

3

INTRODUCTION

THE PROCESS

THE PROGRAM

THE PLAN

BACKGROUND DATA

APPENDIX

PHILOSOPHY

Based on the results of our research, analysis, and public response, strong feelings have emerged in favor of preserving the unique character of this special, wilderness-like region. Increasing urbanization has created a need in the city dweller—a need to escape the confinement of the urban scene of automobiles, concrete and glass. As shown by the Conceptual Plan, the coastline between Kaneana Cave and Camp Erdman and the upland mountain region will be preserved to fulfill the non-urban needs of the people.

The premise of this plan is the protection and preservation of a non-renewable resource to be treasured now and in the future. The plan, then, reflects "aloha aina", reverence and respect of the land, by emphasizing in a qualitative sense, the best usage of the land and not necessarily the highest. The region's white sand beaches, bays, inlets, caves, sea stands, forest, mountains, archaeological and legendary sites are an integral part of Hawaii's past, its present, and, if planned with care, its future. The area is special and different and should be regarded as such. In no way should it be developed to resemble or duplicate other large existing park facilities. To truly protect and preserve its unique features and values, the Kaena Region should be developed as a natural park similar to our major National Parks such as Haleakala or Hawaii Volcanoes National Park.

To accomplish the above, the plan should be a management plan oriented towards the conservation and preservation of the resources rather than a facility oriented plan. Without management and control, the very resources that establish the area's unique qualities could be lost forever. Furthermore, because intensity of park use is critical to a wilderness experience, access must be subjected to regulations and controls. Although in the past most of our Natural Parks were designed in conjunction with the automobile, it has recently been proven undesirable in many sensitive areas, especially in view of rapidly increasing visitation rates, noise, air pollution and congestion together with resources which have been over-used and abused.

Restricted access would also serve to deepen the awareness of visitors that they are truly in places of special importance. To this end, additional priority should also be placed on developing educational, interpretive, and informational programs. For it is only when a user has a clear understand-

ing of the resources, their values, and the problems which exist, that the inter-relationships between man and nature are realized and rapport is established.

Finally, our philosophy encourages the concept of slow development which will allow for the necessary monitoring and re-evaluation of usage and needs over time while simultaneously preventing irreversible decisions from being made. The governing factor in this approach would rely heavily on the management program which reinforces the principle of management first and implementation based on needs and desires through facilities and land improvements second.

PARK GOALS AND OBJECTIVES

Park goals serve a vital purpose of focusing on satisfying the long range aspirations of the people and state in providing recreational areas for public use. Park Objectives, on the other hand, should be realistic so as to actually accomplish the overall goals.

The goals and objectives for the Kaena Point region provide for development of recreational opportunities which not only meet the needs of the people, but reflect the values of conservation, preservation, and good management as well. In this way, the continued availability of these opportunities is assured for both current and future generations. They are as follows:

GOAL I
TO PRESERVE AND ENHANCE FOR PRESENT AND FUTURE GENERATIONS A NATURAL, SCENIC, AND CULTURAL RESOURCE OF STATEWIDE SIGNIFICANCE AS NEARLY AS POSSIBLE IN THE ORIGINAL OR NATURAL CONDITION AND PROVIDE OPPORTUNITIES FOR APPROPRIATE TYPES OF RECREATION WHERE SUCH WILL NOT DESTROY NOR IMPAIR THE FEATURES AND VALUES TO BE PRESERVED.

OBJECTIVES

1. Establish a monitoring system to monitor users and uses over time within a program of continuing review. This program will evaluate and identify environmental and social impacts, both natural and human related, direct or gradual, destructive and abusive, within the study site and the surrounding communities on a continuing basis.
 - Identify the capacity of the natural resources to sustain such usage relative to user satisfaction.
 - Implement programs to ameliorate undesirable impacts.
2. Establish Resource Management Conservation Programs, to enhance, protect and conserve the natural, scenic, and wildlife resources from the destructive effects of man's use, abuse and overuse.
 - Establish restrictive programs to limit uses within special areas.
 - Eliminate motorcycle and unauthorized vehicular access along the coastal sector between the two established control points.
 - Establish programs to protect endangered flora and fauna.
 - Establish programs to protect and preserve the natural and scenic resources from defacement and destruction by man.
 - Continue the acquisition of privately owned lands along the Mokuleia Coast and at Kana Point for park purposes. Also, investigate the possibilities of acquiring privately owned lands at Peacock Flats, and U.S. Government owned lands makai of Farrington Highway and mauka of Makua Beach.
3. Establish a program to identify, protect, and restore significant historical, archaeological and cultural sites.
4. Develop a process to review all non-recreational uses permitted within the study area and examine their compatibility with recreational uses and the environmental ethic.
 - Provide, over a period of time, for the elimination or prohibition of all uses which are in conflict with the overall development of the area for recreation or which threaten the natural resources.
5. Establish a program to remove man's artifacts having no archaeological or historical value which have been previously constructed and/or abandoned or carelessly deposited on the land.

GOAL II

TO PROVIDE A WIDE RANGE OF RESOURCE ORIENTED OFF-SHORE, SHORELINE, AND MOUNTAIN RECREATIONAL OPPORTUNITIES AND SUPPORTING FACILITIES FOR RESIDENTS AND VISITORS OF THE STATE.

OBJECTIVES

1. Establish Management Programs that relate directly to the users of the resource as well as to the resource itself.
 - Establish a permanent Park Ranger Corps to provide emergency assistance, guidance, law enforcement, and personal and property security. This corps should possess enforcement authority similar to that which has been established for the Division of Fish and Game and Forestry. Police powers which have been previously developed in POLICY NO. F. should be reviewed, revised as necessary and implemented in the most expeditious manner.
 - Prohibit overnight activities until adequate security is established.
 - Establish programs by which the existing resources and their uses may be effectively developed and controlled for optimum use relative to the conservation of the environment.
2. Provide for controlled access which will preserve the integrity of both the study area and the surrounding communities, enhance the features and values to be preserved, and provide for an enjoyable and informative experience that will relate to every segment of the environment through which it passes. Confine use of the areas to designated trail systems only.
 - Allow camping in designated areas only and not without permits.
 - Develop test programs for the removal of exotic flora and preventive programs for the introduction of such either by man or animals.
 - Develop a management plan identifying the responsibilities between the different County, State, and Federal agencies having jurisdiction within the planning area to coordinate the administration, management and protection of the natural resources.

3. Develop recreational areas which will alleviate the demand upon shoreline recreation and provide new, mountain oriented recreation.
 - Preserve, develop, and improve existing access and trail systems along the coastal and mountain regions.
 - Secure access to the mountain regions by the acquisition of permanent rights-of-way.
4. Establish educational and interpretive programs to enhance user understanding of the resources and the fragile areas found within the site.
 - Provide for informative and interpretive literature upon entering the park.
 - Establish a natural science laboratory to be used for environmental education from the elementary to the university levels.
5. Provide facilities for the maintenance of public health, safety, and convenience. All structures, facilities and furniture shall be designed to meet high aesthetic standards and in harmony with the existing natural features of the park.
6. Limit the development and type of non-recreational structures or facilities to be located within the site.
7. Provide for the health, safety and welfare of the users.
 - Establish a set of emergency procedures for those time periods when natural occurrences or military usage would create hazardous conditions.
 - Post warnings with appropriate signage and provide lifeguard and emergency communications systems especially in high use areas.

4

INTRODUCTION

THE PROCESS

THE PROGRAM

THE PLAN

BACKGROUND DATA

APPENDIX

PARK BOUNDARY

COASTAL SECTOR

The park boundaries along both the coastal and upland mountain sector were recommended on the basis of the area's recreation potential, natural resources, existing land usage, and the management requirements (Figure 2). The coastal boundary begins from the ridgeline east of Kaneana Cave, then runs mauka of Makua Beach along Farrington Highway past Kahanahaiki Valley where it turns east up and along the Waianae ridgeline to Puu Pueo. From Puu Pueo, it runs eastward along the ridgeline to Kealia Trail where it heads northward, east of the Dillingham Quarry, to the coast. Although the total acreage within the coastal section of the park includes $\pm 2,530$ acres, a majority of this acreage does not include areas where recreation activities will occur but, rather, creates the visual setting and background for the park. The inclusion of this area is also recommended in order to maintain management control for the prevention of use conflicts and activities which could cause damaging secondary impacts to the bio-physical resources along the coast.

UPLAND MOUNTAIN SECTOR

Within the central upland sector, ± 300 acres surrounding the Nike facilities and Peacock Flats have been included within the proposed boundary. This area provides the developable area for upland mountain-recreation facilities and is a central area from which other activities could originate. The centralization of this area would provide for easier management control, reduce infrastructure and improvement costs, and help to avert possible conflicts between the Divisions of Forestry, Fish and Game, and the U.S. military, all of whom utilize and possess powers of jurisdiction within various portions of the central upland sector.

MANAGEMENT PROPOSALS

The fragile bio-physical resources found within the study area are a non-renewable resource, subject to degradation by both man and nature. Because the alteration process is much faster when it is induced by man, it becomes man's responsibility to conserve and preserve the

resources which provide him the recreational experience.

Due to the year round tropical conditions which promote continuous recreational activities, any improvements made to the area which result in the attraction of recreators should concurrently be supported by proper management programs. Current assistance programs which include funding for planning and engineering services, land acquisition, and construction too often lack in providing funds for operations and management.

The development of effective management programs should be accomplished, first, by the establishment of rules and regulations and, second, by providing the means by which they are enforced. Unlike the Divisions of Forestry and Fish and Game, The Division of State Parks does not have an enforcement branch with police powers to manage existing state parks, and in an area as remote as Kaena it is doubtful that a singular approach to management utilizing only rules and regulations would work. Therefore, it is recommended that a Park Ranger force be established as a priority management concern to provide for security and the enforcement of parks regulations.

Major management concerns along the coastal and upland mountain sectors are as follows:

COASTAL SECTOR:

Fire hazards, flash flooding, high surf, soil erosion, endangered flora and fauna, motorcycle and off-road vehicle use, unrestricted use of firearms, military activities, trash and litter, preservation of historic archaeological sites, health hazards, user and use conflicts, personal safety and property security, enforcement and control, land ownership.








UPLAND MOUNTAIN SECTOR:

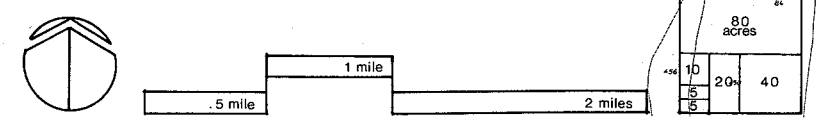
Maintenance of existing structures, fire hazards, limited access through privately owned lands, user and use conflicts, introduction of undesirable plant species, personal safety, existing infrastructure limitations and trash and litter.

The management concerns stated above can be mitigated by a combination of management methods. Through design and incremental development of recreational areas, park usage and numbers of recreators can be controlled. Through the establishment of rules and regulations in conjunction with distribution of information and posting of interpretive, regulatory, directional and warning signage, a better aware-

KAENA POINT STATE PARK

CONCEPTUAL PLAN

-  Study Area Boundary
-  Proposed Park Boundary
-  Potential Access Corridor
-  Major Active Recreation Areas
-  Central Upland Sector
-  Remote Open Sector
-  Existing Facilities



ness of man and his-surroundings can be achieved. Through the park rangers rules and regulations can be enforced, information can be provided, and the health, safety and welfare of the recreators can be assured.

Before improvements are made there are several areas which will require special attention. Sensitive flora and fauna areas are found at the proposed National Area Reserves at Kaena Point and Kaala-Pahole within the upland mountain sector. Because of the sensitive ecosystems which are located in these areas, visitation and recreating within these areas should be controlled and strictly enforced. Areas having historic, archaeological or legendary values should also be protected, especially from vandalism. Before areas slated for improvements are cleared, a site inspection by the State Department of Land and Natural Resources, Office of Historic Sites should be conducted. Sites which are located, should be surveyed, interpreted, and categorized for protection consideration. After sites have been surveyed and interpreted, those sites having significant value should be incorporated where possible into an interpretive trail system.

Present damage caused by off road vehicles and motorcycles along the coastal area to Kaena Point should be eliminated once the control points along both coastlines are established. This should help protect existing species of endangered flora and prevent further erosion from occurring. In the upland area, use within the dryland forest areas should be restricted to established trails.

Another management concern is providing for minimum facilities to attend to the health and welfare of the users. Although the park is not designed for major facility improvements, facilities providing for the health and welfare of the recreators should be considered for this area. Since existing water lines do not reach the boundary of the park, and water found within the study area may be nonpotable, water use may be restricted to bathing and sanitary uses only.

Because of hazardous conditions which exist during certain periods of the year, certain uses should be restricted during high danger periods, and a warning system to include dangerous surf and water conditions, fire hazards, and flash flooding should be posted. An emergency communication system should be established along with lifeguard stations at all three major beach areas.

Permanent live-in caretaker's facilities should be constructed along with ancillary base yard facilities. Along the windward coastline, a portion of the Dillingham quarry site could be converted to a major base yard. A trash collection program, along with maintenance of facilities, landscaping, parking areas, signage, camp grounds, control points, trail and access systems will all require ongoing maintenance once implemented.

COORDINATION WITH OTHERS

Although the study involves an extremely large area, only a portion of the area has been recommended for state parks usage and management, with other areas to continue under management and control of other Divisions within the Department of Land and Natural Resources, the U.S. Military, and other public or private concerns.

Along the coastal area, Kaena Point area and Makua Valley are of primary concern. Because the Natural Area Reserves Commission does not have management responsibilities, it is proposed that management of the Kaena Point Natural Area Reserve be assumed by the Division of State Parks. Close coordination and use of this area will have to occur between both parties, and should include input from the Division of Fish and Game, Office of Historic Sites Preservation, and the U.S. Coast Guard which has a lighthouse facility located above the midden site at Kaena Point. Close coordination between the U.S. Military and the Divisions of State Parks and Forestry along the leeward coastal area should also occur, especially during periods of high fire danger, and during extensive use of the area for military training exercises which could affect recreational usage of the coastal areas. Close coordination is also required between the Division of State Parks and the Board of Directors of Camp Erdman to insure that park activities within the area are buffered from the on going programs at Camp Erdman. The potential use of the coastal area by the Department of Education for interpretive purposes may also require coordination in the potential development of educational programs. Joint efforts between State Parks and temporary work programs (State Comprehensive Employment Training Program), which are utilized to perform work within the study area, will also require coordination and supervision.

Within the Upland Mountain Sector the Divisions of Forestry and Fish and Game should be permitted to retain control of those areas they now manage while the Division of State Parks should

assume management responsibilities for the Nike Facilities and at Peacock Flats. A close co-ordinated effort between these divisions should eliminate the threats of fire, trampling, and hunting accidents and assure users of a safer, more enjoyable park experience.

DEVELOPMENT AND MANAGEMENT RECOMMENDATIONS BY AREAS

The following are recommendations proposed for specific areas within the ±2830 acre planning area selected to be included in the Kaena Point State Park (Figures 3 & 4).

Interim measures include providing restroom facilities, water source development and selected clearing of vegetation near recreational areas currently being used by the public.

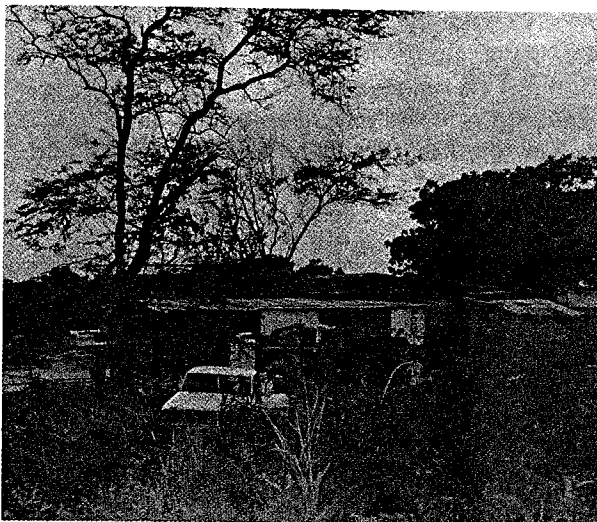
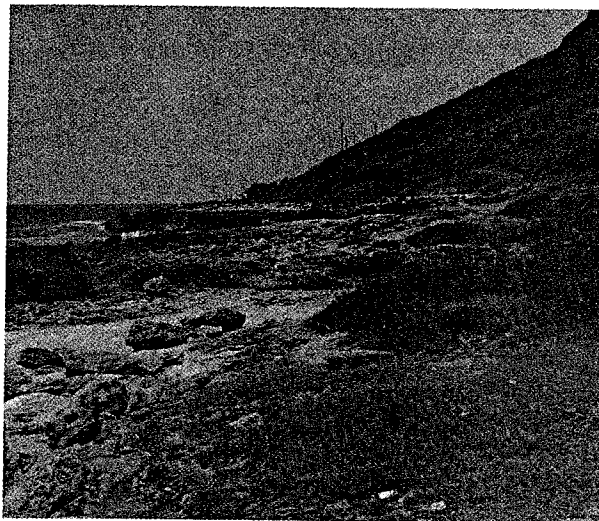
COASTAL SECTOR

Makua and Keawaula (Yokohama Bay) Beaches

- Access to both beaches should continue by way of the existing roads with designated parking areas provided at all major use beach areas. A foot trail system should be developed from the proposed camping areas south of Makua Beach to Camp Erdman.

At Keawaula Bay the existing road should continue to be used both for vehicular and foot traffic. However, as this area is developed, it is recommended that uncontrolled vehicular access be eliminated, and that a bypass road following the existing power lines be built. This road should terminate at a turn around and parking area in the vicinity of the control point, with feeder roads and parking areas diverging towards the beach. In this manner, a direct conflict between pedestrian and vehicular traffic would be eliminated and the abandoned road would become a major pedestrian spine. Until this bypass is established, driving speeds should be constructed, and roadside barriers built to prevent indiscriminant parking along or driving off of roadways. Designated parking areas should not be paved with asphalt, but, rather, with compacted coral fill so as to maintain the character of the region.

The existing road conditions beyond the control point on the windward coast to the control point on the leeward coast should be repaired to allow for controlled maintenance, security and emergency vehicular use. Secondary trails will radiate off of this major spine, especially along the broader windward coast to both the coastal and valley areas.



- All unauthorized structures, located on state owned land which have been constructed without the necessary approvals should be removed. State agencies with jurisdiction over these lands have not given permission to occupy the area and the State Board of Land and Natural Resources has not received the required Conservation District Use Application. The structures violate State and City and Coun-

ty of Honolulu codes governing structural requirements, plumbing, sanitation, rubbish and sewage disposal.

- The Makua Protestant Cemetery, located mauka of Makua Beach between Makua Road and Farrington Highway, which is presently not being maintained, should be restored through a joint effort involving both the state and the local community.
- Provide resident caretakers facilities for maintenance and security at Makua Beach and Keawaula Beach.
- No overnight use within the area should be permitted until proper security is established and then, only by permit.
- Provide for water, parking areas and restroom facilities at both beaches.
- Because those areas specified for major use are presently overgrown with scrub vegetation or littered with trash and other debris, controlled clearing and grubbing should begin immediately followed by landscaping and irrigation, utilizing native species where possible.
- Establish a trash removal program as an ongoing maintenance program at both beaches.
- A park sign should be placed at both coastal entrances to the park. An informational and directional guide map indicating location of facilities, camping, picnic, and parking areas, trails, historic and archaeological sites, geological features, flora and fauna habitats and other features of interest should also be constructed. Warning, regulatory and interpretive signage should also be posted and lifeguard facilities established.

Brochures containing directional, warning and regulatory information should be available for distribution at all entry points.

Maintain Makua Road and bridge as a secondary access route to the beach.

- Provide parking areas and interpretive facilities in the vicinity of the Control Point to accommodate hikers, fishermen and weekenders desiring to walk past the vehicular barrier out towards Kaena Point.
- Develop picnic, camping and parking areas and provide picnic tables/shelters and barbecue facilities at both beaches.
- Because the development of Makua and Keawaula Beaches as high use areas with picnicking and camping facilities will increase the

probability of fire that might spread to adjacent areas, a firebreak at Keawaula (Yokohama) Bay should be established.

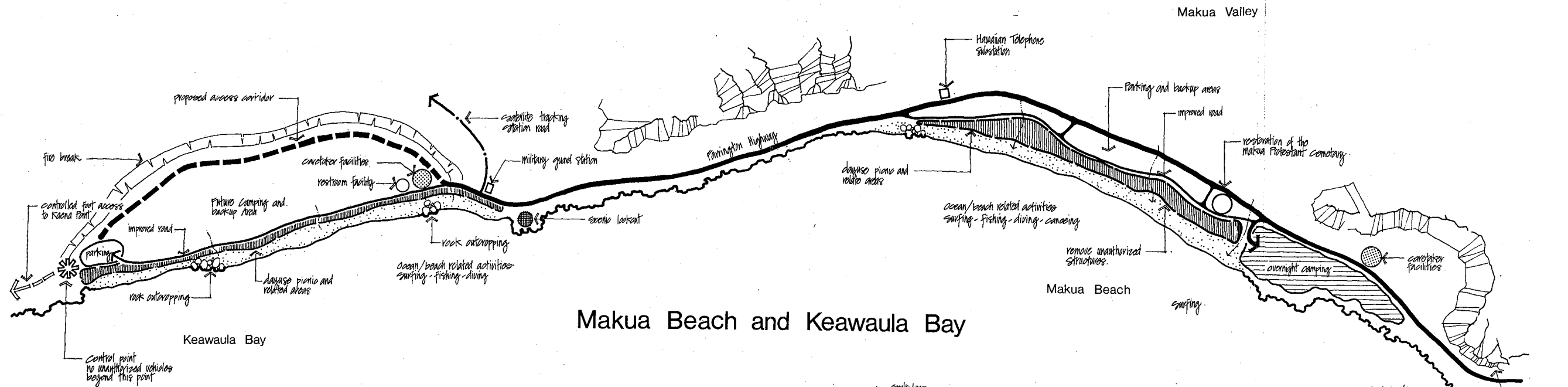
- Well-defined loop trails connecting high use areas or leading to scenic, recreational and educational areas should be developed if the public is to fully utilize the park.
- Remove graffiti from Kaneana Cave and maintain the area so as to restore its value as a point of interest.

Leeward Coastline

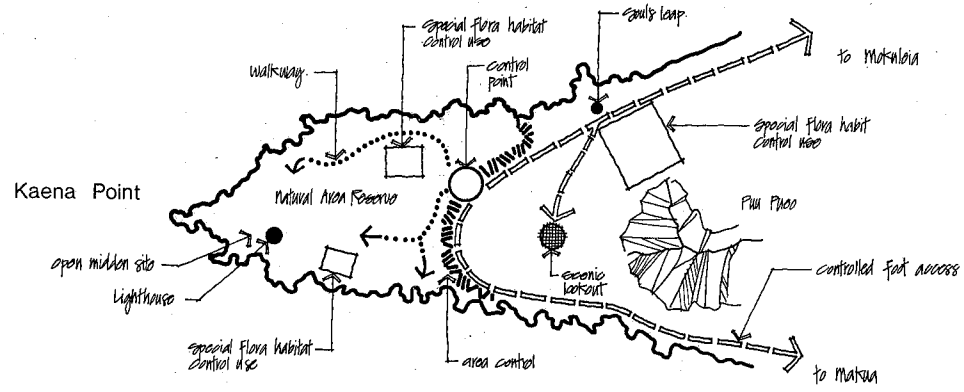
- Post interpretive, regulatory, directional and warning signs, and establish lifeguard facilities.
- Establish a trash removal program.
- Provide an emergency communications system.
- Access beyond the Control Point which is presently a dirt and gravel road characterized by potholes and protruding rocks, is difficult to traverse and should be improved with a foot and/or bike path system connecting Keawaula Bay to Camp Erdman. However, a corridor for possible future public transportation access should also be designated.
- Provide a public vehicular barrier in the vicinity of the control point to protect the natural resources along the coast and to prevent the intrusion of motorcycles and four-wheel drive vehicles into the fragile coastal dune areas.
- Near-shore and off-shore activities should be allowed to continue, except for activities identified to be in conflict with the overall recreational development of the park.
- Provide an emergency communications system beyond the control point.

Kaena Point

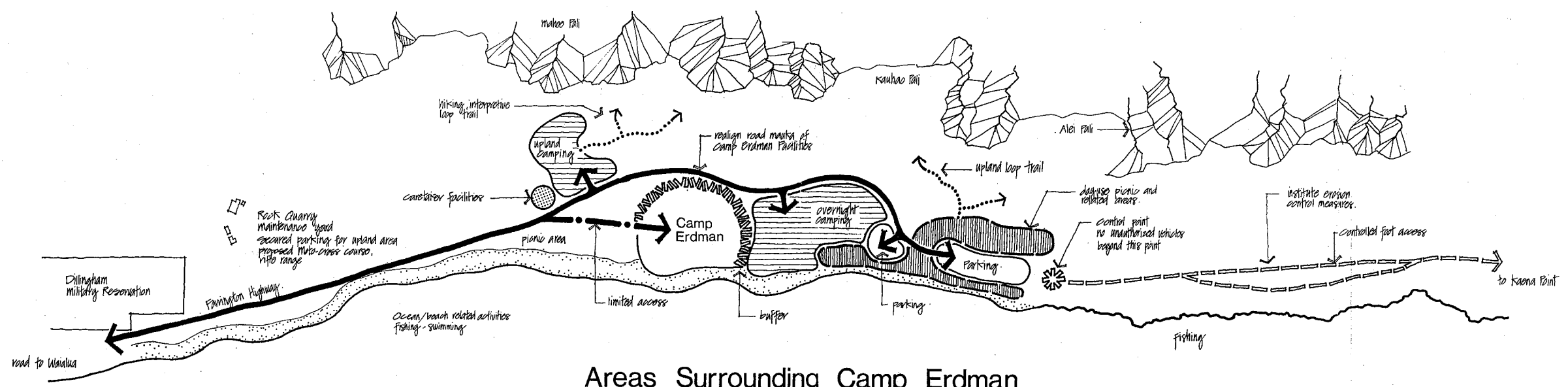
- Access within Kaena Point should be by designated foot paths, with limited walkways and controlled access within the proposed Kaena Point Natural Area Reserve. Vehicular access should be limited to only those vehicles providing for emergencies, security and maintenance.
- Post interpretive, regulatory, directional and warning signs.
- Establish or designate a corridor bypassing the point for possible future public transportation access.



Makua Beach and Keawaula Bay



Kaena Point



Areas Surrounding Camp Erdman

- Provide an emergency communications system.

Windward Coastline

- Control and limit access to foot and/or non-motorized bicycles.
- Post interpretive, regulatory, directional and warning signs and establish lifeguard facilities.
- Establish a trash removal program.
- Implement planting and erosion control programs utilizing native species where possible.
- Establish or designate a corridor for possible future public transportation access.
- Prohibit the use of firearms along the coastal sector.
- Near-shore and off-shore activities should be allowed to continue, except for those activities identified to be in conflict with the overall recreational development of the park.
- Allow day use activities with no overnight use permitted without necessary permits and until proper security is provided.
- Provide an emergency communications system.

Areas Surrounding Camp Erdman

- Improve existing access up to the Control Point approximately one mile west of Camp Erdman.
- Allow near-shore and off-shore activities to continue, except for those activities identified to be in conflict with the overall recreational development of the park.
- Implement planting and erosion control programs, utilizing native species where possible.
- Begin controlled clearing and grubbing of specified major use areas followed by landscaping and irrigation utilizing native plants where possible.
- Establish a trash removal program.
- Post interpretive, regulatory, directional and warning signs.
- Provide parking areas and interpretive facilities in the vicinity of the Control Point with access beyond the Control Point provided by an improved foot and/or bike path system.
- Develop picnic, camping and parking areas.
- Provide water and restroom facilities.

- Provide resident caretaker's facilities.
- Plant trees for wind breaks and screening.
- Provide picnic tables/shelters and barbecue facilities.
- Develop loop trails to connect points of interest and use areas.
- Realign existing road mauka of Camp Erdman to screen and preserve the integrity of the camp from park users.

UPLAND MOUNTAIN SECTOR

Peacock Flats

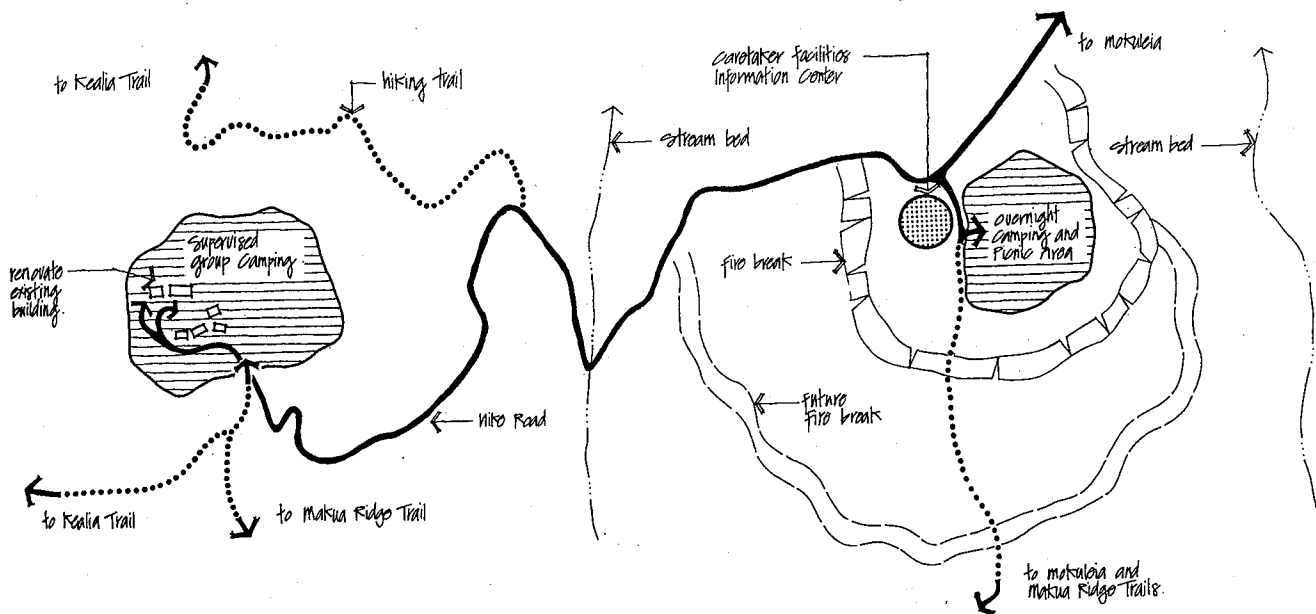
- Obtain controlled public access, to be regulated by DLNR, via the Nike access road. No major improvements to this road are necessary except for safety improvements and normal maintenance.
- Post interpretive, regulatory, directional and warning signs.
- Establish a trash removal program.
- Provide water, sanitary facilities, camping and picnic facilities.
- Begin controlled clearing and grubbing of specified areas, followed by landscaping and irrigation.
- Establish firebreaks.
- Provide a park sign, kiosk, and brochures containing directional, warning and regulatory information.
- Provide resident caretaker's facilities.
- Authorize use of this area by permit only.

Nike Site

- The abandoned Nike facilities should be renovated and re-opened for public use.

Central Upland Sector—

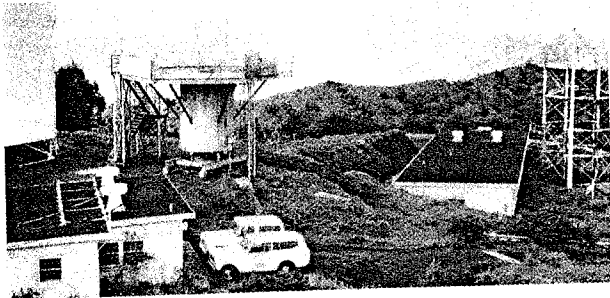
- Develop coordinated plans with other Divisions of DLNR to provide for a successful joint management program between Fish & Game, Forestry, and the Division of State Parks.
- Maintain existing trails and firebreaks.
- Provide general information maps and brochures.
- Develop hunting information programs to prevent conflict and hazards to users of the area.
- Post interpretive, regulatory, directional and warning signs.



UPLAND MOUNTAIN CONCEPTS Figure 4

Remote Open Sector—

- Develop coordinative plans with other Divisions of DLNR to provide for a successful management program between Fish & Game, Forestry, and the Division of State Parks.
- Provide general information maps and brochures.
- Develop hunting information programs to prevent conflicts and hazards to users of the area.
- Post interpretive, regulatory, directional and warning signs.



ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATIVE MEASURES TO MINIMIZE ADVERSE IMPACTS

The proposed actions will generate environmental impacts which can be categorized as either primary or secondary. Primary impacts are those resulting directly from the implementation of the proposed actions while secondary impacts are indirectly created by either the primary impact itself or the activity it generates.

Primary short-term impacts are construction related and limited to the duration of the construction period. Generally, they can be significantly minimized by complying with County and State Regulations and incorporating specific appropriate mitigative measures. Primary long-term impacts result from implementation and operation of the park. They include direct impacts on

man's health and welfare, and on other forms of life. Secondary impacts are indirect impacts on potential use conflicts and indirect benefits.

The seventy-four (74) individual actions for the nine (9) sites of the proposed park were subjectively evaluated against various parameters. (Please refer to the Impact Analysis Worksheets for each area.) The Impact Analysis was based on the park Conceptual Plan, thereby limiting discussion to specifics of the project. This discussion is by areas, and summarizes anticipated potential environmental impacts and mitigative measures needed to relieve them.

MAKUA AND KEAWAULA (YOKOHAMA BAY) BEACHES (Refer to Table 4)

Objectives

Actions developed for the two beach areas are to improve the recreational opportunities by providing parking, restrooms, camping, hiking and picnicking facilities. Maintenance programs such as clearing of undergrowth, removing graffiti from Kaneana Cave, providing trash removal, and maintaining Makua Road and bridge also should improve recreational opportunities. Providing for vehicular barriers, resident caretaker's facilities and removal of unauthorized structures from Makua Beach will improve security, help regulate park use and open this additional sandy beach area to the public.

Primary Impacts

SHORT-TERM

The short-term positive impacts will result from a construction related infusion of cash into the local economic sector.

Short-term negative impacts are also construction related. Construction of parking areas, restroom facilities, picnic areas and resident caretaker's facilities will produce temporary dust and erosion problems. To a great extent, dust can be controlled by water sprinkling. Potential erosion can be mitigated by scheduling construction during the dry summer months, by limiting the areas to be graded and grubbed, and by immediately revegetating exposed areas.

LONG-TERM

Numerous positive long-term impacts are anticipated from the proposed actions. The maintenance of Makua Road will improve access for police, fire, and maintenance vehicles thus enhancing safety and security.

Providing parking areas, water, restroom facilities, picnicking areas, camping sites and hiking trails will increase the recreational opportunities of the area. Removal of the unauthorized structures at Makua Beach will increase available beach area for public use.

Some of the anticipated long-term negative impacts are: (1) use of water for restroom facilities and irrigation of landscaped areas, and (2) removal of existing vegetation for picnicking, camping, parking, and firebreak areas. However, removing scrub vegetation should not be a serious impact.

Secondary Impacts
POSITIVE IMPACTS

Secondary impacts on recreational uses will result from posting interpretive, regulatory, directional and warning signs. The provision of a firebreak at Keawaula will be beneficial to picnic and camping areas by preventing potential fires from spreading.

NEGATIVE IMPACTS

Potential negative secondary impacts are anticipated to include the inconvenience certain park users will experience by limiting their access to only foot and non-motorized vehicles. Removal of the unauthorized structures on Makua Beach will have a negative impact on the lifestyle of the people currently inhabiting these structures but will be necessary to provide additional beach area for the public and to eliminate health hazards.

IMPACT ANALYSIS WORKSHEET

Table 4

MAKUA/ KEAWAULA (Yokohama Bay) BEACHES

KEY:

- No Impact
- Primary short-term, positive
- ◐ Primary short-term, negative
- Primary long-term, positive
- ◑ Primary long-term, negative
- ▲ Secondary, positive
- △ Secondary, negative

RECOMMENDED ACTION

CATEGORY	PARAMETERS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
AIR QUALITY	CO Concentration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Dust	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
WATER QUALITY	Erosion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Drainage	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Groundwater	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NOISE		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LAND	Land Use	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Alteration	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
BIOLOGICAL	Flora	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fauna	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ARCHAEOLOGICAL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PUBLIC FACILITIES & SERVICES	Water	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Wastewater	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Power	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Communication	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Emergency Access	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Police	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Refuse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
VISUAL		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RECREATION	Hunting	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Fishing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Picnicking	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Boating	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Swimming	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Surfing	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Camping/Hiking	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SOCIAL	Life Style	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Economic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

1. Access to both beaches by way of the existing roads.
2. Remove all unauthorized residential structures and relocate "squatters" from Makua Beach.
3. Assist community in restoration of the Makua Protestant Cemetery.
4. Provide resident caretakers facilities at both beaches.
5. Allow day use activities with no overnight use permitted without necessary permits and until proper security is provided.
6. Provide water, parking areas and restroom facilities at both beaches.
7. Control clearing and grubbing of specified major use areas.
8. Establish trash removal program.
9. Post interpretive, regulatory, directional and warning signs.
10. Maintain Mauka road and bridges as a secondary access route.
11. Provide parking areas and interpretation facilities in the vicinity of Control Point.
12. Provide a public vehicular barrier in vicinity of the Control Point.
13. Access beyond the Control Point provided by an improved foot and/or bike path system connecting Keawaula Bay to Camp Erdman.
14. Remove graffiti from Kaneana Cave and maintain area.
15. Develop picnic, camping and parking areas.
16. Provide picnic tables/shelter and barbecue facilities.
17. Provide landscaping and irrigation for high use areas utilizing native species where possible.
18. Provide firebreak at Keawaula (Yokohama Bay).
19. Develop loop trails to connect points of interest and use areas.

LEEWARD COASTLINE (Refer to Table 5)

Objectives

The actions planned for this area are designed to limit vehicular access and to preserve and protect the sensitive natural resources found along the Leeward coastline. Access around Kaena Point from the Leeward side will be limited to foot and/or nonmotorized bicycles.

Primary Impacts

SHORT-TERM

The short-term positive impact will result from the infusion of cash into the local economic sector by construction of the communication system, interpretive signs, and landscaping work.

LONG-TERM

Numerous long-term impacts are anticipated from the proposed actions planned for this area. Limiting access to foot and bicycle traffic will reduce current erosion patterns, cut down on the amount of dust, and maintain ambient noise by prohibiting vehicular access. Restriction of motorized vehicles will also protect sensitive flora.

Implementing the emergency communication system and the trash removal program will have a positive long-term impact on all the recreational activities and scenic qualities by providing security and maintenance for the area.

The primary long-term negative impact will be the operational costs of the trash removal program.

Secondary Impacts

POSITIVE IMPACTS

Secondary positive impacts resulting from posting interpretive, regulatory, directional and warning signs will be on recreational uses. These signs should warn people of dangerous areas, regulate uses and thereby aid in the overall enjoyment of park users.

NEGATIVE IMPACTS

Secondary negative impacts will result from limiting accessibility around Kaena Point to people currently driving around the point. Limiting motorized access, however, will not prevent recreational use of the area.

IMPACT ANALYSIS WORKSHEET

Table 5
LEEWARD COASTLINE

KEY:

- No Impact
- Primary short-term, positive
- ◐ Primary short-term, negative
- Primary long-term, positive
- ◑ Primary long-term, negative
- ▲ Secondary, positive
- △ Secondary, negative

		RECOMMENDED ACTION																					
CATEGORY	PARAMETERS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
AIR QUALITY	CO Concentration	0	0	0	0	0																	
	Dust	■	0	0	0	0																	
WATER QUALITY	Erosion	■	0	0	0	0																	
	Drainage	0	0	0	0	0																	
	Groundwater	0	0	0	0	0																	
NOISE		■	0	0	0	0																	
LAND	Land Use	0	0	0	0	0																	
	Alteration	0	0	0	0	0																	
BIOLOGICAL	Flora	■	0	0	0	0																	
	Fauna	0	0	0	0	0																	
ARCHAEOLOGICAL		0	0	0	0	0																	
PUBLIC FACILITIES & SERVICES	Water	0	0	0	0	0																	
	Wastewater	0	0	0	0	0																	
	Power	0	0	0	0	0																	
	Communication	0	0	■	0	0																	
	Emergency Access	0	0	0	0	0																	
	Police	0	0	■	0	0																	
	Fire	0	0	■	0	0																	
VISUAL	Refuse	0	0	0	0	0																	
		■	0	0	0	0																	
RECREATION	Hunting	0	0	■	0	0																	
	Fishing	▲	0	■	▲	■																	
	Picnicking	▲	0	■	▲	■																	
	Boating	▲	0	■	▲	■																	
	Swimming	▲	0	■	▲	■																	
	Surfing	▲	0	■	▲	■																	
	Camping/Hiking	▲	0	■	▲	■																	
SOCIAL	Life Style	▲	0	0	0	0																	
	Economic	0	0	●	●	●																	

- Controlled access by foot and/or non-motorized bicycles.
- Near-shore and off-shore activities will be allowed to continue, except for those identified to be in conflict with the overall recreational development of the park.
- Provide an emergency communications system.
- Post interpretive, regulatory, directional and warning signage.
- Establish a trash route removal program.

KAENA POINT (Refer to Table 6)

Objectives

Actions developed for this area are to limit vehicular access to the Point and to protect the sensitive area from further degradation. Access within the Kaena Point area will be by footpaths only.

Primary Impacts

Short-Term Impacts

Development of footpaths may require some grading which would generate some dust and minor erosion problems. The dust can be controlled by water sprinkling and erosion can be alleviated by scheduling construction during the dry summer months.

Long-Term Impacts

Positive long-term impacts include protection of the endangered flora, archaeological features, and prevention of further degradation of the

sand dunes. Access to the area by security and maintenance vehicles will provide security and emergency services, which will better serve the recreational use of the area.

Secondary Impacts

Positive Impacts

Posting interpretive, regulatory, directional and warning signs will indirectly have a positive impact on the recreational and educational uses of the area by warning people of potential hazards, as well as indicating unique aspects of the area to be preserved.

Negative Impacts

Secondary negative impacts will result from limiting the accessibility of the area to the people currently driving up to the Point. There is no way of protecting this area from further man-induced degradation if continued vehicular access to this area is allowed.

IMPACT ANALYSIS WORKSHEET

Table 6

KAENA POINT

KEY:

- No Impact
- Primary short-term, positive
- ◐ Primary short-term, negative
- Primary long-term, positive
- ◑ Primary long-term, negative
- ▲ Secondary, positive
- △ Secondary, negative

RECOMMENDED ACTION

CATEGORY	PARAMETERS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
AIR QUALITY	CO Concentration	0	0	0	0	0															
	Dust	●	0	0	0	0															
WATER QUALITY	Erosion	●	0	0	0	0															
	Drainage	0	0	0	0	0															
	Groundwater	0	0	0	0	0															
NOISE		0	0	0	0	0															
LAND	Land Use	0	0	0	0	0															
	Alteration	0	0	0	0	0															
BIOLOGICAL	Flora	■	0	0	0	0															
	Fauna	0	0	0	0	0															
ARCHAEOLOGICAL		■	0	0	0	0															
PUBLIC FACILITIES & SERVICES	Water	0	0	0	0	0															
	Wastewater	0	0	0	0	0															
	Power	0	0	0	0	0															
	Communication	0	■	0	0	0															
	Emergency Access	0	0	0	0	0															
	Police	0	■	0	0	0															
	Fire	0	■	0	0	0															
Refuse	0	0	0	0	0																
VISUAL		■	0	0	0	0															
RECREATION	Hunting	0	0	0	0	0															
	Fishing	▲	■	▲	▲	▲															
	Picnicking	▲	■	▲	▲	▲															
	Boating	▲	■	▲	▲	▲															
	Swimming	▲	■	▲	▲	▲															
	Surfing	▲	■	▲	▲	▲															
	Camping/Hiking	▲	■	▲	▲	▲															
SOCIAL	Life Style	▲	0	0	0	0															
	Economic	0	0	0	0	0															

1. Access within the Point by designated foot paths only.
2. Provide an emergency communications system.
3. Post interpretive, regulatory, directional and warning signs.
4. Develop limited walkways and controlled access within the proposed Kaena Point Natural Area Reserve to protect endangered flora habitats.
5. Provide controlled access to the Point for emergency and maintenance vehicles only.

WINDWARD COASTLINE (Refer to Table 7)

Objectives

Actions planned for this area are designed to limit vehicular access for the protection of the sensitive Kaena Point area. Access around Kaena Point from the Windward side will be limited to foot and/or non-motorized bicycles, except for emergency and maintenance vehicles.

Primary Impacts

Short-Term

Short-term positive impacts will result from the cash infusion into the local economic sector through construction of the communication system, interpretive signs, and landscaping work.

Long-Term

Numerous, long-term impacts are anticipated from the proposed actions developed for this area. Limiting access to foot and bicycle traffic will alleviate some of the current erosion patterns of the area, cut down on the amount of dust, and maintain ambient noise by prohibiting vehicular access. Restriction of motorized vehicles will also protect the sensitive flora. The regulation of firearms and permit system will enhance safety in the park.

Planting and erosion control programs will reduce dust, erosion, and drainage problems and

will help provide areas protected from the trade-winds. Flora and fauna habitats will benefit by the improvements to the landscape and recreational uses will be enhanced.

Implementing the emergency communication system and the trash removal program will have a positive long-term impact on all recreational activities by providing security and maintenance for this area.

Primary, long-term, negative impacts will be the costs for the operation of the park program and the water required for irrigating the planted areas.

Secondary Impacts

Positive Impacts

Secondary positive impacts resulting from posting interpretive, regulatory, directional and warning signs will be on recreational uses. These signs should warn people of dangerous areas, regulate uses and thereby aid in the overall enjoyment of the park users.

Negative Impacts

Secondary negative impacts will result from prohibiting motorized access around Kaena Point to people currently using off-road vehicles. Curtailing motorized accessibility to all but emergency vehicles, however, will not prevent recreational uses of the area.

IMPACT ANALYSIS WORKSHEET

Table 7

WINDWARD COASTLINE

KEY:

- No Impact
- Primary short-term, positive
- ◐ Primary short-term, negative
- Primary long-term, positive
- ◑ Primary long-term, negative
- ▲ Secondary, positive
- △ Secondary, negative

		RECOMMENDED ACTION																				
CATEGORY	PARAMETERS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
AIR QUALITY	CO Concentration	○	○	○	○	○	○	○	○													
	Dust	■	○	○	○	○	○	■	○													
WATER QUALITY	Erosion	■	○	○	○	○	○	■	○													
	Drainage	○	○	○	○	○	○	■	○													
NOISE	Groundwater	○	○	○	○	○	○	○	○													
		■	○	○	○	○	○	○	■													
LAND	Land Use	○	○	○	○	○	○	○	○													
	Alteration	○	○	○	○	○	○	■	○													
BIOLOGICAL	Flora	■	○	○	○	○	○	■	○													
	Fauna	○	○	○	○	○	○	■	○													
ARCHAEOLOGICAL		○	○	○	○	○	○	○	○													
PUBLIC FACILITIES & SERVICES	Water	○	○	○	○	○	○	■	○													
	Wastewater	○	○	○	○	○	○	○	○													
	Power	○	○	○	○	○	○	○	○													
	Communication	○	○	■	○	○	○	○	○													
	Emergency Access	○	○	○	○	○	○	○	○													
	Police	○	○	■	○	○	○	○	○													
	Fire	○	○	■	○	○	○	○	○													
VISUAL	Refuse	○	○	○	○	○	○	○	○													
		■	○	○	○	○	○	○	○													
RECREATION	Hunting	○	○	○	○	○	○	○	○													
	Fishing	▲	○	■	▲	■	○	■	■													
	Picnicking	▲	○	■	▲	■	■	■	■													
	Boating	▲	○	■	▲	■	○	○	■													
	Swimming	▲	○	■	▲	■	○	○	■													
	Surfing	▲	○	■	▲	■	○	○	■													
	Camping/Hiking	▲	○	■	▲	■	■	■	■													
SOCIAL	Life Style	▲	○	○	○	○	○	○	○													
	Economic	○	○	●	●	○	●	○	○													

1. Controlled access by foot and/or non-motorized bicycles.
2. Near-shore and off-shore activities will be allowed to continue, except for those identified to be in conflict with the overall recreational development of the park.
3. Provide an emergency communications system.
4. Post interpretive, regulatory, directional and warning signs.
5. Establish trash removal programs.
6. Implement planting and erosion control programs utilizing native species where possible.
7. Prohibit the use of firearms along the coastal sector.
8. Allow day use activities with no overnight use permitted without necessary permits and until proper security is provided.

AREAS SURROUNDING CAMP ERDMAN (Refer to Table 8)

Objectives

Actions planned for the area surrounding Camp Erdman are designed to prevent potential recreational conflicts between public use of the State area and private use of Camp Erdman. They include providing parking and sanitary facilities, developing landscaping and irrigation, creating picnic areas, realigning the road and buffering the area around Camp Erdman, constructing a resident caretaker's facility, and limiting vehicular access beyond the Control Point to foot and non-motorized bicycles.

Primary Impacts

Short-Term

The short-term positive impact will result from the infusion of cash into the local economic sector by the construction of the caretaker's residence, vehicular barrier, landscaping and irrigation, picnicking areas, road realignment, trails, and restroom facilities.

All of the short-term negative impacts are construction related. Construction of parking areas, road realignment, restroom facilities, picnic areas, and resident caretaker's facility will all produce temporary dust and erosion problems. As was mentioned earlier, dust can be controlled to a great extent by sprinkling, potential erosion can be prevented by scheduling construction during the dry summer months, and those areas to be graded and grubbed can be limited and immediately revegetated.

Long-Term

Many long-term positive impacts are anticipated from the proposed actions. These include improved access to recreational areas by emergency, security and maintenance vehicles, thereby providing heightened security and maintenance for park users.

The addition of picnic and camping areas, restroom facilities and parking areas, will provide an added convenience not currently available.

Some of the anticipated long-term negative impacts are use of water for restroom facilities, irrigation of landscaped areas, and for removal of existing vegetation at the proposed picnic, camping, parking and firebreak areas. However, removal of scrub vegetation should not be a serious impact.

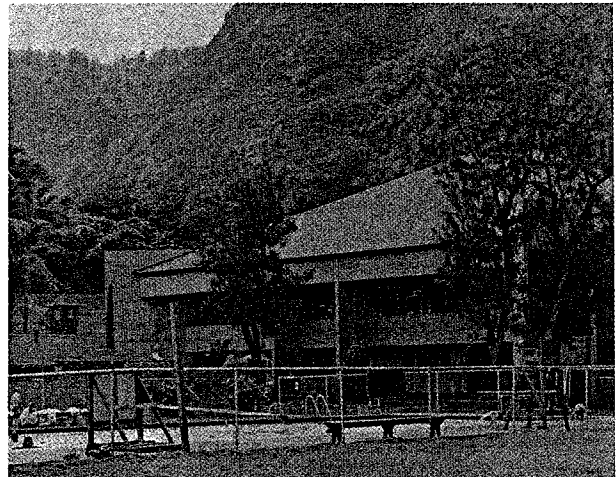
Secondary Impacts

Positive Impacts

Secondary positive impacts on recreational uses will result from posting interpretive, regulatory, directional and warning signs by designating specified park uses and warning of dangerous areas.

Negative Impacts

Potential negative secondary impacts are anticipated on the convenience of recreational users of the area beyond the beaches by limiting access to only foot and non-motorized vehicles.



IMPACT ANALYSIS WORKSHEET

Table 8
AREAS SURROUNDING CAMP ERDMAN

KEY:

- No Impact
- Primary short-term, positive
- Primary short-term, negative
- Primary long-term, posit
- Primary long-term, negat
- ▲ Secondary, positive
- ▲ Secondary, negative

CATEGORY	PARAMETERS	RECOMMENDED ACTION																				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
AIR QUALITY	CO Concentration	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Dust	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
WATER QUALITY	Erosion	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Drainage	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Groundwater	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
NOISE		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
LAND	Land Use	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Alteration	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
BIOLOGICAL	Flora	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Fauna	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
ARCHAEOLOGICAL		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
PUBLIC FACILITIES & SERVICES	Water	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Wastewater	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Power	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Communication	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Emergency Access	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Police	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Fire	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Refuse	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
VISUAL		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
RECREATION	Hunting	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Fishing	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Picnicking	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Boating	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Swimming	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Surfing	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
	Camping/Hiking	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
SOCIAL	Life Style	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Economic	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	

1. Improve existing access up to the Control Point.
2. Near-shore and off-shore activities will be allowed to continue, except for those activities identified to be in conflict with the overall recreational development of the park.
3. Implement planting and erosion control programs utilizing native species where possible.
4. Provide parking areas and restroom facilities.
5. Control clearing and grubbing of specified major use areas.
6. Establish trash removal programs.
7. Post interpretive, regulatory, directional and warning signs.
8. Provide parking areas and interpretive facilities in the vicinity of the Control Point.
9. Provide vehicular barrier in vicinity of the Control Point except for emergency and regulatory vehicles.
10. Access beyond the Control Point provided by an improved foot and/or bike path system.
11. Develop picnic, camping and parking areas.
12. Provide water, and restroom facilities.
13. Provide resident caretakers facilities.
14. Plant trees for wind breaks and screening.
15. Provide picnic tables/shelters and barbecue facilities.
16. Provide landscaping and irrigation for high use areas, utilizing native species where possible.
17. Develop loop trails to connect points of interest and use areas.
18. Realign existing road mauka of Camp Erdman.

PEACOCK FLATS (Refer to Table 9)

Objectives

Actions proposed for this area are designed to enable users to safely engage in upland activities. These actions will provide recreational, health and safety facilities for the public.

Primary Impacts

Short-Term Impacts

Positive short-term economic impacts will be generated from the construction and installation of signs, picnic facilities, recreational areas, sanitary facilities, firebreaks, information booth, and the caretaker's facilities.

Controlled clearing and grubbing of specified areas will generate some dust and create minor

erosion problems. As already specified, these can be sufficiently mitigated.

Long-Term Impacts

A permanent easement via the Nike access road will have a positive long-term impact on public service agencies and users enjoying the various mountain-oriented activities. Water, sanitary facilities, camping and picnic areas will also benefit the users. Clearing and grubbing of specified sites will provide additional picnicking and camping areas. A trash removal program and maintenance program will be beneficial to the area. Firebreaks will have a substantial positive effect on the flora and fauna of the region, especially considering the everpresent threat of fire from the U.S. military and other hazardous acti

vities in the area. Resident caretaker facilities will enhance security of the area for the park visitors. A permit system will provide additional controls to regulate park use and prevent abuse of the resources.

Long-term negative impacts on water supplies will occur by providing water services to park users. Clearing and grubbing activities will also have negative impacts due to the destruction of some vegetation.

Secondary Impacts

Positive Impacts

Posting interpretive, regulatory, directional and warning signs will have a positive secondary impact on the recreational users. Signs will increase safety by providing information for hunt-

ers, picnickers, campers and hikers. Firebreaks which will ultimately enhance the recreational uses of the upland region will provide a barrier to protect against the spread of brushfires. A proposed information kiosk will educate park users about the natural environment as well as inform them on how to best enjoy these natural treasures. Flora and fauna should benefit from increased awareness by park users and, in turn, they should gain more insight about the importance of preserving the remaining natural resources of the mountain region.

Negative Impacts

Secondary, negative impacts resulting from the proposed actions are not anticipated.

IMPACT ANALYSIS WORKSHEET

Table 9
PEACOCK FLATS

KEY:

- No Impact
- Primary short-term, positive
- Primary short-term, negative
- Primary long-term, positive
- Primary long-term, negative
- ▲ Secondary, positive
- ▲ Secondary, negative

		RECOMMENDED ACTION																					
CATEGORY	PARAMETERS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
AIR QUALITY	CO Concentration	○	○	○	○	○	○	○	○	○													
	Dust	○	○	○	●	○	○	○	○	○													
WATER QUALITY	Erosion	○	○	○	○	○	○	○	○	○													
	Drainage	○	○	○	○	○	○	○	○	○													
	Groundwater	○	○	○	○	○	○	○	○	○													
NOISE		○	○	○	○	○	○	○	○	○													
LAND	Land Use	○	○	○	○	○	○	○	○	○													
	Alteration	○	○	○	○	○	○	○	○	○													
BIOLOGICAL	Flora	○	○	○	■	■	▲	○	○	○													
	Fauna	○	○	○	○	■	▲	○	○	○													
ARCHAEOLOGICAL		○	○	○	○	○	○	○	○	○													
PUBLIC FACILITIES & SERVICES	Water	○	○	■	○	○	○	○	○	○													
	Wastewater	○	○	○	○	○	○	○	○	○													
	Power	○	○	○	○	○	○	○	○	○													
	Communication	○	○	○	○	○	○	○	○	○													
	Emergency Access	■	○	○	○	○	○	○	○	○													
	Police	○	○	○	○	○	○	○	○	○													
	Fire	■	○	○	○	○	○	○	○	○													
VISUAL	Refuse	■	○	○	○	○	○	○	○	○													
		○	○	○	○	○	○	○	○	○													
RECREATION	Hunting	■	▲	■	○	▲	▲	■	○	■													
	Fishing	○	○	○	○	○	○	○	○	○													
	Picnicking	■	▲	■	■	▲	▲	■	■	■													
	Boating	○	○	○	○	○	○	○	○	○													
	Swimming	○	○	○	○	○	○	○	○	○													
	Surfing	○	○	○	○	○	○	○	○	○													
	Camping/Hiking	■	▲	■	■	▲	▲	■	■	■													
SOCIAL	Life Style	○	○	○	○	○	○	○	○	○													
	Economic	○	●	●	●	●	●	●	○	○													

1. Obtain controlled public access, to be regulated by DLNR via the Nike access road.
2. Post interpretive, regulatory, directional and warning signs.
3. Provide water, sanitary facilities, camping and picnic areas.
4. Control clearing and grubbing of specified areas.
5. Establish firebreaks.
6. Provide an information kiosk.
7. Provide resident caretakers facilities.
8. Establish a trash removal and maintenance program.
9. Authorize use of this area by permit only.

NIKE SITE (Refer to Table 10)

Objectives

The Nike site is presently abandoned and not open to public use. The site already has improve-

ments suitable for recreational uses. Plans call for the facility to be renovated and opened for public use.

Primary Impacts

Short-Term Impacts

Short-term impacts are not anticipated because there will be no construction activities at the Nike site except for interior renovations.

Long-Term Impacts

Positive long-term impacts will result when the

facility is opened to public use. Hunters, picnickers, campers and hikers will benefit from the use of the facility.

Secondary Impacts

Secondary impacts are not anticipated from public use of the Nike site.

IMPACT ANALYSIS WORKSHEET

Table 10

NIKE SITE

KEY:

- No Impact
- Primary short-term, positive
- ◐ Primary short-term, negative
- Primary long-term, positive
- ◑ Primary long-term, negative
- ▲ Secondary, positive
- △ Secondary, negative

CATEGORY	PARAMETERS	RECOMMENDED ACTION																			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
AIR QUALITY	CO Concentration	0																			
	Dust	0																			
WATER QUALITY	Erosion	0																			
	Drainage	0																			
	Groundwater	0																			
NOISE		0																			
LAND	Land Use	0																			
	Alteration	0																			
BIOLOGICAL	Flora	0																			
	Fauna	0																			
ARCHAEOLOGICAL		0																			
PUBLIC FACILITIES & SERVICES	Water	0																			
	Wastewater	0																			
	Power	0																			
	Communication	0																			
	Emergency Access	0																			
	Police	0																			
	Fire	0																			
Refuse	0																				
VISUAL		0																			
RECREATION	Hunting	■																			
	Fishing	0																			
	Picnicking	■																			
	Boating	0																			
	Swimming	0																			
	Surfing	0																			
	Camping/Hiking	■																			
SOCIAL	Life Style	0																			
	Economic	0																			

1. Minor renovations to the existing facilities and re-open for public use, already has improvements for above minimum intensity use.

CENTRAL UPLAND SECTOR (Refer to Table 11)

Objectives

Present activities in the central upland sector will continue.

Primary Impacts

Short-Term Impacts

Positive, short-term impacts on the region's economy will result from the maintenance of trails and firebreaks, the distribution of informational maps and brochures, and posting of signs. These activities will generate jobs and infuse capital into the local economy.

Long-Term Impacts

Positive long-term impacts on the biological elements as well as on local recreational activities

will occur when coordinated plans are developed with other divisions within the Department of Land and Natural Resources. Maintenance of existing trails and firebreaks will have a positive effect on flora and fauna, and facilitate fire fighting activities. Information maps and brochures will increase public awareness of the area and recreational activities should increase. Development of hunting information programs and defining boundaries will alleviate conflicts and minimize hazards to users, thus enhancing the desirability of the area for all mountain-oriented recreational activities.

Negative long-term impacts will result from the maintenance of existing trails and firebreaks. Slight erosion problems may occur along the length of the trails and firebreaks. The trails and firebreaks may also affect the natural aesthetics

of the area. Introduction of more people to the area will increase fire hazards and may encourage distribution of exotic plants.

Secondary Impacts

Positive Impacts

Maintenance of existing trails and firebreaks and posting interpretive, regulatory, directional and warning signs will have positive, secondary impacts on all users of the area. Safety will increase

indirectly as the trails will furnish well defined pathways for hikers and firebreaks will provide barriers to the spread of fire. Signs will also increase safety by informing the public about hazards, rules and regulations.

Negative Impacts

Secondary negative impacts are not anticipated from the proposed action.

IMPACT ANALYSIS WORKSHEET

Table 11

CENTRAL UPLAND SECTOR

KEY:

- No Impact
- Primary short-term, positive
- ◐ Primary short-term, negative
- Primary long-term, positive
- ◑ Primary long-term, negative
- ▲ Secondary, positive
- △ Secondary, negative

		RECOMMENDED ACTION																			
CATEGORY	PARAMETERS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
AIR QUALITY	CO Concentration	0	0	0	0	0															
	Dust	0	0	0	0	0															
WATER QUALITY	Erosion	0	■	0	0	0															
	Drainage	0	0	0	0	0															
	Groundwater	0	0	0	0	0															
NOISE		0	0	0	0	0															
LAND	Land Use	0	0	0	0	0															
	Alteration	0	0	0	0	0															
BIOLOGICAL	Flora	■	■	0	0	0															
	Fauna	■	■	0	0	0															
ARCHAEOLOGICAL		■	0	0	0	0															
PUBLIC FACILITIES & SERVICES	Water	0	0	0	0	0															
	Wastewater	0	0	0	0	0															
	Power	0	0	0	0	0															
	Communication	0	0	0	0	0															
	Emergency Access	0	0	0	0	0															
	Police	0	0	0	0	0															
	Fire	0	■	0	0	0															
VISUAL	Refuse	0	0	0	0	0															
		0	■	0	0	0															
RECREATION	Hunting	■	▲	■	■	▲															
	Fishing	0	0	0	0	0															
	Picnicking	■	▲	■	■	▲															
	Boating	0	0	0	0	0															
	Swimming	0	0	0	0	0															
	Surfing	0	0	0	0	0															
	Camping/Hiking	■	▲	■	■	▲															
SOCIAL	Life Style	0	0	0	0	0															
	Economic	0	●	●	0	●															

1. Develop coordinative plans with other Divisions of DLNR.
2. Maintain existing trails and firebreaks.
3. Provide general information maps and brochures.
4. Develop hunting information programs to prevent conflicts and hazards to users of the area.
5. Post interpretive, regulatory, directional and warning signs.

REMOTE OPEN SECTOR (Refer to Table 12)

Objectives

Present activities in the remote open sector will continue.

Primary Impacts

Short-Term Impacts

Positive short-term economic impacts will occur when maps, brochures and signs are prepared and posted. These activities will result in more

jobs and the infusion of capital into the local economy.

Negative short-term impacts are not anticipated.

Long-Term Impacts

As in the Central Upland Sector, positive, long-term impacts on the biological elements as well as recreational activities will occur here when coordinated plans are developed with other DLNR divisions. Information maps and brochures will increase public awareness of the available recreational activities. The development of hunt-

ing information programs will prevent conflicts and hazards to users of the area.

Negative, long-term impacts are not anticipated from the proposed actions.

Secondary Impacts

Positive Impacts

Posting interpretive, regulatory, directional and

warning signs will have positive, secondary impacts on the users of the area. Safety will increase indirectly as a result of users being more aware of hazards, rules and regulations.

Negative Impacts

No secondary negative impacts are anticipated from the proposed actions.

IMPACT ANALYSIS WORKSHEET

Table 1P

REMOTE OPEN SECTOR

KEY:

- No Impact
- Primary short-term, positive
- ◐ Primary short-term, negative
- Primary long-term, positive
- ◑ Primary long-term, negative
- ▲ Secondary, positive
- △ Secondary, negative

		RECOMMENDED ACTION																			
CATEGORY	PARAMETERS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
AIR QUALITY	CO Concentration	0	0	0	0																
	Dust	0	0	0	0																
WATER QUALITY	Erosion	0	0	0	0																
	Drainage	0	0	0	0																
	Groundwater	0	0	0	0																
NOISE		0	0	0	0																
LAND	Land Use	0	0	0	0																
	Alteration	0	0	0	0																
BIOLOGICAL	Flora	■	0	0	0																
	Fauna	■	0	0	0																
ARCHAEOLOGICAL		■	0	0	0																
PUBLIC FACILITIES & SERVICES	Water	0	0	0	0																
	Wastewater	0	0	0	0																
	Power	0	0	0	0																
	Communication	0	0	0	0																
	Emergency Access	0	0	0	0																
	Police	0	0	0	0																
	Fire	0	0	0	0																
VISUAL	Refuse	0	0	0	0																
		0	0	0	0																
RECREATION	Hunting	■	■	■	▲																
	Fishing	0	0	0	0																
	Picnicking	■	■	■	▲																
	Boating	0	0	0	0																
	Swimming	0	0	0	0																
	Surfing	0	0	0	0																
	Camping/Hiking	■	■	■	▲																
SOCIAL	Life Style	0	0	0	0																
	Economic	0	●	0	●																

1. Develop coordinative plans with other Divisions of DLNR.
2. Provide general information map and brochure.
3. Develop hunting information programs to prevent conflicts and hazards to users of the area.
4. Post interpretive, regulatory, directional and warning signs.

PROJECT PHASING AND FUNDING

Phasing of construction will be based on need and completions of land acquisition.

State funding for initial park development to include construction of a permanent well site, reservoir, and restroom facilities at the Keawaula Bay area has already been allocated.

Although funds to date have been appropriated exclusively by the State of Hawaii, possible

matching grants from the Bureau of Outdoor Recreation may be applied for later.

TABLE 13. FUNDING

ACT/YEAR/ITEM	APPROPRIATION
155/1969/B-9	\$400,000 Land acquisition
155/1969/B-12	\$100,000 Construction
187/1970/B-10	\$525,000 Land acquisition
218/1974/Sect. 6, H-8	\$35,000 Land acquisition
	\$15,000 Design
195/1975/Part IV, H-20	\$800,000 Land acquisition
226/1976/H-32	\$800,000 Land acquisition
	\$270,000 Construction
10/1977/Special Session	<u>\$500,000 Land acquisition</u>
	\$3,445,000

