and mowing will be cautiously pursued when necessary to protect its scenic, ecological, and recreational values. Restoration of historic natural conditions (such as reestablishment of Tule elk) will continue to be implemented when such actions will not seriously diminish scenic and recreational values.

There are very important habitat areas throughout the park, including the habitats of several threatened or endangered species, that will require special management efforts. Salmon spawning streams, tide pools, and bird habitats have been identified as areas warranting special protection, and visitor use will be carefully controlled in and near these areas. A joint federal and state management program, for example, will be developed to protect Redwood Creek from overfishing. Another important area of concern is the apparent decline in the integrity of Pine Gulch Creek, the principal source of freshwater flow into the critical wildlife habitat of Bolinas Lagoon.

## FUTURE RESEARCH AND PLANNING REQUIREMENTS

Point Reyes and Muir Woods both have approved natural resources management plans, but research and additional planning is needed to complete such a document for GGNRA. It is intended that this be accomplished in the near future and that the plan will prescribe specific management actions, including research and monitoring. The plan will also present projects in priority order so that the most critical actions will be carried out first, as funds become available. At this time it appears that the following areas will be high in priority.

### Vegetation Management Plan

Symptomatic of the need for a parkwide vegetation management plan are the dramatic spread of thistle throughout the Marin Headlands and the rapid encroachment of brooms moving in from road cuts and disturbed areas adjacent to the park. The expansion of thistle has resulted in the loss of much valuable grassland in the Marin Headlands over the last three years. Unless steps are taken to better manage these grasslands, the wide variety of vegetation communities we wish to preserve may be diminished over the next several years.

As an important first step in an overall vegetation management plan, research on the life-cycle of exotic thistles will provide the park with a clearer understanding of colonization of these species throughout the headlands and potential management measures that can influence that change. Experimentation with different control methods will lead to the most effective means to accomplish large scale eradication.

French, Scotch, and Spanish brooms, with their attractive yellow flowers, present a less obvious, but potentially much greater, threat to the native flora. With no natural enemies, these aggressive plants spread steadily into grasslands and chaparral,

over-shading and crowding out native plant varieties. Fortunately several groups, including the California Native Plant Society and the Marin Garden Club, are recognizing the potential threat of and are organizing work parties to remove these plants from open space lands throughout the county. Pampas grass also presents a major concern. The vegetation management plan will address actions for control of these problem exotic species.

Other topics that will be addressed in the vegetation management plan will include suitability of plant species for landscaping and revegetation of disturbed sites, fire management, and habitat requirements and status of threatened, and endangered species.

A monitoring program will be developed to quantify human impacts on plant communities and to identify nondestructive limits for different areas of the park.

### Grazing Management Plan

Thousands of acres of GGNRA land are currently leased for grazing, in part to smooth the transition from private to public ownership, as most of this land has been previously grazed. No plan or guidelines now exist for the issuance of grazing permits, nor are there monitoring procedures to ensure that proper range management practices are followed.

Developed concurrently with a vegetation management plan, the grazing plan will

- Monitor current grazing operations to determine suitability of grazing tracts based on forage production capability, management objectives, and visitor use levels

- Identify any additional land where grazing could be utilized for vegetation management

- Draw up a comprehensive grazing allotment plan, including a rotational schedule if required

- Determine proper purposes, such as brush reduction, for grazing levels for each unit

- Set up a monitoring system to observe the effects of grazing on the land, with the particular objective of eliminating all overgrazing, improving range conditions to good or excellent, and making better use of grazing as a vegetation management tool

Unless this plan is prepared and implemented, overgrazing will probably continue in some areas, resulting in soil erosion, loss of wildlife habitat, and destruction of desirable vegetation types.

The Soil Conservation Service has recommended a moratorium on grazing from Tennessee Valley to Green Gulch to allow the recovery of overgrazed grasslands. Some experts have also expressed particular concern over the past effects of grazing on the Bolinas Lagoon watershed and the southern portions of the Olema Valley.

### Shoreline Monitoring Program

The city of San Francisco has proposed to construct a major wastewater storage and transport culvert along the eastern boundary of the Ocean Beach unit of GGNRA. From August 1 to 3, 1978, a panel of experts in coastal processes, ecology, and engineering convened at Fort Mason to prepare recommendations to guide the National Park Service response to the city's plans and also to prepare a plan for managing the shoreline at Ocean Beach. The concerns expressed over the sewer proposal and the magnitude of the recession of the shoreline has spotlighted the immediate need for more basic data on dune and beach behavior. The Park Service's Ocean Beach Erosion Control Conference Report found that "the lack of a systematic data base on shoreline processes and previous human modification of the shoreline has severely limited the panel's ability to make more definite recommendations." The Erosion Conference Panel recommended that a data collection and beach monitoring program be designed and implemented immediately.

The Littoral Environment Observation Program (LEO) will be initiated at Ocean Beach and expanded to other areas along the park shoreline where resource management decisions will soon be necessary. Areas now identified as needing monitoring include Crissy Field, Aquatic Park, Fort Baker, and Stinson Beach. The data collected will be correlated with information gathered by the Army Corps of Engineers, California Coastal Data Collection Program.

### Other Research

The vegetation management and grazing plans and the Ocean Beach monitoring program are the park's most immediate priorities. Future resource management planning will include but will not be limited to the following additional studies:

- Developing measures for the protection of critical habitats for endangered species and other sensitive resources such as the intertidal zones

Developing wildlife censusing and management strategies for certain wildlife species (this may be determined somewhat by vegetation management strategies)

Developing measures to provide for the recolonization of native species such as the sea otter and elephant seal

Continued monitoring of environmental parameters to assess the impacts of use on the recreation area

# Part Two: Environmental Analysis

## I N T R O D U C T I O N

Four alternatives for visitor use were presented and evaluated in an Assessment of Alternatives published in May 1977. The plan presented in part one is a melding of these four alternatives--programs and facilities were taken from each and were combined with new ideas that resulted from public review. Tables summarizing the alternatives considered are included in the Appendix.

The impacts of the plan on the social, cultural, and natural environments are analyzed in this section. The impact analysis is organized by component of the environment affected by the plan as a whole. To refresh the reader's memory and to make cross-referencing between elements of the plan and impacts easier, a summary table of the development proposals and existing conditions precedes the impact analysis (table 4).

Several environmental issues were of concern to the public during the review of the assessment and position papers and to preliminary reviewers of this environmental analysis. At this point, most of these issues have been resolved by strengthening the environmental analysis, reviewing and redefining proposals, or giving more consideration to check points, monitoring studies, or mitigating measures that will reduce potential impacts. For example, more thought has been given to possible effects of increased visitor use levels on air quality, water consumption, and residents of surrounding communities.

The plan contains a number of conditional actions that will require careful study and review of all available options before a specific course of action can be chosen. Analysis of impacts of these actions at this time would be sketchy at best. Therefore, these actions are singled out in a separate section for special treatment. These actions will not be undertaken until appropriate studies and environmental documentation have been completed and reviewed by the public.

TABLE 4. DEVELOPMENT SUMMARY

Area	Existing	Proposed
Alcatraz	Museum (50 people)	Museum and historic structures (300 people)
	Ranger tour area (5.5 acres, 300 people)	Landscaped open space with picnic areas, walking trails (22.5 acres, 300 people)
	Ferry terminal	Ferry terminal
	Protected wildlife habitat (5 acres)	Protected wildlife habitat (5 acres)
Aquatic Park	Hyde Street pier and historic ships (5 ships, 500 people)	Historic ships docked at new facilities near Hyde Street and municipal piers (12 ships, 850 people)
		New breakwater protecting lagoon (Army Corps of Engineers)
		Ship maintenance area near docking facilities
		Entry plaza between Hyde Street pier and Haslett Warehouse
	Maritime museum (250 people)	Maritime museum relocated to Haslett Warehouse, and information center added (1,000 people)
	Senior center (200 people)	Senior center relocated to Fort Mason
	Rowing and swimming clubs	Public rowing, swimming, and sailing facilities in aquatic center (400 people)
	Sea Scout facilities	Building removed, Sea Scouts to meet in aquatic center
Food concession	Upgrade food concession	

Area	Existing	Proposed
Aquatic Park (cont.)	Municipal pier (250 people)	Municipal pier with fish cleaning stations (250 people)
	Beach with comfort station	Waterfront shuttle along Belt Line Railroad right-of-way
	Beach with comfort station (1 acre, 500 people)	Beach with comfort station (1 acre, 500 people)
	Recreation space - includes lawn, bleachers, bocce ball courts (5 acres)	Recreation space - includes lawn, bleachers, bocce ball courts (10 acres, 1,100 people)
	Cable car turnaround (240 people)	Cable car turnaround with interpretive kiosk (240 people)
Roads and parking - includes Jefferson Street west of Haslett Warehouse, Hyde Street north of Beach Street, Van Ness north of Kodak building	Roadways removed, landscaped open space (1 acre)	
Fort Mason	Open space (21.5 acres)-- includes picnic area, community garden, lawn	Open space (25 acres)--includes lawn and picnic areas, community garden, walkways, and seating areas (3,000 people)
	Pier area - includes park maintenance headquarters, special events, interim educational and cultural programs	Pier area - includes cultural center, indoor recreation space, marine learning center, food service (4,100 people). Fort Mason piers modified to accommodate recreational ferry
	Historic residences and grounds and nonhistoric structures - includes visitor center and hostel. Some still in use by military	Historic structures adapted for uses such as senior center, community rooms, hostel, NPS offices. Nonhistoric structures removed for more open space (515 people)
	Existing roads, parking, and trails	Most interior roads removed, major access roads relocated to the south, redesigned parking space, improved bicycle and pedestrian paths

Area	Existing	Proposed
Crissy Field	Open space - includes picnic area, runway for game courts (36 acres)	Open space - includes large lawn areas, picnic areas, trails, walks, plazas (38 acres, 2,900 people)
	Beach (7 acres)	Beach and a lagoon (6 acres, 1,400 people)
	Coast Guard structures	Adapted for small interpretive facility and comfort stations or New building added for interpretive facility, comfort stations, small food service, sports equipment rental
		Bicycle path (1.25 miles) and jogger path (1.25 miles)  Parking (400 cars)
Cliff House	Cliff House complex - includes food and beverage service, gift sales and amusement facilities (770 people), National Park Service information station	Cliff House restored to 1909 appearance (if feasible) - includes food and beverage service, gift sales, exhibits, collections (770 people)
	Sutro Baths - ruins	Water oriented park with stabilized ruins, walkways, plazas, decorative pools, interpretive exhibits, small beach (13 acres, 730 people)
	Sutro Heights Park - neighborhood park	Restored historic garden and landscaping, minor interpretive displays, seating areas (21.5 acres, 350 people)
	Parking lots and circulation patterns	Redesigned parking and circulation, bus drop-off, pedestrian crossing from Cliff House to Sutro Heights Park
Fort Baker	Presidio Yacht Club	Adapted for day use center with food service, bait sales, equipment station, and places for game tables and socializing

	Beach and open space	Rubble removed, new sandy beach and landscaping (6 acres, 900 people)
	Historic structures	15 historic structures adapted for educational conference center and artists-in-residence program (350 people); 8 structures adapted for a group camp and environmental study area (150 people); 5 structures adapted for hostel (200 people)
	Nonhistoric structures	4 removed and an NPS maintenance facility built; 19 removed and site regraded for a 700-car parking lot; 1 adapted as a ranger information station
	Pier	Ferry landing (600 people), pier with fish-cleaning station, railings, and rod holders for fishermen
	Yacht club piers	Public overnight berthing (1 night only), and day use slips (50 slips)
	Parade grounds	Adapted as field for sports and informal activities (10 acres, 300 people)
	Satterlee breakwater	Parking for fishermen (50 cars), fish-cleaning station, comfort stations
Rodeo Valley	Parade grounds (Fort Barry)	Picnic area with tables, grills, and comfort stations (250 people)
		400-car trailhead parking at former housing area adjacent to Presidio stables (7 acres)
	Riding co-op	Riding co-op/public stables
	9 historic structures at the parade grounds	Hostel/group retreat (125 people), artists-in-residence program (150 people)

Area	Existing	Proposed
	Rifle range (Fort Barry)	Special event space (9 acres, 15,000 people)
	Chapel and gym (Fort Barry)	Group recreation and education facilities (reservation only)
	Battery Alexander (Fort Barry)	Special group picnic and camp area (reservation only, 50 people)
	Theater (Fort Barry)	Removed
	Nonhistoric structures (Rodeo Lagoon)	Most nonhistoric structures removed, picnic area with turf play areas north of Rodeo Lagoon, one or more structures adapted for a comfort station, food service, and equipment rental facility, adjacent parking area (6 acres)
	Rodeo Beach	Rodeo Beach (10 acres, 1,500 people)
	15 historic structures at Rodeo Lagoon	Adapted as environmental education center with classrooms, labs, and dormitories (300 people)
	10 historic structures at Rodeo Lagoon	Preserved for future uses, possibly center for alternative energy and technology research
	Roadway ( $\frac{1}{2}$ mile) and paved parking (75 cars, $\frac{3}{4}$ acre) at Rodeo Lagoon	Paved parking (25 cars, $\frac{1}{4}$ acre); landscaping ( $2\frac{1}{2}$ acres)
	Historic former Nike missile support facilities	Adapted for park maintenance and other administrative activities
	Nike missile launch site, Battery 88	Continue public tours
	Historic balloon hangar	Adapted for indoor riding rink

Area	Existing	Proposed
	Fort Barry Capehart military housing	33 nonhistoric structures removed, group picnic area (15 acres, 400 people)
	Kirby Cove group camp	Group camp (120 people)
	Nonhistoric structures on Hill 88	Removed
		Gerbode Valley hike-in camp (60 people)
		Oakwood Valley picnic area (350 people)
		Educational farm in Oakwood Valley (1 acre, 50-75 people)
	Tennessee Valley trailhead, riding co-op	Tennessee Valley trailhead, riding co-op/public stables
		Tennessee Valley hike-in camp (60 people)
	Point Bonita	Point Bonita tours and exhibits
	Overhead utilities	All utilities buried underground
Mount Tamalpais	Morses Gulch	Walk-in camp (60 people)
	Old Mine (Bolinas Ridge)	Hike-in camp (60 people)
		Exhibit at Bolinas Lagoon as proposed by lagoon advisory committee
Muir Woods	Concession, administrative offices, visitor contact facility in grove	Possible relocation of interpretive facility and concession near the existing southern parking lot (long-term potential plan), administrative offices relocated with the new maintenance facilities SE of the new parking lot
	Parking lot in grove, adjoining road	Parking removed, road realigned, area restored to its natural condition

Area	Existing	Proposed
		New parking area (100 spaces) just south of the existing parking area
	Maintenance area	Maintenance area relocated in new building with administrative offices SE of the new parking lot
		Hostel (50 people, long-range plan)
Stinson Beach	Access road	New entrance
	Beach with parking (1,100 spaces), comfort station, food service, ranger station, maintenance substation	Beach with parking (1,100 spaces), comfort station, food service, ranger station, maintenance substation
Muir Beach	Beach with parking and comfort station	Beach with parking, improved comfort station, mobile food service, picnic area (80 people)
Olema Valley	Five Brooks trailhead, public stables, picnic area	Five Brooks trailhead, public stables, picnic area, walk-in camp (20 sites, 80 people, 20 parking spaces)
	Truttman Ranch	Walk-in camp (40 sites, half with tent frames, 160 people, 40 parking spaces)
	Bolinás Ridge	Hike-in camp east of Five Brooks (15 sites, 60 people)
	Historic structures	Two historic structures at north and south ends of valley adapted for hostels (50 people each, long-term), other structures maintained through use as park staff housing or management facilities, Rancho Bolinás adapted as environmental education center (30-50 people)

Area	Existing	Proposed
	Local ranches	Current agricultural enterprises continued, a working ranch used to interpret historical agricultural use of the valley
Point Reyes	Bear Valley visitor center-interpretation, information and comfort station, picnic area, Morgan horse farm, trailhead, Miwok Village, self-guiding trails	Bear Valley visitor center - expanded interpretive activities, improved comfort stations, food service, picnic area, Morgan horse farm, trailhead, Miwok Village, self-guiding trails
	Drakes Beach information center	Drakes Beach information center - exhibits expanded
	Tours and exhibits at lighthouse	Tours and exhibits at lighthouse
		Tours and programs at Pierce Point Ranch
		Tours and programs at lifesaving station
	Beach access at North Beach, South Beach, Drakes Beach, Limantour	Beach access at North Beach, South Beach, Drakes Beach, Limantour
	Environmental education center along Limantour Road	Environmental education center along Limantour Road
	Hostel at Laguna Ranch	Hostel at Laguna Ranch
		Hostel along Highway 1
	Mount Vision overlook	Mount Vision overlook
	Johnson's Oyster Farm	Johnson's Oyster Farm
	Sky camp	Sky camp
	Glen camp	Glen camp
	Coast camp	Coast camp
	Wildcat camp	Wildcat camp

Area	Existing	Proposed
		Home Ranch hike-in camp
		Muddy Hollow Ranch hike-in camp
		Marshall Beach boat-in camp
	Palomarin trailhead	Palomarin trailhead

# I M P A C T S

## IMPACTS ON VISITORS

### Changing Activities and Use Levels

Opportunities for visitor use will be greatly expanded by the plan. New recreational activities, educational and interpretive programs, and visitor services will be provided, primarily by using existing facilities and structures. As the kinds of activities in various areas change, the visitors who are attracted to these areas will change also.

Visitation throughout GGNRA/Point Reyes could increase by as much as 200 percent over existing visitation as a result of park development. The increase is expected to be about 230 percent for the San Francisco parklands and about 160 percent for the area north of the Golden Gate, based on the maximum number of people possible in every facility at each location at any one time. An exception to this general projection of increased visitation is the heavily used Mount Tamalpais area, where use is already in excess of desired capacity and will hopefully decrease by about 6 percent.

Wherever increased use levels are not accompanied by a corresponding increase in facilities, visitor enjoyment will be affected. In the case of parking, for example, a deficit of 1,180 parking spaces during peak use periods in the San Francisco Bay waterfront area will decrease the enjoyment of visitors who have to search for parking some distance from their destination. However, the use levels used for assessing impacts on visitors are generally higher than what will actually occur because they are based upon the assumption that all available facilities and spaces will be used at their maximum capacities at the same time. In reality, all facilities will not be filled simultaneously; for example, a beach will be full at midday, but a campground will not be full until evening.

Carrying capacities established in the plan will be continuously reevaluated to assure that visitor satisfaction and enjoyment are not compromised to an unacceptable extent by large numbers of visitors. Visitors will expect high use levels in the southern units because of the structured setting, maintained landscapes, proximity to the city, and high use levels that have already been established. North of the Golden Gate Bridge, however, feelings of overcrowding may be intense for visitors expecting solitude, even when visitor levels are relatively low.

Alcatraz. Activities on Alcatraz will be greatly increased. Currently, visitors are allowed on only about 25 percent of the island. As more of the island is opened, however, both the level

of use and types of visitors will change. People interested in the prison's history, the focal point of present tours, will continue to be attracted to the island. Expanded tours (from a current maximum of 225 people to 300 people), and interpretation of additional historic buildings will provide increased opportunities for visitors to see more of the important structures and gain a better understanding of the area's history. At the same time, an increase in unstructured activities may attract different visitors, such as artists, sightseers, and people interested in a day's outing on an island. New activities will provide additional opportunities for people to enjoy Alcatraz Island and will accommodate a larger number of users.

TABLE 5. ACTIVITIES, ALCATRAZ

<u>Activity</u>	<u>Present Use</u>	<u>Expanded</u>	<u>New Activity</u>
Guided tours	X	X	
Interpretation/exhibits	X	X	
Strolling			X
Picnicking			X
Bird watching			X
Photography, painting, sketching			X
Frisbee, kite flying			X

While the maximum number of people allowed on the island will be 600 (double current use figures), crowding to the detriment of visitor enjoyment is not expected, since much more of the island will be open to visitors.

Aquatic Park. As this area is developed into the front door of GGNRA, some established patterns of use will be disrupted. As facilities are relocated, removed, or adapted for new uses, people who use them will be shifted to new areas, but generally to improved locations within Aquatic Park. For example, some of the pier area now used by swimmers, fishermen, and boaters will no longer be available to them because of the mooring of up to seven additional historic ships. Also, the removal of the rowing clubs (if and when their ownership is transferred to the National Park Service) and the removal of the Sea Scout building will cause temporary inconvenience to the users of these facilities. However, new facilities to support swimming, rowing, sailing, and fishing (including rentals, lockers, and showers) will be developed on the ground floor of the proposed Aquatic Recreation and Education Center. The former rowing club members will be accommodated here, and in a new Hyde Street Pier facility, along with the general public. Sea Scout meetings and programs will also be transferred to this building. If any of the ships are anchored in the center of

the lagoon, great care will be taken to avoid conflicts with swimmers and rowers.

The municipal pier will be upgraded, and restrooms and modest fish-cleaning stations will be added, enhancing its usability for fishermen.

Since the capacity of the lagoon and pier for water-oriented activities has not yet been reached, those who traditionally used the piers for fishing will not be affected by the minor loss of space. The development of a promenade through the area will provide a more attractive setting for sitting, strolling, and board games, thus attracting additional local visitors and tourists to the area.

Additional activities in the Aquatic Recreation and Education Center will enhance educational and recreational opportunities available to all visitors, and encourage programs for all ages and for community-oriented groups.

Over a gradual period of time, the senior citizen's center will move to a new location at Fort Mason. The senior center at Aquatic Park will phase out only as the membership itself shifts to the Fort Mason center, so no impact on members is anticipated. Since the new location will be equally convenient to projected public transportation and parking, be less congested, and provide more outdoor space, it should be a more comfortable and pleasant setting for senior programs.

The conversion of the Haslett Warehouse from office space to a museum and information center will cause the displacement of approximately 70 tenants. By the time adaptation of the warehouse to a visitor facility begins, however, it is anticipated that few, if any, of the tenants will remain and have to move. The benefits of this conversion will be substantial. Expansion and improvement of the maritime museum will increase the educational and cultural experiences of visitors. The inclusion of a major park information and interpretation center will provide much needed direction to both local and national visitors, decrease their confusion, enhance their understanding of the parks' resources, orient them to other opportunities available in the region, and add to their knowledge of the historical significance of the area.

New artifact collections and exhibits, additional ships, and the waterfront shuttle will attract more regional and national visitors to Aquatic Park, and increase opportunities for interpretive and educational activities.

The removal of the rowing clubs and the Sea Scout building, the possible redevelopment of the Hyde Street pier area, development of

a common entry plaza at the intersection of Hyde and Jefferson streets, improvement of the promenade, cleaning up of the municipal pier and bleachers, and closure of some areas to automobile transportation will greatly improve the aesthetic value of the area, thus further highlighting and enhancing visitors' experiences. The overall effect of these various improvements and additions will substantially benefit both local residents and tourists.

TABLE 6. ACTIVITIES, AQUATIC PARK

<u>Activity</u>	<u>Present Use</u>	<u>Retained</u>	<u>Expanded</u>	<u>Phased Out</u>
Sitting and socializing	X		X	
Strolling	X		X	
Sunning	X		X	
Picnicking	X		X	
Eating out	X	X		
Fishing	X		X	
Senior center activities	X			X
Jogging	X	X		
Bocce ball	X	X		
Water-oriented recreation	X		X	
Kite flying	X	X		
Bongo drums	X	X		
Board games	X	X		
Maritime museum	X		X	
Environmental education	X		X	
Interpretation/information	X		X	

Visitation to this area of the park is expected to more than double, from 2,000 people to 4,340 people maximum at any one time. These visitors will be accommodated in both additional structures and increased open space along the waterfront. Much of the anticipated use will be concentrated in the new maritime museum and at the expanded collection of historic ships. Because these maximum use levels will be reached only on occasion and because the setting is in San Francisco, where large numbers of people are expected, crowding is not anticipated to be a problem a majority of the time. However, parking will not be available anywhere in Aquatic Park and during peak use periods, if all facilities are being used, as many as 678 parking spaces may have to be found in surrounding areas (see table 15 in the section "Impacts on Surrounding

Communities," which includes auto traffic projections and possible parking deficits). The search for parking will delay and inconvenience visitors and require them to walk farther to participate in activities.

Fort Mason. An increase in the number and variety of activities (recreational, cultural, and educational) will make all areas of Fort Mason more attractive to visitors. New opportunities will include overnight visits at the hostel, activities for seniors, indoor recreational activities, and limited food service.

TABLE 7. ACTIVITIES, FORT MASON

<u>Activity</u>	<u>Present Use</u>	<u>Retained</u>	<u>Expanded</u>	<u>New Activity</u>
Strolling	X		X	
Sitting	X		X	
Bicycling	X		X	
Jogging	X		X	
Sightseeing	X		X	
Fishing	X	X		
Arts/crafts	X	X		
Picnicking	X		X	
Eating out				X
Lawn sports	X		X	
Dog running	X	X		
Sunbathing	X		X	
Community gardening	X		X	
Hostel				X
Senior center activities				X
Cultural center activities	X		X	
Environmental education	X		X	
Indoor recreation				X
Special events	X		X	
Interpretation/information	X		X	

By moving maintenance facilities from the Fort Mason pier area to a more suitable location, valuable waterfront space will be made available for visitor uses, expanding the kinds of opportunities available in the pier area.

The main emphasis of change in this area is on providing day-to-day recreational opportunities for local and regional residents. The diversity and range of uses provided will attract a wide variety of local groups. While national visitors will certainly

find much to do here, they are not expected to be the primary users.

With the exception of the pier area, Fort Mason is largely unused at present. The large projected increase in visitation from 1,900 to 7,615 reflects this underutilized condition.

During planning, concern was expressed by many groups that Fort Mason keep its tranquil and unstructured qualities. Consequently, care will be taken to ensure that certain times and places are reserved for visitors to enjoy a peaceful park setting by carefully scheduling events and frequently monitoring the effects of crowds.

Visitor parking at Fort Mason will be limited to 614 spaces to preserve as much open space as possible. This amount of parking will be inadequate during special events and peak use periods when activities in the pier sheds and unstructured recreational activities are all occurring simultaneously. During such periods the demand for parking may exceed the number of available spaces by 1,000 or more. Visitors will be inconvenienced by losing time looking for parking spaces and by having to walk or take public transportation from distant parking to Fort Mason. Lack of parking may discourage some visitors from using the area after initial visits. The peak use periods when parking will be a problem are expected to occur on summer weekends and evenings when special events are planned, 25 to 50 days each year. Special attention has been placed on providing alternative forms of transportation to help mitigate the impact of this problem.

Crissy Field. The overall purpose of the plan for Crissy Field is to provide much needed open space. Because it is so underutilized now, recreational use is expected to increase dramatically. The area will be much more accessible and conducive to a number of water and shoreline activities, especially with the possible creation of a lagoon. Both local and regional residents will be drawn to the area for a wide variety of outdoor recreational activities.

Two environmental education programs will be displaced to more suitable park areas. The Applied Aquatic Resources, which in 1978 had 3,710 visitors, will possibly be relocated to Fort Barry, to the center for alternative technology demonstrations and research. The Promenade Classroom, which had 2,185 visitors (138 groups) in 1978, will possibly be relocated to the Fort Point area. These moves will cause a temporary disruption to the organizations and users. However, because of the provision of new facilities, the impact is expected to be slight.

TABLE 8. ACTIVITIES, CRISSY FIELD

<u>Activity</u>	<u>Present Use</u>	<u>Retained</u>	<u>Expanded</u>	<u>Phased Out</u>	<u>New Activity</u>
Strolling	X		X		
Bicycling	X		X		
Jogging	X		X		
Dog walking	X	X			
Fishing	X	X			
Picnicking	X		X		
Sunbathing	X		X		
Environmental education	X			X	
Boat launching	X	X			
Water play (lagoon)					X
Lawn sports					X
Sitting					X
Self-guided nature tour					X

Use at Crissy Field is expected to grow from the current number of 100 people to a maximum of 4,300 people at any one time. It is not expected that high use levels will lead to uncomfortable overcrowding for several reasons. The park is in an urban area, where there is higher tolerance of crowds than exists in the northern, more rural parklands. The activities will usually be unstructured, allowing people to space themselves and use the park when it is not crowded. Design of lawn areas, walkways, and earth berms will separate areas for intensive recreation from more secluded and quiet settings.

Minimal amounts of parking (400 spaces) will be provided at Crissy Field. Overflow parking will occur either on grassy areas of Crissy Field or in nearby army lots. In the future, improved transit service to Crissy Field, the proposed waterfront shuttle service, and improved pedestrian and bicycle access will help avoid traffic congestion and should ensure that a high level of visitor satisfaction is attained.

Cliff House. The rejuvenation of this area will substantially enhance visitors' enjoyment of both existing and newly available activities by creating a more aesthetically pleasing setting. Improvement of the parking and circulation arrangements will also improve visitors' enjoyment of the area by reducing congestion.

During the restoration of the Cliff House to its 1909 appearance, or during the construction of a new building if restoration is not feasible, visitors will experience some inconvenience if the facility is

temporarily closed. However, either action will increase the building's attractiveness and reduce its commercial character. The food and beverage service at the Cliff House will be appropriate to a reasonable range of tastes and incomes.

Pedestrian access to the Sutro Baths ruins will be easier and more attractive, drawing more visitors into the area and providing an enjoyable and safe visit.

The Cliff House unit will attract both regional and national visitors. A major interpretation and information center will provide an understanding of the history of the area and the available recreational opportunities.

TABLE 9. ACTIVITIES, CLIFF HOUSE

<u>Activity</u>	<u>Present Use</u>	<u>Retained</u>	<u>Expanded</u>	<u>New Activity</u>
Fishing	X	X		
Exploring	X	X		
Strolling	X		X	
Sitting	X		X	
Picnicking				X
Eating out	X	X		
Sightseeing	X	X		
Shopping	X	X		
Interpretation/ information	X		X	

Once all improvements are completed, this area will have a maximum one-time capacity of 1,850 people. Most of the total increase in visitation for the area will be absorbed by the new Sutro Baths Park, with little change in visitation at the Cliff House itself. The total parking will remain at 335 spaces. Traffic congestion and parking are problems even now, when the area has a capacity of only 700 people; however, improvement of parking facilities, relocation of bus parking to the upper Ocean Beach esplanade, and establishment of a pedestrian crossing from the Cliff House to Sutro Heights Park should help alleviate congestion in the future.

Sutro Heights Park is currently a quiet neighborhood park. Traditional users may be disturbed as more people are drawn in and create a busier, less tranquil atmosphere.

Marin Headlands. The Marin Headlands, covering approximately 4,700 acres, currently has a maximum visitation of 1,167 visitors at any one time. This is expected to increase to a maximum of 5,466 visitors at any one time with proposed improvements at Fort Baker and Rodeo Valley.

During periods of peak use, when Rodeo Valley is closed to automobile traffic and shuttle service is operating from Fort Baker, there will be a total of 1,565 parking spaces available to visitors, which will be sufficient to accommodate projected auto traffic. However, parking lots and roads may occasionally become congested on peak use weekends, thus causing visitor inconvenience and dissatisfaction.

Fort Baker is currently under the jurisdiction of the army; thus, few recreational use patterns have been established and no traditional users will be displaced. Opportunities for fishing, about the only current use, will be expanded and improved by the plan. This area could become one of the most attractive recreation spots in the Bay Area and will serve as the transportation hub for the Marin Headlands portion of the park. The interpretation/information center will provide a key link in the parkwide system intended to expand awareness of GGNRA/Point Reyes and the historical importance of the area. The wide range of activities planned will substantially increase the recreational, cultural, and educational options available to visitors.

TABLE 10. ACTIVITIES, FORT BAKER

<u>Activity</u>	<u>Present Use</u>	<u>Retained</u>	<u>Expanded</u>	<u>New Activity</u>
Sunbathing and swimming				X
Jogging	X	X		
Fishing	X		X	
Strolling				X
Sitting				X
Picnicking				X
Eating out				X
Hostels				X
Conferences/ seminars				X
Day camps				X
Performing arts				X
Environmental education				X
Boat launching and berthing				X
Lawn sports				X
Bicycling				X
Special events	X		X	
Interpretation/ information				X

The proposed beachfront will increase visitation in the area to approximately 1,900 people at any one time. In addition, many other visitors will be passing through from the ferry terminal and parking lot to other parts of the headlands. Visitors seeking low-density recreation will not find Fort Baker suitable, but they will find suitable areas in nearby Rodeo Valley.

Proposed improvements in Rodeo Valley will enhance opportunities for the wide range of park activities already occurring there and make the area more appealing to visitors from the inner cities. The educational centers, special event area, rental equipment, hostel, stables, food service, and cultural programs are intended to attract a large variety of users, and visitation could increase to a maximum of 2,926 people at one time (the combined capacities of Fort Cronkhite, Fort Barry, and the Capehart picnic area). This area is one of the most sensitive to crowding, since traditional users have come to expect few people and little activity. Traditional visitors will experience varying degrees of resentment over sharing the headlands with more people. However, development will be consolidated in a few small areas, and the majority of visitors will stay in these locations. Therefore, the hills and some beachfront will remain open to those seeking a more natural setting for hiking and picnicking.

TABLE 11. ACTIVITIES, RODEO VALLEY

<u>Activity</u>	<u>Present Use</u>	<u>Retained</u>	<u>Expanded</u>	<u>Restricted</u>	<u>New Activity</u>
Beachcombing	X	X			
Strolling	X	X			
Sitting	X		X		
Sunbathing	X	X			
Picnicking	X		X		
Eating out					X
Beach sports	X		X		
Sightseeing	X	X			
Dog walking				X	
Hiking	X		X		
Jogging	X	X			
Birdwatching	X		X		
Fishing (ocean)	X		X		
Hostels	X		X		
Camping	X		X		
Bicycling	X	X			
Environmental education	X		X		
Artists-in-residence program					X
Water activities	X		X		
Horse riding	X		X		
Special events	X		X		
Interpretation/information	X		X		

Special events at the rifle range will disturb users of adjacent areas. Until transit service is implemented, special events may cause traffic congestion and competition for available parking spaces. When transit service is operating, visitors bound for other destinations in the valley may be inconvenienced by having to park at Fort Baker at times when large special events are scheduled.

Members of the horseback riding co-ops in Rodeo Valley and Tennessee Valley will not be affected, except that their organizations will have to make arrangements to provide five to ten horses for public rental. These rental animals will provide riding opportunities for park visitors who do not own horses.

Two other organizations operating in Rodeo Valley, the YMCA and Yosemite Institute, will continue their programs in their current locations until the facilities are amortized. At such time, these organizations will move to historic structures at Fort Cronkhite, thus consolidating all environmental education program facilities in the valley. With the exception of increased visitation, little impact on these organizations is expected from the plan.

Mount Tamalpais Area. The increase in visitor use of both Marin Headlands to the south and Olema Valley to the north should reduce the pressure on the well-established, heavily used Mount Tamalpais area and allow a more enjoyable visit for traditional users. Very few changes in activities or use levels are foreseen for Muir Woods and Stinson Beach.

Expansion of the interpretive program to include information about all of GGNRA/Point Reyes and other recreational areas in the region will provide a needed link between Muir Woods and the rest of the parks and help visitors become aware of the opportunities available to them.

When and if the restaurant and gift shop are replaced outside the grove, additional food and shopping services will be provided. Service may be temporarily disrupted during the move.

TABLE 12. ACTIVITIES, MUIR WOODS

<u>Activity</u>	<u>Present Use</u>	<u>Retained</u>	<u>Expanded</u>
Strolling	X	X	
Interpretation	X		X
Jogging	X	X	
Eating out	X		X
Shopping	X		X

A new entrance to the parking lot at Stinson Beach will benefit both visitors and townspeople by reducing conflicts between town and visitor traffic. No change in activities is expected at Stinson Beach.

TABLE 13. ACTIVITIES, STINSON BEACH

<u>Activity</u>	<u>Present Use</u>	<u>Retained</u>
Sunbathing	X	X
Picnicking	X	X
Swimming	X	X
Beachcombing	X	X
Fishing	X	X
Wildlife observation	X	X
Beach sports	X	X

Two new campgrounds will allow visitors to hike through the Mount Tamalpais area on a journey that could last for several days.

Olema Valley. This area currently accommodates around 250 people at one time. Even if the theoretical use capacity of 1,615 people at a time is attained, the overall average visitor density will still be only 1 person per 8 acres. Ease of access at the northern end will cause an uneven distribution of visitors, with visitation expected to be lighter in southern areas of the valley. This area is expected to be attractive to those persons seeking a more isolated type of experience. New campgrounds will allow visitors to stay overnight and hike through this area on a journey that could last for several days.

Congestion may occur along the roadway, particularly the section between Five Brooks and Bolinas Lagoon. The proposed shuttle and improved transit should help alleviate congestion that would otherwise occur along the roadway. The acquisition of additional lands at the northern limits of the park could raise future use levels in this area.

Point Reyes. Visitation to Point Reyes is currently 6,720 people at any one time on a peak day and is expected to increase to 10,080 people when the entire plan is implemented. The approximate acreage of Point Reyes is around 55,000 acres, making the overall average density less than one person per 5 acres. Use is expected to spread throughout the seashore, with small concentrations of people along the beaches, in campgrounds, and at the Bear Valley visitor center. Six new campgrounds and two new hostels will greatly expand overnight opportunities and complete the system of

accommodations designed to allow visitors to hike from San Francisco to Point Reyes in a continuous journey.

Improved information and interpretation at Bear Valley will help people become aware of the historical and ecological significance of Point Reyes and the recreational opportunities available at different locations.

TABLE 14. ACTIVITIES, BEAR VALLEY

<u>Activity</u>	<u>Present Use</u>	<u>Retained</u>	<u>Expanded</u>
Picnicking	X		X
Informal sports activities	X	X	
Interpretation	X		X

Traditional users seeking a low-density wilderness experience may feel Point Reyes is crowded, especially at the new campground sites. However, it is expected this use level will still allow for relatively secluded recreation. Careful monitoring of visitor levels and sensitivity to crowding will ensure that the quality of recreation at Point Reyes remains high.

#### Effects of Construction

Throughout the parks, construction activity to adapt structures, update facilities, and provide for new uses will inconvenience visitors. The movement of material, increase in noise levels, and closure of some park areas until construction activities are complete will be disturbing. These inconveniences, however, will all be temporary. Construction projects will result in vastly improved conditions for visitors.

#### Effects of Transportation Changes

The proposal emphasizes use of mass transit, shuttle buses, and other forms of public transportation. While having the advantages of reducing congestion, pollution, visual intrusions, and oil consumption, and increasing access for those without cars, public transportation also causes some inconvenience to visitors. Users will have to plan ahead and arrive earlier for events and wait longer to get to different areas. They will have to carry things with them and be aware of schedules and transit routes. Each of these conditions could potentially reduce visitors' satisfaction with their park experience.

## Visitor Safety

Development proposals will correct a number of existing safety hazards, primarily by removing deteriorated structures and by constructing safer trails and access. However, more visitors will be attracted to an area that contains many natural hazards--steep cliffs, unpredictable ocean currents and waves, and earthquake zones.

Rehabilitation of historic structures for new park uses and removal of other structures will reduce possible safety hazards to visitors who might otherwise explore deteriorating buildings and batteries. Hazards will be most significantly reduced on Alcatraz when nonhistoric structures are removed. At present, weakened structures and rubble necessitate closing off most of the island, but use of the island can be expanded after these potential hazards are removed. Removal of abandoned structures in Rodeo Valley and Fort Baker will eliminate other major hazards.

Trail improvements throughout the park, but especially in the San Francisco Headlands, will rectify a dangerous potential for sliding in areas of unstable and slumping coastal cliffs.

Use of coastal areas throughout the park is inherently hazardous because of instability of coastal cliffs, possibility of landslides, and potential for earthquake-related flooding along low-lying coastal areas. While only minor new visitor facilities are proposed for coastal areas, some risk will be taken to provide for visitor use of beaches and the adjacent coastal zone. However, this risk is not considered to be sufficient to preclude shoreline recreation use. As required by Executive Order 11988, areas subject to 1 percent or greater chance of tsunami flooding in any given year (100-year frequency) were identified in the Information Base as flood-prone areas. The following new or existing facilities are planned for use within these areas:

### Aquatic Park

- New ship maintenance facility
- Hyde Street pier (existing, to be replaced)
- Maritime museum and information center in Haslett Warehouse (existing structure, new use)
- Aquatic Recreation and Education Center in Aquatic Park bathhouse (existing structure, new use)

### Fort Mason

- Pier buildings (existing structures)

### Crissy Field

- New information station

Information about tidal flood prone areas is not available for Marin County; however, several facilities may be located in flood prone areas:

Fort Baker

Beach/picnic/play area  
Pier and improvements for restrooms, fish-cleaning station  
(existing structure, new use)  
Historic structures adaptively used for food service,  
equipment rental (existing structures, new uses)

Fort Cronkhite

Historic structures adaptively used for environmental  
education center (existing structures, new uses)

Muir Beach

Picnic area

Stinson Beach

All existing facilities

None of these facilities is expected to harm floodplain natural values and none is particularly detrimental to human safety, health, or welfare. Tsunami run-up may cause some flooding of lower floors, but building stability is not expected to be affected. The structures of concern are either existing as part of previously developed areas, or are support facilities that will provide for recreational use of beach and shoreline areas. Use of existing historic structures in the flood zone is considered, in spite of their coastal locations, because of a mandate to utilize historic structures, because their functions often require a water-oriented location, and because their use is not hazardous to visitors. For example, the Haslett Warehouse was acquired to function as a major visitor information center and maritime museum because of its location near the popular Fisherman's Wharf and because of its proximity to the bay, water recreation facilities, and historic ship collection. Similarly, the Aquatic Recreation and Education Center (old Aquatic Park bathhouse building) will house water recreation and education facilities that require a waterfront location. In the rehabilitation of historic structures for adaptive uses, the flood-prone nature of their locations will be taken into account to decrease the potential for visitor injury. To assure compliance with Executive Order 11988, the review procedure described in the order will be followed.

Structural damage and visitor injury are real possibilities throughout most of the park in the event of a major earthquake. While no new facilities will be built in seismically unstable areas, existing facilities in Olema Valley lie close to the San Andreas fault

and could be damaged by activity along the fault. Whenever work is undertaken on historic structures to make them suitable for adaptive uses, they will be brought up to structural standards to make them more capable of withstanding seismic activity.

### Summary

The plan will provide a wide range of high quality recreational, educational, and cultural opportunities for local and national visitors. Areas in San Francisco and Marin will be cleaned up, new activities will be provided, access will be increased, and community service will be stressed. From the maritime museum at Aquatic Park in downtown San Francisco, to the windswept beaches of Point Reyes, the park will provide recreational experiences for a wide variety of users.

The plan was shaped by careful attention to both existing uses and public demand for new activities. Visitor use levels will be monitored to ensure that overcrowding does not become a problem. Public transportation to and from park areas, as well as routes and parking for private autos, will be improved to provide access for all users. Information centers will focus on recreational opportunities in the entire region. Old and unsafe buildings will be torn down, and rubble will be removed. Currently unused areas in prime locations will be rejuvenated and utilized for new activities. These additions and improvements will greatly enhance visitor experiences and recreational opportunities in the San Francisco Bay Area.

## IMPACTS ON SURROUNDING COMMUNITIES

### Traffic Congestion and Parking

Traffic along park access roads is often congested on weekends, especially on the Golden Gate Bridge and Route 1, where traffic periodically exceeds the roads' capacities. Whether or not the plan is implemented, recreational traffic will increase; however, traffic along certain access roads will increase at a more rapid rate as a result of the plan. Periods when traffic is above the capacity of the Golden Gate Bridge and Route 1 will increase in frequency. Roads such as Marina Boulevard, Point Lobos Avenue, and Sir Francis Drake Boulevard, where traffic is presently below the road capacities, will become more congested and reach their capacities sooner. Increased traffic congestion will affect local residents and commuters who regularly use park access roads by reducing travel speeds and increasing the number of times they will be ensnared in traffic jams. Planned transit systems will reduce potential traffic congestion by reducing the number of private cars being driven through and parked in adjacent communities, but the amount of slow

moving buses pulling in and out of traffic will also affect road travel speeds.

The traffic congestion problem will be noticeably improved in the town of Stinson Beach once heavy park traffic is diverted around the community. The town will no longer be disturbed by excessive traffic, noise, or parking on public streets following the modification.

There will be a parking deficit on peak use days in the San Francisco waterfront units, with the largest deficit occurring in the Aquatic Park/Fort Mason area. The designed parking capacity will provide for more than 50 percent of peak visitation and will be adequate most of the time. However, on peak use days the burden of providing overflow parking will fall on adjacent communities that may not be willing or able to handle the parking problem. Local residents will be harassed by competition for parking and illegal parking in their driveways. It is expected that peak use periods, when parking could be a problem along the San Francisco waterfront, will occur on as many as 25 to 50 days each year; most likely on sunny summer weekends or when special events are planned.

The northern waterfront area can reasonably be examined as a whole in terms of parking requirements because a shuttle system, the waterfront beltline railroad, will be available to transport visitors from their cars to the desired activity area. A total of 4,290 parking spaces will be required between Aquatic Park and Fort Point on a peak use day, based upon the estimates of the number of visitors who will arrive by car (see table 15). This total figure also assumes that ferry service to Alcatraz and Fort Baker will be provided at Fort Mason and includes the parking requirements of ferry users. There will be only 2,480 spaces available in the waterfront section of the park and an additional 630 adjacent spaces available outside of the park; so there will be a deficit of 1,180 parking spaces.

While this deficit appears large, especially in the Aquatic Park/Fort Mason area where an additional 1,300 parking spaces would be required, the impacts on surrounding communities are not expected to be severe for the following reasons. Deficits are calculated based upon peak capacities and assume that all facilities are in operation at one time, but this will not be the case. For example, up to 50 percent of the activities in the Fort Mason piers are scheduled for evening, when outdoor activities will not be taking place, reducing the amount of parking needed by Fort Mason users at any one time. In addition, the period of peak use will be of a limited frequency and duration--a few hours on 25 to 50 days each year. The plan provides for a number of mitigating measures that will prevent excessive impacts on surrounding communities.

TABLE 15. QUANTIFICATION OF TRANSPORTATION IMPACTS  
(at one time/peak day)

Existing							
Park Unit	Visitation	Modal Split Percent Auto/Transit/Other	Parking Spaces	Parking (Deficit) Surplus	Traffic (cars)	Transit (people)	Other (people)
Alcatraz	300	60/20/20	0	(60)	60	60	60
Aquatic Park	2,000	60/20/20	85	(290)	375	400	400
Fort Mason	1,900	77/11.5/11.5	514	65	450	220	220
Marina Green	3,400	75/12.5/12.5	1,200	400	800	425	425
Crissy Field	100	85/7.5/7.5	50	25	25	10	10
Fort Point	650	94/3/3	210	20	190	20	20
Baker Beach	950	80/10/10	200	(40)	240	95	95
Lands End	600	90/5/5	480	325	155	30	30
Cliff House	700	50/45/5	335	225	110	315	35
Ocean Beach	2,000	75/12.5/12.5	220	(250)	470	250	250
Fort Funston	350	84/8/8	45	(45)	90	30	30
Marin Headlands	1,167	86/10/4	1,480	1,166	314	117	46
Mount Tamalpais	9,334	91/6/3	1,946	(504)	2,450	547	217
Olema Valley	250	95/2/3	100	25	75	5	8
Point Reyes	6,720	95/3/2	2,095	375	,720	200	134

Proposed/Potential								
Park Unit	Visitation	Modal Split Percent Auto/Transit/Other	Parking Spaces	Parking (Deficit) Surplus	Traffic (cars)	Transit (people)	Other (people)	Available Adjacent Parking
Alcatraz	600	0/100/0	0	0	0	600 <sup>a</sup>	0	
Aquatic Park	4,340	50/30/20	0	(678)	678	1,302	868	315
Fort Mason	7,615	67/21.5/11.5	614	(980) <sup>a,b</sup>	1,594 <sup>a,b</sup>	1,636	876	
Marina Green	3,400	65/22.5/12.5	1,200	500	700	765	425	
Crissy Field	4,300	75/17.5/7.5	400	(600)	1,000	763	322	315
Fort Point	1,200	85/12/3	270	(48)	318	244	36	
Baker Beach	1,500	70/20/10	330	0	330	300	150	
Lands End	1,000	80/15/5	480	230	250	150	50	
Cliff House	1,850	50/45/5	335	45	290	833	92	146
Ocean Beach	4,020	75/12.5/12.5	220	(722)	942	500	500	1,265
Fort Funston	800	77/15/8	300	146	164	120	64	
Marin Headlands	5,466	72/22/6	1,565 <sup>c</sup>	335	1,230	1,200	328	
Mount Tamalpais	8,800	81/15/4	1,910	(210)	2,125	1,317	350	
Olema Valley	1,615	84/11/5	400	0	400	178	81	
Point Reyes	10,080	87/10/3	2,595	225	2,370	1,008	302	

<sup>a</sup>Assumes that Alcatraz and Fort Baker ferry terminals are located at Fort Mason.

Surplus parking in other areas of the park and overflow lots will be connected by shuttle to special events areas. If necessary, overflow parking will be provided on lawn areas or along roadsides on a few peak days each year. In the case of special events, a set carrying capacity will not be exceeded by event crowds and two large events will not be scheduled for the same day to minimize parking and traffic congestion problems.

Exploring the possibility of constructing a multi-level parking structure at the northern terminus of Van Ness Avenue could result in significant alleviation of the northern waterfront parking deficit.

As the waterfront parks are developed and visitation rises, the parking situation will continuously be reevaluated. If parking problems become apparent, parking options will be reassessed before the following actions are implemented:

- termination of military use of buildings at Fort Mason and initiation of visitor use

- opening of Haslett Warehouse as a maritime museum/information center

- development of Crissy Field

- initiation of ferry service from Fort Mason to Alcatraz and Fort Baker

- extension of transit service west of Aquatic Park.

Parking deficits are also indicated for Ocean Beach and northern Marin, but adjacent communities will not be affected. At Ocean Beach a large amount of adjacent parking is available, and it will more than compensate for the lack of parking space within the boundary. Proven parking deficits in northern Marin areas eventually may be gradually alleviated through the development of additional off-road parking facilities. To as great an extent as possible, additional off-road parking will not intrude visually on roads or major trails and will be concentrated in major impact areas such as Bear Valley and Five Brooks, with transportation to surrounding areas provided by shuttle buses. As an interim step, before adequate shuttle bus service is available, some additional parking in northern Marin will be provided by dispersed roadside parking.

### Community Services and Utilities

The park will rely on surrounding communities for municipal services such as water, power, waste removal, and fire control.

TABLE 16. SOLID WASTE DISPOSAL REQUIREMENTS

<u>Area</u>	<u>Structures to be Removed</u>	<u>Type of Material</u>	<u>Possible Disposal Methods</u>	<u>Approx. Amount of Material (cubic yards)</u>
Alcatraz	Rubble piles (from 8 structures) Nonhistoric buildings (5)	Concrete Steel	Landfill Use on site Offshore ocean dumping in approved area	10,000
Aquatic Park	Road section Nonhistoric buildings (2)	Asphalt Wood	Wood salvage Use on site	-
Fort Mason	Road sections Concrete foundations	Concrete Asphalt	Use on site	-
Crissy Field	Temporary buildings Concrete shoreline revetment Road sections	Concrete Wood Asphalt	Army to remove structures in permit area	-
Fort Baker	Bulkhead Temporary buildings (23)	Concrete Wood	Wood salvage Landfill	2,400 (bulkhead) 350 (structures)
Fort Barry (Capehart)	Nonhistoric buildings (33)	Wood	Army to remove structures	-
Fort Cronkhite	Temporary buildings (15)	Wood Concrete	Wood salvage Landfill	500
Muir Woods	Nonhistoric buildings (2) Parking lot	Concrete Wood Asphalt	Wood salvage Landfill	<u>200</u>
			Total	13,450

Demands will not be excessive, and the National Park Service will pay for services rendered. Due to the isolation and large numbers of buildings at Forts Barry and Cronkhite, the National Park Service must provide its own structural fire protection in those areas.

Water. Water consumption within the park will increase as visitation increases (see "Impacts on Water Resources" for water demand rates and water sources). Marin Municipal Water District (MMWD) supplies water to Marin Headlands and Mount Tamalpais. During drought years, the park will face the possibility of having a reduced water supply or having the water supply to the park cut off entirely if emergency conditions exist so that other customers can be served. A greater reliance on local water resources or curtailment of park activities may result under such a situation.

Watersheds for the Stinson Beach County Water District and Muir Beach Community Services District are almost wholly contained within the boundary of the park. It is not anticipated that park proposals will affect the potential of these watersheds to supply water to the communities of Stinson Beach and Muir Beach. The National Park Service will make every effort to cooperate with these communities to ensure an adequate and dependable water supply. These water districts supply park users at Muir Beach and Stinson Beach as well as community residents. In the event of a drought and insufficient water supply, the park will curtail use if necessary so that residential demands can be met without adverse effects on the communities.

Solid Waste Disposal. Rubble and a number of structures (buildings, road sections, paved parking, and bulkheading) will be removed from the park as a result of the plan. Waste material from demolition will have to be disposed of, possibly in a community landfill, or recycled for use on or off the site. The majority of the solid waste will be generated on Alcatraz from the demolition of nonhistoric structures and the removal of existing rubble piles. Material from Fort Baker (bulkheading and temporary buildings), Fort Cronkhite (temporary buildings), and Muir Woods (buildings and parking lot) will also require disposal. Existing structures at the Capehart housing area in Fort Barry and the Crissy Field permit area will not be needed for park uses and will be removed by the army before the areas are turned over to the National Park Service; therefore, the solid waste disposal requirements of these actions have not been calculated.

Possible disposal methods for waste material are listed in table 16. At Fort Mason and Aquatic Park, all waste material can be either used onsite as part of landscaping plans or salvaged. But in the case of Alcatraz, large amounts of rubble and concrete foundations need to be removed from the island. Disposal of the large quantity

of material from Alcatraz will cause special problems because of possible transport difficulties on both land and water. Several alternative disposal methods are being investigated, but traditional disposal in an existing landfill appears to be the most feasible at the present time. However, a combination of disposal methods including use onsite and disposal in either a landfill or offshore in an approved ocean dumping area may be the final solution to the waste problem. Recycling, which would be preferable to disposal, was investigated, but the desirability and need of the material for control of shoreline erosion or for creation of bay marine habitat appears to be limited at the present time.

A total of up to 14,000 cubic yards of material may be disposed in area landfills. Material will be "clean" construction material, free of hazardous wastes that could contaminate surrounding water or air. Disposal in an existing local landfill, such as Mountain View landfill, will reduce the capacity of the facility for community use by the amount of material deposited, but otherwise community services and residents will not be affected.

Fire Control. Fire control within the park is provided by municipal fire departments and by trained personnel at both Point Reyes and Golden Gate. As the number of visitors and park activities increases, so will the potential for accidental fires requiring suppression. The prohibition of open fires and the provision of charcoal braziers should limit fire potential within the park, but fire-fighting services could be required periodically and could temporarily strain resources of nearby fire departments. Special precautions will be taken to prevent fire during special events in the northern park areas, but stand-by fire control service may occasionally be required for special event areas. All fire suppression costs for fires initiating within the park will be assumed by the National Park Service.

#### Other Impacts

Higher visitor use levels will increase the demand for commercial services--food, lodging, and souvenirs--in surrounding areas as well as increase vehicular and pedestrian traffic and crowding of establishments. Businesses in the surrounding areas will be stimulated, but most are already tourist oriented and may experience little noticeable change. This is especially true of business along the San Francisco waterfront and in Sausalito. Smaller towns such as Point Reyes Station, Olema, and Inverness may experience some increased demands for visitor services, but provision of a food service at Bear Valley will reduce the potential for change in these communities. The plan will not promote growth or change growth patterns in any adjacent communities.

Reserved rights of residency have been retained by a number of landowners in Olema Valley and Point Reyes. Increased use by campers and hikers could result in an invasion of the privacy of these residents.

Property owners in the Paradise Cay/Greenbrae Boardwalk vicinity near the Larkspur ferry terminal have voiced complaints and drawn up a legal suit stating that high wave action generated by ferry operations at Larkspur has damaged their property and significantly eroded the shoreline. The high speeds of the ferries create greater wave height and agitation in Corte Madera Bay, which in turn produces more disturbance of the shore. Increased use of Larkspur by the addition of park-related ferries could potentially contribute to this property damage. Studies have determined measures which will mitigate the effects of wave action from ferry operation. Hopefully these measures will be in effect before park-related ferry operations are initiated. If they are not, the speed of park-related vessels will need to be regulated in order to avoid any adverse effects on private property and residents.

### Summary

The parks are not self-sufficient and must rely on surrounding communities for parking, utilities, and municipal and visitor services, but they will not unduly strain these services or adversely change any community. As the attractiveness of the parks increases, so will traffic and congestion in surrounding neighborhoods. Some inconvenience to local residents is bound to result even though the plan provides for a transit system and other mitigating measures to reduce traffic problems.

## IMPACTS ON CULTURAL RESOURCES

Overall, the plan provides for maximum maintenance and preservation of significant cultural resources and for adaptive uses of historic structures that will not affect either their quality or character. Every historic structure in the park and the way it will be managed to protect its historical value is listed in table 17 at the end of this section. All historic structures will either be preserved, adaptively used, or restored in accordance with applicable legislation; none will be removed. All archeological sites will be protected and preserved.

### Preservation

Techniques to stabilize resources and arrest decay will assure the long-term preservation of valuable historic resources and lengthen

their life for visitor use and scientific study. Significant structures on Alcatraz, the historic ships at Aquatic Park, batteries throughout the park, and ranch out-buildings in Olema Valley and Point Reyes will be preserved and maintained.

In some cases preservation techniques, such as stabilization, may result in a change in the quality of a resource or in physical damage. For example, stabilization of the cell house on Alcatraz might change the structure itself or damage the historic citadel beneath the cell house. Both are significant historic structures, but the preservation of one may result in the loss of the historical and structural integrity of the other. A preliminary study indicates that it may be possible to stabilize the main cell house and citadel without major loss of either structure, but future structural studies will be needed to determine the final proposal and its impacts on the cell house/citadel complex.

Fortifications and batteries throughout the park will be preserved by securing and "mothballing" for the time being, but the structures will still continue to deteriorate as a result of the weathering by the elements, visitor use, and vandalism.

If lagoon modifications or breakwater construction prove feasible, the provision of calm mooring for the historic ships will greatly lengthen their lives and reduce the amount of maintenance they require, thus aiding in the preservation of the fleet.

### Adaptive Use

Using historic structures whenever possible for traditional and new uses will increase visitation to these structures and people's appreciation of them. Most of the habitable historic structures in the park will be adaptively used. The majority of these structures are old military quarters or ranch houses. While utilization and maintenance will retard deterioration and reduce security problems, some modifications of historic structures will be necessary to make them suitable for park uses, safe for visitor occupancy, and free of physical barriers for the handicapped. These modifications may result in the alteration of historic fabric or may introduce elements that are out of character with the rest of the structure.

Most alterations to allow visitor use will be interior changes and will not visibly alter exterior historic values. In cases where the interior as well as the exterior of a structure is significant, alterations will be reversible in nature to minimize adverse effects. For example, adaptation of the bathhouse building at Aquatic Park to provide classrooms, laboratories, and meeting rooms may require the use of temporary or movable partitions to minimize adverse effects.

Modifications to bring historic structures such as the Haslett Warehouse up to structural earthquake standards will involve some alteration of historic fabric.

The dramatic increase in use that will accompany adaptive rehabilitation of most structures could increase the wear and tear on historic fabric. In the case of Battery Cavallo, use of the area as a group campsite may disturb the earthworks of a post-Civil War coastal defense structure. Public education about cultural resource values and the presence of park staff in adaptively used structures should prevent destructive vandalism, but periodic maintenance of structures will still be necessary.

Adaptation of a historic structure will, in some cases, also include exterior restoration. For example, the Cliff House, proposed for adaptive use, will also be restored to its exterior 1909 appearance if feasible. This restoration will re-create the historic setting, facilitate historical interpretation of the area, and preserve the historic remains, as well as provide for adaptive use of the building as a restaurant, information center, and gift shop.

Historic grounds, ruins, and landscape features will also be adapted for recreational uses. For example, the Sutro Baths ruins will be preserved in a recreational park setting. While park elements (walkways, benches) could detract from the historical value of the ruins, they will also allow long-term preservation of the ruins and facilitate visitation.

Adaptive use of grounds areas (rifle range, parade grounds) will allow the historic scene to be preserved, but in a new role as space for recreational use. For example, the rifle range maintained in turf will appear much as it did historically, but the use of the area for special events will be radically altered.

### Restoration

Restoration or complete rehabilitation of a structure or scene will result in slight modifications of historic fabric when it has been altered in the past or requires structural rehabilitation, but it will greatly enhance the historical aspects of the area. Restoration of a few key structures, the Point Reyes lighthouse, Fort Point, a few fortifications, and the grounds of Sutro Heights Park, will heighten the visual historical character of these areas and greatly aid historical interpretation.

### Removal

No removal of historic structures is planned. However, some historic structures may have to be removed in the future if they