

**draft**  
**environmental statement**

**PROPOSED**

**KA-LOKO**

**HONO-KŌ-HAU**



**NATIONAL CULTURAL PARK/HAWAII**

DEPARTMENT OF THE INTERIOR

DRAFT

ENVIRONMENTAL STATEMENT

**DES 75-12**

PROPOSED

KA-LOKO, HONO-KŌ-HAU NATIONAL CULTURAL PARK  
HAWAII

Prepared by

Western Region  
National Park Service  
Department of the Interior  
and  
The Hono-kō-hau Study Advisory Commission

  
Regional Director, Western Region

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Advisory Council on Historic Preservation  
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Department of the Interior  
    Bureau of Indian Affairs  
    Bureau of Mines  
    Bureau of Land Management  
    Bureau of Outdoor Recreation  
    Bureau of Reclamation  
    Bureau of Sport Fisheries and Wildlife  
    Geological Survey  
Department of Transportation  
Environmental Protection Agency  
U.S. Civil Service Commission  
State of Hawai'i Clearinghouse  
    State Historic Preservation Officer

## DESCRIPTION OF THE PROPOSAL

The Department of the Interior proposes to create, on the Kona Coast of the Island of Hawai'i, a Ka-loko, Hono-kō-hau National Cultural Park. The primary purpose of the park will be the preservation of Hawaiian culture at a location containing numerous archeological and historic sites such as fishponds, heiau (temples), village complexes, and associated marine values. Of great importance, also, is the unique cultural association with the burial of King Ka-mehameha, the man who first united the Islands of Hawai'i under one kingdom. This cultural association with burials is unique to Hawaiian culture and its importance cannot be over-emphasized.

The purpose of the park, preservation of the integrity of the Hawaiian culture, will be accomplished by:

Setting aside a physical place where Hawaiians can be educated about their culture and present various aspects of it to visitors.

Restore and stabilize selected historic remains such as heiau (temple), house sites, and hōlua (sledding track).

Restore fishponds to food producing resources managed in a manner similar to historic methods.

Manage and interpret the park with a Hawaiian staff.

Create a permanent commission of native Hawaiians to advise and assist in the park's operation and management.

## BOUNDARIES AND LAND STATUS

Proposed boundaries are shown on the map on page 4. On the south side, the line will begin at Noio Point, follow the State's Conservation Zone boundary toward the Hono-kō-hau Small Boat Harbor and run across the mouth of the harbor. It will then extend 50 feet north, run parallel to and 50 feet from the northern edge of the harbor until it is 400 feet past the mauka (inland) end of the harbor, at which point, it will run parallel to the mauka border of the harbor to the north right-of-way line of the harbor entrance road and then mauka along this right-of-way to the west right-of-way line of the Queen Ka-'ahu-manu Highway. From there it will follow that right-of-way line to the boundary line between the ahupua'a of Ka-loko and Ko-hēnāi-ki. From there the line will run makai (seaward) along that boundary line to the State's coastal ownership line and follow this line to Wāwāhi wa'a Point.

In addition to the land area, the ocean or offshore boundary will extend 300 feet out from Wāwāhi wa'a Point and Noio Point and then stretch across on a line connecting these two points.

The proposed park as described above consists of about 1300 acres total. Of this about 660 acres are privately owned, and about 90 acres of land and about 550 acres of offshore water area are owned by the State.

Private lands are in two ownerships. About 334 acres in the ahupua'a of Ka-loko are owned by the Kona Coast Company. The remaining private land, about 326 acres, in the ahupua'a of Hono-kō-hau Nui and Hono-kō-hau Iki, is owned by the Lanihau Corporation. It is proposed that all lands be acquired in fee by purchase or donation.

#### PROPOSED LAND USE ZONES

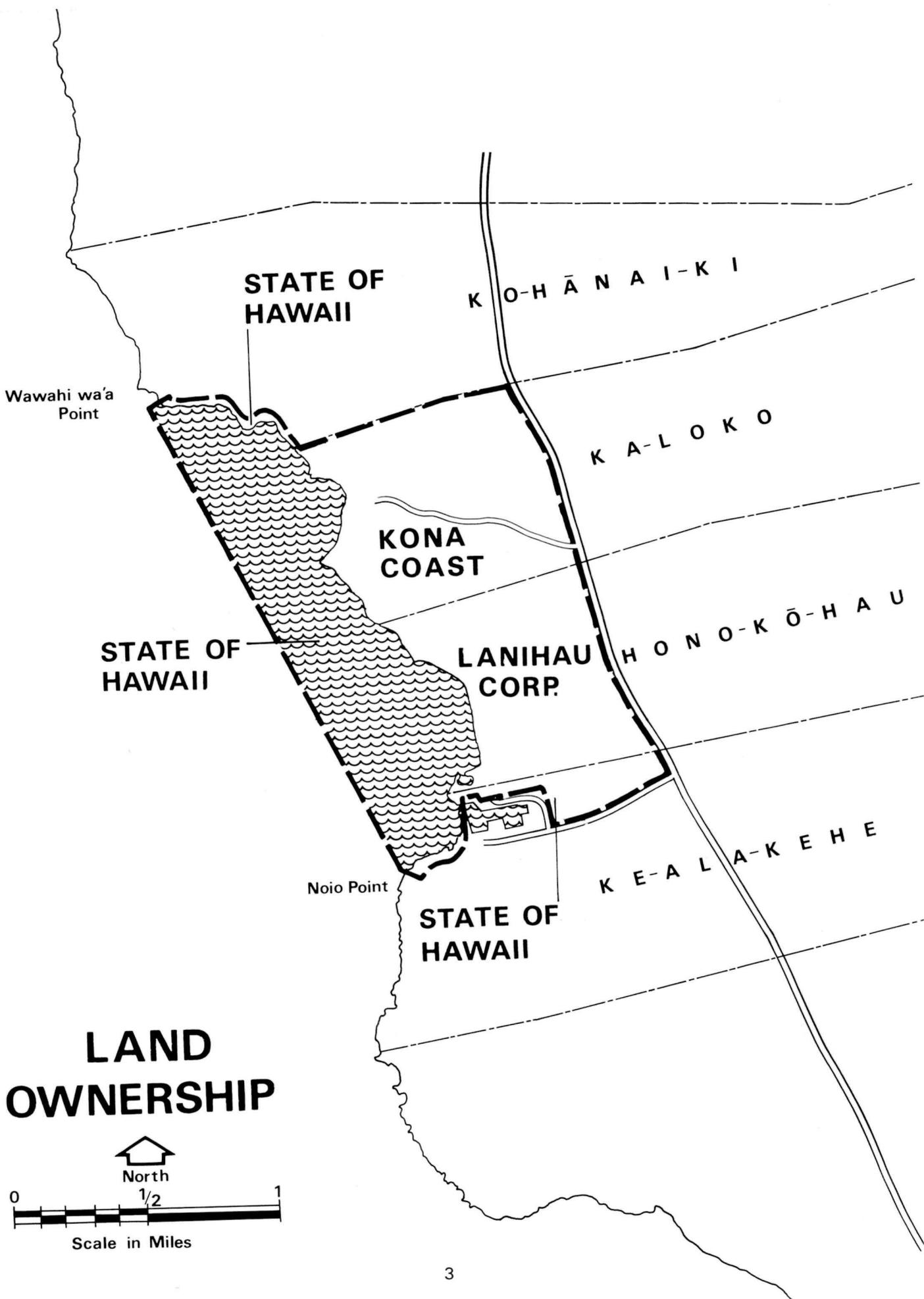
It is proposed that the cultural park be developed as a living museum of Hawaiian culture and programs will be based on actual activities performed by ancient Hawaiians. Visitor use patterns will relate to specific programs at specific sites. Other areas will be dedicated to special uses such as education and cultural rejuvenation.

The park will be physically separated into appropriate use zones which will provide for (1) the preservation, stabilization, and restoration of historic features; (2) living history demonstrations; (3) recreation use; (4) the education and training of native Hawaiians in traditional cultural pursuits; (5) kapu (restricted) areas, such as the concentration of burials in Ka-loko; (6) intense watershed management and low-density recreation; and (7) offshore water and marine life management.

#### INTERPRETATION AND EDUCATION

The intent is to give the first-time visitor a comprehensive view of the ancient Hawaiian culture and life style through orientation sessions and guided tours of the various historical, archeological, and cultural sites within the settlement area. This, the primary interpretative theme of Ka-loko, Hono-kō-hau will be the Hawaiian culture--including the Hawaiian language, land and sea ethic, fish-pond culture, family system, ancient chants, dances, crafts, and the important role played by religion in these and other cultural activities. Within this context there will be three sub-themes, or focal points for visitor activities. The first will focus on the rejuvenation, perpetuation, and understanding of Hawaiian culture and its attendant activities, emphasizing the desire of the Hawaiian people to retain their cultural legacy.

The second will be environmental and will concentrate on how cultural values were reflected in the way the early Hawaiians used their available resources.





- PARK BOUNDARY
- RECREATION
- ▨ PRESERVATION
- ... OFFSHORE AND MARINE LIFE MANAGEMENT
- ▩ KAPU AREAS
- ▤ LIVING HISTORY
- ▧ HAWAIIAN EDUCATION
- ▧ WATERSHED MANAGEMENT AND LOW DENSITY USE



PARK LANDS ZONES

The third will be recreational and will encourage Hawaiians and park visitors to engage in some of the activities that existed in ancient Hawai'i, such as kōnane (checkers) and ulu-maika (bowling) or are compatible with those activities, such as snorkeling and beach recreation.

Cultural demonstrations will consist of two types of programs. One type would serve the short-term visitor in the orientation facility. This program would be fast-moving and would introduce visitors to the underlying meaning and concepts behind the park and its attractions.

A second type of demonstration program would be informal, and a spontaneous manifestation of the Hawaiians' cultural heritage of hospitality and aloha. Visitors would be invited to participate as well as observe the various activities and programs.

An educational program would also be established within the park to teach the values and traditions of the Hawaiian culture. An important segment of this educational program would involve a facility designed primarily for native Hawaiians, and it would be removed from any major public use area, where the dignity and integrity of the culture would be maintained.

Classes would be conducted outdoors or in a hālau (open shed), and instruction would be provided in crafts such as basket weaving, lau hala plaiting, wood carving, feather work, the making of fishing materials, and in various traditional agricultural practices.

The shoreline is ideal for fishing, snorkeling, diving, camping, picnicking, and hiking, and this part of the park would be open to use for both food gathering by local citizens and for purely recreational uses.

#### CAPACITIES

Several criteria have been used to project visitor capacities for the proposed Ka-loko, Hono-kō-hau National Cultural Park. These include (1) visitor use at Hawai'i Volcanoes and the City of Refuge, (2) accessibility, (3) the variety of facilities and activities the park will offer, and (4) the estimated number of Hawaiians who lived in the historic settlement at any one time.

The average visitor stay within the park is estimated to be about  $1\frac{1}{2}$  hours. This figure assumes about 15 to 20 minutes for orientation, about 30 minutes for informal walks around the main orientation area and another 30 minutes for more formal programs.

Based on these considerations, the following is a preliminary estimate of visitor capacity within the park complex:

1. Capacity at any one time	250-350
2. Daily capacity	1,500
3. Capacity for amphitheatre within the orientation center	200-250
4. Daily capacity to core area and immediate vicinity only	1,500
5. Capacity in more remote areas such as those where native Hawaiians will be pursuing educational activities	500
6. Projected annual visitation assuming capacity visitation for 300 days and 60 percent capacity the remaining times	500,000

### PARK FACILITIES

Supporting visitor use facilities such as parking, food service featuring traditional Hawaiian fare, and access routes will be provided to help the visitor enjoy the full range of activities and events without destroying or diminishing the Hawaiian ethnic or historical integrity. Facilities and their approximate locations are noted on the accompanying map. The major concentration is in an area immediately makai (seaward) of the Queen Ka-'ahu-manu Highway. This is a site removed from, but convenient to major attractions in and around 'Ai'makapā fishpond. In addition, this site is the edge of a comparatively recent 'a'a lava flow which ends abruptly about 40 feet above the mauka (inland) banks of 'Ai'makapā fishpond. It is a natural promontory with cool ocean breezes and has an excellent view of the coastline and the three historic fishponds: Ka-loko, 'Ai'makapā, and 'Ai'opio. Moreover, since it is some distance from the proposed live-in education and cultural center for Hawaiians, it will protect that sensitive function from concentrated visitor use.

The precise design location, and size of facilities will be determined after more detailed planning effort and archeological research, but a general description of the orientation complex is as follows: a parking area for 200 to 250 cars and buses will be constructed adjacent to the Queen Ka-'ahu-manu Highway on land where the surface has already been disturbed by removal of some 'a'a material and where a small papaya grove has recently been planted. Immediately makai (seaward) from this will be an orientation structure, and an administrative office totalling about 10,000 square feet. The entire area occupied by parking, orientation structure, and associated roads and walks will be about 5 acres or less. The main building complex will blend in with its rugged, primeval surroundings. The resulting architectural theme is a terrain-related organic architecture -- a system of sheltered spaces seemingly "of the earth".

The typical visitor will enter the park by motor vehicle, leave his modern day conveyance in the parking area, and climb a slightly ascending path toward a cave-like opening that penetrates what will appear to be a cluster of hollowed out caverns that vary accordingly to the function, visual effect, or visitor capacity. From the makai side of this structure, the visitor may then view the major attractions from a distance or descend to the fishing village below in much the same manner as a native Hawaiian may have done long ago.

Several other small structures in the form of comfort stations and interpretive exhibits will be built at the level of the fishponds, specific locations being determined as a result of more detailed planning and research. All facilities and major attractions will be tied together by a park-wide trail system totalling about 8 miles.

Although the park will be managed primarily for day use, an area will be provided for short-term, live-in accommodations to encourage native Hawaiians to actively participate in cultural activities. This will be at a site removed from concentrated visitor use. It will be a facility for Hawaiian cultural groups to hold meetings, and ceremonial gatherings. It will not be a modern building, but rather an area or series of areas dedicated to the uses mentioned. Shelter may be required in some instances, but its precise form will be determined later, when programs are formulated in greater detail. The total space utilized will be about 3 to 5 acres. Particular care will be taken to avoid construction of any roofed over areas or concentrated uses that would disturb archeological sites.

A central maintenance facility, covering about 2 to 3 acres will be located near the park's south boundary, and adjacent to the Hono-kō-hau Small Boat Harbor and its attendant facilities.

Utility services are or will soon be available near the park boundary. Water service to park facilities will require about  $1\frac{1}{2}$  miles of line from an existing 12-inch line along the Queen Ka-'ahu-manu Highway. Sewage will be transported outside the park to a treatment plant within the proposed development on State lands adjacent to the Hono-kō-hau Boat Harbor. About  $1\frac{1}{2}$  miles of sewage line would be required within the park and probably less than  $\frac{1}{2}$  mile outside the park. Power and telephone services are available on land adjacent to the park.

#### RESOURCE MANAGEMENT

Ahupua'a, traditional Hawaiian land divisions running from the mountain to the sea, were established to take advantage of the natural functions of the environment. Crops were planted in the rainy mauka section, while the people lived near the dry seashore.

Each ahupua'a developed around a recognition that all of its elements were interdependent. What affected the mauka (mountain) regions affected the makai (seashore). What affected the land affected the fishponds, the sea, and the total environment.

The Ka-loko, Hono-kō-hau complex is a small fragile part of a larger environment. Therefore, management will involve three elements: (1) the control of on- and off-site factors that affect park resources; (2) the role of Hawaiians in management; and (3) maximizing the benefit visitors receive and yet minimizing the adverse effects of visitor use.

### On-Site Controls

For adequate control on on-site resources, sufficient acreage will be acquired by the National Park Service to provide protective zones within the park. It would make little sense to preserve Ka-loko Pond if extensive development would then be allowed behind it. With the area's porous soils and underground water cycle, little time would be needed before Ka-loko would be destroyed. Specific attention must be given to the types of land-sea uses that will be designated within the park complex. Procedurally, the criteria that is developed should be reviewed by the permanent advisory commission, Na Hoa pili o Ka-loko, Hono-kō-hau. Refer to page 11 for a description of this proposed commission.

Two specific conditions of the on-site management plan are, (1) a provision allowing the three families who now occupy leaseholds with the proposed park to remain on their land for a specific period of time which will be determined through negotiation, and (2) no commercial fishing within park waters will be permitted and no coral formations or coral sand will be removed from the park's beaches or waters. Fishing for recreation and for family needs will be encouraged with appropriate controls.

Concerning protection of the physical remains of the Hawaiian culture, a study will be implemented to analyze and determine which archeological sites within the park should be restored, stabilized, or simply preserved. A precise demarcation of the archeologically significant zones or the periods they represent is not possible at this point because current data is limited. However, the majority of sites appear to cluster about the Ka-loko and 'Ai'makapā fishponds and the shoreline, indicating that these areas were vital centers of activity. The documented historical importance of the fishponds and ocean in the life of the settlement further supports this.

As such, a program will be established to restore the existing sites within these complexes as near as possible to their original appearance, and in the case of Ka-loko fishpond, make it functional once again.

Wāwāhi wa'a Point

BEACH AND SHORELINE RECREATION

FISHPOND CULTURE

HISTORIC AREA

LIVE-IN EDUCATION and CULTURAL CENTER

FISHPOND CULTURE

INTERPRETATION ORIENTATION

HONO-KŌ-HAU BAY

HISTORIC AREA

CULTURAL ACTIVITIES

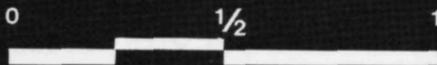
ACTIVITIES

MAINTENANCE

Noio Point



NORTH



SCALE IN MILES

# DEVELOPMENT CONCEPT

proposed KA-LOKO HONO-KŌ-HAU NATIONAL CULTURAL PARK

'Ai'makapā will be restored to the extent that it will not adversely affect the wildlife which now inhabits the pond. Further historical research will be necessary to determine what place wildlife such as the ʻĀe'o (Hawaiian stilt), ko'loa (Hawaiian duck), and the 'alae ke'oke'o (Hawaiian coot) actually had in the fishpond during historic and prehistoric times.

Nor will the importance of other archeological sites be overlooked. Stone planters, saltpans, trails, petroglyphs, papamū (checkboards) and the graves will also be preserved and stabilized when appropriate.

A long-term plan will be designed to eradicate the exotic vegetation and animal life which now dominate the area. Native vegetation such as noni and 'ilima plants and hala, milo, kou, and coconut trees will be planted. These were and still are indigenous to Ka-loko, Hono-kō-hau in a few places along the shoreline.

In general, then, the preservation plan for the park's resources is based on the historic-cultural importance of the settlement rather than on individual archeological or environmental features. However, it is not the intent of the proposal to freeze the park's resources in a manner that will reflect a specific time in history. All sites, including pre-contact and post-contact, will have their part to play in telling the story of how Hawaiians lived on and used the land. Further, it is not the intent of this plan to identify the details of the restoration-stabilization program. That will be accomplished only after considerable additional research and more detailed planning on management and interpretive programs.

#### Off-site Controls

The ahupua'a concept and the water cycle phenomenon will also be used as the approach in securing off-site controls. It is fully recognized that these controls will not be under the direct control of the Federal Government, but will be handled through cooperative planning with State and county governments. Moreover, the ahupua'a concept, while widely recognized for its value, is not utilized now by either local government or private landowners. The concept of land use control is a phenomenon of recent vintage, and the present day landownership and development patterns haphazardly cut across ahupua'a lines. Control efforts will be coordinated on two general levels: governmental and private.

On the governmental level, coordination will be developed with various Federal, State and county agencies. Federal action will be necessary to protect the airways above the park and the outer limits of the sea boundary. State and county zoning will have to be secured to protect the land around Ka-loko, Hono-kō-hau.

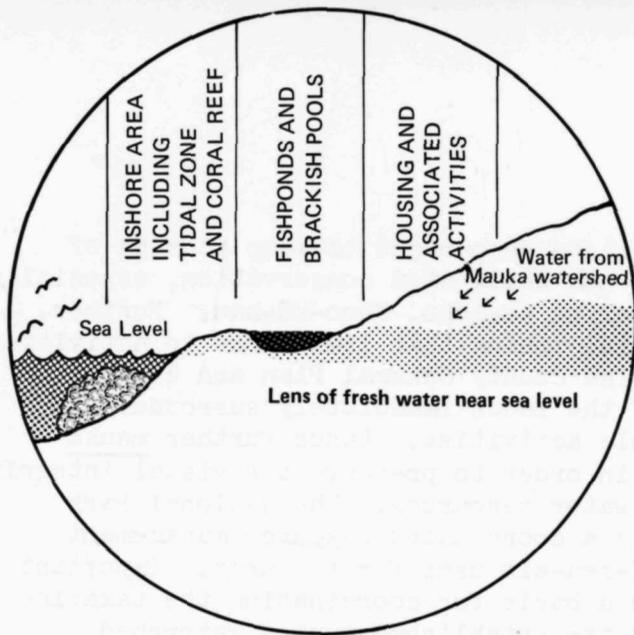
The State Land Use Commission will be encouraged to keep as much of the area around Ka-loko, Hono-kō-hau designated conservation, especially along the shoreline areas neighboring Ka-loko, Hono-kō-hau. Further, these lands should be given special zoning that limits use to activities compatible to a cultural park. The County General Plan and zoning ordinances will limit the use of the lands immediately surrounding Ka-loko, Hono-kō-hau to compatible activities. Lands further mauka should be restricted in density in order to preserve the visual integrity of the park and to help protect water resources. The National Park Service will assist in developing a coordinated resource management plan establishing allowable land-sea-air uses for the area. Important components of this plan would be a basis for coordinating the taxation of real property in the area and the establishment of a watershed management area based on specific water management criteria for both surface and subsurface water courses.

#### Administration and Personnel Management

To assist the National Park Service and the Hawaiian staff of the park in management, it is proposed to establish a permanent advisory commission, Na Hoa pili o Ka-loko, Hono-kō-hau (The Friends of Ka-loko, Hono-kō-hau). This commission will be composed of nine members, appointed by the Secretary of the Interior. At least six of these would be Hawaiians, and all would be appointed from recommendations made by local organizations. Members would serve without compensation, but any expenses incurred in carrying out their responsibilities would be paid by the Federal Government. In addition to the nine commissioners, there would be four ex-officio non-voting members consisting of the Superintendent of the cultural park, the National Park Service State Director of Hawai'i, and a person appointed by the Mayor of the County of Hawai'i. The purpose of the Commission is to advise the Director, National Park Service, with respect to the historical, archeological, cultural, and interpretive programs of the park, its staffing and operation.

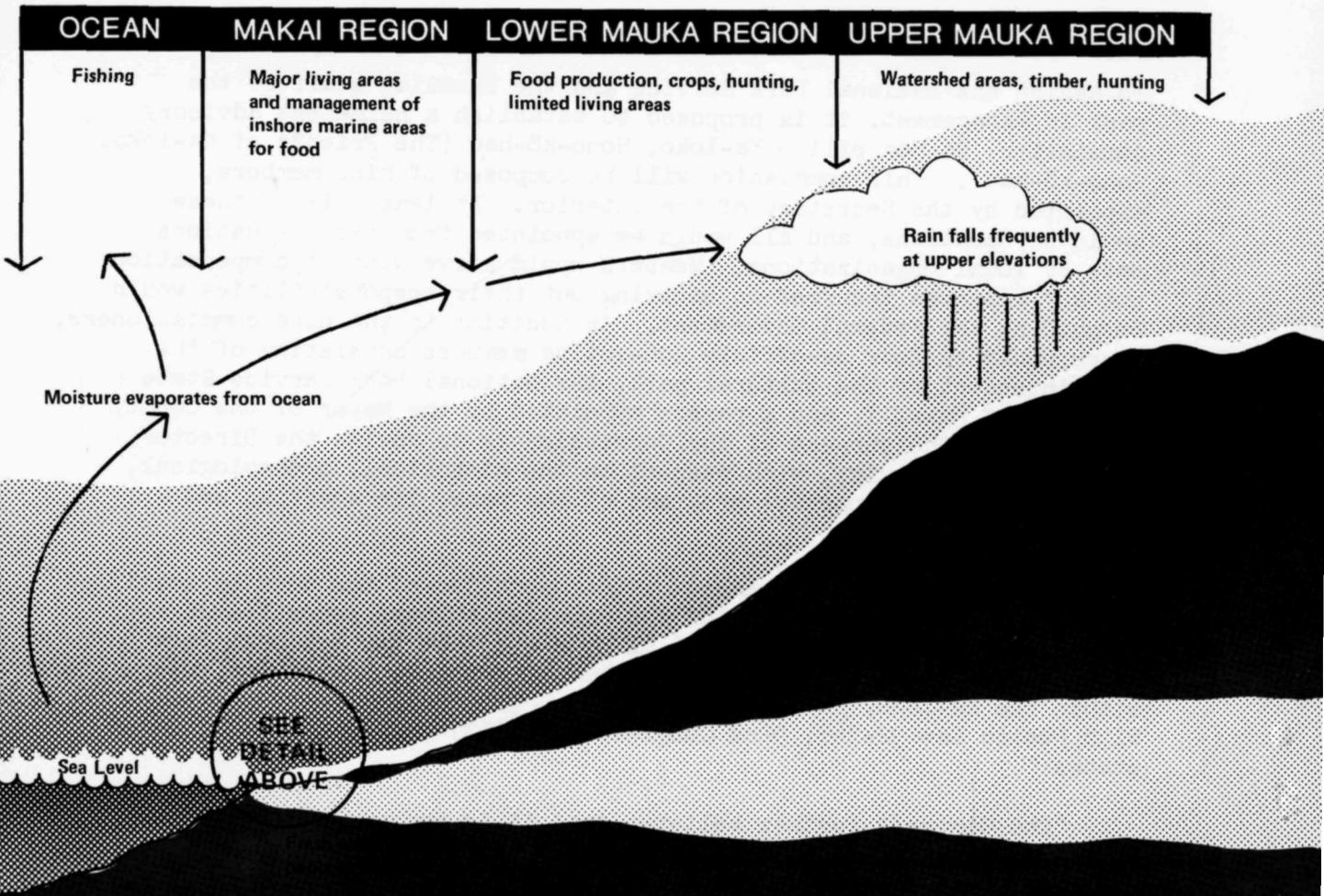
Special emphasis will be placed on the operation of the area by qualified Hawaiians and on the quality of the Hawaiian culture demonstrated and taught therein. Specifically, it is proposed that the National Park Service give priority to Hawaiians for all employment opportunities within the Ka-loko, Hono-kō-hau complex. This policy is in agreement with Public Law 92-346, 92nd Congress H.R. 11774, July 11, 1972, which states:

"The Congress further believes that it is appropriate that the preservation and interpretation at that site be managed and performed by native Hawaiians, to the extent practical, and that training opportunities be provided such persons in management and interpretation of those cultural, historical, and archeological resources."



# CRITICAL MANAGEMENT ZONE

## AHUPUA'A BOUNDARIES EXTENDED FROM MOUNTAINTOP INTO THE OCEAN



# HISTORY AHUPUA'A MANAGEMENT PATTERN ON WEST HAWAI'I

The term "Hawaiian" as used in this policy, means any descendant of the race inhabiting the Hawaiian Islands previous to the year 1778. It should be noted that the definition of a "Hawaiian" in this policy differs from the definition in Public Law 92-346; as defined in the Law, the term "Hawaiian" means any descendant with not less than 50 percent of the blood of the race inhabiting the Hawaiian Islands previous to the year 1778.

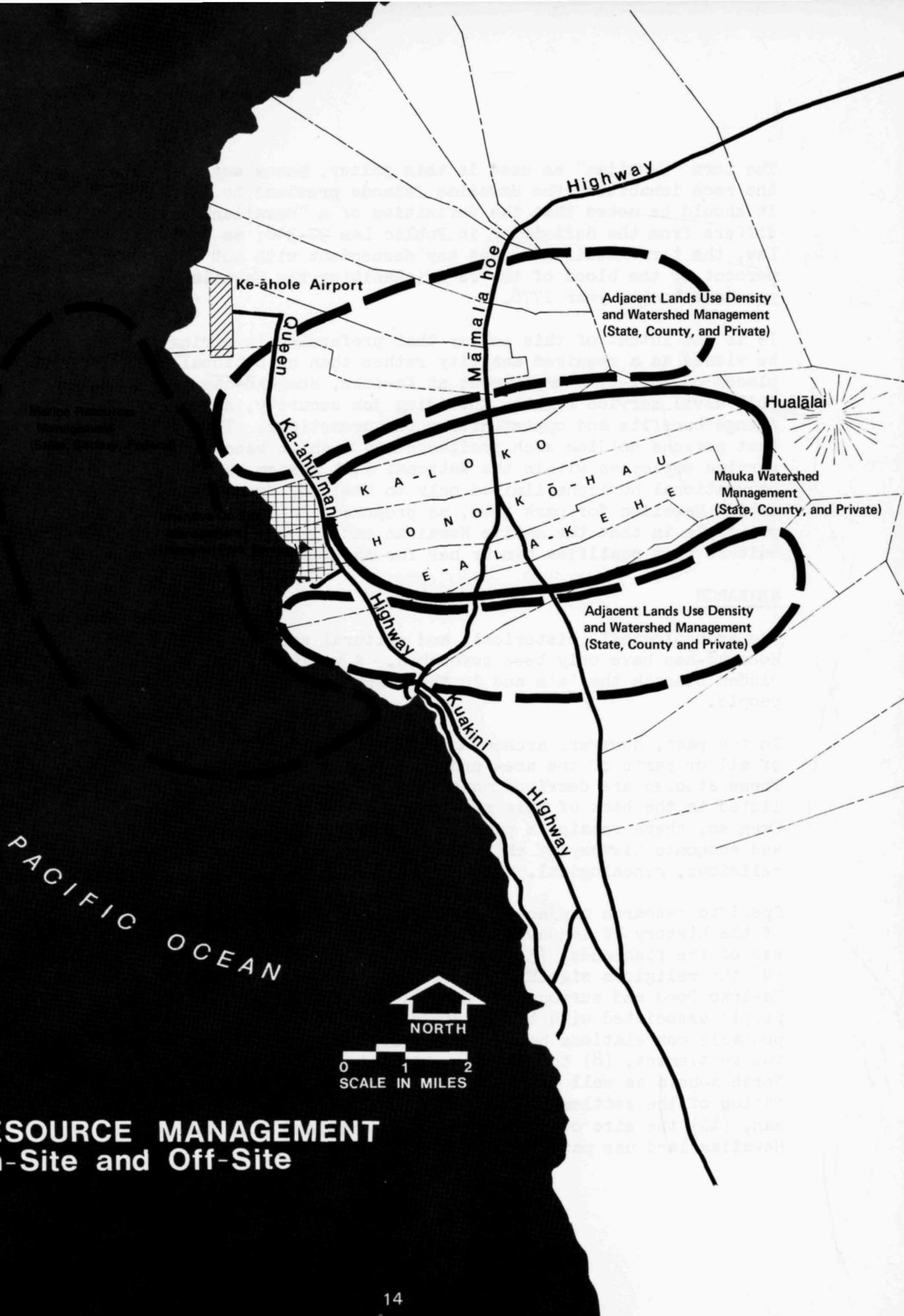
It is the intent of this policy that preference in hiring and training be viewed as a required activity rather than an optional one. Hawaiians placed on full-time employment at Ka-loko, Hono-kō-hau will receive full civil service rights, including job security, seniority rights, fringe benefits and opportunities for promotions. This policy recognizes that persons holding such positions may wish to become regular career service employees within the National Park System rather than have their occupational horizon limited only to Ka-loko, Hono-kō-hau. Hiring native Hawaiian for park jobs, as proposed, is consistent with the merit principle in that the native Hawaiian and his knowledge of the Hawaiian culture best qualifies him or her for the park job.

#### RESEARCH

The archeological, historical, and cultural surfaces of Ka-loko, Hono-kō-hau have only been scratched. A wealth of information remains hidden beneath the 'a'a and in the hearts and minds of the Hawaiian people.

In the past, however, archeologists have completed several studies of all or parts of the area proposed for national cultural status. These studies are described more fully on page 51 and reports are listed in the back of this report under references on page 122. Even so, there remains a paucity of information regarding the social and economic history of this area, as well as that concerning the religious, genealogical, and mythical and legendary history.

Specific research projects will include (1) further documentation of the history of landownership within the ahupua'a, (2) care and use of the fishponds, (3) the use of the coastline and sea as resources, (4) the religious significance of heiau and ko'a, (5) the history of Ka-loko Pond and surrounding land, (6) the genealogical backgrounds of people associated with the traditions of the region, (7) documenting probable correlations between archeological and natural features within the settlement, (8) the relationship between Ka-loko, Hono-kō-hau and North Kohala as well as all Hawai'i, (9) the changing religious orientation of the settlement inhabitants after the arrival of the white man, (10) the size of historic populations, and (11) the history of Hawaiian land use patterns.



**RESOURCE MANAGEMENT  
On-Site and Off-Site**

In addition, studies will be conducted to determine what native plants and animals inhabited the area before foreign introductions, and what traditional ceremonies and cultural activities were performed in the settlement.

#### RELATED PROPOSALS

Land use in Hawai'i, as in many other areas, is in a state of flux and new recreation, resort, and residential developments continue to be proposed. In the immediate vicinity of the proposed park, however, these are currently limited to areas in a southerly direction. In the ahupua'a of Ke-ala-kaha, adjacent to the south boundary, the State of Hawai'i proposes to expand the existing Hono-kō-hau Small Boat Harbor and to construct attendant parking, commercial facilities, and a golf course. Much of the currently proposed boat harbor expansion is on land now proposed as part of the national cultural park. There are no current plans for development of land, either immediately mauka or north of the park. Moreover, both state zoning and potential land use shown in the 1971 Hawai'i County General Plan indicate these lands will remain in open space. See the Description of the Resource, page 35 for a discussion of State and county planning. Most proposed expansion of urban and resort development is in the Kai-lua Ke-au-hou area to the south and in the Puako Kawaihae area about 20 to 25 miles to the north.

The Queen Ka'ahu-manu Highway now ends at Ke-āhole Airport, about five miles to the north of the proposed park. Extension of that major road to connect with the Kawaihae area is currently underway. In addition, the county indicates potential for urban expansion in the mauka areas between one-half and three miles southeast and east of the park. The map on page 34 indicates the location of these areas. The current landowners' plans for use of lands included in the cultural park proposed are described under Alternative A in the section of this statement entitled Alternatives to the Proposed Action.

## DESCRIPTION OF THE ENVIRONMENT

Ka-loko, Hono-kō-hau is a unique composite of cultural, historical, and archeological features of vital significance to the Hawaiian people and the nation, which is difficult, if not impossible to duplicate in the State of Hawai'i. The site is also part of a larger environment which has influenced its history and which affects it today.

From the national standpoint, the Hawaiians, together with the Alaskan natives and American Indians, comprise three ethnic entities officially recognized as native Americans. Hawaiian culture also has international significance, having left lasting impressions on all who experienced contact with it since 1778, including those from Europe, the mainland United States, and the Far East. Today, it is the hub of the Pacific and a major gateway to America.

The Hawaiian culture is renowned for its natural quality of friendliness and hospitality embodied in the concept of "Aloha", a "will-o-the-wisp" to those who strive to explain it. Moreover, it has contributed greatly to the world family of cultures and will undoubtedly continue to stand as a symbol of cultural harmony.

Scholars have long searched for the catalyst generating this phenomenon, but their efforts have been directed largely by their own individual cultural values and viewpoints. This tended to result in a reluctance or refusal to accept the very cultural attitudes responsible for the evolution of this inherent quality of warmth, respect, and ethnic tolerance.

These cultural attitudes include the acceptance of nature as manifested in all things, living or inanimate. The human body, human relationships, and the environment were all part of a scheme, conceived and directed by the gods, and therefore, not to be taken lightly but respected and accepted. No stigma was attached to any part of this scheme. There were no illegitimates, orphans, or other homeless waifs. Rather, all were members of the 'ohana or extended family along with uncles, aunts, and grandparents who cared for and cherished each other. Prisons and mental institutions had no place in the society as religious philosophy and practices ultimately resolved all problems.

Race was not so much a qualifying standard of evaluation, but rather temperament, physical ability, agility, intelligence, creativity, leadership, and other such qualities. Thus, the ethnic tolerance was one of their natural characteristics at the time of European contact.

In the development of the proposal for a national cultural park for Ka-loko, Hono-kō-hau, attention should be focused on the underlying elements of the Hawaiian culture, and on its talent for environmental compatibility. This involves the identification of the cultural, social, and environmental factors that contributed to the Hawaiian society as it was at the time of European contact and as it is today.

As a means of arriving at an appreciation of the resource values, the ensuing description will examine Polynesia, the Hawaiian chain, the Island of Hawai'i and finally North Kona and the Ka-loko, Hono-kō-hau site itself. Only then is it possible to recognize the potential for interpretation, education, and ultimately, the cultural understanding that is so vital to human relationships.

#### PARAMETER: THE HAWAIIAN ISLANDS

##### Geography

The Hawaiian archipelago consists of 132 islands, reefs, and shoals stretching 1,532 miles southeast to northwest across the Tropic of Cancer between 154° 40' and 178° 75' W longitude and 18° 54' to 28° 15' N latitude.

The islands are the peaks of volcanic mountains whose bases lie 18,000 feet below sea level. The northwestern end of the chain is low and sandy; the middle zone contains small rocky pinnacles; and the southeastern end features high volcanic islands. The eight main islands, in order of their size, are: Hawai'i, Maui, O'ahu, Kaua'i, Moloka'i, Lana'i, Ni'ihau and Ka-ho'o-lawe. They are located in the southeastern zone and constitute over 99 percent of the chain's total land area of 6,425 square miles.

Small and remotely situated in the mid-Pacific, Hawai'i is one of the best known places on the globe, and people come from many places to visit or settle here. The Hawaiians also travelled great distances to find the islands originally many centuries ago. One possible origin for the Hawaiians is the Marquesas, 2,400 miles to the south. Tahiti, and other possible sources are equally far. California, the source of most American migrants, is 2,390 miles to the east; Japan, China, and the Philippines, all major sources of Asian settlers, lie 3,850, 4,900 and 5,280 miles, respectively, to the west. Once initiated, the tide of immigration became a never receding flow.

##### Physical Characteristics

The State of Hawai'i is a land of striking contrasts. Mauna Kea, on the Island of Hawai'i and the highest peak in the Pacific, reaches

to 13,796 feet. On both sides of the island chain, ocean trenches drop to 2,700 fathoms. Mauna Loa, 13,677 feet above sea level and Kī-lau-ea, 4,000 feet, are among the world's most active volcanoes.

In winter, Mauna Loa and Mauna Kea are snow-capped, and the latter provides a site for winter sports only a short drive from tropical beaches. Mt. Wai-'ale'ale on the Island of Kaua'i is considered one of the wettest spots on earth with 486 inches of rain recorded on its summit. Other areas in Hawai'i record rainfall as low as six inches annually. In spite of their dramatic extremes, temperatures along the coast and adjacent inland areas are moderately warm and vary within a narrow range of 57° to 88° Fahrenheit.

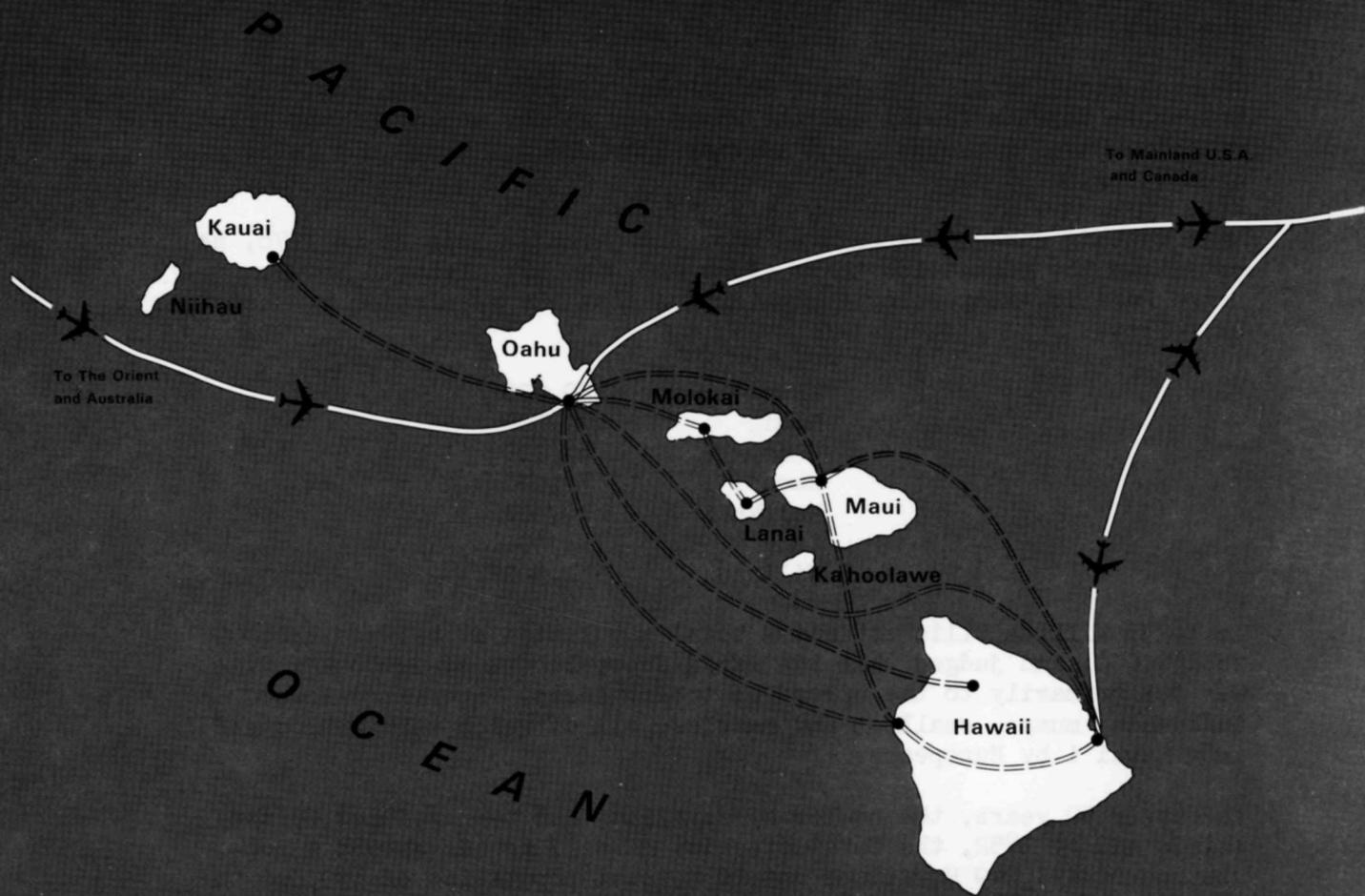
The islands of Hawai'i are volcanic, having originated during the Tertiary Period. Lava flows from the earth's crust established the basic structure of the islands. Topography is characterized by rugged mountain peaks weathered into vertical pali (cliffs), deep canyons, and rocky hillsides. Beaches, plains, and a few marsh lands comprise about 40 percent of the land mass. Since weathering and erosion have taken place under wide variations of rainfall, wind exposure, and temperature, all stages of soil formation are found from barren lava flows only recently formed on the Island of Hawai'i to deep, moisture-holding soils on the Island of Kaua'i. Approximately 1/4 of the land area lies below 650 feet, 1/2 below 1,950 feet and 1/4 above 4,500 feet. Sixty-three percent (3,994 square miles) of the six main islands (excluding Ni'ihau and Ka-ho'o-lawe) have less than 10° slope.

### Access

The principle means of access to the State is air transport. Jetliners arriving from North America, Australia, New Zealand, and the Orient make Honolulu one of the world's busiest airports. Use of Hilo on the Island of Hawai'i for overseas flights began in 1969. The primary means of inter-island travel is also by air. However, a statewide ferry system is being planned and is scheduled for implementation in the near future. Ocean liner travel to the islands from the mainland or other parts of the world is secondary, and there are no immediate plans for increasing service. Due to the increased speed and low fares for air travel, it may be more convenient for residents of west coast metropolitan areas to reach the state than to drive to nearby mountain resorts.

### People

The discoverers and original inhabitants of the islands, the Hawaiians, belong to the family of people who occupy what is known as the Polynesian

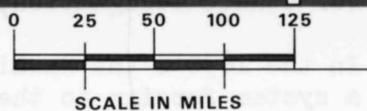


To Mainland U.S.A.  
and Canada

To The Orient  
and Australia

P A C I F I C  
O C E A N

———— INTER-ISLAND AIRLINES  
 ————✈️ OVERSEAS AIRLINES



# ACCESS TO HAWAII

Triangle, an area remarkably similar in language, physical characteristics and many cultural aspects. This Triangle is bounded by Hawai'i on the north, New Zealand in the south, and Easter Island in the east.

Archeological studies indicate Polynesian dispersal began from west Polynesia through Tahiti and the Marquesas in the center of the Triangle, reaching Hawai'i probably not earlier than 500 A.D., but not later than 750 A.D.

When Captain James Cook chanced upon the Hawaiian Islands in 1778, he estimated the population to be about 400,000. Dr. Kenneth Emory, noted Pacific Anthropologist, estimates that the population at that time as follows:

Hawai'i	120,000
Maui	70,000
O'ahu	65,000
Kaua'i	30,000
Moloka'i	10,000
Lāna'i	3,000
Ni'ihau	1,500

In 1823, William Ellis estimated total population at between 130,000 to 150,000, and judged that the rapid depopulation since Cook's time was due primarily to the spread of tuberculosis, venereal disease, influenza, mumps, smallpox and measles, all of which were introduced into Hawai'i by Europeans.

In barely 50 years, the number of Hawaiians had been reduced by two-thirds and by 1852, the first official Hawai'i census showed a population of 123,049 Hawaiians out of a total population of 130,000 to 133,000. From 1866 to 1895, there was a continuing decline of Hawaiians, while the part-Hawaiian segment reflected an increase. This ratio has continued in the same trend, and today it is estimated that there are about 7,000 to 8,000 Hawaiians remaining in the islands. (State of Hawai'i, 1973)

The latest estimate on the total population of Hawaiians and part-Hawaiians in the state is 135,152 (Hawai'i State Department of Health RS report, 1969-1971; Health Surveillance Program, Research and Statistics Office). New census methods, wherein the surname was a criterion for ethnic designation, resulted in a lesser figure (71,375).

In the 1850's the Hawaiian's unwillingness to labor in the fields under a system foreign to their way of life and the corresponding desire of sugar planters to expand operations, motivated the importation of

indentured labor from China, Portugal, Japan, and other countries. Soon foreign-born residents outnumbered the Hawaiians. Foreign influence was heavily felt in the economic and social spheres, with a corresponding loss of influence by Hawaiians. By 1920, Hawai'i's population reached that of 1778, and in 1944, attained its peak with the 400,000 military personnel stationed in the islands. Following the war, the population dipped and then leveled off at 769,913.

Although state population has grown steadily over the past two decades (1950-1970), most has occurred on O'ahu, with the other islands reflecting losses or only marginal gains. More than 4/5 of Hawai'i's residents live on the Island of O'ahu, only 9.2 percent of the total land area of the state. The population of the other islands had, until recently, declined not only in relative terms, but also in absolute numbers. Their combined total reached a peak in 1930 at 165,413; and then fell sharply to 132,360 by 1960 because of the mechanization of agriculture. Then, as resort development expanded, population rose again to 139,385 in 1970. Today, the surviving Hawaiians and part-Hawaiians, show signs of growth in numbers and initiative. Together with the descendents of immigrant settlers, the heirs early western entrepreneurs and the new American migrants, they comprise the nation's first truly multi-racial state. According to the 1970 census, 298,160 (39%) of the 769,913 Hawai'i residents are Caucasians; 217,307 (28%) are Japanese; 93,915 (12%) are Filipino; 71,375 (9%) are Hawaiian; 52,039 (7%) are Chinese; and 37,117 (5%) are of other ethnic groups. It should again be noted that the figure shown here for Hawaiians is not an accurate figure for the total number of part-Hawaiians in the state. (see page 20 for explanation.)

### Economy

The state's economy is geographically concentrated on O'ahu with 80% of the activity in this area. However, since the end of World War II, it has become increasingly diversified and the dominant role of the sugar and pineapple industries has progressively decreased with the visitor industry assuming the fastest growing segment of the economy. In 1970, 1.8 million visitors spent an estimated 570 million dollars in the islands and its swift rise in development is felt on the other islands with heavy, sometimes traumatic, impact. It promises to have a definite effect on economic growth. Manufacturing has also increased significantly. Processed agricultural products and high-fashion garments are the principle exports, although 90% of all locally manufactured products are consumed in Hawai'i.

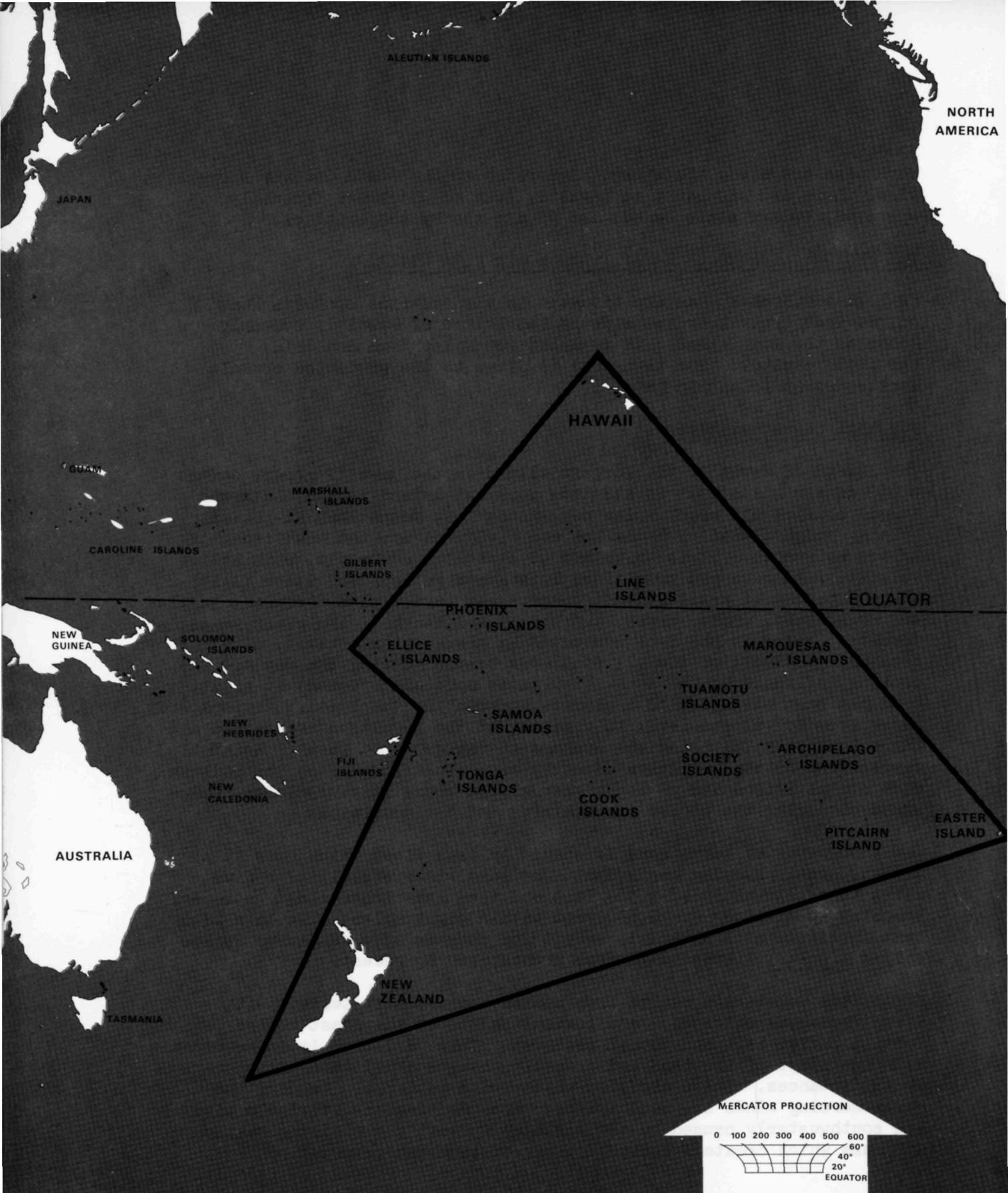
Sugar cane and pineapple continue to occupy the prime positions among Hawaiians agricultural products, but other diversified agricultural products are becoming increasingly important. The construction industry

has also diversified. The Federal government makes a major contribution to the state's economy largely because the defense headquarters of the Pacific is located there. Federal expenditures in Hawai'i totalled nearly \$1.1 billion during 1970.

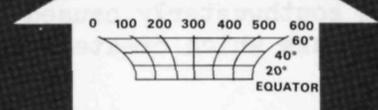
This high level of economic growth and its corollary, population growth, have brought with it the specter of social and economic insecurity for many local residents, Hawaiians especially. Rapid urbanization has drastically transformed a once rural population. Finally, with the opening of the seventies, the boom appeared to be slackening with growing public awareness of the consequences of urban saturation, increasing resistance of environmental interests to unrestricted development, and increasing legislative control measures on all government levels in the form of environmental regulations and required environmental impact statements. Moreover, it is becoming apparent that increased development is accompanied by increased expense in providing public services such as roads and utilities.

### Recreation

Hawai'i's ideal year-round climate provides an important clue to the natural freedom and warmth of its culture. Much of what once was routine in the traditional life style has become, in no small degree, recreation for their descendants and newcomers to the culture. The outdoor life of the pre-contact Hawaiians undoubtedly had a profound effect on personality development, favoring them with an ability to cope with all aspects of their surroundings. This was a real asset in wrestling a livelihood from land and sea. In their day-to-day efforts to provide for themselves and for pure enjoyment, the use of the canoe and fish nets, pole and line fishing, diving, and swimming, camping, hiking, and other physical exercises were necessary activities. These assisted in the production of food, the pursuit of security, and satisfaction of utilitarian or esoteric requirements. Now, many of these activities provide recreation. Whatever form they may take, all are pleasureable experiences indulged in with keen anticipation, with the difference being that the activity is an end in itself. Surfing, canoe racing, hōlua sliding, ulu-maika, javelin throwing, foot racing, tests of strength, etc., however, were traditional forms of recreation, which it is hoped may be rejuvenated in a proposed cultural park. Hawai'i provides many of the recreational potentials such as may be conceived by modern society, including fishing, surfing, boating, sailing, canoeing, diving, snorkeling, hiking, picnicking, birdwatching, sightseeing, sunbathing and numerous others. Historically in Hawai'i the farmer, canoe maker, birdcatcher, and medical kahuna walked long distances to the mauka fields and forests for utilitarian purposes. Hawai'i's residents today are often only an hour's drive from locations offering a great variety of recreation pursuits both in the



MERCATOR PROJECTION



STATUTE MILES

# THE POLYNESIAN ISLANDS

SOURCE: KAMEHAMEHA SCHOOLS

mountains and along the shore. According to the State Outdoor Recreation Plan, there are 139 parks in Hawai'i, four of which are federally operated, 40 are state owned, and 95 are run by the counties.

#### THE REGION: ISLAND OF HAWAI'I AND NORTH KONA DISTRICT

Ka-loko and Hono-kō-hau are situated in the district of North Kona on the west central or lee side of the Island of Hawai'i, commonly known as the Big Island. It is about 200 miles from Honolulu, the state capitol. The term kona is given to the protected or calm section of an island in Hawai'i.

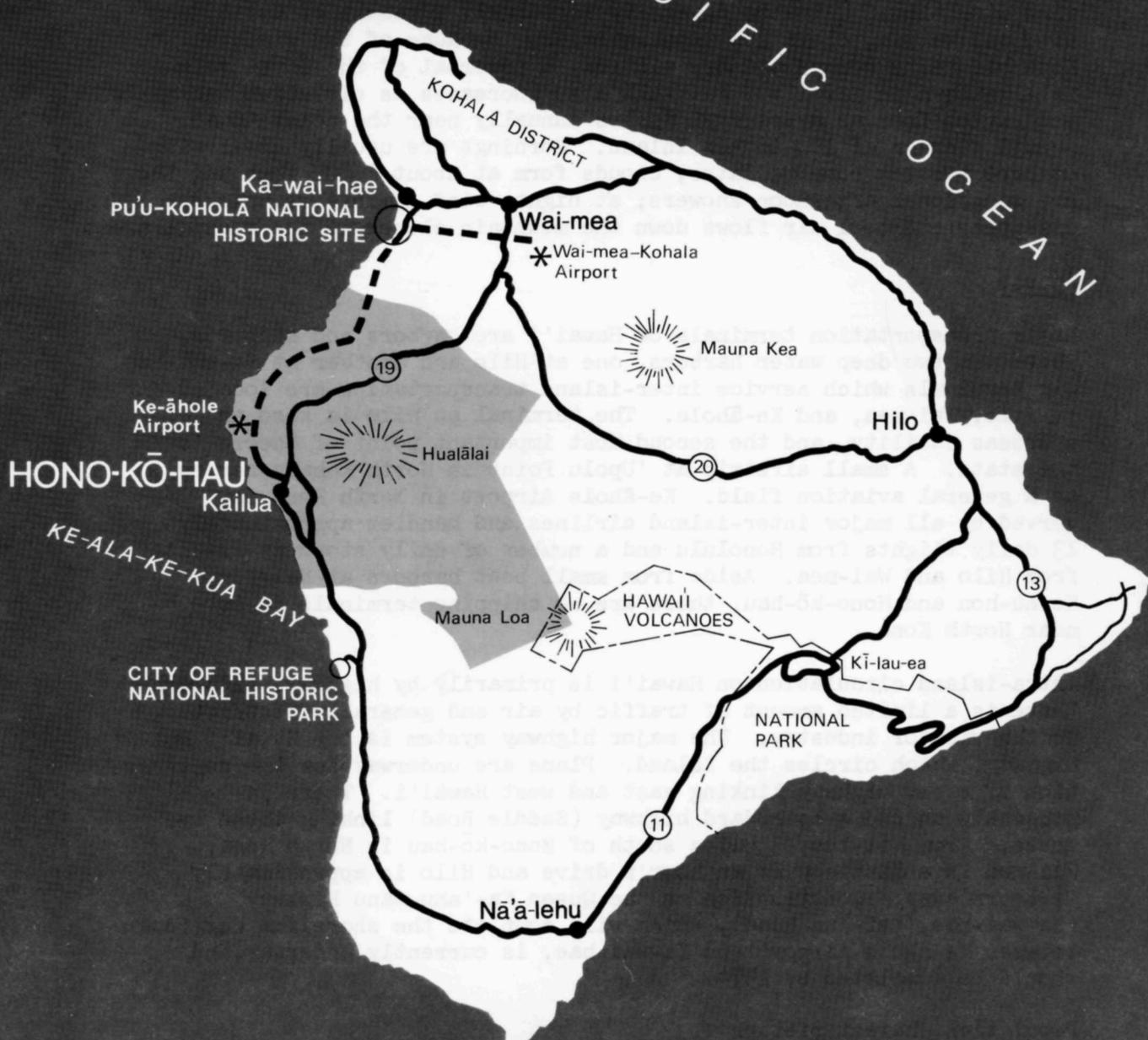
#### Physical Characteristics

The Island of Hawai'i, the largest island in the Hawai'i group, covers 4,030 square miles. It is also the youngest island in the chain and formed by five different volcanoes--Mauna Loa, Mauna Kea, Kī-lau-ea, Kohala, and Hualālai. Mauna Loa and Kī-lau-ea are the most recently active volcanoes. It is an island of startling contrasts, with active volcanoes; snow-capped mountains; lush green valleys and water falls; large expanses of grazing land, deserts and lava fields, tropical jungles and vegetation, white, green, and black sand beaches; and great stands of forests. Being in the lee, protected by the great mountains, with the freshening effects of the eka wind (sea breeze) during the day and the cooling influence of the kehau (dew-laden mountain breezes) at night, Kona has been blessed with a climate approaching the ideal. Temperatures range from 80° at sea level to freezing at the summits of Mauna Kea and Mauna Loa, with 75° being the average at the 800-foot level. Rainfall ranges from 40 to 300 inches annually and occurs largely on the eastern side of the island and on the higher slopes where moisture-laden trade-winds encounter the cooler temperatures of the mountains.

The topography of North Kona is shaped by lava flows which give it a smooth, gently sloping landscape. The land rises steadily for five miles to an elevation of 3,500 feet and then gets increasingly steeper, reaching an altitude of 10,000 feet within eight miles. The lava lands contain little soil material, except for pockets of a few acres apiece called kipukas. Lavas range from prehistoric to recent.

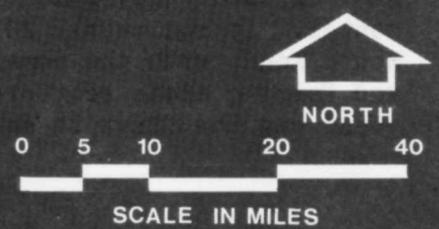
North Kona vegetation ranges from sparse, semi-desert terrain with Kiawe (*prosopis chilensis*) and lowland shrubs on the coast to the fertile coffee belt and forest reserves. This variation is in accordance with the slope of the land and dramatic changes in climate occur over short distances. There are also unique wind patterns. Evening and early morning winds are mild trades. Late morning and afternoon winds are southwesterly caused by the Hualālai updraft and a rising heated air mass which create a convection air current and reversal of

PACIFIC OCEAN



# ISLAND OF HAWAII

- NORTH KONA DISTRICT
- PROPOSED HIGHWAYS



wind direction. Climatic diversity is largely a result of North Kona's wind and varying elevation peculiarities. Because of the wind, North Kona has rainy summers and dry winters, a reversal of the usual rain-fall pattern in Hawai'i. Rainfall also increases as elevation increases, and varies from an average 20 inches annually near the coast to an annual average of 100 inches inland. Mornings are usually clear with onshore breezes common; later, clouds form at about 2,000 feet and there are occasional afternoon showers; at night, wind diminishes, clouds disappear and cool air flows down the mountain slopes to the coastal areas.

### Access

Major transportation terminals on Hawai'i are harbors and airports. There are two deep water harbors, one at Hilo and another at Ka-wai-hae. Air terminals which service inter-island transportation are located in Hilo, Wai-mea, and Ke-āhole. The terminal at Hilo is also an overseas facility, and the second most important point of access to the state. A small airstrip at 'Upolu Point in North Kohala serves as a general aviation field. Ke-āhole Airport in North Kona is served by all major inter-island airlines and handles approximately 13 daily flights from Honolulu and a number of daily stopover flights from Hilo and Wai-mea. Aside from small boat harbors at Kai-lua, Ke-au-hou and Hono-kō-hau, there are no shipping terminals in or near North Kona.

Intra-island circulation on Hawai'i is primarily by highway, although there is a limited amount of traffic by air and generally restricted to the visitor industry. The major highway system is the Hawai'i Belt Highway, which circles the island. Plans are underway for the construction of a new highway linking east and west Hawai'i. There is presently an old substandard highway (Saddle Road) linking these two areas. From Kai-lua, 3 miles south of Hono-kō-hau in North Kona, Wai-mea is a little over an hour's drive and Hilo is approximately  $2\frac{1}{2}$  hours away. Construction on the Queen Ka-'ahu-manu Highway (Ka-wai-hae, Kai-lua Road), which will complete the shoreline corridor between Ke-āhole Airport and Ka-wai-hae, is currently underway and should be completed by 1974.

### Population Characteristics

According to the 1970 census, the population of the Big Island numbered 63,460, with over 32,000 residing in and around Hilo, the seat of county government and the island's present socio-economic center. Approximately 10,000 reside in the districts of North and South Kona, with the remainder living in the small towns, villages and farming areas scattered throughout the island. The 1970 census count was the first to show an increase since 1930, when the population

count was the highest in modern times, at 73,325. The Island of Hawai'i remains sparsely populated, however, with only 15 persons per square mile.

The island's population consists of people from a variety of different ethnic backgrounds, with no single ethnic group constituting a majority. The 1970 census lists 23,817 (38%) Japanese; 18,298 (29%) Caucasian; 10,454 (17%) Filipino; 7,809 (12%) Hawaiian/part-Hawaiian; 1,841 (3%) Chinese; and 1,259 (2%) from other ethnic groups.

The 1970 census records North Kona's population at 4,832, most of whom reside along the districts major highways. Of this number, 2,125 (44%) are Caucasian; 1,118 (23%) Japanese; 934 (19%) Hawaiian/part-Hawaiian; 406 (8%) Filipino; 117 (4%) Chinese; and 72 (1%) from other ethnic groups. Moreover, it is a young population, 36% of its people being under 18 years of age, and a relatively high percentage (78%) were born of native parents.

Historically, the highest recorded population count (6,649) in North Kona was in 1831-32. Archeological and traditional evidence suggest that the Big Island's west Hawai'i region, of which North Kona is a part, was the most densely populated area of the Hawaiian chain during pre-Cook times. From 1832, the population declined until 1890 with 1,753, then increased to a peak of 4,728 in 1930. Again, there was a decrease until very recent years. In 1970, the census indicated a population of 4,832.

### Economy

Two industries, agriculture and tourism, presently serve as the foundation for Hawai'i's economy. Agriculture, with sugar as its chief industry, constitutes the major economic sector of the Big Island. The agricultural industry (including processing) accounts for 1/4 of the island's employment. Other contributors to the primacy of agriculture include: the raising of cattle and other livestock; the growing of coffee, macadamia nuts, papaya, flowers and nursery products, and vegetables; and the operating of several processing plants which utilize locally grown products.

During the past decade, the visitor industry has rapidly expanded and has emerged as a major economic force on the island. Visitor counts and hotel rooms have tripled and almost quadrupled during that time. Employment in hotels and related visitor services has shown a similar increase. Moreover, the principal visitor destination of the Big Island is Kona, though the single most popular visitor attraction is Hawai'i Volcanoes National Park. The city of Hilo, while also a visitor

attraction, serves primarily as the business and transportation center of the island, having a deepwater port and direct flights to the mainland. The construction industry has also expanded and construction of new resort complexes are being announced.

The rapid growth of the visitor and construction industries has also had costs. Socio-economic problems resulting from rapid development have caused island residents to voice concern, and land speculation has led to the high and rising land costs. This has contributed to a critical housing shortage on the island and local residents have complained that resorts have caused their property taxes to rise considerably. Moreover, hotels built along shorelines have blocked public access to beaches and prime fishing areas, and important archeological and historic sites have been irretrievably lost.

This latter fact was noted during the Congressional Hearings on H.R. 11774, (a bill to authorize a study of the Hono-kō-hau National Historic Landmark to determine its feasibility for national park status. U.S. Government - 1972). According to an inventory conducted by the State of Hawai'i, 117 out of 139 known heiau and 58 out of 79 known fishponds have been destroyed. Similar statistics are noted for other cultural sites.

Perhaps even more significant is that the stability of the visitor industry is questionable. This industry which caters to recreational desires is highly sensitive to exogenous factors, such as fluctuations in the national economy. Whether the industry's benefits can continue to outweigh its costs is uncertain. Furthermore, there is an increase in concern about the environment; a resurgence of ancient Hawaiian ideals was prompted in part by the belief that Hawai'i's environment could be endangered by a continued high rate of growth and the land development and real estate speculation that accompanies it. The newly revised City and County of Honolulu Charter, which mandates that development plans must incorporate social and environmental priorities and the County of Hawai'i's moratorium on new resort development are examples of this recent mood. Cost/benefit studies contracted by the county have warned that the ratio is becoming less favorable as immigration increases (County of Hawai'i - 1971).

Like the County of Hawai'i, North Kona's economy is based on agriculture and tourism. The coffee industry, however, has dramatically decreased in total revenue during the past 18 years due to a change in economic patterns. This change is a result of accelerated development, an associated deterioration of the family unit as a labor force, plus all the multi-facted economic and social ramifications. Further, increasing visitor-oriented commercial activities, construction jobs with higher

dollar income and shorter work hours, and the excitement of resort activities have served to draw from the available labor resources. With all of this, coffee prices have not been able to maintain a commensurate rise with production costs. Without adequate market controls and the ability to mechanize, the industry has undergone a process of atrophy to a point where it is endangered. In addition, one of the most debilitating influences on the agricultural segment of the economy, is the increasing real estate speculation in agricultural lands. Coffee lands lying idle are snapped up by newcomers who are mainly retirement-age citizens able to pay the higher prices. Thus, while the overall population trend indicates a slow but steady rise, the school age population fails to conform with this pattern and shows, in fact, a slight decrease.

This increasing resort development, construction, and service activity has left its impact socially and economically on locally born residents who have been forced to modify their lifestyle to meet the new conditions. They must also compete for their livelihood with the large influx of transient laborers. With accelerated development, the expansion of the affluent segment of the population, and increasing visitor traffic, it would seem to follow that employment income would rise accordingly. The fact is, however, that development in Kona has far outpaced visitor traffic and the resultant sub-standard occupancy rate has placed a burden on the local labor force by the creation of short hours, "on-call" status, husband-wife "off-hour" shifts, and many problems involving family security. The most serious effects fall on those who may not qualify for unemployment benefits due to their "on-call" status. Added to this, are other problems such as decreasing availability of ocean frontage. Areas where food supplies were formerly collected to supplement low and middle-income residents are no longer accessible or at least sharply reduced in quantity.

The rapid growth of tourism in North Kona resulted, in large part, from the state's emphasis on developing the west Hawai'i coast into the island's major resort area. To date, this has been centered primarily in Kai-lua village, only 3 miles south of Hono-kō-hau. Currently, there are over 2,400 hotel rooms in the area. Travel patterns show that visitors frequently made Kona the last leg of their trip as a rest stop before terminating their visit.

Direct flights to Hilo, however, have altered this pattern, and Kai-lua is now often the first place visited on the island, and because it affects the visitor's length of stay, this fact may have some important consequences for North Kona's tourist industry.

Even with this emphasis, however, there are some problems looming on the horizon. A major study conducted by the State's Department of Planning and Economic Development on tourism noted that, contrary to popular opinion, the visitor industry may be overextending itself and by 1975, west Hawai'i could be overbuilt by as many as 2,300 hotel rooms. (State of Hawai'i - 1972).

This analysis points out that the demand for hotel rooms and therefore development is dependent on visitor behavior patterns, specifically the average length of stay. There are indications that the length of stay may be lessening for the following reasons: 1) the composition of the tourist market is changing--as lower income (under \$14,000) visitors increase, the average length of stay decreases; and 2) out-of-state market contingencies, competition from other islands, tour packaging, and the costs of inter-island travels are factors which could reduce the number of visits or shorten visits. If the visitor days decrease, a very large tourist volume will be necessary to maintain break-even occupancy rates of over 70%. It should be noted also that high volume, short-stay visitors cannot support the development of non-hotel facilities which are used by longer staying visitors and which would provide the basis for economic development by employing and serving community residents. Experience through 1973 indicates an annual occupancy rate of below 70% at an average rate of 56% to 62%.

#### Land Use and Ownership

The following table summarizes the existing land use distribution for the island's  $2\frac{1}{2}$  million acres. (Source: Hawai'i County General Plan-1971)

<u>Land Use</u>	<u>Acreage</u>
<u>Residential</u>	13,800
<u>Manufacturing</u>	1,650
<u>Commercial</u>	380
<u>Services</u>	29,900
<u>Social, Educational and Cultural</u>	900
<u>Recreation</u>	64,700
<u>Agricultural</u>	683,000
<u>Transportation</u>	12,300
<u>Unused Open Space</u>	1,694,000
<u>TOTAL</u>	<u>2,500,630</u>

Current land use in Kona reflects a pattern of agricultural character; coffee and truck-farming at the 900- to 1500-foot elevations along the Māmala hoe belt highway; ranching at open areas below this area to sea level and also in the elevations above. The population of locally born residents are interspersed along the mauka farming areas and village concentrations from North to South Kona. Although recent, real estate speculation and development have tended to bring about a change by attracting newcomers to subdivisions and farmlots at higher elevations. However, it may be said in general, that the resort and urban areas reflect a heavy predominance of haoles along the coastline between Ke-au-hou and Kai-lua. These are generally older, retired people. At intervals in this coastline area and near the resort centers of Kai-lua may be found those employed in servicing visitor facilities, residing usually in substandard rental complexes. Renting a large number of residential units are those newcomers engaged in construction and visitor industry related services and other commercial activities.

The increasing density of visitor centers with large agricultural and conservation expanses under large landowner control gives rise to the increasing importance of two major factors influencing future land use of Hawai'i and the North Kona district, namely, government land-use controls and the pattern of landownership. These factors will also be of prime importance in directing the economic, social and general environmental impact of a national cultural-historical park complex at Hono-kō-hau. Land-use controls are implemented by both State and county governments.

The State of Hawai'i was the first in the nation to have a State Land Use Law (sometimes called the "Greenbelt Law"). Under this law, all the lands of the state are classified into four districts--urban, rural, agriculture and conservation--as determined by the State Land Use Commission. Land uses within the urban districts are administered exclusively by the counties in which these lands are located. In agricultural and rural districts, the State Land Use Commission establishes use regulations, and counties are responsible for their administration. The counties, however, may adopt more stringent controls than those imposed by the state in these two districts.

Conservation districts are under the sole jurisdiction of the State Department of Land and Natural Resources. The following standards are applied in making a determination for a conservation district: lands which preserve and enhance the scenic, historic or archeological sites and those areas of physiographic or ecologic significance. Standards also state that lands with topography, soils, climate or other related environmental factors which may not be normally adaptable or presently needed for urban, rural, or agricultural use, shall be classified conservation.

The following table gives the current distribution of state land use districts by acreage and percentage for the County of Hawai'i. Any change in these district boundaries requires full review by the public and disclosure of the reasons for the proposed changes.

Land Use District	Acreage*	% of Total Acreage*
<u>Urban</u> --lands in urban use with sufficient reserve for foreseeable future growth	30,000	1.0%
<u>Rural</u> --lands comprised of small farms and low density residential lots.	1,000	(insignificant)
<u>Agriculture</u> --includes both land with high capacity for intensive cultivation and low capacity.	1,172,000	47.0%
<u>Conservation</u> --primarily lands in existing forest and water reserves	1,290,000	52.0%
TOTAL	<u>2,493,000</u>	<u>100.0%</u>

\*Rounded

Source: Hawai'i County General Plan

Lands under the jurisdiction of the county (includes those administered jointly with the state) are of key importance because these are lands which are most intensively utilized, and they are where development is likely to take place. The County of Hawai'i uses two major instruments--the County General Plan and the County Zoning Ordinance--to guide the direction of land use on the island.

The General Plan established long-range use policies and promotes balanced growth within the county. The General Plan builds on and in turn, may influence state land use decisions. The Zoning Ordinance is the legal instrument which helps to implement the General Plan by regulating the specific use of land. Because the General Plan is an evolving document, zoning ordinances for a particular area or piece of property may not always coincide with the General Plan designations. In such cases, the property owner may use his land according to the present zoning or apply for a rezone. However, any rezoning that occurs must implement the General Plan. All of these controls--the State land classifications, the General Plan, and the zoning ordinance--are inter-related and interdependent.

The application of these controls in North Kona established the direction of future land use in that region. The following tables and map present the current state land use districts for North Kona.

State Land Districts by Acreage and Percentage, 1969

Land Use District	Acreage*	% of Total Acreage*
Urban	3,996	1.1%
Rural	412	0.1%
Agriculture	153,770	43.3%
Conservation	<u>205,339</u>	<u>56.5%</u>
TOTAL	363,517	100.0%

\*Rounded

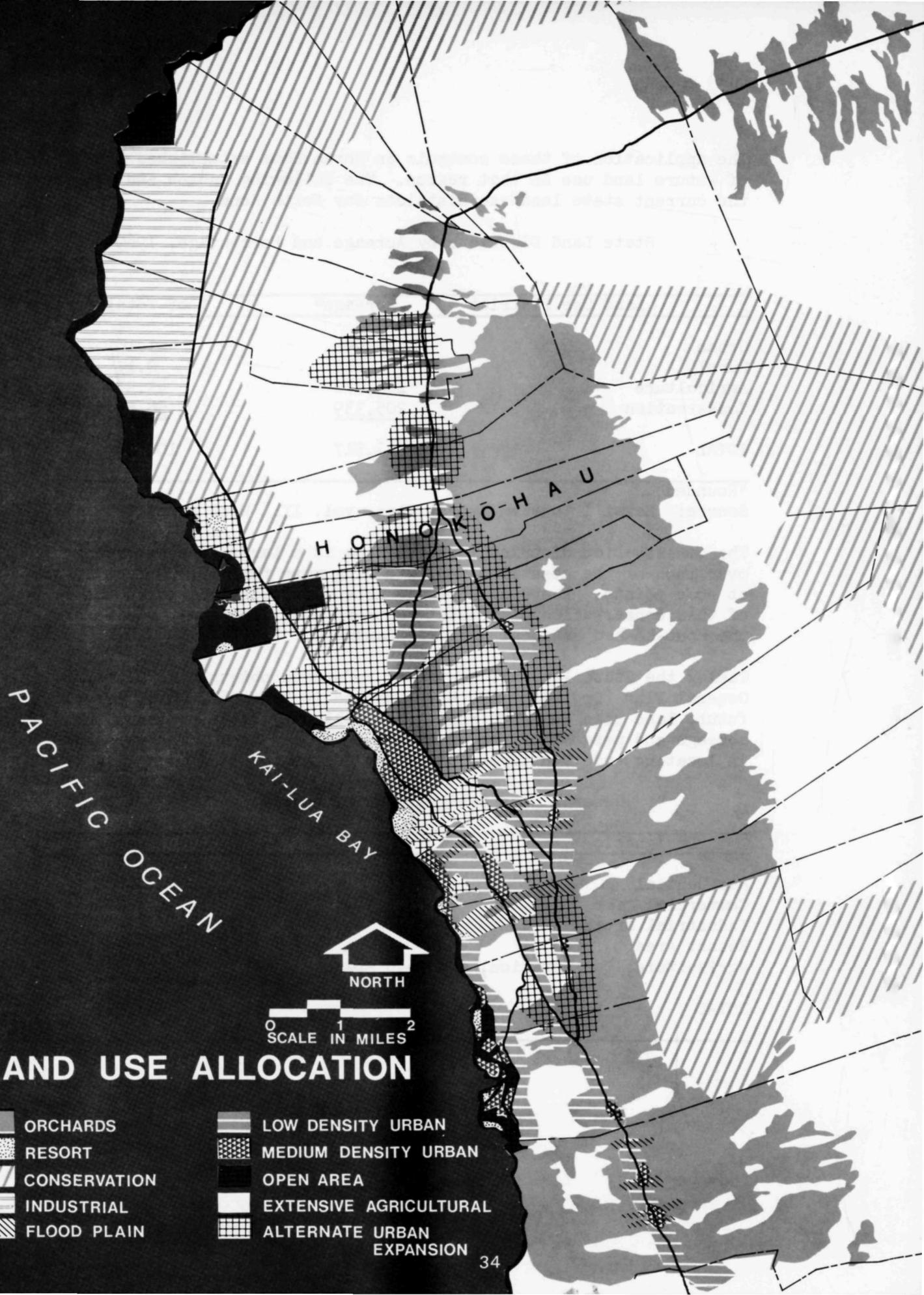
Source: Hawai'i Tourism Impact Plan, vol. II: West Hawai'i

The conservation district in North Kona is a large zone extending over much of the coastline and extending more than 15,000 feet inland at some points. There is a single urban district located in the center of this conservation districts' southern end, right on the site of the Hono-kō-hau National Historic Landmark.

Taking the State land use districts reference points, the County General Plan (Ordinance No. 439) adopted in December, 1971, establishes future land uses in North Kona. The following table presents the acreage and percent of the various future land uses. The map aids in locating and identifying the areas designated.

General Plan Designations by Acreage

Designation	Acres
Residential	8,400
Commercial	840
Industrial Areas	4,579
Resort Area	741
Agriculture, Conservation, and Open Space	<u>348,957</u>
TOTAL	363,517



## LAND USE ALLOCATION

- |  |              |   |                           |
|--|--------------|---|---------------------------|
|  | ORCHARDS     |  | LOW DENSITY URBAN         |
|  | RESORT       |  | MEDIUM DENSITY URBAN      |
|  | CONSERVATION |  | OPEN AREA                 |
|  | INDUSTRIAL   |  | EXTENSIVE AGRICULTURAL    |
|  | FLOOD PLAIN  |  | ALTERNATE URBAN EXPANSION |

Ordinance No. 74, amending the comprehensive Zoning Ordinance No. 63 revises ordinances of the County of Hawai'i, and directs zoning in North Kona. The area within the bounds of the Hono-kō-hau National Historic Landmark is currently protected by County "Open" zone designation. No development can occur unless a change of zoning occurs. In order to proceed with intensive resort development, which would radically alter the historic nature of the area, all conditions set forth in the General Plan must be met.

As illustrated by the following table, Kona has only a small percentage of lands being used for intended purposes within the various zones. The figures presented were gathered from 1969 data and should not be taken as exact. However, they are reliable enough to be used for comparative purposes.

As of August 1969, commercial was the only zone to have more than 50% of its acreage being used for the purposes intended. Over 98% of the land not being used as zoned was vacant.

Kona Zoning Acreage Being Used as Intended, 1969

Zone	Acres in Zone	Acres in Intended use	% of zone
Agriculture	171,493	55,489	32%
Commercial	170	112	66%
Industrial	241	113	47%
Multiple Residential (includ. duplex)	312	4	13%
Single Family	1,261	512	41%
Resort	361	140	39%

Source: Hawai'i County General Plan, 1971

Besides governmental controls, the second major factor affecting land use on the Big Island and North Kona is the present pattern of land ownership. The use of land resources in Hawai'i is greatly influenced by the policies and practices of a relatively small number of major landholders. Approximately 42% of the total land in the state is government owned. Federal lands constitute eight percent of these government-owned lands, while state lands, including those of the Department of Hawaiian Homes, comprise the remaining 34%.

Of the 58% in private ownership, approximately 3/4 is controlled by fifty "large landowners". Only 12% of the total land in the State is owned by "small landowners". (Small landowners are persons owning less than 5,000 acres.)

Landownership in North Kona follows the established pattern. Approximately 41% of North Kona's 363,000 acres is owned by the state. Most of the remaining 59% are owned by a few large landowners. In fact, most of the west Hawai'i region, in which North Kona is located, is controlled by about a dozen or so landowners.

### Water and Sewer

The high rainbelt at about 2,000 to 4,000 feet in elevation that comprises the rain forest provides the major sources of water for the Big Island. The average water consumption for the entire county is approximately 6.7 million gallons per day.

Kona's water system can be divided into the North Kona and South Kona systems, with the division line at Ke-ala-ke-kua Bay. These systems are interconnected, and it is possible to transport water from one system to the other. The North Kona system is supplied by three wells at Kaha-lu'u and by the Wai-aha stream. The latter, however, often goes dry.

Hawai'i County operated three municipal sewage systems, one in the city of Hilo and the others in Kai-lua and Ke-au-hou, Kona. The remaining communities, or about 95% of the population, are served primarily by cesspools. Since the shoreline soils are porous, land development plans for resort-residential complexes located in these areas pose a difficult problem for sewage control. Adequate treatment facilities are essential prerequisites for development, and private systems must be installed by land developers.

### Recreation

Hawai'i County has a variety of parks including small neighborhood playgrounds, larger playfields and parks of countywide scope for active and passive recreation. Of the 41 parks on the island, three are national parks (Hawai'i Volcanoes, City of Refuge, Pu'u'-koholā), 11 are state parks, and 28 are county parks.

Existing recreational facilities in North Kona are far from adequate. The almost 5,000 residents in North Kona have two county parks, both in Kai-lua. Hale Hālāwai (3.2 acres) provides a place for community meetings and also serves as a rest stop and picnic area. The small Kai-lua Public Park (0.7 acre) is used by Kai-lua residents for tennis and basketball. There are also two beach parks. White Sand Beach (Disappearing Sands) is located along Ali'i Drive south of Kai-lua and disappears seasonally. Kaha-lu'u Beach Park (5.9 acres) is the only developed beach park in the district and receives intensive use. The park also has a unique and readily accessible coral garden with an abundance of marine life.

There are three small boat harbors in the district: Kai-lua Bay, Ke-au-hou and Hono-kō-hau. The Kai-lua Bay anchorage provides limited docking facilities and offshore anchorage for small boats and commercial charter and tour boats. Ke-au-hou and Hono-kō-hau Harbors have launching ramps for small boats.

According to the Hawai'i General Plan, the county proposes to develop the old Kona Airport as a major regional park and protect 'Opae-'ula, Ka-loko and 'Ai'makapā ponds as natural areas.

#### THE SITE: KA-LOKO, HONO-KŌ-HAU AND ADJACENT WATERS

The area proposed for a national cultural park is situated on the coast of North Kona, approximately four miles north of Kai-lua and five miles south of Ke-āhole Airport. The study area generally includes lands makai (seaward) of the Queen Ka-'ahu-manu Highway in the ahupua'a of Kō-hānai-ki, Ka-loko, Hono-kō-hau and Ke-ala-kehe.

#### Physical Characteristics

The general topography is almost flat, rising in elevation from sea level to approximately 20 feet in the mauka areas. Although the general slope is relatively smooth, the actual surface is very rough as a result of past lava flows. Geological composition is predominantly pahoehoe and a'a lava with enough soil material and sandy areas along the shoreline to support a belt of green vegetation. Soil types are noted on the accompanying map.

The shoreline is generally rough lava with a small sandy beach near Ka-loko Pond and a larger beach fronting Hono-kō-hau Bay. The latter is the only major sandy area in the vicinity. The next nearest is at Kīholo, approximately 17 miles to the north. Coral formations are found in Hono-kō-hau and 'Ala'ula Bays and offshore adjacent to Ka-loko Pond. Inland water areas include Ka-loko and 'Ai'makapā fishponds, 'Ai'ōpio fish trap and numerous brackish water ponds, the best known being commonly referred to as the Queen's Bath.

The climate is typical of the North Kona Coast. The average annual temperature is 75°F. with an average annual high of 82.6°F. and an average annual low of 66.8°F. The area is semi-arid, with an average annual rainfall of 24.85 inches. Because of the Kona wind patterns, rainfall is somewhat evenly distributed throughout the year. Relative humidity is also relatively stable year round, the daily average ranging from 71% to 77%.

## Biology

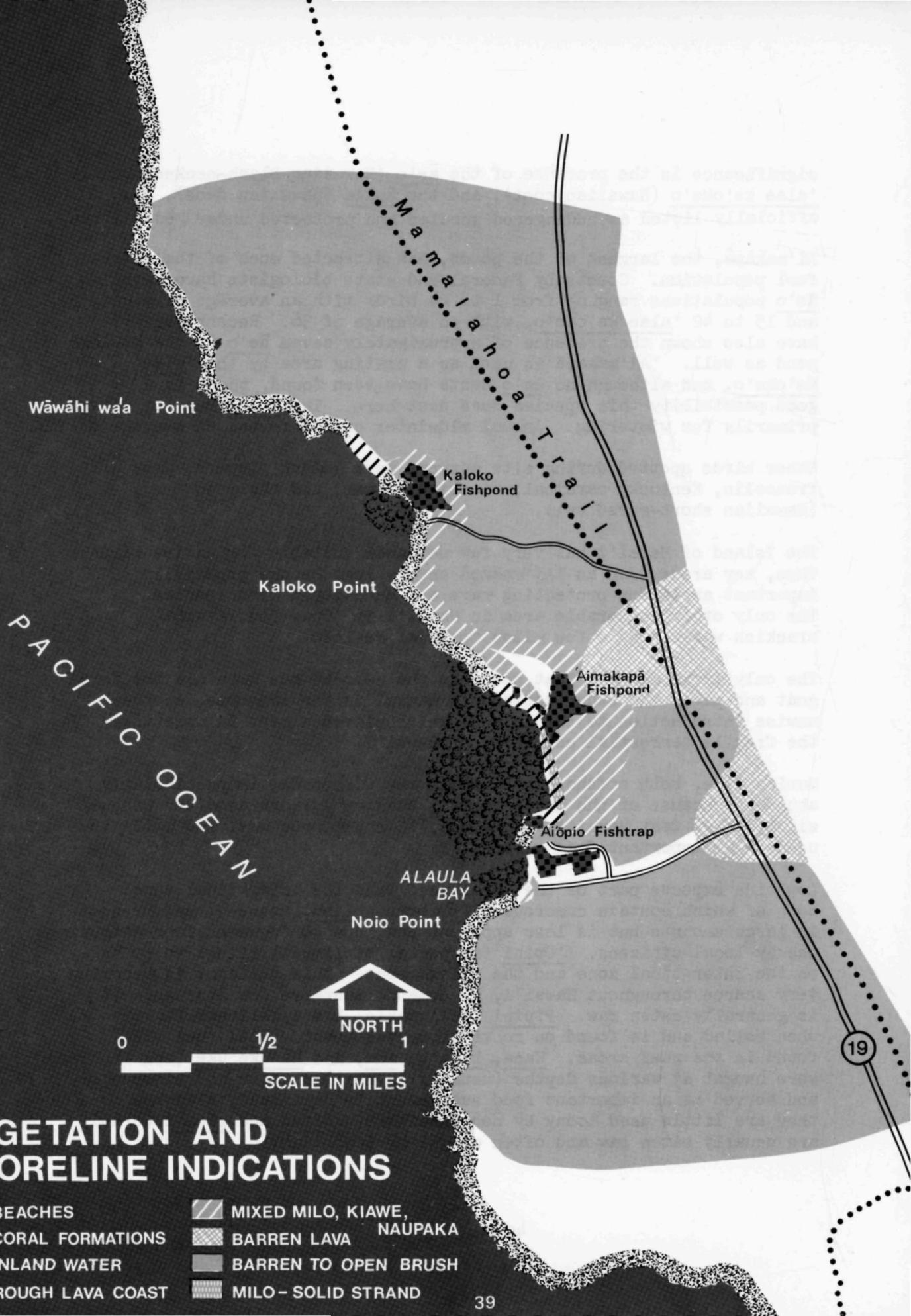
Because of the arid climate and extremely porous lavas, plant cover is generally associated with shoreline areas and with available underground water flow. There are three general categories of plant material. Immediately mauka of the shoreline, plant cover ranges from barren to open brush, largely exotic Christmas berry shrub, Australian foxtail grass (referred to as "false pili"), and a scattering of kiawe trees (*Prosopis chilensis*). There are also endemic plants, such as the ilima (*Sida fallax*), noni (*Morinda citrifolia*), some pili grass (*Heteropogon contortus*), 'auhuhu, 'ākia, 'haio, 'alahe'e, 'ūlei, 'pilo, and others.

The second category of plant cover occupying the shoreline areas of Ka-loko and 'Ai'makapā is a mixture of the native milo (*Thespesia populnea*) and kou (*Cordia subcordata*) trees, with a predominance of the exotic kiawe tree, prickly lantana (*viburnum*) shrub, the naupaka (*Scaevola taccada*) thicket, the pōhuehue mat (beach morning glory), kauna'oa, and hinahina. Parts of these two ponds are covered with 'ākulikuli (*Sesuvium portulacastrum*) marsh grass, reeds, and bull-rushes, and on the southern edge of the Ka-loko Pond is a small grove of coconut trees.

The third category of plant cover is a solid stand of milo trees intermixed with scattered kou that stretches across the beach at Hono-kō-hau Bay and makes the 'Ai'makapā Pond almost invisible from the ocean.

Noni, 'ilima, 'pilo, and 'auhuhu flowers were some of the plants used for medicinal purposes by the ancient Hawaiians. The latter was also used for stupifying fish in ponds by pounding the roots. The flowers of the 'auhuhu were also used by Hawaiians to treat persons, especially children, with respiratory problems. Pili grass was used to make the thatched roofs and when intertwined it made a very strong rope. Today it has largely been replaced by the Australian foxtail. The pōhuehue (*Ipomoea pes-caprae*) mat grows up to 100 feet long and can be twisted into coils to be used for driving fish into nets. In times when regular foods were scarce, the roots and stems could be cooked and eaten. Its seeds also served as a cathartic. A survey of the area located five different varieties of the 'ilima plant growing in proximity to each other. Kauna'oa (*Cuscuta sandwichiana*) is a very stringy plant and was occasionally used as a fishnet. These two plants, kauna'oa and 'ilima, are for use in lei-making. The very hard wood of the milo and kou trees was used for making cups, dishes, calabashes, and sometimes wooden images of the gods.

Because of the shoreline and fishponds in the Hono-kō-hau area, the most apparent forms of wildlife are the waterfowl and shorebirds. Of major



## VEGETATION AND SHORELINE INDICATIONS

- |   |                  |   |                            |
|---|------------------|---|----------------------------|
|  | BEACHES          |  | MIXED MILO, KIAWE, NAUPAKA |
|  | CORAL FORMATIONS |  | BARREN LAVA                |
|  | INLAND WATER     |  | BARREN TO OPEN BRUSH       |
|  | ROUGH LAVA COAST |  | MILO - SOLID STRAND        |

significance is the presence of the āe'o (Hawaiian black-necked stilt), 'alae ke'oke'o (Hawaiian coot), and the koloa (Hawaiian duck), all officially listed as endangered species and protected under Federal law.

'Ai'makapā, the largest of the ponds, has attracted much of the water-fowl population. Counts by Federal and state biologists have revealed āe'o populations ranging from 1 to 24 birds with an average of eight, and 15 to 42 'alae ke'oke'o, with an average of 36. Recent surveys have also shown the presence of approximately seven āe'o in the Ka-loko pond as well. 'Ai'makapā is used as a nesting area by the 'alae ke'oke'o, and although no āe'o nests have been found, there is a good possibility this species does nest here. The koloa use 'Ai'makapā primarily for wintering. Annual midwinter counts reveal an average of 121.

Other birds spotted during site surveys were golden plovers, grey francolin, Kentucky cardinal, ricebird, mynah, and the pueo (Hawaiian short-eared owl).

The Island of Hawai'i has very few wetlands suitable for native birds. Thus, key areas such as 'Ai'makapā and Ka-loko become especially important areas for protecting rare and endangered bird species. The only other comparable area in Hawai'i is 'Ōpae-ūla, a small brackish water pond a few miles north of Ka-loko.

The only large mammals that now roam the Hono-kō-hau area are the feral goat and pig. The other noticeable mammal is the mongoose, another unwise introduction to the islands which played a part in upsetting the fragile terrestrial ecosystem of Hawai'i.

Marine life, both offshore and within the fishponds, is particularly abundant because of the presence of a shallow inshore area--an unusual situation in west Hawai'i. Moreover, this resource was, and still is, used as an important food source.

Low tide exposes part of the coral reef and the inter-tidal zone, both of which contain numerous life forms. Limu (seaweed) was present in large amounts but is less apparent now, due to frequent food-gathering use by local citizens. 'Opihi (a species of limpet) clings to rocks on the inter-tidal zone and the splash zone. This delicacy is becoming very scarce throughout Hawai'i, as demands increase for its use. It is generally eaten raw. Pipipi (periwinkle) has a delicate flavor when boiled and is found on rocks along the coast. Pūhi (eel) is found in the reef areas. Wana, hāwa'e, ina, and hā'uke'uke (sea urchins) were caught at various depths (usually in shallow water and tidepools) and served as an important food supplement to Hawaiians, although they are little used today by non-Hawaiians. A'ama and pāpa'i (crab) are usually eaten raw and often caught by torchlight.

The brackish water pools are also food sources. Itihī-wai (similar to periwinkle) was used extensively by ancient Hawaiians for food. Opae (shrimp) are also common and are eaten raw or dried. They are also used today as bait. Still observed within the Ka-loko Pond were large schools of 'ama'ama (mullet). Also reported to be in the pond are awa (milk fish), manini (*Acanthurus sandvicensis*), āholehole (*Kuhlia sandvicensis*), several varieties of pao'o (goby fish), several varieties of 'ōpae(shrimp), and several other species of crustaceans. Many large awa were observed occasionally breaking the surface at 'Ai'makapā.

An offshore snorkeling survey at Ka-loko showed a number of different species of fish and an abundance of each. Spotted in the surge zone were fishes such as pāku'iku'i (*Acanthurus achilleo*), manini, kole (*Ctenochaetus strigosus*), yellow tang, maiko (young pālani) and na'ena'e(surgeon fish). Farther out, as the shelf drops to a depth of 30 to 40 feet, several very large uhu (*Scarus perspicillatus*) and great schools of kala (*Teuthidae*), pālani (*Acanthurus dussumieri*), weke (*Millidae*), and kūmū (*Upeneus porphyreus*) were spotted. A small sting ray was also noted, along with a number of ū'ū (*Myripristis*) which occupied the holes at the bottom.

Most of the coral growth is located at Hono-kō-hau Bay and Alaula Bay, although there is some live coral growth seen offshore at Ka-loko. The bottom there, however, was largely lined with boulders. It is important to recognize that the reefs and shallows of the Hono-kō-hau area may be likened to a natural marine farm, furnishing the nutritional values of sea vegetables, protein, and minerals, which historically supplemented inland agricultural produce (carbohydrates) and established a balanced diet for ancient Hawaiians. This natural food source is an integral part of the land-sea philosophy of resource use that permeated all aspects of traditional Hawaiian lifestyle.

### Recreation

Of the 3 to  $3\frac{1}{2}$  miles of shoreline fronting the sites, much is low, rocky lava, with the largest sandy beach being a  $\frac{3}{4}$ -mile stretch that acts as a natural barrier between the 'Ai'makapā fishpond and Hono-kō-hau Bay. The beach is impressive, having an average width of about 50 feet and extending inland as much as 70 feet in places. It is one of about 6 sandy beaches in Kona and it is the longest. The other beaches are a few hundred feet in length. There is also a sandy strip along the coast just north of Ka-loko Pond. It lies immediately adjacent to the rough lava shoreline, is about 1000 feet long, and varies from about 20 to 70 feet in width. This is a storm beach, or one created by high wave action that deposits the sand above

the high water mark. It is not suitable as a swimming beach, but is attractive for sunbathing and other beach activities.

Camping and fishing are the primary shoreline recreational activities. The fishing is done by line, net, or spear, and is not only recreational, but also a means of supplementing the daily dinner tables of many Kona residents. The shoreline is also ideal for family outings and picnics and is a fascinating area for the explorer looking for driftwood and shells. Scuba diving, snorkeling, and offshore spear fishing are also excellent, and swimmers occasionally enter the water at small beaches or at quiet rocky inlets. Currently, however, most of the shoreline is closed to public use by private landowners.

The Kona Coast is internationally known for its deep-sea fishing, with the Kona Billfish tournament annually attracting fishing clubs from all over the world. However, the area immediately offshore from Hono-kō-hau is equally well-known by local fishermen, who make their living selling fish commercially, as excellent 'ōpelu (*Secapaterus pinnulatus*) grounds. Hono-kō-hau is considered the fifth largest fishing area in the state, annually supplying 79 tons of fish. Several small fishing boats can be seen daily just off the Hono-kō-hau shoreline.

There is also great hiking potential. One can take the shoreline trail and explore the small coves, bays, and fishponds which mark the area, or the sturdier hiker can take on the system of mauka-makai trails that extend through the rough a'a flow and around various archeological sites.

The Hono-kō-hau small boat harbor is not a natural resource, but is rather one of man's improvements in the area. The harbor is three miles north of Kai-lua, Kona and access is by paved road leading from the Queen Ka-'ahu-manu Highway.

The harbor now has 50 berths, but the phase completed so far represents only one-fifth of the planned berthing area. Eventual expansion is planned for 450 boats to be kept in slips, and facilities to launch and retrieve 350 trailered boats per day. The harbor will be developed in increments and will include the building of wash racks, parking, restrooms, boat repair facilities, fuel dock, marine chandlery, boat sales and rentals, fish weighing and receiving station, a fishing tournament area, a commercial area with full boat-related services and an administration office. The state expects the harbor to act as a catalyst for the future development of recreational, commercial, and residential activity in the area.

Hono-kō-hau presents to the malihini (new comer) a stark lava landscape, difficult to traverse and with little apparent life. It is a different world from the lush green valleys of O'ahu and Kaua'i. There is however much to see and experience at Hono-kō-hau. Large barren masses of lava interrupted by patches of different colored vegetation make a powerful visual impression. The weather, essentially the absence of rainy windy days, is almost unsurpassed in the state. The blue ocean is always visible and poses a contrast to the lava fields. The shoreline is generally rugged but features peaceful coves encompassed by lush green vegetation. In addition, there are the fishponds, heiau, hōlua, petroglyph fields, marine life, and the rare wildlife. The only major thing that detracts from the natural beauty of the entire setting is a large vulcanite plant and warehouse located mauka of the Queen Ka-'ahu-manu Highway.

#### Access

Situated on the Queen Ka-'ahu-manu Highway, midway between Ke-āhole Airport and Kai-lua, Hono-kō-hau is easily accessible by air or ground for residents and visitors alike. Most North Kona residents can drive to the site within minutes. Other Big Island residents are at most a few hours drive away via the Hawai'i Belt Highway (Māmala hoe). With Ke-āhole Airport only 5 miles distant, travelers from off-island or even from Hilo and Wai-mea have easy access to the area. Transportation options will increase when the section of the Queen Ka-'ahu-manu Highway connecting Ke-āhole and Ka-wai-hae is completed, as ground travel time will be greatly reduced for North and South Kohala residents.

At the present time, immediate vehicular access to Hono-kō-hau is primarily restricted to a private road leading from the Queen Ka-'ahu-manu Highway to Ka-loko fishpond and a paved public road extending from Queen Ka-'ahu-manu Highway to the Hono-kō-hau boat harbor.

#### Land Use and Ownership

There are about three families residing on leased lands near 'Ai'ōpio fish trap and some weekend use of other shelters on the beach. Except for this and occasional use by fishermen, hikers, campers and beach users, the lands being considered for national park status are idle. Occasionally, there is some grazing, but this is primarily on land mauka of the Queen Ka-'ahu-manu Highway.

Prior to 1969, the entire area was part of a state conservation district. During the 1969 boundary review of land use districts undertaken by the State Land Use Commission, lands in the ahupua'a of Ka-loko, Hono-kō-hau, and Ke-ala-kehe were changed from conservation to urban. This switch

involved 1,159 acres located on the coast and encircling Ka-loko and 'Ai'makapā fishponds and 'Ai'ōpio fish trap. This change occurred in response to landowners who proposed to develop the area for residential and resort purposes. The remaining lands in the surrounding area remained in the conservation zone. Part of the 1969 boundary change was a condition designed to retain approximately 90 acres around 'Ai'makapā fishpond as conservation district in order to recognize its historical significance. Following this, a consultant was hired by the landowners to evaluate the historical significance of the 90 acres. As a result of the study conclusions and a reapplication for a zoning change, the Land Use Commission changed the 90 acres from conservation zone to urban zone. One acre was changed from urban to conservation.

The state's land use decisions were reflected in the county's planning, and the 1971 Hawai'i County General Plan (Ordinance 439) indicates potential alternative urban expansion and resort uses for the Ka-loko, Hono-kō-hau area. This is shown on the map on page 45. Earlier planning documents have shown these lands to have similar potential. These designations allow for a major urban complex with hotels, motels, condominiums, cabins, and other residential uses. Despite the state's urban district classification and the county's General Plan designation, both of which allow urbanization to occur, the entire area is zoned open by Hawai'i County Ordinance No. 74. County zoning regulations (Ordinance No. 63) permit the following principle uses with an open, conservation district:

1. Parks
2. Growing of plants
3. Golf Course
4. Heiau, historical areas, structures and monuments
5. Existing churches and temples of historical significance
6. Natural features, phenomena, vistas, and tourist attractions
7. Private recreational uses involving no aboveground structure except dressing rooms and comfort stations.
8. Accessory uses

Since development is restricted under the present zoning, no development can take place until the area is rezoned. Moreover, in a recent action effective June 5, 1974, County Ordinance No. 36 required that an environmental impact statement shall be prepared and approved prior to any new construction. The statement would include much of the same analysis of impacts discussed in this statement.

Landownership of the area proposed for park status follows in many ways the traditional patterns established in Hawai'i, but is especially significant because of early owners. At the same time of the Māhele (division), King Ka-mehameha III took for his personal possession those lands in and around Hono-kō-hau because of the high value

Wāwāhi wa'a Point

Noio Point

QUEEN

KAHUMANU

HIGHWAY

HONOKOHAU

PACIFIC OCEAN

19

18

11



NORTH



SCALE IN MILES

# STATE ZONING

 AGRICULTURE  
 URBAN

 RURAL DISTRICT  
 CONSERVATION

placed on the fishponds and the fond memories he had of the place as a youth. The lands remained within the royal family until they were finally sold to John A. Maguire in 1909. Today, the state owns the proposed park land located in the ahupua'a of Ke-ala-kehe. The remaining park acreage is in the hands of a few large private landowners. Except for the Hono-ko-hau Small Boat Harbor and its entrance road (located on state land all lands are unimproved.

### Utilities

A 12-inch water main runs along the Queen Ka-'ahu-manu Highway. The water source, the Kaha-lu'u wells, has a total capacity of 3 million gallons per day. The estimated safe pump capacity is 1.2 million gallons per day, and public demand in the service area may go as high as 1.3 million per day during heavy use.

The 1970-71 State Capital Improvements Program (CIP) appropriated \$480,000 for the Hono-kō-hau Water Project in Kona. Its purpose was to develop additional water for the Hono-kō-hau Small Boat Harbor and the proposed airport and resort development in the Kai-lua-Hono-kō-hau-Ke-āhole area. The project included construction of a development shaft, additional wells, pumps, pipelines, booster pumps and reservoirs. There are numerous brackish water ponds on the site, which may be an indication of underground stream flows. The area must undergo hydrologic studies before a determination can be made as to whether there is potential on-site water.

There is no public sewer system presently available in the area. But, because of the porous nature of the land, care must be taken in the development of any individual sewer facilities in order to avoid polluting beaches and offshore areas. Electricity and telephone services are available due in part to the proximity to the community of Kai-lua.

### CULTURAL RESOURCES: TANGIBLE AND INTANGIBLE

Hono-kō-hau, shaped by volcanic forces, its geologic age, and the ancient Hawaiians, includes resources that give it a unique identity. They have esthetic, cultural, historic, economic, scientific, and for the Hawaiians, emotional values. They especially fragile and although they can be enhanced by 20th century man, they are more often destroyed by him. If appropriate consideration is to be given to preservation of inherent cultural resources here, then an attempt must be made to view these resources through an understanding of the culture which shaped them. And this means removing the analysis from the usual, "Let's see how

much development the land will support" syndrome, and see the land as part of the state's and the nation's total cultural and physical environment.

Two additional points also need to be made regarding the general approach to Hawaiian culture. Transmission of religion, language, crafts, and all other aspects of the culture was done orally before contact with Europeans. Creating a written language based on foreign characters, specifically English, allowed much cultural data to be recorded. But even today, it must be recognized that there is still much information not recorded in writing but retained as a very personal and private part of the cultural fabric. Thus, the spoken word still remains as an accurate and, in most cases, more sensitive way of transmitting information about feelings and relationships uniquely Hawaiian.

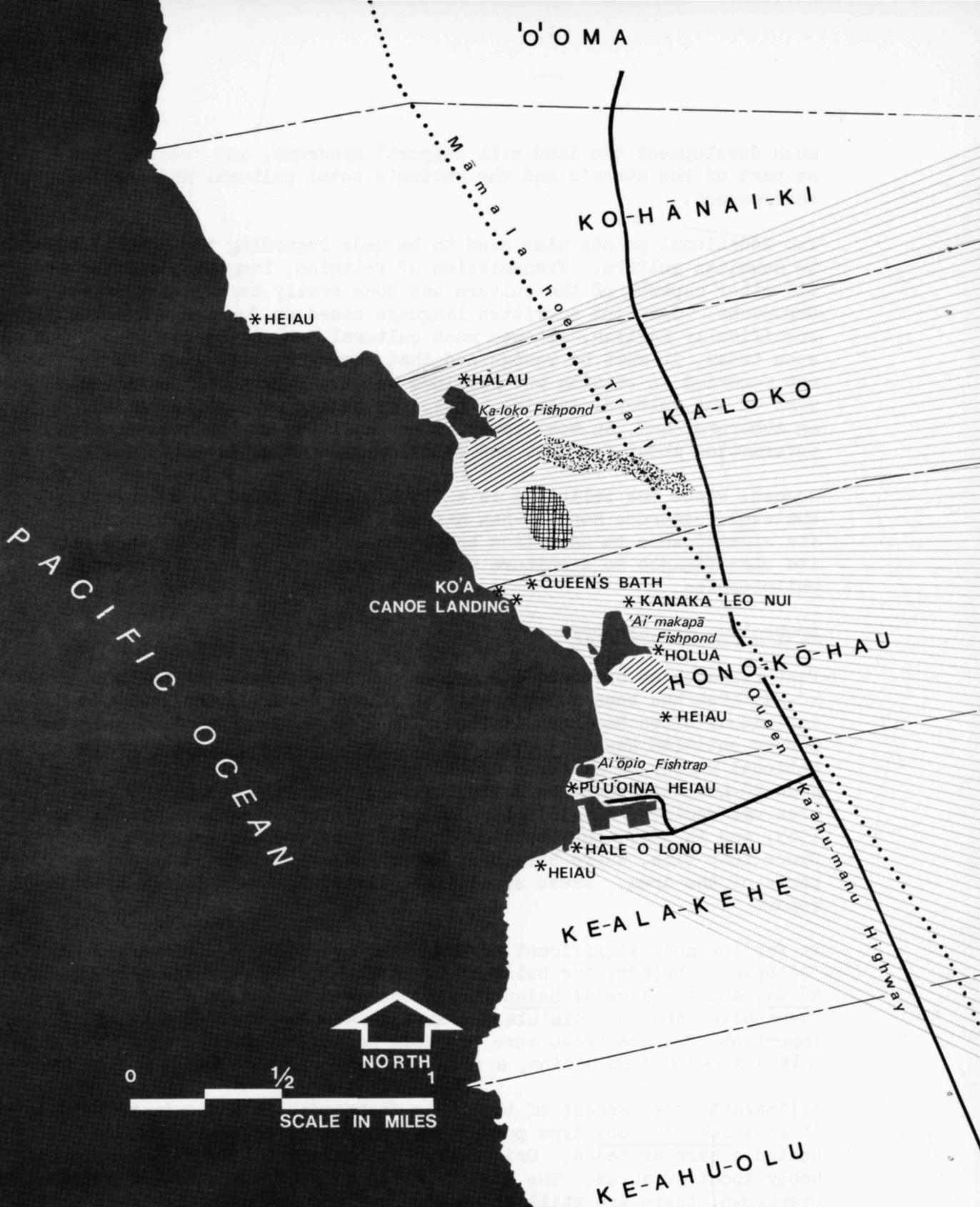
Second, since the following is a discussion of Hawaiian culture, whatever resources Hono-kō-hau has must be judged in the context of its significance to Hawaiians and their cultural attitudes, and not its significance to a culture with different roots and different philosophies.

#### Archeology and History

Past research on historic and archeological sites in the Ka-loko, Hono-kō-hau area has been considerable, although detailed analysis of individual sites has been limited. In 1962, a Department of Interior survey entitled Hawaii Aboriginal Culture: Theme XVI, part of the National Survey of Historic Sites and Buildings, identified the Hono-kō-hau Settlement as having national significance. This same area was declared eligible for National Historic Landmark status in 1963, and in 1967, the State of Hawai'i received the landmark plaque. Since that time, there have been additional site surveys on all or parts of the area. These studies are listed in the appendix of this report.

By far the most significant of the sites are Ka-loko, 'Ai'makapā, and 'Ai'ōpio fishponds, the built-up track for the chiefly sport of sledding hōlua, and the several heiau located between Wāwāhi wa'a Point in Kō-hānai-ki and the 'Alā'ulā Bay area in Ke-ala-kehe. The two most important of these heiau were probably Heiau Hale O Lono on 'Ala'ula Bay and Pu'u'oina, a rock platform south of the 'Ai'ōpio fishpond.

'Ai'makapā, the largest of the three fishponds, is approximately 15 acres. It is a loko pu'uone type pond, that is, a large natural pond formed behind a barrier beach. Originally, 'Ai'makapā was much larger, probably about 30 acres. The pond is still intact, and although somewhat overgrown, there are still a large number of awa (milk fish) and native and migratory birds. The variety of sites around the pond include a hōlua (slide), heiau, bathing pool, and a very large platform.



# ARCHEOLOGY

-  CONCENTRATION OF BURIALS
-  VILLAGE COMPLEX
-  MISCELLANEOUS ASSOCIATED SITES
-  MAJOR KNOWN SITES
-  STONE PLANTER ENCLOSURES

The hōlua is one of five which have survived in Kona. It is the only hōlua except one at Ke-au-hou which would allow two contestants to compete at the same time. This was a narrow built-up stone track covered with grass or other material to create a surface for sledding. The sled was a narrow peice of wood upon which the contestant threw his body full length and then attempted to remain on the track all the way to the bottom. Any serious error meant damage to sled and occupant on the adjacent 'a'a lava. Only ali'i were allowed to participate. The take-off and runway as far as the brow of the 'a'a flow are perfectly preserved. A platform is located very close to the Māmala hoe trail. Its proximity to the trail suggests that it was used as a gathering place where meetings and ceremonies were conducted. Another interesting site is a large stone located on a high point behind 'Ai'makapā. This stone is called Kanaka Leo Nui, which means "man with a loud voice". Present local tradition says that in ancient times, a chief by that name stood on the stone and directed fishing fleets off the coast of Hono-kō-hau and Ka-loko. The number and type of sites located around 'Ai'makapā indicate that this area was used by the ali'i (chiefs) for recreational and ceremonial purposes.

'Ai'ōpio pond is 1.7 acres in size and is a fish trap, consisting of a mammade stone wall separating a portion of the open bay from the beach. 'Ai'ōpio has no mākāhā (sluice gate) but rather a large opening in the stone wall permitting the entry of fish at high tide. There are four rectangular walled enclosures which were used as holding pens for netted fish. At the south side of the 'Ai'ōpio pond is the Pu'u'oina Heiau or Hale o Mano, probably the finest example of a platform structure in Kona. The platform structure is constructed with unusually large stones, is neatly filled, and measures 50 feet by 145 feet and varies from three feet to eight feet in height. Its original divisions are almost intact. Oral tradition has it that this was the operations and dwelling area for certain warrior priests.

To the west at 'Ala'ula cove is another fisherman's heiau known as Maka-'ōpio or Hale o Lono. The striking feature of this heiau is two great upright stone slabs which measure well over 6'5" high. The stones, one of which bears a petroglyph measuring 24", may have served as fisherman's gods, but also local Hawaiians believe they were used to measure the heights of warrior contingents. There is also a small ko'a (fishing shrine) with a large, smooth stone standing on a platform at the top. This stone was known as a ku'ula.

North of 'Ai'makapā pond is the Ka-loko fishpond, a loko kuapā type. Ka-loko is a natural embayment separated from the sea by a mammade sea wall. It covers approximately 11 acres, with secondary walls within the pond forming three separated areas where fingerlings were raised or where different species of fish were kept.

Ka-loko Pond is an excellent example of the engineering skills of the ancient Hawaiians. It has the largest and thickest manmade sea wall and is the last and most impressive example of a loko kuapā type pond on the Island of Hawai'i.

Grave sites are scattered throughout much of the area, and these are often overlooked in terms of their overall significance. Their importance to Hawaiians cannot be discounted. They were especially sacred ground, for in Hawaiian religious beliefs, deceased ancestors returned in the form of an 'Aumakua (family god) to guide and protect those members of their family still living. To disturb the grave sites in any way was unheard of, because for the Hawaiian it meant that the spirit of his 'Aumakua would also be disturbed. Another aspect of the cultural significance of Ka-loko is the belief that the entire region was traditionally under the jurisdiction and rule of the kahuna chiefs, and matters relating to religious practice have been associated with the area. The native historian, Kamakau, described a kuni ceremony at Ka-loko (Kamakau 1968).

In addition, Ka-loko Pond is also held in high respect because of the Mo'o, said to be the guardian spirit of the pond and its use. It is also said to be the burial place of several members of the Ka-mehameha family. The earliest account of the disposition of Ka-mehameha the Great's bones at Ka-loko is in Rev. Pogue's Mo'olelo Hawai'i, 1858. Since then, most stories continue to refer to Ka-loko as the "burial place" (D. Cluff-Hayward, Hono-kō-hau Settlement, Bishop Museum, 1973). Again, the significance of this traditional feeling that Ka-loko is the burial place of high ranking ali'i cannot be overemphasized. It is an important part of the fabric that makes up what is now called Hawaiian culture--intangible perhaps, but nonetheless a vastly important issue to all Hawaiians, and therefore, to the nation's total cultural integrity.

There are also numerous other sites whose significance should not be de-emphasized. These sites include the mauka-makai trails, kahua hale (house platforms), ko'a (fishing shrine), ahu (stone mounds thought to be an alter, shrine, or security tower), a concentration of more than 100 stone enclosures serving as agricultural planters, lava tube shelters, canoe landings and shelters, salt pans, petroglyphs, and papamū (kōnane game board).

The total number of known sites is approximately 234. All substantiate prehistoric and historic occupation by large populations which utilized the sea and the shoreline to support a marine-based subsistence. It was an area used not only by maka'āinana (common people), but also by high ali'i (chiefs) until close to the 20th century. Seen in its total perspective, the Hono-kō-hau Landmark area is archeologically valuable as a potential place for studying the activities of pre- and

early-contact Hawaiians, and the changes which occurred in subsistence patterns and landownership upon the arrival of a different culture. For Hawaiians, it represents a place where important ancestors lived, died, and are buried. It is, therefore, invaluable in terms of their heritage.

Another physical resource with much historical significance is the ancient trail which crosses Ke-kaha (lower elevations or flatlands of North Kona, ending in the vicinity of Hono-kō-hau). The ancient trail extended around the Island of Hawai'i, and was known as the Māmala hoe trail, following the edict of Ka-mehameha I--Māmala hoe Kānawāī (law of the splintered paddle). It was rebuilt by Ka-mehameha V. It is said that Ka-mehameha I, in traveling to a district that was under invasion by an enemy chief, would pick up his soldiers who lived in different settlements along this trail.

There is also a system of mauka-makai trails that led to other routes traversing the country at higher elevations. They were used by the residents to travel and communicate with 'ohana (extended family) within and beyond the ahupua'a. The importance of these mauka-makai trails to the subsistence of the ancient Hawaiians cannot be disregarded. These trails should be looked upon as lifelines, for it was the common practice of Hawaiians living makai to take fish, salt, limu (seaweed), and other items accessible to them up to their 'ohana living mauka. In return, they were given food products such as taro and other items unavailable to them makai. This form of exchange was the basis of the Hawaiian economy, and the system of trails provided the physical means to make it possible.

### Customs and Traditions

The intangibles discussed here are perhaps the most sensitive, the most vulnerable, and yet, if the culture is to maintain any integrity, the most important resources. They reflect how people feel and how they speak to each other and to those outside their culture through music, art, dance, religion, and crafts. Customs and traditions, entwined with more tangible elements form the fabric of Hawaiian life. That the culture is in transition is irrefutable and common to all cultures. But to fail to examine those important intangibles because the culture is changing, is to fail to recognize the importance of maintaining this as another part of our Nation's heritage. If Hawai'i loses track of its culture and its traditions, it is also the entire Nation's loss.

In most writings about Hawaiian civilization, it has been described by terms to conform with concepts foreign to it. Labels such as autocratic, feudal, religious, and agrarian, are all true to some extent, but fail to provide the full descriptive meaning visualized by the culture itself.

Moreover, because all descriptions are in a language other than Hawaiian, it is difficult to describe or verbally portray those things about the culture that are unique. Isolated on the mid-Pacific islands and dependent on an intimate knowledge of nature for survival, Hawaiians evolved a culture with its own essence. Everyone and everything had a place and reason. People sought to live in harmony with their surroundings and with the forces that were greater than themselves. As with many societies, Hawaiians used their limited resources with such efficiency that they lacked for nothing. Food, clothing, housing, and material possessions were adequately provided. Simple raw materials were fashioned through skillful craftsmanship into items of luxury for prestige enhancement. An esthetic appreciation of the physical world was translated into personifications of natural phenomena and material objects that bound together men and spirit forces into one total and inseparable environment.

In the 19th century, European and Asian influences disturbed and destroyed this delicate balance of life. An island culture that had evolved over a thousand years from a culture considerably older was to come close to death in the next 150 years. The fact that Hawaiian culture survived and is experiencing a resurgence is a tribute to its originators.

The Hawaiians are descendants of adventuresome bands of Polynesian peoples who sailed their canoes over open sea for thousands of miles seeking new lands to settle. They brought with them material goods, plants, concepts, language, and spiritual beliefs that provide conclusive evidence of the Hawaiian Polynesian origin. Radio carbon dates indicate that settlers had arrived before 750 A.D., and by 1000 A.D., there was widespread occupation of the major islands. There are indications that during the 12th or 13th century, contact was made with the homelands. Thereafter, significant contacts ceased, and Hawai'i became an isolated enclave of Polynesian culture, with the closest affinities to the eastern Polynesian cultures of the Society Islands and the Marquesas.

Blood ties provided the basic social bond for Hawaiian society. Through blood relationships, every person was part of an immediate and whole family. The immediate family represented the descent group from a common ancestor within three to five generations back, both of the male and female lines. The whole family included descent groups from any common ancestors and since multiple marriages were common, immediate and whole families were very large. All family relationships were classified under heading of 'ohana. Blood kinship within the whole family was recognized as equal to that within the immediate family. It was based on generation, sex, and genealogical seniority.

For example, a person's direct and collateral ancestral relatives were all kupuna (ancestors); parents and their lateral relatives were all makua (parents); if a male, his sisters and lateral female relatives were all kaikuahine (sisters); and so on through other family relationships.

Genealogical seniority provided the criterion for leadership within the family system and within society. Every member of society was born to a fixed position, with sharply defined obligations and privileges according to his/her status in the immediate and whole family. Genealogical records were of the utmost importance, not only because they determined a person's eligibility to hold lands and to serve and receive support from senior relatives, but also because they outlined one's role in all social and economic functions. Since Hawaiians didn't have a written language, bards and priests kept these extensive genealogies by memorization and oral recitation.

The society was composed of three major and one minor class division, ali'i, the rulers and chiefs of various rank were those of purest blood and indisputable family seniority, as evidenced by their genealogies, were considered closest in descent from the creator gods. As such, these chiefs inherited the mana (supernatural power) of the gods, and their power and prestige stemmed from this descent. Kahuna, the priests of various degrees whose purpose was to care for the people's spiritual welfare, were drawn from family ranks within all classes of society. Maka'āinana, the mass of commoners or laboring class were the producers of the soil and the backbone of Hawaiian society. Kauwa were a small clan of untouchables, serving only the chief on whose land they lived. They were not slaves to be bartered or given away.

Households, consisting of parents, children, husbands, and children of married daughters, were the basic units of Hawaiian society. They lived on plots of land either at the seashore or in cultivatable areas and were self-supporting to the degree the environment allowed. Small clusters of households formed dispersed communities that exchanged goods and services. The older male of the senior branch of the family theoretically directed all activities which concerned the family as a whole, and was answerable to the konohiki (land manager) of the chief for the family's share of taxes and services. The ruling chief and his personal kindred formed the court. Villages were few and occurred in the vicinity of the court where persons attendant on the ruler lived in more or less unrelated family groups.

All classes of Hawaiian society were bound together by the observance of specified practices. The first-born, makahiapo or hiapo, was considered nearest to the gods. He received and would transmit the largest portion of their mana and would become by right of seniority the leader of the next generation.

Many children were given away at birth, or soon after, to other members of the family. This practice cemented the bonds between two family branches and enlarged the group of supporting relatives. The child raised by the sociological parents inherited from them, rather than from its natural parents. This was a matter clearly understood by the old Hawaiians, but one which has caused much contention in modern legal circles.

Since there was no written language, children learned by doing as they accompanied their parents on various tasks and taking on more as they grew in knowledge and experience. At the age of four or five, a boy came under the eating kapu (law). In a ceremony in the men's house, prayers and offering were made to the God Lono, to signify that he would no longer be allowed to eat with women, and henceforth he joined the men for meals. No special ritual marked the adolescence of either boys or girls.

Marriage customs bore out concern for the strengthening of blood ties and for establishing seniority based upon blood rank. Both polygamy and polyandry were practiced in all classes. Jealousy, however, was considered disgraceful as all had joint responsibility for the children resulting from their marriages to the same mate. Formal marriages, called ho'āo, established the precedence of wives or husbands with respect to the genealogical status of their children. Therefore, first marriages were usually planned to ensure highest possible blood rank ties.

Death was a defilement, and simple purification rites were performed for all who had come in contact with a corpse. Bodies were sometimes disposed of by burial, often in sand dunes. The corpse was drawn up in a flexed position, the knees bound to the chest, and the body wrapped in tapa. More often, bodies were allowed to decompose in a secluded hut or cave, and the bones carefully cleaned or tied in a bundle. The bundle was then taken by a kahu (attendant) to either a secret hiding place, or more usually, to the family burial cave. After death, deification took place to provide additional spirit guardians ('Aumakua) for the family.

There was only one real governmental unit, the aupuni or "kingdom". At various times in Hawaiian history, kingdoms comprised island districts, groups of districts, whole islands and combination of islands. At the time Captain Cook arrived, there were four kingdoms: Kaua'i with Ni'ihau; O'ahu with Moloka'i; Maui with Lānai and Ka-ho'olawe; and Hawai'i.

The Ali'i Nui (king) had absolute control of the life, lands, and property of all his subjects. He maintained the soldiery, imposed taxes, and presided over religious rites affecting the kingdom. District

chiefs, usually from branches of the king's family, were given whole districts or large tracts of land (Moku, 'Okana), over which they had nearly autonomous control, being answerable only to the Ali'i Nui. Konohiki were relatives of the district chiefs, who imposed and collected taxes from the ahupua'a land sections in the district. They were the agents of authority in charge of all land and sea usage and were also responsible for the recruitment of soldiers and labor parties. Once established, a king often attempted wars of conquest on other kingdoms and had to be on guard against invaders and against ambitious relatives in his own kingdom. However, a relative's attempts to wrest power had to be justified on the primary tenet of genealogical seniority.

Hawaiians were extremely religious people, and all phases of human activity were closely interrelated to and dependent upon religion. This was based upon a belief in an inherent mana (supernatural power) in persons and objects, and in a belief in spiritual forces. All endeavors were carried out under ritual to the gods upon whose favor depended the lives and fortunes of humans.

For the men, the all powerful gods were Kāne, Ku, Lono and Kanaloa. Singly and collectively, these four possessed the ultimate in mana. All other gods were limited in power to a specific area of function. The Ali'i Nui, especially, worshipped these gods to protect the kingdom and land against famine, pestilence, war, or rebellion. The corresponding gods for women were Mo'o, Kalamaunu'u, and Walinu'u. In addition, the Hawaiian pantheon included functional and craft gods, such as Ku-ka'ili-moku, the war god of the Ali'i Nui of the Hawai'i, and Pele, the volcano goddess. These gods were worshipped in their own right and not as intermediaries to the all-powerful gods. 'Aumakua were family gods, ancestors by one definition or another, and in a real sense guardians of the family. There were also other deities who had jurisdiction over skills or crafts and others such as 'Unihipili that were created through manipulation of spiritual forces.

Worship was generally held in a heiau (a house dedicated to the gods). Daily individual and family homage was paid to the 'Aumakua. Family worship was conducted in the mua (men's eating house) or in a family heiau. Formal services of chiefs and of organized occupation groups, such as fishermen or doctors, were held in heiaus.

There was no separation between religious and secular affairs, and all human activities were regulated by the need to establish and maintain proper relations with forces who surrounded them. Since the Ali'i Nui was both the head of state and the chief of religion, the form of government in Hawai'i was a religious political structure similar in some respect to the Catholic European counties of the 15th and 16th centuries.

The Kapu System was a set of regulations and prohibitions governing man, plants, and animals. The most ancient and fundamental kapu was the required separation of the sexes for eating. All rites of worship, including daily family worship, included an offering or partaking of foods dedicated to the gods under petition, and women, being periodically "unclean", were not permitted to participate. As a corollary, certain foods were denied the women. The kapu of prerogative associated with the high chiefs were, in effect, safeguards to their mana. The kapu took several forms, but all were designed to prevent loss of a chief's mana through contact with common things.

The basis of the economy was agriculture and fishing. Farmers and fisherman, maka'ainana, lived as tenants upon lands and fishing areas under the jurisdiction of the ali'i (chiefs). This system had a major advantage over European feudalism in that Hawaiian farmers and fishermen were not serfs; they, along with anyone else, could "pull up stakes" and move if their chief failed to be a just ruler.

The "gift-exchange" system between the various families and the "gift-tax" system of the chief were the main forms of distributing goods among ancient Hawaiians. The Hawaiian kept a part and gave the rest to the chief to whom he owed allegiance. The ruling chief then distributed the goods and products to support himself and the members of this household. Taxes and services were required of all dwellers on the land.

Land and its subdivisions were also important elements in Hawaiian culture. Within each district there were divisions called ahupua'a. These were subdivided into smaller units which furnished the goods and taxes for the chief of the ahupua'a. The Hawaiian landholding divisions were:

Ahupua'a, varied in size; theoretically ran from sea to mountain top.

'Ili, portions of an ahupua'a; located in various and some-time separate areas of the ahupua'a.

Mo'o, arable lands within the 'ili.

Paukū, sections of arable lands smaller than the mo'o-'aina.

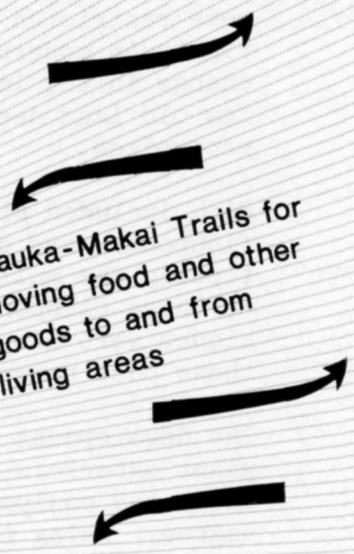
Kihāpai, ke'ele, hakuone, small food patches, descriptively named.

The term kuleana for a land unit came into use after 1850, when fee simple title to lands was given to those whose "right" (kuleana) to them had been established by use.

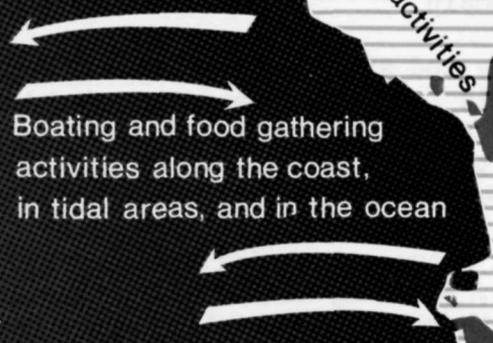
Trading up and down the coast with neighboring Ahupua'a



Mauka-Makai Trails for moving food and other goods to and from living areas



Concentrated housing areas and associated activities



Boating and food gathering activities along the coast, in tidal areas, and in the ocean

Trading up and down the coast with neighboring Ahupua'a



PACIFIC OCEAN



# TRADITIONAL HAWAIIAN LAND USE PATTERN

All lands were the sole property of the ruling chiefs to give, transfer, or reclaim, as they saw fit. In turn, the chiefs gave the common people support, guidance, direction, protection, as well as land to cultivate, dwell on and use for welfare and security. With the use of the land came water rights assuring equitable distribution of free-flowing water for irrigation. Shoreline and adjacent water resources were generally open to all, except for some areas where certain kinds of marine life were restricted to use by the chiefs. These became known as konohiki rights in modern times. These rights were retained long after the change in the land tenure system of the 1848 "Great Mahele." Today a few old land deeds still show these provisions, which are largely recognized.

Fish included all aquatic plants and animals. Both fresh and saltwater fishponds were constructed for the raising and storing of fishes, principally the mullet and the milk fish, "awa". The habits and localities of these fishponds were well studied by the ancients, and fishing techniques were adopted to suit their characteristics. Only a few of these once numerous ponds remain.

The development of technology and arts involved stone, bone, wood, and plant materials; raw materials from which Hawaiians fashioned their tools and equipment. Shells and corals were also used, but to a lesser degree. Using these simple tools, Hawaiians developed sophisticated methods of agriculture, aquaculture, cooking, house building, road building, and canoe making. And there was still time to devote to the arts. Art forms, some world famous, included featherwork, sculpture, items for personal adornment, plaiting and twining, printing and dyeing, chanting, and the hula. Featherwork, especially, was a Hawaiian invention that displayed a high degree of technical skill and artistry. Capes, cloaks, and helmets were covered with small red and yellow feathers from rare birds and arranged in curved motifs and geometric designs, occasionally accented with black or green feathers. The featherwork garments were used only by the ali'i and only on special occasions. A cloak in the Bishop Museum which belonged to Ka-mehameha the Great is unique in that it is made almost entirely of the yellow feathers of an extremely rare Hawaiian bird (mamo, Orepanis pacifica).

Twined baskets, usually made of the aerial root of the 'ie'ie, were given decorative effects by changes in twining technique, and by color decoration. By the use of black or brown dyed weft plies, distinctive patterns were worked in the baskets. Peter Buck, noted Pacific historian, pronounced these baskets to be the finest in Polynesia.

The dance of Hawai'i, the hula, was formally performed only by dancers who had been trained under the religious restrictions imposed by the gods of the hula. These dances were stylized visual accompaniments to chants, and the movements and gestures were suggestive of their words

and meanings. Chants were poetry rich in imagery and inner meaning. Formal training of dancers and public performances of the hula were severely restricted after the "Christianization" of Hawai'i, resulting in an almost complete destruction of the ancient dances.

Recreation was also important. Hula dancing, chanting, and story telling were among the informal pastimes, as well as such games as kōnane, a kind of checkers; finger wrestling; and many others.

During the Makahiki season, sports and games were organized for the enjoyment of chiefs and people. Boxing and wrestling matches, exhibitions of lua fighting and spear throwing, foot racing, and bowling games, called maika, drew crowds of spectators. When conditions were favorable, impromptu canoe and board surfing contests were held. Betting was associated with all spectator sports and was so intense that even lives were bet on the outcome of a contest. Later, under missionary influence, many sports were prohibited in order to stamp out gambling.

Special areas, called loku, were established near the chief's residences, where games and amusements were held at night. Here, the chiefs played kilu, a game with love forfeits. Corresponding in purpose, the people gathered here for a condoned pastime of lovemaking called 'ume. Also, games of pūhene, no'a, or pūhehene, consisting of guessing the hiding place of a hidden object, with forfeits paid in chant or dance, were played in the loku.

Certain pastimes were restricted to the chiefs, the most spectacular of which was hōlua sledding. A track of rock, layered with earth and made slippery with grass, was used for tobogganing on a narrow sled. This sport was extremely dangerous and only experts participated.

The importance of oral history cannot be overemphasized. Fragments of ancient Hawaiian history have been preserved in chants and stories that made up the oral literature of Hawai'i. They dealt with ancestors, demigods, and cultural heroes as well as mortal chiefs. This would be meaningless were it not for a common genealogical background into which the tradition could be placed in time sequence.

This background may be divided into four areas: The cosmogonic era, into which fall the myths of the creation of the islands and of mankind; the heroic era, where names of some Polynesian cultural heroes appear and whose legends are localized in Hawaiian tradition; the settlement era, when the traditions began to reflect true history; and the dynastic era, when hereditary ruling lines became established and the features that characterized Hawaiian culture evolved.

Within the framework of the chiefly genealogies, a history of ancient Hawai'i may be followed. It is impossible to date, except through the dubious means of generation count, but is correct in sequence. This history has been recorded by Abraham Forander in his Memoirs and by Samuel M. Kamakau in his published writings on the chiefs of the dynastic era.

### Traditional History

Hawaiian traditional history of the settlement era speaks of the chiefs who brought certain items of culture to Hawai'i, or were the founders of dynastic lines. Among them was the priest Pa'ao, who came from Tahiti about 1275 A.D., according to genealogical count, and introduced the form of temple and the worship of the major gods that characterized Hawaiian ceremonial worship. He was the builder of Mo'o-kini and Waha-'ula heiau on the Island of Hawai'i, both of which were re-used for generations, and whose ruins remain today. Pa'ao brought Pili-Kaaiea from Tahiti to rule the Island of Hawai'i, and Pili's line, through intermarriage with the older line, established that island's dynasty. Traditions of the next five hundred years or so dwell upon the struggles for power within each island kingdom, especially on the Island of Hawai'i, and wars of conquest on neighboring kingdoms. It was during these years that the Hawaiian culture described previously took shape, and its patterns of behavior, religious observances, and technology were fixed.

### Cultural Decline

After many centuries of existence, it was during a period of only 150 years that Hawaiians were to witness the destruction of their lifestyle.

The "rediscovery" of the Hawaiian Islands by Captain James Cook of the British Royal Navy took place on January 18, 1778, with the sighting of O'ahu. On January 20, Cook anchored off Wai-mea, Kaua'i. Scholars refer to this event as the beginning of recorded Hawaiian history. It was the beginning of an era which would change the entire Hawaiian way of life. The fight for survival was most dramatic in the 19th century during the contact with western civilization.

By 1795, Ka-mehameha had emerged as the conqueror of the Hawaiian Islands. The rise of Ka-mehameha during the critical period of initial contact with the western world is one of the outstanding events of Hawaiian history. His skill in dealing with foreigners and the firmness with which he organized his rule over all the islands undoubtedly were instrumental in preventing Hawai'i from following so many other Pacific islands into European empires.

However, many things were not right. The weakening of the old order occurred as haoles (foreigners, primarily Caucasian) violated religious kapu and survived. Hawaiians too wanted this freedom. Gradually, chiefs and commoners began to break the kapu which had been the foundation of the society since their coming to Hawai'i. In addition to venereal disease, the westerners brought smallpox, measles, and whooping cough. Having developed no immunization to these afflictions and not knowing how to treat them, Hawaiians died by the thousands. Then, when Ka-mehameha II became King, following his father's death in 1819, his advisors, including his mother, urged him to end the kapu system. He agreed and in November of 1819, he symbolically broke the most sacred kapu by eating in public with Keopuolani, Ka-'ahu-manu, and his wife, Ka-māmālu. Immediately thereafter, he ordered the destruction of all temples and idols throughout the islands. Following this act, there was a period of confusion and difficulty for Hawaiians. Age old patterns of domestic life, based on the sanctity of chiefs, on seniority, and on the separation of man and woman, for eating, for serious labor, and for ceremonial occasions, were suddenly disrupted. The chiefs were stripped of their god-like status, but they still owned and controlled the land. The maka'ainana still looked to them for leadership and guidance, but the chiefs were learning a new way of life. Thus, some chiefs forgot their obligations to the people in order to survive a situation which stemmed from foreign ethics and influence.

The pioneer company of American missionaries arrived in Kai-lua Bay on April 4, 1820. And this began another change--the introduction of a new religion. The missionaries saw fit to place a great deal of negative emphasis on ancient Hawaiian culture. Hawaiians were taught to be ashamed of their heritage and ethnic identity. However well intended, missionaries had joined with other western forces in the destruction of Hawaiian life.

Land reform occurred with the "Great Māhele" of 1848. This action was literally "the dividing" of lands between the king, chiefs, and commoners. The Māhele remains a major landmark in Hawaiian history, for no other single event so drastically changed the social system. The Māhele made possible the investment of capital with security; and from it stemmed the rise of the sugar industry which soon dominated the course of Hawai'i's economy and foreign relations. Unfortunately, Hawaiians were not used to the concept of land in private ownership, so the Māhele paved the way for further alienation of Hawaiians from their land.

Also during this period, disease continued to kill many Hawaiians simultaneously with the assimilation by European culture and values. Despite all of these factors, however, the ancient socio-religious character was not swept away completely, for it still remained in the subconscious of the Hawaiian. Later in the 19th century, the missionaries became self-supporting and went into the sugar business. Hawaiians,

now completely separated from their land and no longer in control of their destiny, would not work as laborers in the cane fields. Moreover, their numbers were declining. As a result, the Hawaiian government began to import Chinese, Japanese, Portuguese, Korean, and Filipinos to labor on the plantations.

The final question of Hawaiian self-rule became prominent during the last half of the 19th century. The expansion of American interests in the Pacific prompted by the Spanish-American war caused Hawai'i to be annexed to the United States. Since that time, Hawai'i has trod the path of western influence and economic development, and has experienced continual changes in its physical environment and lifestyle as a result. This has accelerated in recent decades as resort and urban complexes have destroyed or desecrated many of the physical remains of this ancient culture.

Even so, the people live on, changing, surviving, and meeting every turn of events with fortitude. The fact that the aboriginal Hawaiian exists at all today despite all the cultural and racial amalgamations that have occurred is in many respects a miracle--a miracle of the survival of the people. Having survived, Hawaiians are turning to the past to trace its ill effect upon the present and to learn its lessons for the future.

#### Hono-kō-hau - Significance

Determination of the significance of a cultural resource in Hawai'i must consider and evaluate more than just archeological sites and their value relative to similar sites elsewhere. To be culturally significant, an area must have some important intangible or emotional value for the culture to which it is related. Moreover, the evaluation must come, to a great degree, from persons who are part of the culture. Things or events seemingly insignificant to others may have tremendous value to Hawaiians. And if it is very significant to the Hawaiian, it is important to the preservation of Hawaiian cultural integrity. Associations with Ka-mehameha's burial in the Hono-kō-hau - Ka-loko vicinity have that kind of significance. Tradition indicates that Ka-mehameha was buried here. That the precise site is unknown will remain important, particularly since a unique facet of the Hawaiian culture is that many exact burial sites remain unknown. Bones of the ali'i were thought to retain special powers and particular care was taken to keep such burial sites a secret. In addition, there are many other burials in the same vicinity; therefore, maintaining the sanctity of such a site is of great importance.

Other features also add to Hono-kō-hau's significance. This coastal area is culturally significant because of the presence of not one but three fishponds--Ka-loko, 'Ai'makapā, and 'Ai'ōpio. These have been described in more detail on pages 47 - 50 of this report.

These ponds played important roles in the culture of the original inhabitants as they were known to be a great source of food supply for the population of the North Kona area. The chiefs and their people regulated the use of the fishponds to insure that a proper supply of fish was made available to all the people. The kapu system was implemented to protect the land and fishponds from human abuse. Seasons were set up for fishing, regulating the flow and supply of different fish.

Lands with fishponds were treasured by the Hawaiian ali'i. The great value they placed on these ponds is evident from the fact that at the time of the Māhele, lands with fishponds, almost without exception, were selected by members of the ruling family to become their private properties. Emory and Soehren discuss the significance of the fishponds and other aspects of the Hono-kō-hau area as follows:

The Hono-kō-hau coastal area, because of its ideal landing place for canoes and its fishponds, was important to the early Hawaiians. Its fifty ancient house sites, four heiau, and hōlua (toboggan) slide, constructed for the use of chiefs, would reveal this to an archeologist. But we know that in the Great Māhele, the Hawaiian chiefs reserved for themselves the important ahupua'a. Ka-loko, with its large fishpond, was set aside for Ka-mehameha V, grandson of Ka-mehameha I. Hono-kō-hau 1 (Hono-kō-hau Nui), with its very large fishpond, went to Kekauonohi, a cousin of Ka-mehameha V and a granddaughter of Ka-mehameha I. Hono-kō-hau 2, (Hono-kō-hau Iki), with its small fishpond, went to Leleiohoku, the husband of Princess Ruth Keelikolani, great-granddaughter of Ka-mehameha I. (Emory and Soehren, 1961: 1-2).

Fish was the major supply of protein in the Hawaiian's diet, but seasonal deep sea fishing was often unpredictable. Hawaiians, therefore, resorted to the systematic breeding and nurturing of fish, a process which may be called fish farming. This systematic process of aquaculture was done within the fishponds and varied from small, individual efforts to large scale cooperative undertakings directed by the ruling chief of the district where the pond was located.

The construction of these ponds was a highly sophisticated accomplishment. It was a simple, yet extremely efficient means of fish breeding. Only a people who lived in close relationship with nature could have devised such a system using the natural advantages of the physical environment.

Other features within the Hono-kō-hau area also have significant cultural value. They include the walled enclosures (believed to be planters) and the mauka-makai trails.

These, along with the heiau, shelters, and homesites found in Hono-kō-hau, are examples of the early Hawaiian physical and spiritual tie to their land. It is estimated that the ahupua'a of Ka-loko may have supported 300 to 400 people at one time. Unfortunately, the combination of cultural change, disease, new land laws, and the desire for local Hawaiians to move to urban centers caused a gradual abandonment of this once populated area.

Today, there is a renewed desire among Hawaiians to preserve the land and the culture of their kupuna (ancestors) which was so much a part of the living honua. The land, and the culture associated with it, is rapidly being destroyed in the name of development. Hawaiians are asking, "How well do you think Hawaiians will be remembered when we are just read about in books, and no physical or visible record of the way we lived remains? How can future generations of Hawaiians understand the significance of the fishponds unless they see the ponds themselves? How will they understand the importance and beauty of the heiau, such as those at Hono-kō-hau if these are destroyed? Are we to witness the continuing despoliation of our land and culture at the hands of so called progress?"

#### FUTURE OF THE ENVIRONMENT WITHOUT THE PROPOSAL

Current proposals by the Kona Coast Company, Lanihau Corporation and the State of Hawai'i for use of Ka-loko, Hono-kō-hau, Ke-ala-kaha areas would likely result in urban development of these lands for resort, commercial, residential, and recreation uses. The privately owned property in Ka-loko and Hono-kō-hau sustain the most concentrated uses--resort, commercial, and residential.

State lands, including lease and fee simple, comprise the ahupua'a of Ke-ala-kehe, the shoreline, 'Ai'ōpio and 'Ai'makapā Fishponds, and lands immediately surrounding the ponds. Public recreation would provide space and facilities for fishing, hiking, viewing fishponds, boating, golf, and appreciation of archeological sites. The Hono-kō-hau Small Boat Harbor would likely be expanded in a mauka direction to handle a total of about 450 boats.

Many sites included in the Hono-kō-hau National Historic Landmark such as heiau, 'Ai'ōpio Fishpond, and 'Ai'makapā Fishpond would likely be included in the coastal area to be managed by the State. Others such as Ka-loko Fishpond, burials, planting enclosures, house sites and other parts of the National Historic Landmark would be irretrievably damaged or, as in the case of Ka-loko Fishpond, destroyed as a historic feature.

## ENVIRONMENTAL IMPACT OF THE PROPOSED ACTION

Preservation and continuation of the indigenous Hawaiian culture is the prime impact of the proposed park. And this impact has ramifications that reach far beyond the area itself or even the State of Hawai'i, since it assists in the understanding of the mosaic of cultures that make up the total American cultural environment of the 20th century. But the total impact resulting from the creation of a new national park unit is very complex. In addition to cultural impact, it involves economics, physical changes on the land, effects on land use (both on the adjacent land and in the entire North Kona District), sociological effects, and impact on biological resources. Although these are all interrelated and part of the total environment, they will be discussed separately.

### IMPACT ON THE CULTURE

Cultural impact can be divided into three categories--general impact on the world at large, impact on the Hawaiian culture itself, and impact on visitors to the park.

#### General Impact

Impact on the world community can be defined only in theoretical terms. A successful park will demonstrate the social significance of Hawaiian culture-sharing. Some of the threads in the fabric of Hawaiian culture, as described elsewhere in this statement, are attitudes toward human relationships. These attitudes, leading to concepts and practices of sharing, mutual resolution of interpersonal problems, and supportive help for others, have renewed importance and immediacy for today's world and today's problems. Successful demonstration of their efficacy can extend far beyond the Ka-loko, Hono-kō-hau area and beyond the immediate experiences of the park visitors. Like concentric ripples expanding from the splash of a fish in Ka-loko fishpond, the cultural impact of this park will expand into a greater circle of human consciousness.

Although the ancient Hawaiians living in Hono-kō-hau subsisted primarily on a marine-based economy, the presence of brackish springs throughout the settlement area indicate there was enough water underground to sustain not only their everyday needs, but also a few agricultural crops such as pu (pumpkin), kō (sugar cane), pia (starch), ipu (gourd), and various medicinal herbs. As a result of the proposal, information regarding the use of fishponds and data on agricultural uses will have a much greater chance for survival. Much of this data can have direct effects on today's problems of use and conservation of resources.

Finally, there is the matter of a specific site for the interpretation of such a complex. The combination of fishponds, nearby offshore reefs, historic sites, small beaches, and convenience to a population center and to transportation is rare in Hawai'i, if not unique to the Ka-loko, Hono-kō-hau vicinity. Moreover, the site will dramatize the means by which early Hawaiians turned a harsh environment into a pleasant living accommodation without destroying the fundamental elements of that environment. This will appear even more significant to Hawaiians and visitors alike as hotels, boat harbors, golf courses, and attendant service facilities begin to occupy the lands adjacent to the proposed park, thereby, leaving it as a vignette of ancient Hawai'i.

#### Impact on Hawaiians and Their Culture

Since the predominant purpose of the proposed park is cultural preservation, the impact on the Hawaiian community and its culture will be particularly significant.

The introduction of European and Asian people and ideas into Hawai'i has diluted the Polynesian culture to the point that there is serious danger of its disappearance. In fact, some important physical cultural elements such as heiau were specific targets for destruction because their presence and continued use conflicted with the new set of values imposed on an ancient but complex society. There has been a recent resurgence of interest in traditional Hawaiian crafts, songs, dances, and basic land ethic, particularly by youth. A cultural complex at Hono-kō-hau will provide a physical focal point for this awakening interest--a place where the Hawaiian may rediscover the worth and dignity of many of the old values, discern how they have affected modern Hawai'i, and judge their broad utility for the future. It will be the source from which he may regain and maintain a greater sense of pride and usefulness in his heritage.

Although these cultural impacts appear abstract, they will nevertheless affect the Hawaiian's response to his social environment and create a context of cultural integrity within which many social problems have a greater chance for solution.

Perhaps the most important impact will be that resulting from the proposed management and interpretation by persons of Hawaiian descent. It will provide an opportunity for a native American culture to, in essence, "tell its own story"--a story that will thereby be of greater significance to both the visitor and the Hawaiian.

For Hawaiians, the effect will be most apparent in the interest they will have in perpetuating physical attributes of their culture and in strengthening and re-learning the attitudinal attributes. Many management, planning, and interpretive decisions reflected in this proposal were made by Hawaiians. The fact that this pattern will continue through direct management and through use of a permanent appointive advisory board, gives Hawaiians their greatest chance for cultural survival, and the greatest chance of maintaining and passing on a high degree of cultural accuracy and integrity.

Even though one of the prime objectives of the park is to provide for appreciation by visitors, the presence of persons unfamiliar with and foreign to the culture will be the greatest threat to Hawaiian cultural integrity. Involvement in crafts, chants, hulas, and other like activities by Hawaiians and for Hawaiians is one thing. This same activity observed by several hundred malihini (newcomers) is totally different. Failure to recognize this as a clear threat to the continuation of cultural traditions can have disastrous impact on those traditions and on the persons involved in their perpetuation. In short, the danger is that cultural programs will become theater, with the Hawaiian becoming the actor and the visitor the audience. This will be particularly true in areas where visitor concentration is greatest and where the number of Hawaiian participants is, by necessity, small.

#### Impact on the Visitor

For the visitor, contact with the park and its programs will portray the unique flavor inherent in the Hawaiian culture and in a manner more culturally accurate than any similar programs now available. Such an atmosphere will be in sharp contrast to the current visitor pattern of a brief brush with old Hawai'i experienced in the glass and chrome of modern hotels. Moreover, the lesson of how Hawaiians lived with the land and became an intimate part of their environment will have far-reaching results as all Americans attempt to deal with their incredibly complex total environment. In essence, the predominant impact on the visitor is one of an accurate awareness of the many facets of Hawaiian culture and through that awareness a greater understanding of their own culture.

#### IMPACT ON THE ECONOMY

This, too, is complex, in that it involves somewhat obvious impacts such as drawing more visitors and those less apparent such as impact on non-Hawaiians seeking employment.

### Economic Impact from Development and Use

It is estimated that up to 500,000 persons per year may visit the national cultural park. This number is based on visitation figures to the Island of Hawai'i and comparative visitation to other similar areas, such as City of Refuge National Historical Park. While it is not expected that a great number of these visitors will come to Hawai'i solely because of the park's attractions, they will likely remain on the island longer, at least half a day. Using the average daily visitor expenditure of \$41.00, obtained from the Hawai'i Visitors Bureau, the resulting increase in income to the county could be about 10 million dollars per year. This income would accrue almost entirely to the North Kona District, since the facilities used during this lengthened stay would be mainly in the Kai-lua area.

The cost of development--that is, roads, trails, buildings, parking facilities, stabilization of ruins, and other miscellaneous structures--is expected to be at least 1 to 2 million dollars, although no accurate estimate of this project has been completed. This is a one-time expenditure and would not recur except as facilities are upgraded or replaced.

Staff required for management will provide new jobs for about 21 persons. Average salaries (including cost-of-living allowance) would be approximately \$11,000 per year for a total of \$231,000. Thus a considerable amount of family income would be generated for those persons working and residing in the vicinity. Assuming an average of 4 per family, a total of 84 persons would be supported directly by the park's operation. Moreover, this would be a continuing annual boost to the economy and one that would continue for the foreseeable future.

### Indirect Economic Impact

In addition to the aforementioned direct economic effects, there are also several indirect impacts on existing tourist facilities. The occupancy rate for hotels in Kai-lua has been decreasing in the past few years, from 80.8% in 1967 to 57.8% in 1972. (County of Hawai'i 1972). The break-even occupancy rate for such facilities is about 70%. Since the visitation to the Big Island continues to increase, it may be assumed that hotel construction in Kona has surpassed the increase in need for that service. The total number of available units (two pillows per unit) was 2,582 in 1973. Assuming an average of 2,000 visitors per day to the park and that 50% would stay an additional night as a result of their visit (NPS estimate), there would be 500 more units that would be occupied as a result of the new park. Thus, the rate of occupancy would be raised nearly 20% for a new average of about 77%. Restaurants and other visitor services would also enjoy an increase in business as a

result of the extended stay, but the precise amount is not known. In summary then, the general impact on the local economy is that new income to local business would occur with minimal new burdens on community services and without the addition of facilities that would compete with those present in the community at this time. No hotels or major restaurants are included in the proposed park. The fact that visitors would remain longer in North Kona may have little effect on total number of visitors but will increase their stay.

Operations such as the management of fishponds provide working examples where use of simple traditional methods can still produce large amounts of food. Recent estimates, in a 1973 report on fishponds by William Kikuchi (see list of references), indicate that a fishpond such as Ka-loko could produce 350 pounds of fish per acre per year, or a yearly total of 4,000 pounds. Food production such as this could add \$10,000 to \$15,000 per year to the local economic base. If 'Ai'makapā were managed in the same manner, the economic advantage would be at least doubled or tripled. In addition, the introduction of this type venture could stimulate similar uses for fishponds throughout the State.

The lands proposed for park status could not be developed for urban or resort purposes. Thus, economic gain to the community from potential investment in improvements by the landowner would not be realized. In addition money from employment in continuing services and from potential increase in visitation would not be available. These impacts are impossible to quantify at this time since plans for alternative uses of the land are not known very generally. However, it could be expected to amount to millions of dollars. It should be noted that this impact is predicated on the assumption that there would be a need for additional resort and urban development in Kona.

#### Impact on Current Landowners

Proposals by the Kona Coast Company and Lanihau Corporation, for use of the makai portions of the ahupua'a of Hono-kō-hau and Ka-loko would create a combination of recreation, resort, and residential development. The national park proposal would make this project, as now conceived, impossible. Thus, the landowners would be deprived of the opportunity to develop the coastal land parcels for economic gain. Since private lands would be purchased, however, owners would incur no direct economic loss, since they would receive fair market value for their lands. The effect of any severance should be offset by either negotiated settlement or condemnation award. However, little, if any, severance damage is anticipated as a result of the proposed acquisition. There would be no economic loss to the owners of surrounding lands.

### Impact on the Tax Base

The proposed cultural park would remove about 660 acres of land from the tax rolls. Based on current information from the County of Hawai'i, property taxes for the 1975 fiscal year on these private lands totals about \$45,500. Based on the total county property taxes of about \$16,172,000 for the same year this means that about 0.28% of the property tax base would be affected by the proposal.

### Impact on Non-Hawaiians

The required employment of Hawaiians to manage and interpret the park will also have a small effect upon employment-seekers of other cultural backgrounds. As a result of the proposal these persons would not be permitted to work in the park, thereby depriving them of the particular type of jobs available there. This involves about 21 positions and represents less than  $\frac{1}{2}\%$  of the potential work force on the Island of Hawai'i.

### IMPACT ON CULTURAL REMAINS

As now proposed, the Ka-loko, Hono-kō-hau National Cultural Park will have the effect of preserving and restoring the coastal sections of the ahupua'a of Hono-kō-hau and Ka-loko to a state resembling that which existed before contact with European culture. Some post-contact sites, such as salt pans and foundations of a community church, would also be retained as an example of how Hawaiians adapted to new cultural pressures.

Protection and preservation for public benefit will be afforded this major archeological complex of 234 known sites. Significant sites include Hono-kō-hau Settlement National Historic Landmark, Ka-loko, 'Ai'makapā, and 'Ai'opiō fishponds, the built-up track for the chiefly sport of sledding hōlua and the many heiau located between Wāwāhi wa'a Point in Ko-hānai-ki and the 'Ala'ula Bay area in Ke-ala-kehe. The many other sites include burial areas, planters, the mauka-makai trails, kahua hale (house platforms), ko'a (fishing shrine), ahu (stone mounds), stone enclosures, lava tube shelters, canoe landings and shelters, salt pans, petroglyphs and papamū (konane game boards).

Archeological research will have the overall impact of affording greater protection for cultural remains. General site studies have been completed for the entire proposed park. As more detailed research is accomplished, however, new sites may be found and much more data will be available on those sites already identified. Application of this historic preservation program will have the effect of continuing and maintaining the cultural integrity of the Ka-loko, Hono-kō-hau vicinity.

There will also be some effects resulting from development and from visitor use. Wherever they are located and no matter how sensitively they are designed to conform to the landscape, modern development will

be accompanied by the potential of destroying the authenticity of the historic scene. Facilities are considered essential to the park's operation and use, but they are entities that did not exist, physically or in concept, at the time of Hawaiian occupation of the land.

In addition, implementation of Hawaiian cultural practices will have an adverse effect on the totality of archeological values. That is-- if the decision at a given archeological site is to stabilize or restore it to a particular period of Hawaiian history or prehistory, the pre- or post-period archeological values (such as later additions to a house site, or earlier foundations) may be visually lost and retained only in the research literature. This situation is "normal", however, at any archeological or historical site chosen for any form of restoration; and since this park will not be restored to a single, narrow period of occupancy but will selectively interpret site-by-site, the full time-range of Hawaiian cultural use of the area, the overall aspects of changes through time will not be lost.

Visitor use of the park will pose a continual threat to the integrity of fragile archeological ruins because of potential vandalism and abrasion. (See section on mitigating measures, p. 82.) This will be particularly true in concentrated visitor use areas such as the orientation complex, the historic area immediately makai of that complex, in the area designated on the development concept plan for cultural activities and along about  $1\frac{1}{2}$  miles of utility lines.

The live-in education and cultural center for Hawaiians is located among several historic and archeological sites. Development of facilities and use of this area will also constitute a threat to these sites. The impact will manifest itself generally in trampling of historic areas, inadvertant destruction of structures, and the esthetic intrusion resulting from the presence of modern shelters and other educational facilities.

#### IMPACT ON VEGETATION

Even with the extensive introduction of exotics, a number of native plants (see Description of the Environment for species) still grow in the area. Total impact on the vegetation will be minimal. The current predominance of exotics such as kiawe will be replaced by a dominant cover of native plant species. The impact that does occur will be from construction of facilities and from visitor use as discussed below.

#### Roads and Parking

These facilities will be located on 'a'a lava where there are no native plants, and since the area is already disturbed by bulldozers, there are no remaining historic values (see map p. 48). The acreage that would be disturbed by construction would total about 3 acres. Nearly all of this would be paved for parking, roads, and adjacent walks.

### Orientation Structure

This facility will be the largest structure in the cultural park. It and its appurtenant facilities will disturb not more than two acres. Although it is located on a barren 'a'a flow, the land is essentially undisturbed by any previous uses.

### Maintenance Area

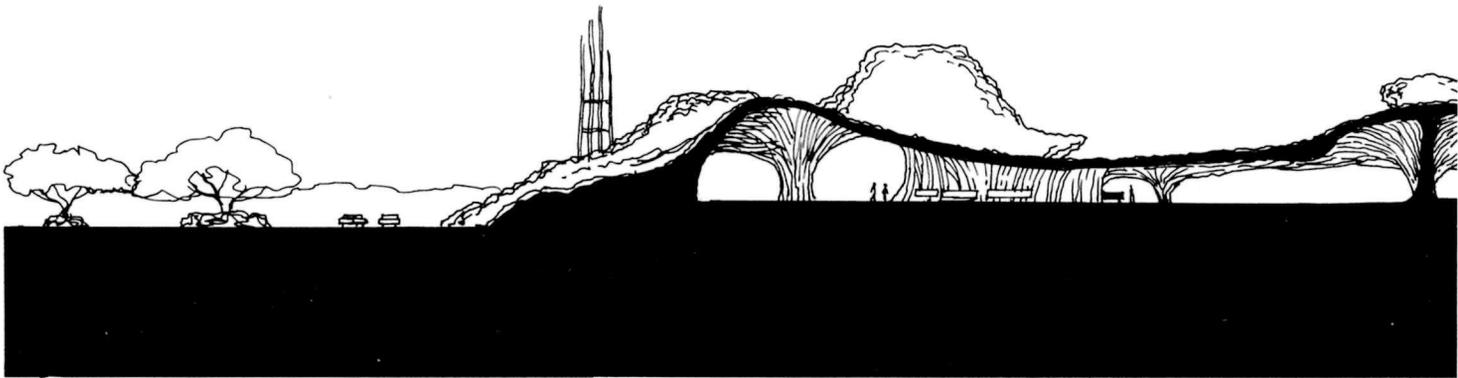
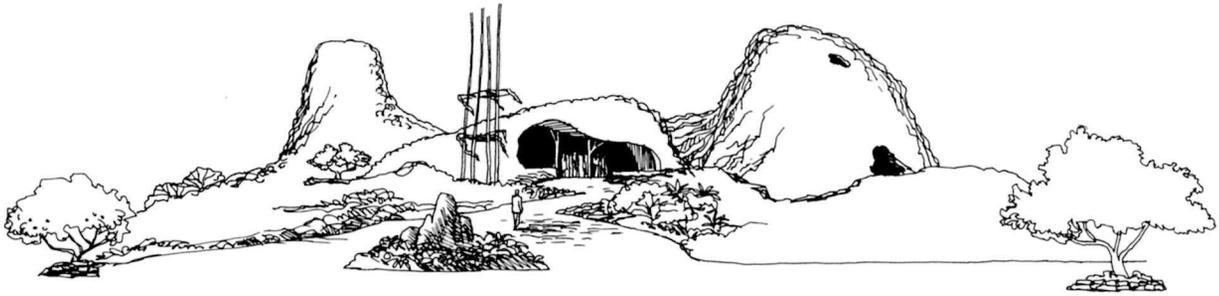
This facility, located along the south boundary of the park, will occupy less than one acre. All vegetation will be removed and the entire area will be paved or covered with structures or paving. Thus, any inherent natural or historic features will be removed. Because of the low quality of present vegetation cover, and the few native plants now existing, vegetative loss will be very minor.

### Education Center

Although this facility will not have numerous formalized structures, it will have some impact on vegetation. There will be more concentrated use as Hawaiians will remain in the area overnight as part of the education experience. The impact will manifest itself in possible trampling of native vegetation. Plans are indefinite for this development at this time, but the total area affected will be about 3 to 5 acres. It will be designed to fit on, under, and around the topography, native vegetation, and archeological remains. The proposed service road to provide vehicular maintenance access to Ka-loko fishpond and the educational center will disturb about 2 to 3 acres of land and have minimal effect on vegetation.

### Trails and Walks

At this point in planning, the details on location of trails and walks are by necessity, somewhat indefinite. Generally, however, it is expected that there would be about 8 miles of trail throughout the park, including the shoreline trail. Of this total, about one mile would be paved trail through concentrated use areas and this mostly on 'a'a lava with little or no existing vegetation. The area thus impacted by construction will total a little more than one-half acre. For the unpaved trails, the impact from construction is difficult to quantify since these should remain in a state similar to that of old Hawaiian trails. This entails minimum disturbance of the land and vegetation by providing convenient stepping stones through the rough 'a'a and trail indications across the pāhoehoe.



CONCEPTUAL SKETCH AND CROSS SECTION  
OF ORIENTATION CENTER

## Utilities

Water is available from an existing line along the Queen Ka-'ahu-manu Highway. Provision of service to the park would involve distribution lines to the orientation area and to the education center just south of Ka-loko Pond. Total length of such lines is estimated at about  $1\frac{1}{2}$  miles. About  $\frac{1}{4}$  mile would be on land disturbed by construction of other facilities. The remaining lines would have minor impact on vegetation as it would require excavation in an area not previously disturbed. Less than one acre would be involved in the project.

Sewage would be transported to a disposal system outside the park and one that would be combined with a system serving development on adjacent lands. Construction of this plant is proposed but not yet in the definitive planning stages. This is also an impact difficult to quantify. Assuming, however, that local and Federal regulations are adhered to, the impact will be minimal. The greatest danger lies in the possibility that pollutants from the disposal system would enter the underground drainage system to affect water quality in offshore waters. Sewage lines would disturb one acre or less.

Power is also available from a line along the Queen Ka-'ahu-manu Highway; impact would be limited to underground distribution lines built to the orientation and education centers. A sub-station will be required probably outside the park, but the exact location is as yet unknown.

## IMPACT ON WILDLIFE

As indicated in the description of the resource, the Hono-kō-hau vicinity contains the habitat for several species of rare and endangered birds. Especially important to birdlife is the marshy area immediately north of the open water of the existing 'Ai'makapā fishpond. This was at one time part of the historic pond. The intent of the park plan is to retain the habitat for endangered species (āe'o, Hawaiian black-necked stilt; 'alae ke'oke'o, Hawaiian coot; koloa, Hawaiian duck). Further research, to be accomplished in consultation with the U.S. Fish and Wildlife Service, will be necessary to determine precise details of resource management practices. But, the wildlife resources will, as a result of this proposal, be given the greatest chance for protection.

The predominant potential adverse impact will result from the development of visitor facilities, the cultural-educational center for Hawaiians, and from the presence of many more people on the land. Noise and visual elements during construction of developments, changed physical environment after development, visitor and Hawaiian employee use of the area fringing the habitat, and potential heavy concentrations of visitors in cultural demonstration areas may disturb the native birdlife.

### IMPACT ON MARINE RESOURCES

As a result of the proposal, there will be a positive impact on marine resources since they will be under a more definitive management program than would be the case under continued State management. The result of the program will be restoration of the complex ecological entity that proceeds from limu (seaweed) and crustaceans near the shore to the coral reef biological community of the deeper inshore waters. This environment was the major continual food source for Hawaiians. As a result of controlled taking of food and research to determine other appropriate methods, this resource can once again become a more significant food supply.

The only identifiable adverse impact will result from a fragmentation in management. The State of Hawai'i currently has the responsibility of managing and controlling the marine resources in waters surrounding the islands. Removing a portion of this resource will necessarily complicate management as regulations for taking fish and other marine life will be more stringent under the terms of this proposal. Commercial fishing will not be allowed. In addition, fishing and the traditional collection of other seafood by local citizens will be limited.

### IMPACT ON SOILS

Total impact on soils will be minimal, since the only change or disturbance from the existing natural conditions will result from construction of facilities and visitor use. A total of not more than 12 acres will be disturbed by construction of roads, buildings, and trails. Less than half of this acreage is on 'a'a lava which, because of its loose cinder-like quality, will require some surface compaction prior to construction. The remaining areas are on hard surfaced pāhoehoe lava, in which case only the maintenance area (about one acre) may need some compaction.

Visitor use will have almost no effect on soils except for minor compaction on and around trails over 'a'a lava.

### IMPACT ON AIR QUALITY

Air quality on Hawai'i's Kona Coast is excellent. The introduction of 300 to 500 buses and cars per day plus minimal administrative travel is not anticipated to have more than minimal pollution and not enough to raise pollutants to a point exceeding the Federal and State standards for air quality.

## IMPACT ON WATER QUALITY

As noted in the description of the environment there is no surface water along the Kona Coast and all water supplies come from subsurface sources emanating from rainy mountain areas and moving through the porous lava to the sea. The proposal would have negligible impact on water quality since all construction and use would be on the surface and would not hinder the natural underground movement of water.

## IMPACT ON LAND USE ON-SITE

Here again, there is a single primary impact that is immediately apparent--that of maintaining a 650-acre open space within three miles of a major tourist complex, Kai-lua. Except for small sections along the shoreline, the site is currently proposed as a residential resort complex, with all the attendant water and sewer systems, roads, golf courses, and introduction of exotic plants for landscape purposes. Even though lands mauka and to the north toward Ke-ahole Point and on toward Ka-wai-hae are currently planned as open space, they are almost all in private ownership, and there are no plans for management as open space for public use close to Kai-lua, except for the State shoreline trail proposal. Several large parcels of State-owned land are planned for recreational park use farther along the coast toward Ka-wai-hae. Moreover, management and ownership by the Federal Government gives the greatest assurance that there will be a large parcel of land dedicated for use as a cultural complex regardless of change in use patterns that may occur on surrounding lands in the future.

The proposed park would cause some changes in the percentages of land available for development as noted in the County General Plan. A little more than 500 acres within the proposed area are now designated for potential resort, commercial, and urban residential uses. It should be noted, however, that the current open space zoning would have to be changed to allow such development. This proposal represents approximately 21% of the land currently zoned for such purposes, but only about 3.4% of the land noted in the General Plan as designated for these uses in the future (County of Hawai'i, 1971). In addition, even now, only about one-third of the lands currently zoned for urban and resort are actually being used for that purpose (County of Hawai'i 1971). Thus, the impact on land use can be considered minimal when placed in the context of the North Kona District.

Concerning the impact on public use of the shoreline, public access to beach areas is an increasing problem throughout Hawai'i. Though the State zones all the shoreline up to the vegetation line as public property, where adjacent land is zoned to urban or resort, the beaches

are for all intents and purposes closed to use by local citizens. This is particularly significant since the Island of Hawai'i has so few beaches. As a result of the Hono-kō-hau proposal, over 3 miles of shoreline would be made available and easily accessible for public use, including about 3/4 mile of sandy beach.

There is currently very light use of the proposed park land. No public roads lead to the beach, no utilities are available and no recreational facilities exist. There are, however, three families living on leased lands along the Hono-kō-hau coast, who would eventually need to move to other living accommodations. These persons would be inconvenienced as a result of the proposal. Also inconvenienced would be those who have for many years occasionally occupied the shelter structures on weekends and holidays. A small papaya orchard has very recently (during the time of this study) been planted on part of the area planned for visitor parking. The ultimate intended extent of the orchard is not known. It would be displaced as a result of this proposal.

#### Off-Site

Off-site resource management controls as proposed by this plan (p. 14) would have an impact on land and water uses in the vicinity of the park. They would lower the density of development, improve groundwater quality, and decrease contamination from sewage disposal. There would undoubtedly be an effect on the tax base and the overall economy, in that less development would be allowed and the tax income to the county would be lowered. These impacts are impossible to quantify at this time since proposals for off-site controls are general and would be based on consultation with other levels of government. However, since the proposal would have the net effect of upgrading the quality of development, it is considered to be beneficial to the environment, and in the long-run, beneficial to the local economy.

#### IMPACT ON THE HONO-KŌ-HAU BOAT HARBOR

Immediately south of the proposed park is the Hono-kō-hau Small Boat Harbor, recently constructed by the State. The park as now proposed has considerable impact on future development of these harbor facilities. All possible future harbor expansion, in any direction, is in solid lava rock. Land to the south is higher in elevation, by amounts varying up to 10 feet, than is the land either to the north or mauka. The State is pledged not to expand the harbor to the north because of the petroglyphs found there. The impact of this plan, then, is to cause the State to abandon present plans to expand mauka, consider an alternative expansion to the south, and either expand the harbor in that direction or give up expansion. Although the southward expansion alternative has not been studied in detail, the State estimates that higher ground

would increase the cost by" . . .at least \$800,000. . ." (letter, Chief, Harbors Division, State of Hawai'i, to State Director, NPS, dated June 7, 1974). In addition, the State estimates that it would take at least two years longer to provide additional berths for those boaters now on the waiting list (75 names as of April 30, 1974).

The boundary as planned does have the impact of allowing for access and development of facilities necessary for full operation of the existing harbor area. Specifically, a boat launching ramp and road access to all perimeters of the existing dredged area. The proposal would also allow construction of berthing facilities within the present harbor and at least some of those presently on the waiting list could be accommodated. See map, p. 4 .

#### IMPACT ON CONSERVATION OF ENERGY

Early Hawaiians were completely self-sufficient since there was no trade with other parts of the world. Production of fish, taro, and use of native materials for construction was an absolute necessity. The necessity of conserving energy and food is again becoming significant on a worldwide basis. As this significance increases, areas like Hono-kō-hau take on new importance. Fish and taro can still be important food sources. Producing fish in fishponds and growing dry land taro will save energy previously used for importing foods. Moreover, further research on early Hawaiian culture may reveal other solutions applicable to the current problems of energy consumption and food production. Proposed use of the area as a park may have the impact of helping to discover new conservation methods to save energy and produce more food. It would also save the considerable energy and resources required to construct new facilities as now proposed by the current owners.

#### POTENTIAL IMPACT ON THE PARK FROM PROJECTED USE OF SURROUNDING LANDS

Current county zoning on almost all land surrounding the proposed park is open space, but as indicated under the Description of the Environment on page 35 , the County General Plan recognizes the potential for urban and residential uses which would then require change in the open space zoning. Even now there is development which is visible from the proposed park. Just mauka of the Queen Ka-'ahu-manu Highway is a gravel pit and warehouse operation. This operation is a visual intrusion on the scene and is expected to remain. Farther, mauka, along the belt road is an existing residential complex and agricultural land. This development is also visible from the proposed park but has little impact because of distance, about 3 to 4 miles, and because of its small visual size relative to the mass of Hualālai, a mountain which rises to about 8,000 feet in elevation.

The impact of future development will be greater, assuming the land use pattern follows that proposed in the county plan and by the State. Some lands mauka and toward Kai-lua are allocated to low, medium, and high residential use. As this density of use increases, there could be adverse impacts on water quality in the park's fishponds and in adjacent offshore areas. Potential pollutants would come from increased erosion and perhaps an excessive amount of fertilizers, insecticides, herbicides, and other materials that accompany concentrated land use and development. The degree of impact will depend almost entirely on the density of development permitted, the type of land use, and on the controls placed on that development by the State and county. It is impossible to quantify at this time since specific proposals have not been drawn up.

Another significant impact will be that resulting from further development of the Hono-kō-hau Boat Harbor. This facility could be expanded to the south and would attract many visitors. Users will include local fishermen, boat owners, and incidental visitors interested in a marine-yacht harbor complex. The complex is adjacent to the proposed park boundary and very close to some of the most fragile historic and biological resources. Petroglyphs, heiau, and even 'Ai'Ōpio fish trap are between 100 and 350 feet from the edge of the existing harbor excavation. The proposed boundary is 50 feet closer to these resources.

Thus, noise, water pollution by boats, visual pollution by modern boats and other modern structures, and the continual pressure of human use will have some intrusive effects on park resources. As a result, the setting for some of the significant archeological resources will be impaired, and there will be continuous danger of some resource damage.

Orientation of the runway of the Ke-āhole Airport, and the customary traffic pattern of arriving and departing jet aircraft make aircraft noise and visual pollution a minor effect. Although there are no known plans to do so, dramatic expansion of the airport in the future could have more severe effects on the setting.

## MITIGATING MEASURES INCLUDED IN THE PROPOSED ACTION

These are measures designed to minimize the adverse impacts resulting from actions noted in the national cultural park proposal. They may involve location and design of facilities within the park itself or they may affect the use of lands surrounding the park. They may also assist in protection of cultural integrity. Because their effects overlap each other and because some mitigate more than one adverse impact, the following discussion deals with specific measures and their results.

### MEASURES TO MINIMIZE IMPACT OF DEVELOPMENT AND USE

The requirements of the visitor and management create impacts on all inherent physical resources. These will be minimized by location and design of facilities, by control of concentrated use areas, and by limitation on numbers of visitors.

#### Planning and Design

Parking, orientation, and major visitor-use areas are all proposed in a location between the Queen Ka-'ahu-manu Highway and the mauka side of 'Ai'makapā fishpond. On this site, a recent 'a'a flow, a parking area will be located on land already disturbed by removal of surface material and where there is a small papaya planting. The remaining part of the orientation complex will be located on a section of the flow where archeological sites are less concentrated. Since the major concentration of use will remain within this vicinity, many visitors will thus receive the depth of cultural experience they desire within the confines of a formalized development designed to serve that function.

The design of the orientation structures themselves as well as their location will be a mitigating measure in that they will essentially be invisible from the remaining portions of the park. (See map p. 9 and illustration, p. 73 ) This will be accomplished by the use of "earth architecture" that utilizes native materials and building forms similar to the barren 'a'a lava landforms that surround them. Very little plant material will be used to soften this barrenness.

For those visitors who have the time and inclination to experience more of the culture, walks and trails will lead to village complexes, fishponds, and shoreline areas. These visitors will be fewer in number, and since they have made an effort to reach more distant features, they may be more sensitive to the fragile nature of the biological and cultural resources. This filtering or lessening of visitor concentration will greatly mitigate the potential adverse effects of large numbers

of visitors on fragile archeological sites and in areas where a variety of cultural activities will take place. A closely associated measure to minimize the effects of use will be the part-time presence of Hawaiians fishing, farming, tending to the fishponds, and engaging in the other daily tasks of a Hawaiian culture-oriented existence. In these areas the visitor will be more greatly involved in the cultural programs and the Hawaiians, because of fewer observers, will be more comfortable to pursue cultural activities.

Location of facilities and control of visitor use as proposed will be particularly significant in the vicinity of 'Ai'makapā fishpond. Here species of rare native birds will be especially sensitive to any continued use and noise nearby.

Paved walks leading to the zone between 'Ai'makapā and 'Ai'ōpio fishponds will require that visitors walk between one-half and one mile to enjoy the attractions. For those who wish to see a working fishpond, a round trip of about two miles to Ka-loko and the adjacent shoreline will be required. This will be on more primitive trails. Thus, the use of trails, as proposed, will also help mitigate the adverse effects of visitation.

Construction of a low-standard service road can follow the approximate route of the existing road to Ka-loko, thereby minimizing the impact of construction by using land already disturbed. Utility lines can also follow on or adjacent to this same alignment and minimize the impact on archeological sites and vegetation.

Location of the maintenance area as planned will almost entirely mitigate its possible adverse effect upon the park. Placed adjacent to the developed area of the boat harbor, it will not create a separate island of modern development within an otherwise undisturbed portion of the park. Located in one of the lowest-lying sections of the park, it will be less visible and less noisy than it would be if placed further mauka. Design of structures and of any buffer between the maintenance area and the most significant historical, cultural, and visitor use sites will be carefully executed to reduce visual and auditory impact.

#### Use Capacity

Establishment of a carrying or use capacity will be an effective mitigating measure that can minimize many potential adverse impacts, some of which have already been discussed earlier in this section of the statement. It will be necessary to complete more detailed plans for management, development and interpretation before a definitive capacity number can be set. In accordance with the plans developed thus far, however, a daily capacity of 2,500 will be used as a point

of departure. More detailed planning and constant monitoring will be necessary to determine what change might be necessary to make this a more effective mitigating measure.

The effects of establishing an appropriate capacity are many. Impact on cultural resources and on Hawaiian participants will be minimized. The impact of visitation on birds and marine life would also be at least greatly minimized if not entirely mitigated. And the possibility of damage to archeological resources would also be greatly minimized. Finally, the experience of the visitor himself would be improved, since one of the criteria for setting capacities would be the effect on the visitor experience resulting from too many in the park at one time. Resources will be monitored frequently to determine whether or not the set capacities are effective. Appropriate changes in capacities will then be made when necessary.

#### MEASURES TO MINIMIZE CULTURAL IMPACT ON HAWAIIAN PARTICIPANTS

Here is a major problem discussed in the previous section of this report, and one that will require continuing research and monitoring. Several aspects of the proposal are specific attempts to minimize the impact.

Contact between visitors and Hawaiians will be most concentrated in the orientation area. Programs will be more structured and more nearly approach the performer/audience phenomenon. As the distance increases from this area, however, visitor density will decrease, activities will be less structured and contact with the culture will more nearly approach involvement and participation on the part of the visitor.

For the Hawaiians, this use pattern will minimize the adverse impact on cultural preservation and integrity. An additional proposal, the education and research center, will be designed to be a place apart from the visitor and his activities. Live-in accommodations will provide a place where Hawaiians can learn about their heritage from other Hawaiians without the constant interruption and distraction. Cultural integrity will be most apparent here, and living facilities will more nearly resemble those found in old Hawai'i.

#### MITIGATING MEASURES TO PROTECT ARCHEOLOGICAL SITE INTEGRITY

Protection of the many archeological sites will be accomplished largely by a combination of stabilization, research, restoration, and interpretation. In addition, the major village complexes, canoe sheds, heiau, and petroglyphs will receive considerable protection by virtue of their distance from the most concentrated visitor-use areas. Impact on the historic resources in the vicinity of the education

and research center will be minimized by the location and design of facilities, such as the use of open-sided structures and the clustering of development and use in those areas where few or no archeological sites exist.

All research, stabilization, restoration, and reconstruction will be done in full conformity with Section 106 of the Historic Preservation Act of 1966, Executive Order 11593, procedures of the Advisory Council on Historic Preservation, and National Park Service Policy for Historical Areas. Prior to construction of any facilities, a detailed archeological survey will be undertaken on all areas selected for development. If archeological or historic resources are found, plans will be altered to avoid them or, as a last resort and in full policy compliance, all material will be salvaged before construction begins. The main areas where these actions apply will be at the orientation center and its associated facilities, at the education and research center, in the maintenance area, and along paved walks and trails.

Some mitigation is accomplished by the fact that areas planned for most intensive development (orientation center and maintenance facilities) are already located where it is believed there are a minimum of archeological values.

#### MEASURES TO MINIMIZE THE IMPACT OF SURROUNDING DEVELOPMENT ON PARK OPERATION

All development or even non-development on land surrounding the park will have some adverse effect on the operation and effective use of the park. This will be especially true on property mauka of the proposed park all the way up to the slopes of Hualālai. As use density increases in this area so will the danger of pollution to coastal and offshore water from mauka developments. This can be minimized by strict adherence to water quality standards and by use of more sophisticated sewage disposal systems. Because of the sensitive nature of the Hono-kō-hau vicinity, State and county zoning and planning in cooperation with the Federal Government, would be helpful in determining appropriate types and densities of use on lands surrounding the park, particularly those near State Route 19 that the county has designated for alternative urban expansion. As noted on the map on page 45 of this statement, most of the land between the Queen Ka-'ahu-manu Highway and State Route 19 is zoned for future agricultural and conservation zones. The major mitigating measure would be control on use of herbicides and insecticides to avoid pollution of underground water resources.

Management of fishponds and offshore areas by the National Park Service must include cooperation with Hawai'i State Fish and Game Department and with the U.S. Fish and Wildlife Service. Liaison among these agencies and with local citizens will minimize the proposal's adverse effect of fragmenting the management of Hawai'i's marine resources. Cooperative efforts could include research, controls on food collection and fishing by local citizens, and agreement on specific management techniques that would affect fish populations and marine values beyond the park boundary.

The existing vulcanite plant mauka of the Queen Ka-'ahu-manu Highway is visible from many points in the park and is essentially an eyesore. Sensitive location of trails and interpretive emphasis on the coast and nearby lands, rather than on the mauka areas, will help mitigate the effects of this and other similar developments. The proximity of the boat harbor and its adverse impact is minimized by using the zone between it and 'Ai'makapā pond as a buffer area.

Finally, the proposed inclusion of seashore lands on both ends of the park, plus offshore areas, is especially effective. It helps to create a self-contained physical entity that can more easily be protected from adverse uses on adjacent lands and adjacent water areas. Moreover, it forms an easily identifiable boundary that will be apparent to both management and to visitors and to commercial fishermen approaching from the sea.

#### MEASURES TO MITIGATE EFFECT OF PROPOSAL ON HONO-KŌ-HAU BOAT HARBOR

The Hono-kō-hau Boat Harbor will be a major intrusion into the historical integrity of the proposed park. However, there is also little doubt that the proximity of a major cultural park will have its impact on any expansion of the harbor facilities. It is not the intent of this statement or of the proposal to mitigate that impact by recommending a further intrusion into the historic complex. To insure that the existing facility can function adequately, however, the adjacent boundary line has been located to allow a road on the north side of the harbor and a 400-foot development zone on the mauka side. Expansion of the harbor, if needed, would thus occur in a southerly direction, toward the town of Kai-lua. It is not known at this time precisely what the State of Hawai'i's plans would be in regard to the boundary proposed, since there have been no known alternative plans made on this basis. (See IMPACT ON HONO-KŌ-HAU BOAT HARBOR, p.77 )

#### MEASURES TO MITIGATE TERMINATION OF CURRENT USES

For the three families that now reside on leased lands in the proposed park, the inconvenience caused by their having to move can be mitigated to a great extent. It is proposed that leases be extended by the Federal Government for an appropriate period of time, perhaps for the lifetime of the older generation, depending on the individual situation.

Food-gathering activities by local citizens that could potentially be removed or at least reduced would actually undergo very little change as a result of the proposal. To mitigate this potential adverse effect, however, it has been proposed that heavy visitor-use areas be located some distance from the shoreline so that the unstructured use of that area can continue almost unchanged. Management programs will also be mitigating in that they will exercise control over amounts of food taken, but will encourage continuation of this use.

## ADVERSE EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROPOSAL BE IMPLEMENTED

Even with the mitigating measures discussed in the previous section of this statement, certain adverse impacts will remain. They, too, overlap and may affect more than one element of the proposed park's resources.

### VISITOR USE

The fact that visitors will continue to be encouraged to see and enjoy the park will result in several adverse effects. Perhaps most important is the impact on the native Hawaiian's personal cultural identity. The preservation of this resource is the prime reason for the park's existence. Since the culture has already changed due to outside influences, the danger of continued change will not be removed simply by creating a cultural preserve. This is particularly significant since the bulk of the visitors will come from the culture that has caused previous changes. The only possible way to prevent this would be to return Hawaiians to a pre-contact preserve, totally without influence from outside cultures. This is an obvious impossibility.

Fragile biological resources may also suffer some impact, particularly the endangered bird species. Impact will be caused by noise and the mere presence of people in the vicinity. It can be apparent in several ways--trampling of vegetation, frightening birds that frequent 'Ai'makapā fishpond, and the physical disturbance of beach and tidal areas.

### FACILITIES FOR VISITOR USE AND MANAGEMENT

This is direct physical impact on the land and cannot be completely avoided by mitigating measures. The land thus disturbed will total not more than 20 acres of roads, trails, buildings, utilities, and parking areas or about 3% of the park's total land area. Moreover, even with research and salvage operations, there will be some loss of archeological sites and the data that could have been collected from them. The locations chosen for major park facilities--parking, orientation center, and maintenance have no known significant archeological value, but they must be considered as part of the total complex and not as isolated sites.

### HONO-KŌ-HAU BOAT HARBOR

Even with the proposed boundary to allow complete use of the existing facility, there can be no expansion of mooring facilities on the north or on the mauka side. Rather, expansion must take place to the south where construction costs are greater. The amount of added cost is

estimated by the State Division of Harbors at \$800,000 for construction of a harbor of planned added capacity, but no known plans for that alternative have been prepared. All such construction costs, however, are related to the excavation of land higher (by 10 feet or less) than that originally proposed for excavation. Refer to page 77 in this statement for more detailed discussion on this matter. Essentially, however, the proposal will require a re-evaluation of plans for the boat harbor and for the adjacent commercial areas, golf course, and other attendant facilities. There will be some delay in providing boat harbor slips and facilities. Not all the delay, however, can be attributed to this proposal. Damage from the boat harbor and from possible mauka development by private landowners would result mainly from erosion, water collection, and from sewage disposal systems. It will be most apparent as it will reduce the underground flow of water from mauka lands toward the sea, and will introduce nutrients foreign to the existing life systems.

#### IMPACT ON LANDOWNERS AND ON THE ECONOMY

Although there would be no direct economic loss to the current landowners as a result of the project since they would receive fair market value for their land, but their development plans could not be carried to completion. All previous planning efforts by them and their developers would essentially be lost. And this loss could not be mitigated. The only economic loss is an indirect one. Profit made by the construction industry could not be realized--a single, one-time economic benefit that would not recur. Since plans are indefinite at this time there is no way to quantify this adverse impact. In addition, potential continuing profits resulting from investments in land improvements would not be realized. Again, this is impossible to quantify since plans are indefinite and because the potential economic success of new hotel and residential complexes in North Kona is currently in question.

#### LIMITING EMPLOYMENT TO PERSONS OF HAWAIIAN DESCENT

The fact that the many other racial groups in Hawai'i will be denied employment in the proposed cultural park complex cannot be mitigated. However, since the total staff anticipated for the park is about 21, this impact is minor when considered in the context employment opportunities on the Island of Hawai'i or even in the North Kona District.

THE RELATIONSHIP BETWEEN LOCAL  
SHORT-TERM USES OF MAN'S ENVIRONMENT  
AND THE MAINTENANCE AND ENHANCEMENT  
OF LONG-TERM PRODUCTIVITY

Long-term use of man's environment can only be enhanced by the proposal, in that the food producing potential, inherent cultural resources, and natural habitat for rare native birds will be preserved under park status. Adverse short-term impact will result from visitor use, construction of facilities, and constraints on land use but will not materially affect long-term productivity.

Alternative uses now proposed for the land may be economically productive in the short term, through jobs that will be provided during the construction of facilities and later by provision of attendant visitor services. This, however, depends upon the assumption that Hawai'i can continue to support a continually increasing population and more visitors, and that Hono-kō-hau is the appropriate location for these services. (See p. 35 for discussion)

In the long run, however, potential production of food in the fishponds (estimated at 350 pounds per acre per year or more) and in the inshore waters will be greatly improved if the cultural park proposal is implemented. Particularly important may be the maintenance of a high-quality environment that will help protect the ponds and their environs, and thus their potential for food production.

Concerning the future land-use pattern for the Island of Hawai'i, and more specifically North Kona, consideration must be given to more than parcels of land directly affected by the proposal. In accordance with the state and county planning, the major land mass to be dedicated to urban and resort development lies south of Hono-kō-hau between Kai-lua and Ke-au-hou.

The use of utilities, road and other publicly funded services would be more efficient if potential additions to these developments were found within this existing complex. The Ka-loko, Hono-kō-hau area can remain as it is now--a physical part of an open space/agricultural complex, adjacent to and easily accessible from Kona's major urban center. To the north, the undeveloped coastal area would stretch all the way to 'Anae-ho'omalū Bay, except for Ke-āhole Airport and one small resort development.

The quality of human life will also be enhanced by the proposal. The opportunity for re-evaluation and appreciation of diverse cultures and how they used their segment of the environment is important to the long-term use of the entire planet. Hawaiian culture is only one element of this complex, but an important one. Reestablishing a

vignette of that culture on a site important to Hawai'i's history is the unique opportunity afforded by the proposal. There are many opportunities for new resort developments in Hawai'i. There are few opportunities for the cultural park concept to have a chance of success, and no known sites that have this combination of resources and potential in a location so convenient to a major airport and an urban-resort complex.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH  
WOULD BE INVOLVED IN THE PROPOSED ACTION

The proposal would result in few irreversible uses except where park facilities are proposed. There will be a total of about 20 acres committed to roads, buildings, and trails. Visitor use, too, will have the potential of disturbing inherent archeological values, plant cover, or resources not discovered by current methods of research. Most of the land, however, will remain in its historic state. There are no known mineral resources, and since the area is so sparsely vegetated, no timber resources.

Residential and resort uses are the most apparent alternative use of the land, and the only known use that could produce economic benefit for the landowner. Land proposed for park use would be permanently unavailable for commercial or resort development. This is an irreversible commitment unless the decision is made by Congress later to reverse the action covered by this proposal.

There is also a dual commitment of resources involving the Federal Government and the Hawaiian community. The proposed action commits the U.S. Government through the Department of the Interior to an expenditure of funds for construction of facilities and a yearly expenditure for staffing and maintenance of the cultural complex. Moreover, this complex is devoted to a single segment of the nation's heritage. And it is irreversible to a great extent in that it is likely to strengthen a trend toward public involvement in preservation of living cultures. Heretofore, the major emphasis has been on historic or archeological sites as such.

For the Hawaiian community it means a commitment of human resources for, and a move toward, cultural rejuvenation. The fact that there is such great interest in the Ka-loko, Hono-kō-hau area indicates that rejuvenation has already begun. The creation of a national cultural park will give this trend the strength to make it an essentially irreversible commitment.

Archeological and excavation is both a comparative scientific study and a destructive process. This commits the resource to the theoretical basis, conceptual bias and methodical limits extant at the time the research excavations are planned or executed. Since the basic archeological data bank represented by archeological sites and their related resources are quite limited and have suffered heavy and cumulative impacts from past and on going development, research involving excavation is an irreversible commitment.

## ALTERNATIVES TO THE PROPOSED ACTION

The proposed Ka-loko, Hono-kō-hau National Cultural Park is the result of extensive deliberations carried out by the National Park Service and the Hono-kō-hau Study Advisory Commission. In addition, the study procedure included several public meetings at which time invaluable advice was received from individuals, the landowners involved, and many public and private organizations. These meetings and discussions stimulated many alternate proposals, ranging from no action by a Federal agency to the maximum size national park allowed by the Congressional act authorizing the study. The following section discusses all major alternatives and analyzes their impact on the environment.

### ALTERNATIVE A - NO ACTION (PROPOSALS BY THE STATE, COUNTY, AND CURRENT LANDOWNERS)

This alternative represents no action by the Federal Government for a national cultural park but it would result in certain actions as now proposed by the State and county of Hawai'i and by the landowners.

The bulk of the area (over 75% of the makai portions of the ahupua'a of Ka-loko and Hono-kō-hau) will be developed for commercial, resort, and residential use, or for open space directly related to those uses. As noted on the accompanying map, development would accommodate residents and tourists to a density of from 5 to 10 units per acre. No buildings over four stories would be built. Two fishponds-- 'Ai'makapā and 'Ai'ōpio, would have a surrounding buffer zone of from 50 feet to about 200 feet wide. It should be noted, however, that the north end of 'Ai'makapā, which is now a marshy area, is zoned for urban use and presumably would be filled to accommodate development. The major concentration of archeological sites on the Kai-lua side of 'Ai'makapā would be leased to the State of Hawai'i for park purposes. Facilities in the park would be limited to those needed for day use. Precise plans for the state park are not known at this writing. In the spring of 1974, however, when this statement was near completion, the State of Hawai'i released \$20,132 for a study of archeological resources in the Hono-kō-hau ahupua'a and a plan for public use of the State's lands as well as those to be leased from the owners of Hono-kō-hau.

The shoreline would be a public, parklike area, managed and developed by the State of Hawai'i and averaging about 100 to 200 feet in width except in the vicinity of the fishponds. The result would be a continuous unit of public land joining 'Ai'makapā and Ka-loko fishponds. It is expected that the entire park would be limited to day use only, and there are no plans known for including Hawaiians

in the management of the park nor in the interpretation of the cultural remains. A major feature would be a shoreline trail passing through the Ka-loko, Hono-kō-hau area but extending from Kai-lua to Kīholo Bay.

In addition to state park proposals, the Department of Transportation master plan proposes expansion of the Hono-kō-hau Boat Harbor in a mauka direction. The existing facility accommodates about 50 boats, which represents only one-fifth of the planned berthing area. Eventual expansion is planned for 450 boats in slips and facilities to launch and retrieve 350 trailered boats per day (State of Hawai'i 1970). Attendant facilities such as wash racks, parking, restrooms, boat repair, restaurant, tour facilities, and marine supplies will be constructed on State lands as well but on parcels adjacent to those proposed for Federal acquisition.

At Ka-loko pond, two-thirds of the historic kuapā (seawall) would be removed and a small crescent beach formed on the Ke-āhole side of the pond to serve the resort complex there. A new wall would be built at the Kai-lua end of the historic pond, creating an enclosure about 30% as large (Kona Coast Company, 1973).

There would be a 50-foot open space buffer on the mauka and Ke-āhole sides of the pond. On the Kai-lua side, there would also be an 18 acre public park set aside to encompass part of the shoreline of the new pond and the adjacent complex of archeological sites. Several isolated historic sites would also be left undeveloped throughout the vicinity. These would be small open spaces surrounded by residential, commercial or resort development. There are no details available on the areas to be set aside for these isolated sites, but it is expected that they would average about one acre each.

#### Direct Physical Impact on the Land

About 75% of the surface area would be completely changed to construct roads, walks, buildings, golf courses, hotels, shops, parking areas, boat harbor expansion and the accompanying utility systems. This would include about 8 to 10 acres of marsh area at the north end of 'Ai'makapā fishpond. Precise details are not known since plans are only in a preliminary stage.

It is assumed that few, if any, native plant materials would remain except along the shoreline, and the landscape would be completely dominated by the exotic plants generally found in the other residential/resort complexes in Hawai'i.

### Impact on Fishponds, Associated Marine Resources, and Birdlife

'Ai'makapā and 'Ai'ōpio fishponds would remain in their natural state insofar as their appearance is concerned. The shoreline would remain undeveloped, except for the shoreline trail, and under the management of the State of Hawai'i. Ka-loko, however, would occupy about one-third the space of the original. A beach, backed by resort structures would replace the existing pāhoehoe lava shoreline with its hālau (canoe shed), house sites, and other associated historic features.

The impact on wildlife, resulting from development within 50 feet of the north shoreline of 'Ai'makapā and the change in the shoreline of Ka-loko, is not known in detail. However, in accordance with information received from the U.S. Fish and Wildlife Service, there would be much less chance for survival of the Hawaiian stilt, coot, and duck; all considered endangered species. The north end of the pond, now a marsh, is especially important to the habitat for these shore birds. In this alternative as much as 10 acres of the marsh area would be destroyed by development. Moreover, there would be a dramatic change in land use from open space to intensive residential and resort development. The resulting noise, destruction of nearby plant communities, and the proximity of more people day and night will have considerable adverse effect on wildlife habitat.

The quality of water, both in the fishponds and in adjacent offshore areas, will be adversely affected by the concentrated development. This would occur regardless of the fact the preliminary plans indicate a sophisticated and well-designed water and sewer system that would minimize adverse effects. However, structures, extensive paved areas, and the miscellaneous activities of large numbers of residents would have an effect on underground water movement. This, in turn, would adversely affect the water quality in the fishponds and in the offshore waters. Since these are both potential food-producers now only partially utilized, the impact is significant, though now known in detail at this time. Moreover, it affects not only Ka-loko, Hono-kō-hau but can eventually have a cumulative adverse impact on food production in the entire state--a state which already obtains much of its food from overseas sources.

### Impact on Historic and Cultural Resources

Some 60 sites in Ka-loko and 20 sites in Hono-kō-hau would be excluded from park protection. 'Ai'ōpio and 'Ai'makapā ponds would be physically preserved in their historic state, and protection would be afforded through State administration. On the north side of 'Ai'makapā, however, the 50-foot buffer is considered less than minimum to protect historic integrity, and the presence of a major

development on three sides, at a distance of 200 feet or less, will be an added threat because of more concentrated uses. Finally, approximately one-third of the original pond would actually be destroyed by being filled in and developed.

The proposal for Ka-loko would completely destroy the historic value of this major feature in a designated National Historic Landmark. Moreover, its potential as a working fishpond would also be severely compromised.

Two major archeological complexes adjacent to 'Ai'makapā and Ka-loko would be preserved intact and available for public use and appreciation, and the shoreline sites, including heiau, some house sites and a canoe landing and other isolated sites would also be preserved.

Many others, including burial areas, planters, ahu (cairns), and many sites whose significance is now only partially known would be salvaged and removed, or destroyed. The developer is not required by law to conduct such salvage operations, but were this development to be on Federal land, such salvage would entail professional archeological research on and the removal of material from those sites to be destroyed by development, might cost about \$500,000. Thus, proposals in this alternative, while saving many significant sites, would destroy much that is an integral part of the total complex and thereby lose potential information that might be gained by later research.

For the Hawaiian, the quality of his human environment would be significantly affected. The destruction of physical sites associated with cultural heritage is serious. But most serious is the emotional and intangible result. As noted in the Description of the Environment on page 50, it is believed by Hawaiians that Ka-mehameha I is buried in the Ka-loko vicinity. Because of the unique feelings Hawaiians have about burials, it is not necessary or even desirable to know the specific burial site. What is important is that the presumed burial area not be disturbed. Thus, the emotional impact on the Hawaiian culture resulting from the proposals in this alternative is extremely detrimental. Moreover, the same result will apply, to a lesser degree, to the destruction of Ka-loko pond as a historic site and to other sites to be destroyed throughout the vicinity.

Each new development anywhere in Hawai'i tends to diminish or dilute the original culture of the islands as physical remains of that culture make way for modern structures. Hono-kō-hau, because of its very significant resources, as well as its unique cultural associations with Ka-mehameha's burial and the fishponds are integral to the very fabric of the inherent culture of the islands. Destruction of these physical and intangible elements will do much toward final destruction of Hawaiian feelings and attitudes.

Plans for state management involve public lands that will almost certainly remain in that condition and under the direction of an agency appropriate to the needs of inherent resources. Again, however, the impact on historic and cultural resources must be considered in the context of built-in limitation. State funds for preservation are limited, since the major concern will continue to be provision of recreation facilities. State plans are not expected to specify Hawaiian management of parklands nor Hawaiian interpretation of historic sites or cultural values.

County acquisition and operation of the park as proposed is even more unlikely, for the same fiscal reasons and because the county park program is directly focused on serving recreational needs. No private foundation is known to be interested in operating such a park.

-  Park and Open Space
-  Residential, Commercial, Resort
-  Golf Course
-  Shoreline Trail

'O' O M A

19

K O - H Ā N A I - K I

SPECIFIC PLANS NOT KNOWN

K A - L O K O

H O N O - K Ō - H A U

K E - A L A - K E H E

To Kiholo  
Pūhili Point

Wāwāhi wā'ala Point

Pacific Ocean

Ka-loko Point

Ka-loko Fishpond

Aimakapā Fishpond

Hono-kō-hau Bay

Maliu Point

Ai'opio Fishtrap

Āla'ula Bay

Noio Point

To Kai-lua

Ka-iwi Point

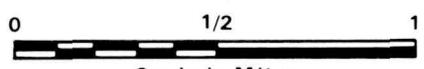
Ke-ahu-olu Point

19

# ALTERNATIVE A HONO-KŌ-HAU



North



Scale in Miles

## ALTERNATIVE B - PROPOSED CULTURAL PARK WITH MINIMUM ACREAGE

This alternative considers the absolute minimum acreage that could accommodate a viable cultural park. There would be approximately 400 land acres and 300 acres of water for a total of approximately 700 acres. In addition, this alternative boundary would allow expansion of the Hono-kō-hau Boat Harbor in a mauka direction.

Development would also be similar to the proposal except for fewer trails and the necessity to move the maintenance area about 1,000 feet closer to 'Ai'makapā fishpond. Ka-loko and 'Ai'makapā would be preserved as working fishponds and the associated archeological and historic sites would be preserved in the same manner as shown in the proposal, the only difference being that at least 12 to 15 known archeological sites would not be included within the park. Most of these sites lie within the established conservation zone and would be preserved and managed by the state. They include heiau, house sites, shelters, and other associated sites. At least 6 to 10 additional sites lie in the area just mauka of the boundary shown in this alternative, and include planters, some burials, about one mile of the Māmala hoe trail and other historic trails. Most, if not all of these sites, would be salvaged or destroyed by the development that would very likely take place by private owners. The State of Hawai'i would manage the coastal lands in the ahupua'a of Ko-hānai-ki and Ke-ala-kehe in the vicinity of Noio and Wāwāhi wa'a Points.

This alternative would also permit the State Department of Transportation to expand the Hono-kō-hau Boat Harbor and its attendant facilities in a mauka direction as described in Alternative "A".

### Direct Physical Impact on the Land

The impact resulting from development of facilities and from visitation would be the same as in the proposal (see the section entitled "Environmental Impact of the Proposed Action"). The only difference would be that the use would be more concentrated due to the same number of visitors in a smaller area. This is almost impossible to quantify, but would manifest itself in more trampling of vegetation, and greater danger to the archeological and historic sites.

### Impact on Marine Life and Native Birds

This also would be very similar to the impact as stated in the proposal. Again, however, with the same number of people in a smaller area there would be greater danger to native bird species. In addition, the off-shore marine life would receive less intensive management as much of

it would be under the jurisdiction of the State Division of Fish and Game. This agency would manage this resource with less restrictive measures than would be the case under Federal jurisdiction. It should also be noted that the water area in this alternative would be difficult to manage as it does not constitute an easily identifiable physical entity. This would be particularly difficult for commercial fishermen who would not be able to determine whether or not they were within the park boundary and subject to the regulation of no commercial fishing.

#### Impact on Historic Sites and Hawaiian Culture

Though the impact will be very similar to those noted in the proposal, there are some differences. As there are fewer historic sites included, the result will be a less complete cultural complex for presentation of a total cultural exhibit; specifically, the planters in the mauka area and the nearby Māmala hoe trail. In addition, the maintenance area would be within an area containing historic sites and about 800 feet closer to the major village complex just south of 'Ai'makapā fishpond. Although this location is not the most desirable, other possible locations would have even more undesirable visual effects upon the integrity of the cultural scene, such as a location near the orientation center or that shown in Alternative E.

In addition, under this alternative the boat harbor would be expanded into the area proposed for park maintenance area in the plan. The harbor, its attendant facilities and boats, even if screened by a wall or by vegetation, would have a greater visual and auditory effect than would the smaller, less heavily used maintenance area as noted in the proposal.

Any development by the landowners in the lands mauka of the park boundary but below the highway would have an adverse effect upon the visual integrity of the park, and would also pose a greater threat to ground-water quality.

#### Impact on Management and Development

Management costs would be slightly less by not more than 10%, since there is less land acreage and fewer historic sites. But assuming restrictions similar to those in the proposal, there will be greater problems in managing the water areas. Again, this is because the water boundaries are difficult to identify, even with the smaller acreage.

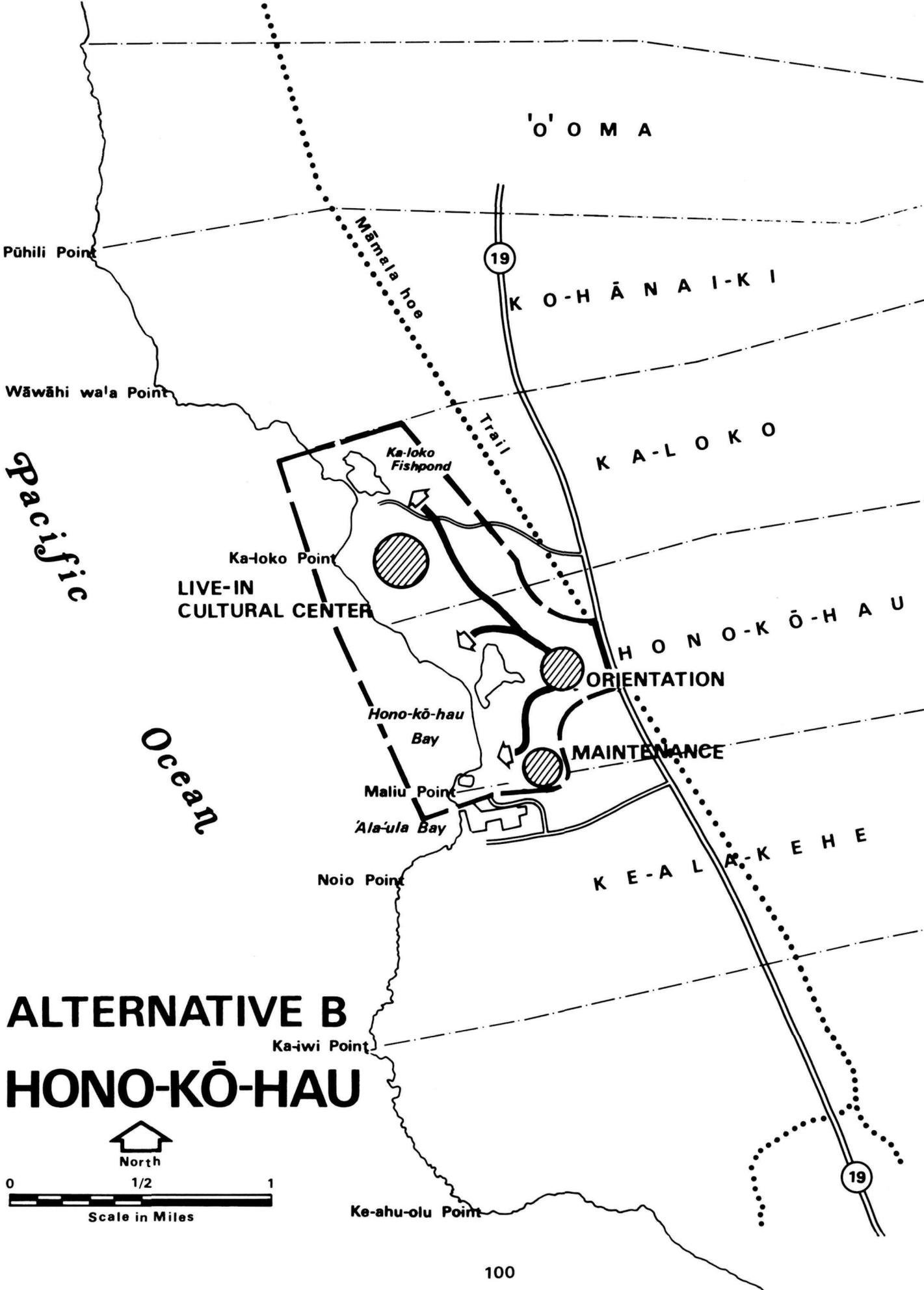
#### Economic Impact

The original cost to the Federal Government for land acquisition will be considerably less, probably about 10 to 15%, by virtue of the lesser total acreage. There is, however, the possibility of no saving because

of the probability of a severance damage claim. This would be based on the claim that the small remaining parcels between the proposal and the Queen Ka-'ahu-manu Highway would be too small to be developed economically.

The impact on the landowners would be essentially the same as that noted in the section entitled "Environmental Impact of the Proposed Action".

Impact on the State would be considerably less, since the boat harbor would not require a major replanning and construction costs would be less for excavation of the harbor expansion (estimated by the Division of Harbors as "at least \$800,000"). See discussion under Alternative A, p. 92.



**ALTERNATIVE B**  
**HONO-KŌ-HAU**



## ALTERNATIVE C - PROPOSED CULTURAL PARK WITH GREATER LAND ACREAGE

This is the maximum acreage considered for the proposed cultural complex. It contains about 80 acres in addition to that in the proposal. About one acre is located on the perimeter of the existing Hono-kō-hau Boat Harbor. The remaining area is a 300-foot strip of land along the coast between the common boundary line of the ahupua'a of Ka-loko and Ko-hānai-ki and Wāwāhi wa'a Point.

Management and development programs would be the same as in the proposal except that the maintenance area could be moved about 400 feet makai or toward the existing boat harbor.

### Impact on Physical Resources

There would be little difference between this alternative and the proposal. Two points, however, are important. The north shore addition, which becomes a 300-foot buffer zone does provide considerable additional protection for shoreline resources, both archeological and adjacent marine values. Existing State ownership follows the coastal vegetation line, which varies from 50 to 100 feet inland from the high tide line. The added 300-foot strip would provide considerable additional protection for the entire park as a cultural complex and a physical unit. Indeed, this part of the alternative would help create an optimum park unit from the standpoint of resource protection and management. Moreover, up to the final reviews of the plan, it was part of the proposal.

The second addition, along the Hono-kō-hau Boat Harbor, would also provide additional buffer along the south boundary. This proposed concentrated use of these and adjacent lands will be a continuous threat to adjacent biological and cultural resources in the park.

### Impact on Surrounding Land Use

The additional land adjacent to the Hono-kō-hau Boat Harbor would prohibit construction of any additional facilities on the north and mauka sides of the harbor. In fact, use of the existing boat ramp and roads along those edges of the harbor would be discontinued. There are no known archeological sites remaining in this area, partially because it has been disturbed by construction and use of the harbor.

Any development that might take place in Ko-hānai-ki between Ka-loko and Wāwāhi wa'a Point would be affected by the 300-foot coastal strip of park land. Use of the coast itself for commercial, resort, or residential development would be prohibited. The actual impact could

be considered either adverse or positive, depending on the type of development proposed. The 300-foot coastal open space could enhance an adjacent residential area but might be detrimental to resort facilities where the usual pattern is to be as close to the shoreline as possible.

#### Impact on Park Management

Generally, this is again a very similar impact to that discussed in the proposal. Costs would be almost identical. There is, however, one dominant effect. With the additional buffer zones provided here, management of the visitor and protection of resources from the adverse uses of adjacent lands would be easier. This might reflect itself in lower management costs, but the amount would be negligible.

#### Impact on Economics

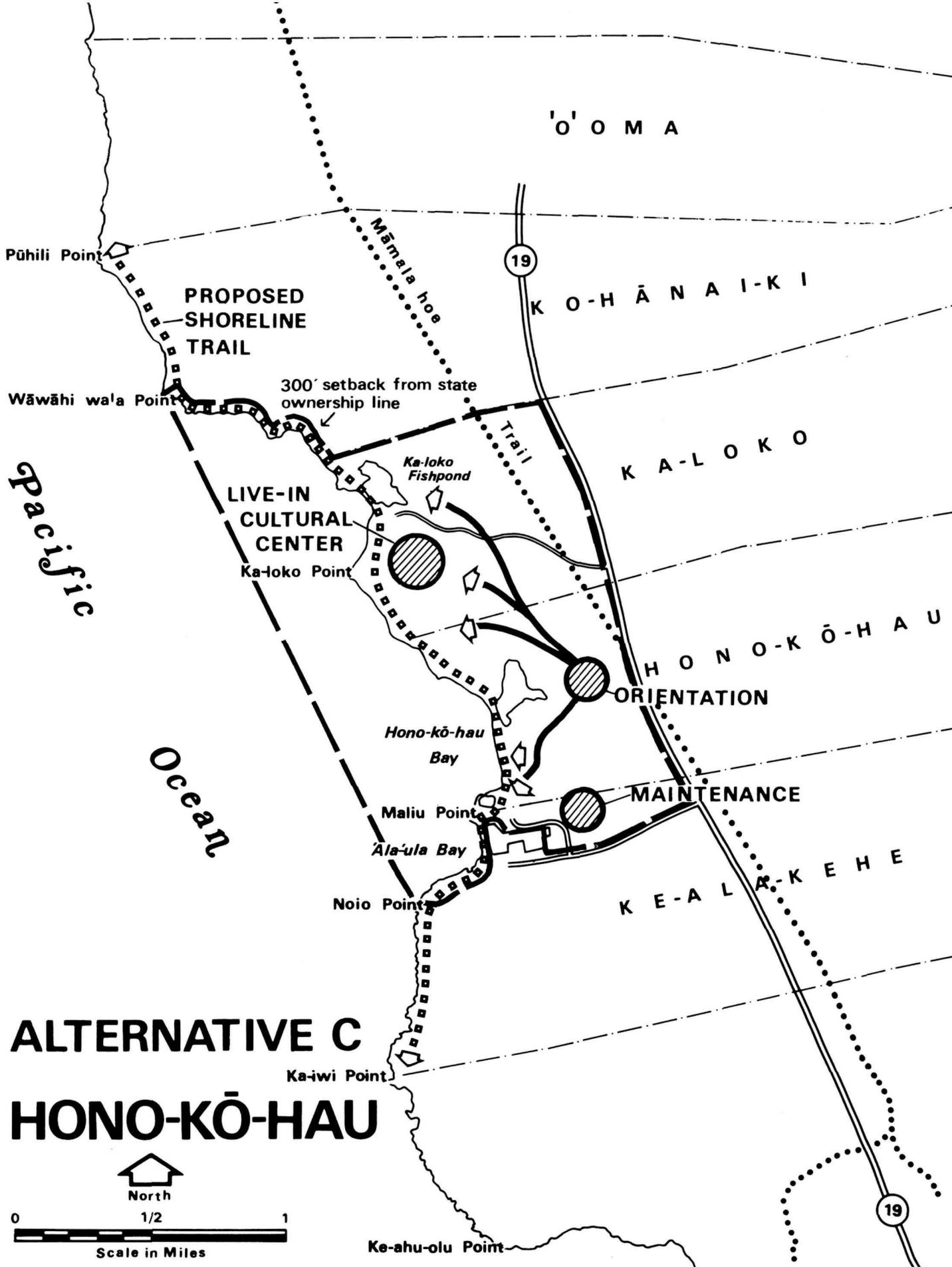
For the State of Hawai'i, this alternative would mean greater costs in providing needed services for the incomplected boat harbor. All access must then be provided on the south side of the harbor and a new launching ramp would have to be constructed. The amount of additional funds is not known since there has been no plan prepared by the State in accordance with this alternative. It would, however, affect planning for this entire marine-resort complex.

For the landowner to the north, in the ahupua'a of Ko-hānai-ki, the impact is much less definitive. Current zoning by the State is conservation and designation in the County General Plan is for open space. Under these regulations, there could be little development by the landowner on the addition to the park shown in this alternative. If pressure for additional resort and residential facilities continues to increase, however, it appears likely that a zoning change would be requested. If this change is granted, there would be more restrictions on planning for this area as a result of this alternative, since there could be no development between 300 and 400 feet of the shoreline. The landowner would very likely consider this an adverse economic factor in any plans he might wish to propose. The amount of the economic effect is impossible to ascertain since no plans have been drawn up to date.

#### Political Realities

This alternative has certain political implications which must be mentioned here, even though they cannot be quantified accurately. Discussion with members of Congress has indicated that there was general agreement that there would be no Ko-hānai-ki lands included in the proposal. Inclusion of the north shore buffer strip

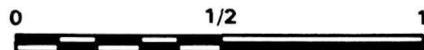
could well produce opposition to the proposal not directly related to the general concept of a cultural park complex. Moreover, inclusion of lands immediately adjacent to the Hono-kō-hau Boat Harbor would likely antagonize local boat owners, including commercial fishermen. The implication is that development of the facility would thereby be very restricted and thus more difficult to operate.



**ALTERNATIVE C**  
**HONO-KŌ-HAU**



North



Scale in Miles

## ALTERNATIVE D - HISTORICAL PARK PROPOSAL AT A SITE OTHER THAN HONO-KŌ-HAU

Public Law 92-346, which authorized the feasibility study of the Hono-kō-hau area for possible national park status, did not specifically authorize comparative studies of other sites. In accordance with the requirements of the procedures for preparation of environmental statements and adequate planning, however, it is important. This alternative discusses and briefly analyzes 10 known potential historical park sites throughout the Hawaiian Islands. Their locations are shown on the accompanying map.

To compare the sites more adequately, a matrix system was established in which each site was evaluated on the basis of nine different criteria. The completed matrix is included on page 108. Under each criteria the number indications represent, on an ascending scale, an individual evaluation of each site on a comparative basis with the other 9 sites. The totals, also on an ascending scale, represent the relative value of all ten alternative sites, and indirectly their impact on the environment. The notation entitled "numerical basis" represents the greatest possible value that could be given to each individual criteria. These individual criteria are described as follows:

Archeology: This is a straightforward evaluation of historical and archeological value based on known data. Number evaluation in an ascending scale from 1 to 30 were made by Dr. Kenneth Emory of the Bishop Museum who is also one of the Hono-kō-hau Study Advisory Commissioners. Because archeology is considered to be of greater importance to a cultural park proposal than such items as weather or ease of access, its evaluation numbers (from 1 to 10) was tripled.

Cultural Intangibles: Because culture deals so much with human feelings, the importance of the alternative sites to Hawaiians becomes a prime consideration, so the intangibles were given the same value in the matrix as archeology. Evaluations were made by members of the Hono-kō-hau Commission in cooperation with the consultants and National Park Service planners, and sites were ranked in accordance with their importance to the total culture. For example, the varied types of sites at Ka-loko, Hono-kō-hau, plus the association of Ka-mehameha with Ka-loko, gave it the highest ranking.

Physical Setting: This was simply an evaluation based on scenery in and around each alternative site. For example, Hālawā Valley on Moloka'i with its spectacular pali backdrop rated higher than Lapakahi on Hawai'i. Evaluations were made by National Park Service personnel in cooperation with the Commission. Sites were rated from 1 to 10 and the number doubled to properly relate its value to other criteria.

Ease of Access: Since City of Refuge and Hono-kō-hau are near major roads, they were rated high, while a lower rating was given to remote areas such as Kanakāpī-'ai and Hālawā Valley. This also indicates how a proposal would fit into the current land-use and access patterns. These evaluations were also doubled to relate appropriately to other criteria.

Secondary Resource Value: Important to any viable proposal are other resources that offer greater variety in potential uses such as swimming and fishing. Evaluations were judgmental and numbers were assigned by National Park Service personnel. Number evaluations were doubled to relate to other criteria.

Land Cost: This requires an inverse evaluation since an alternative where the land would be donated or at least low in cost would be rated higher than a privately owned site with resort potential. Evaluations were made by the National Park Service and the planning consultants. These numbers were also doubled.

Weather: For visitor use and for general management, sunny days are better than rainy or cloudy days. Thus, the windward valleys such as Wai-pi'o Valley were rated lower than areas such as City of Refuge on the Kona Coast.

Disruption of Current Use: Certain sites, such as Ka-haku-loa on Maui, support existing uses that would change considerably were the area to become a national cultural park. Since this is considered as an adverse impact, Ka-haku-loa was given a much lower rating than Ka-'awa-loa on Hawai'i, where the land is now vacant and, therefore, no impact from disruption of current use would occur.

Suitability for Development: This is a comparison of how the land will respond to development, that is, what the impact will be on inherent biological, geological, and historic resources. Areas such as Wai-pi'o Valley, where vegetation is dense, would sustain much greater impact than would be the case at Hono-kō-hau where vegetation is sparse. Consideration was also given to variation in soil types. For example, soils are much deeper on Kaua'i and Maui where geologic age is greater, than on the new lava flows on much of the Island of Hawai'i.

Each alternative site is totally different in its setting, its relationship to urban areas, and the type of resources contained within it. Some sites were visited by the Study Commission during the study process. All sites are well known to National Park Service staff and to archeologists involved in the study. A brief description of each site as well as a resume of potential environmental effects resulting from a cultural park proposal follows:

HAWAIIAN CULTURAL COMPLEX  
SITE COMPARISON

	<u>Archeology</u>	<u>Cultural Intangibles</u>	<u>Physical Setting</u>	<u>Ease of Access</u>	<u>Secondary Resource Value</u>	<u>Land Cost</u>	<u>Weather</u>	<u>Disruption of Current Use</u>	<u>Suitability for Development</u>	<u>Total</u>
City of Refuge	27	18	12	18	14	12	8	7	8	124
Ka-'awa-loa	15	21	12	8	12	12	8	10	7	105
Lapakahi	15	6	10	16	10	20	7	10	8	102
Wai-pi'o Valley	15	15	16	10	16	16	4	6	6	104
Hono-kō-hau	21	30	12	20	18	2	9	10	9	131
Ka-haku-loa	12	6	14	8	8	6	4	2	3	63
Ke-'anae	6	6	16	8	8	6	4	2	4	60
Hālawā	21	18	16	6	18	12	4	5	4	104
Kahana Valley	12	12	14	18	16	20	5	6	6	109
Hanakāpī-ai	3	3	16	2	16	20	4	10	4	78
Numerical Basis	30	30	20	20	20	20	10	10	10	170

City of Refuge: Established as a National Cultural Park in 1960, this site lies on the Kona Coast of the Island of Hawai'i. Its most important resource is its historic value, a pu'u honua, or place of refuge, for persons who had broken a kapu or for members of a defeated army. After remaining in the pu'u honua for a specified period of time they were free to return to their homes. It also includes several hōlua, heiau, and village complexes. The offshore area, not currently in the park but proposed for addition, contains outstanding coral formations and associated marine values. Other proposed additions include additional historic and archeological resources. The area is accessible by paved road leading from the Kona Belt Highway to the coast.

The dominant impacts of a cultural park complex here would be to change the thrust of management and interpretation from preservation of a single aspect of Hawaiian culture to a broader approach but without the presence of a major element of that culture, specifically the fishponds. Physical impact on the land would be similar to that noted in the proposal since both sites are along the Kona Coast. Economic impact on the island and on landowners would be less than the proposal since fewer acres of privately owned land would need to be purchased.

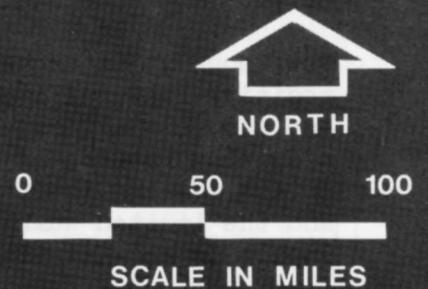
Ka-'awa-loa: Located on the north shore of Ke-ala-ke-kua Bay on the Island of Hawai'i, this site contains an excellent village complex and associated marine resources. It is also of great historic value as it is the site where Captain Cook was killed by Hawaiians after a series of incidents in 1778. The land is owned by the State of Hawai'i and proposed as a State park.

The positive cultural impact of a cultural park on the Hawaiians would be much less on this site since it does not contain fishponds, hōlua or other elements present in many other areas. Moreover the physical impact of development would be considerable because of the fewer acres of suitable land available for development and difficult access. Adverse economic impact would be minor because of State ownership of most land involved.

Lapakahi: This is an entire ahupua'a, owned by the State of Hawai'i and proposed as a cultural, archeological, and historical park somewhat similar to that proposed at Hono-kō-hau. It would be managed by the State, but apparently without the managerial involvement by Hawaiians as proposed at Hono-kō-hau. The site is a fisherman's coastal village adapted to the cliff-bound, arid, northwest coast of Kohala, and includes the associated village complex and extensive agricultural mauka lands that were used for food production and timber. It does not contain either fishponds, a hōlua, exceptional heiau, or



# ALTERNATIVE HISTORICAL PARK SITES



important associations with Hawaiian royalty or their places of burial. Recreational resources are limited, as there are no beaches or offshore reefs. Current access is via the highway between Wai-mea and Hāwī in the mauka and via the coastal highway between Ka-wai-hae and Hāwī.

Cultural impact would be both positive and adverse. As noted above there is an opportunity for use of both mountain and seashore lands but missing are many historic elements important to Hawaiian culture, especially intangible resources such as exist in the proposal. Physical impact from development would be similar to the proposal. Adverse economic impact would be minimal since the land is already owned by the State.

Wai-pi'o Valley: Here is one of the few areas in Hawai'i where wetland taro is still grown in a manner similar to that in historic times. The setting is spectacular, a green valley surrounded by steep pali (cliffs) on the wet, windward slopes of Hawai'i. It is an excellent self-contained physical entity accessible only by a jeep trail, which descends the pali on the south side of the valley.

Positive cultural impact on Hawaiians would be less here because of lack of unique resources, tangible and intangible. Impact from development would be greater since the site is on the windward side of the island in a very wet valley. Because of the distinct physical entity of the site, and the existence of adjacent open land, impact from surrounding land use would be minor.

Hono-kō-hau: No attempt will be made here to describe this site, since the section of this statement entitled Description of the Environment contains a detailed discussion of its resources and setting. Impacts are also discussed in detail in the section entitled Environmental Impact of the Proposed Action.

Ka-haku-loa: This is a small village lying on the windward coast of West Maui in a small valley surrounded by dramatic topography. Hawaiians still live in the area, some still engaged in growing taro. The coastline is rough, drops off sharply, and contains only a short rocky beach area. It is accessible by a low-standard gravel road along the coast of East Maui. Ownership is a complex of private and some State land parcels.

Few known major archeological sites are present at this site, so positive cultural impact would be minor. Impact on existing land use and on the local economy would be considerable since there is a complex pattern of ownership and established uses by families living on and gaining their living from the land. Because of access problems, and the limited number of visitors that could be expected, positive impact on non-Hawaiians would be less than at more accessible sites.

Ke-'anae: Here also is a small village, on the windward coast of Maui, where Hawaiians still reside and grow taro. It is perhaps one of the most picturesque of the sites as it is viewed from the winding narrow road leading from Kahului to Hāna. Surrounding it are steep, heavily vegetated pali with only a few homes perched here and there. The site itself is on a small peninsula jutting from the precipitous shoreline and includes about 100 acres of land. The shoreline is very rough lava with only one small, rough rocky beach and the offshore area drops off steeply. Ownership is mostly in small private parcels.

Impact would be very similar to that at Ka-haku-loa, except that access would be easier since the site is adjacent to the coastal road between Kahului and Hāna. Visual impact from development would be considerable here because most of the area is clearly visible from overlooks along the access road.

Hālawā: This spectacular valley is at the eastern end of Moloka'i with two waterfalls at its upper end. The valley floor is covered with remnants of taro terraces served by an extensive irrigation system, house platforms, heiau, and other associated sites of considerable historic value. There are also remnants of fishponds in the bay near the mouth of Hālawā stream. Steep pali surround the valley on three sides and the only access is via a steep primitive road leading from the populated areas of the island. The road ends at the floor of the valley near the coast. The land includes both State and private ownerships.

Again, difficult access and lack of numerous unique cultural tangible and intangible resources mean that the positive impact on Hawaiian culture and on visitors would be less than at areas such as Hono-kō-hau or City of Refuge. Impact from surrounding land use would be negligible because of the remote setting and the physical shape of the valley. Adverse economic impact would be small since the land is undeveloped and largely State owned. There would be considerable stimulation to the economy of Moloka'i since that island currently has few tourist-oriented developments. Impact from park developments would be great due to high visibility from the entrance road and limited developable land in the valley.

Kahana: This is another spectacular valley on the windward side of O'ahu, easily accessible by paved road. The shoreline has an excellent sand beach and an altered fishpond that is registered National Historic Landmark. The valley is owned by the State of Hawai'i; there are some part-Hawaiians living on the land by virtue of a lease arrangement, and the entire ahupua'a is proposed as a cultural and recreation complex.

There would be considerable positive impact on visitors since this area is easily accessible from Honolulu by road. Cultural impact on Hawaiians, however, would be less as this area has a lower ranking on archeology and cultural intangibles. The existing highway would remain as a serious adverse effect on park development as it bisects the coastal area, which is the most fragile culturally. Impact from surrounding uses in the mauka area would be negligible since it is nearly all State forest land. The land itself is State owned so adverse economic impact would be small.

Hanakāpī-ai: A two-mile trail from the road terminus leads along the Na Pali coast into this valley on the windward side of Kaua'i. The dense jungle growth of the valley floor covers many remains of early Hawaiian habitation, and there are high waterfalls in the upper reaches of the valley. This site is the most remote of all those evaluated, and road access to it would be extremely difficult if not impossible to construct.

Being the most remote of all sites and with little known cultural value, positive impact on Hawaiian culture and on visitors would be minor. Economic impact would be with regard to land purchase and existing use since the area is State land and undeveloped. Impact on the land resulting from development would be great because of extremely difficult access and rough topography. Impact on existing use would relate mainly to conflict with established recreation uses by hikers.

In summary, it should be recognized that the cultural impact resulting from authorization of any one of these sites would be similar to that noted in the proposal. The major difference is that the unique resource association with Ka-mehameha, not present in any of the other sites considered, would not be included in the cultural complex. This subject is mentioned throughout the impact statement and its cultural and emotional impact on Hawaiians and their culture cannot be over-emphasized.

It is recognized that any matrix comparison of widely different sites such as these has inherent weaknesses. To some extent, it is necessary to compare apples to oranges. Rating elements, too, are subject to a variety of choices, definitions, and weightings. The matrix is an honest attempt at evaluation, but should not be judged in terms of a mathematical model. Surprisingly enough, however, the relative ranking derived from matrix evaluation supports very closely the individual and combined subjective evaluations of the Commission members, park planners, and planning consultants.

## ALTERNATIVE E - LOCATE PARK ORIENTATION CENTER ADJACENT TO SOUTH BOUNDARY

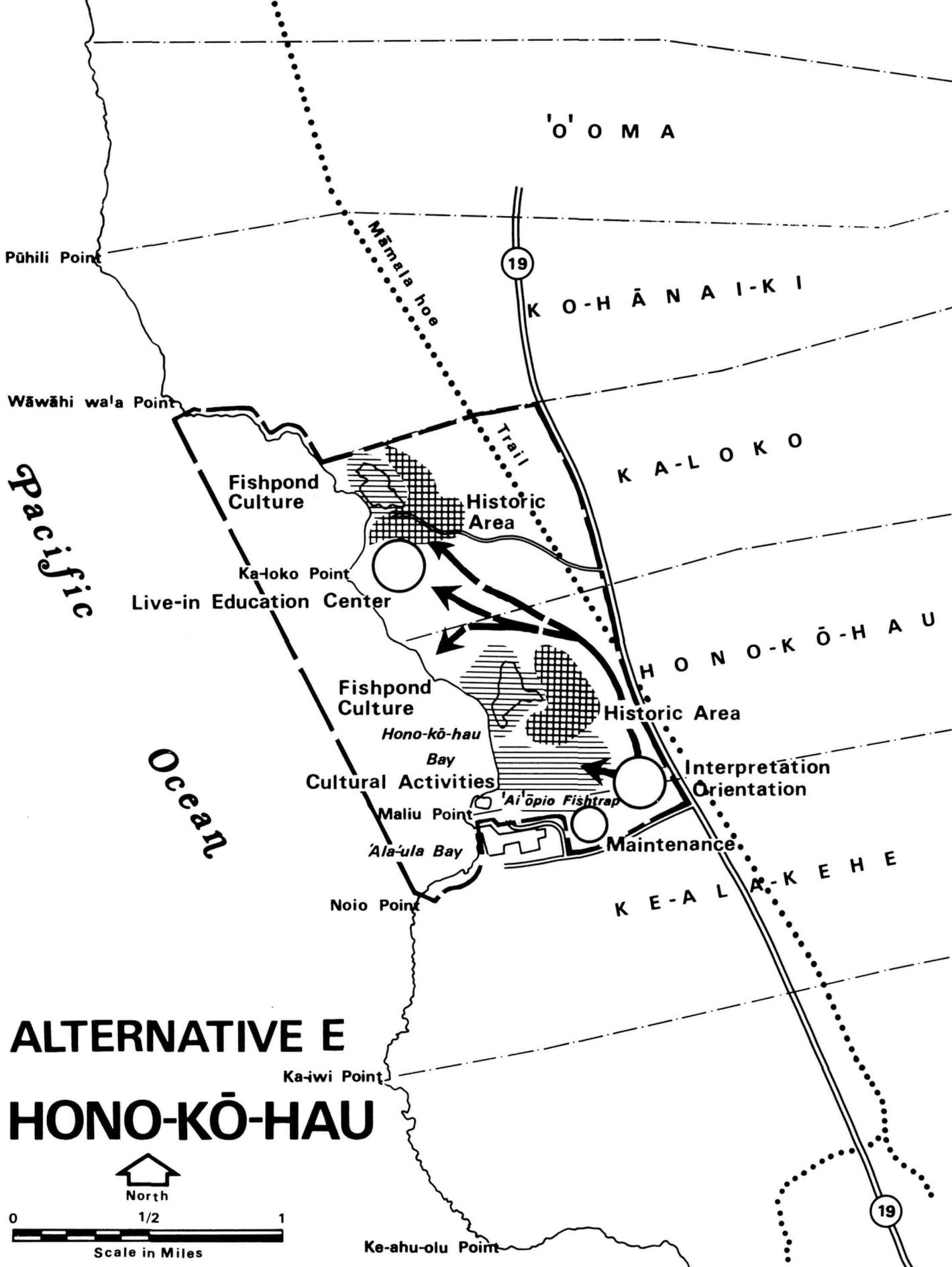
This would place all major park development near the southwest corner of the proposed park adjacent to the Queen Ka-'ahu-manu Highway. It would also be adjacent to the State's proposed complex that encompasses the boat harbor, commercial area, and golf course. No major archeological sites are known to exist in this area.

The predominant effect would be that all formally developed park facilities would be in one single location at the edge of the park. The remaining acreage could thereby become available for recreation, cultural pursuits, hiking, and open space buffer. Provision of utilities would be less expensive as all development would be consolidated and could be served by cooperative planning with nearby development outside the park. The proximity of visitor orientation and maintenance would also make administration less fragmented and less complex. No appreciable savings in cost in anticipated except in construction of roads and utilities.

For the visitor, a different park experience would result from this alternative. Orientation facilities would be more remote from the most popular attractions. In fact, to reach any major archeological site concentration, a walk of about one-half mile would be required. Further, Ka-loko fishpond would be one and one-half miles away and the maintenance area would intrude on the visitor's initial introduction to the park. Finally, it would be difficult in the interpretive program to psychologically transport the visitor from the 20th century back into ancient Hawai'i with the proximity of the disturbing elements around the boat harbor.

Impact on the economy would be similar to that discussed in the proposal.

Impact on the historical and cultural values would be mixed. The interpretive-orientation complex would be situated in a more obtrusive location visually, but the archeological resources might be slightly better protected by virtue of greater distance from major use areas.



# ALTERNATIVE E

## HONO-KŌ-HAU



ALTERNATIVE F - MANAGEMENT LIMITED TO PERSONS WITH 50% OR MORE  
HAWAIIAN ANCESTRY

Public Law 92-346, authorizing the study of the area, indicated that the park should be managed and interpreted as much as possible by Hawaiians. Hawaiians were defined as being any persons who have 50% or more of the blood of the race of people who inhabited the Hawaiian Islands prior to 1778.

For the visitor, this alternative would have a decided effect. Nearly all park personnel would likely have the apparent physical characteristics of the Hawaiian. As such, this could create a greater feeling of being in ancient Hawai'i. Moreover, it would give special consideration for jobs to that portion of the Hawaiian population that has previously been most adversely affected by the popular image of the indolent, unambitious, if good-natured, Hawaiian "native". And it would give these persons a particular sense of pride in still being really racially "Hawaiian".

As noted in the Description of the Environment, it is estimated that there are 135,152 Hawaiians and part-Hawaiians in the State. It is not known how many are 50% or more Hawaiian. The requirement as stated in the law would place what would appear to be an arbitrary, artificial, and unwieldy restriction on persons to be hired in the park. Distinctions between those with 7/16 and 9/16 Hawaiian blood would become important. Even more important, a large percentage of part-Hawaiians would effectively be barred from park employment, thus removing an important potential source of employees who would be well-qualified as someone with perhaps only 1/8 more Hawaiian parentage.

## CONSULTATION AND COORDINATION

### CONSULTATION AND COORDINATION IN DEVELOPMENT OF THE PROPOSAL AND IN PREPARATION OF THE DRAFT ENVIRONMENTAL STATEMENT

Preparation of the proposal for Ka-loko, Hono-kō-hau National Cultural Park involved a complete cross-section of Hawaiian cultural groups, the Hono-kō-hau Study Advisory Commission, concerned landowners, and public agencies at all levels of government. As noted in the following, input by various public agencies reflected their particular sphere of influence and responsibility.

#### Hono-kō-hau Study Advisory Commission

This group, appointed by the Secretary of the Interior to assist in preparation of a feasibility study were involved in all aspects of the proposal. In fact, the study was a joint effort between the National Park Service and the Commission. They also assisted in preparation of the impact statement, especially those sections dealing with the Hawaiian culture. Commission members are:

Colonel Arthur Chun, Chairman  
Mr. David K. Roy  
Mr. Homer A. Hayes  
Reverent Henry K. Boshard  
Mr. Pilipo Springer  
Miss 'Io-lani Luahine  
Mr. George Pinehaka  
Mr. Alika Cooper  
Mr. Kwai Wah Lee  
Mr. George Naope  
Mrs. Robert (Abbie) Napeahi  
Mr. Fred Cachola  
Dr. Kenneth P. Emory  
Ms. Nani Mary Bowman  
Mrs. Franklin W. (Emily Ka'ai) Thomas

#### Consultants

Consultants were hired to assist in preparation of basic data, writing the proposal itself, preparation of graphics, and analyzing impacts. Following is a listing of those involved in preparation and a general description of their contribution.

John David Wai-he'e III and assistants - compilation of basic data for the report and description of the environment. In addition, assisted with analysis of economic impact.

Richard Ka-pololu - preparation of alternative park development plans for review by the Commission and the National Park Service.

George H. Ke-ko'o-lani, Jr. - preparation of architectural theme and conceptual design for structures within the proposed park.

Herb Ka-wai-nui Kane - graphic assistance in preparing the report and advice on the impact of the fishpond restoration.

Stephen Kane-a-i Morse - assistance in writing the report and impact statement to assure their compliance with Hawaiian cultural attitudes and feelings.

Lynette 'A'alaonaona Roy - preparation of a report on oral traditions surrounding the Ka-loko, Hono-kō-hau vicinity and assistance in writing the section of the statement on environmental impact.

Bishop Museum - impact of proposal and alternatives on archeological resources, and assistance in compiling and evaluating those resources.

#### U.S. Department of the Interior, Fish and Wildlife Service

Particular concern was expressed about the impact of both proposed park development and alternative proposals on endangered bird species. As a result particular care was taken to preserve the bird habitat with the context of a program of archeological and cultural preservation through location of facilities and use areas away from Ka-loko and 'Ai'makapā fishponds.

#### U.S. Corps of Engineers

Major consultation concerned the Hono-kō-hau Boat Harbor, the impact of the proposal on use of that facility, and the effect of expansion proposals on the park proposal. Exclusion of a small buffer and development zone adjacent to the existing boat harbor was the result of that consultation.

#### Acting Governor, State of Hawai'i

In a letter to the President of the State Association of Hawaiian Civic Clubs dated May 16, 1974, the Acting Governor of Hawai'i endorsed the Federal park proposal as follows:

" . . .the proposal of the Hono-kō-hau Advisory Commission has my full support and I will do all I can to cooperate

in efforts to see the proposal adopted and funded by Congress... As additional insurance that the historic remains at Hono-kō-hau will be preserved, the State is developing an alternative plan for Hono-kō-hau to be implemented if the Advisory Commission proposal does not receive Congressional support..."

#### State of Hawai'i, Department of Land and Natural Resources

Proposals for State administration of natural and cultural values in the ahupua'a of Hono-kō-hau, Ka-loko, and Ke-ala-kehe were provided for the study and are discussed in Alternative "A". Information was also provided on the proposal's impact on use of State lands in the Kona region. Effects on the proposal itself included refinements in the boundary along the shoreline and recognition of the importance of the State's proposed shoreline trail between Kai-lua and Kīholo Bay.

#### State of Hawai'i, Department of Transportation

The proposed expansion of the Hono-kō-hau Boat Harbor and the use of the existing facilities was the major purpose of consultation. Proposals for expansion of the harbor and their impacts are discussed in Alternative "A". As in similar consultation with the U.S. Corps of Engineers, the dominant effect on the proposal involved provision of a buffer zone on State land around the boat harbor. These changes, however, would not allow expansion of the harbor in a mauka direction as is desired by the Department of Transportation.

#### State Historic Preservation Officer

Contact was made with the State Historic Preservation Officer during the preparation of the Ka-loko, Hono-kō-hau proposal and draft impact statement. His review and comments indicated no adverse effects on the Registered National Historic Landmark nor on any cultural resources as a result of the proposed actions.

#### County of Hawai'i

The County General Plan provided considerable data for an analysis of land-use patterns and the impact of the proposal on those patterns. There was also direct contact with the County Planning Department concerning clarification of their plans and on the environmental impact of the proposal.

### Current Landowners

All landowners were contacted and liaison was maintained throughout the study and preparation of the impact statement. The major contribution concerned the impact statement, particularly that portion dealing with alternative uses of the land proposed by the landowners (See Alternative "A"). In addition, park boundary proposals and their alternatives subsequently considered the issue of severance, particularly on parcels of land directly makai of the Queen Ka-'ahu-manu Highway. Partially because of the severance all private lands makai of the highway were included in the proposal.

### Public Meetings and Input by Organizations and Individuals

A series of public meetings were held on all major islands, in which comments and suggestions were made as the proposals and the impact statement were formulated. A schedule of meeting times and locations is as follows:

May 5, 1973 - Kona, Hawai'i  
July 28, 1973 - Kahului, Maui  
August 4, 1973 - Līhu'e, Kaua'i  
August 11, 1973 - Kaunakakai, Moloka'i  
August 25, 1973 - Hilo, Hawai'i  
September 15, 1973 - Honolulu, O'ahu  
October 20, 1973 - Kona, Hawai'i  
November 10, 1973 - Honolulu, O'ahu  
December 8, 1973 - Honolulu, O'ahu  
January 26, 1974 - Honolulu, O'ahu  
May 18, 1974 - Honolulu, O'ahu

Public response and suggestions came from numerous Hawaiian cultural groups, conservation organizations, and individuals. Nearly all were in favor of the cultural park complex. Suggestions were generally in the form of the types of cultural programs that would be considered appropriate in the park. In addition, there was expressed an overall sincere desire and yearning on the part of the Hawaiians to preserve aspects of their culture and to be involved in the planning and management of a cultural complex. To emphasize this support, the State Association of Hawaiian Civic Clubs, on February 7 to 9, 1974, passed a resolution supporting the cultural park proposal at Hono-kō-hau. The resolution was signed by representatives of 36 member organizations throughout the State of Hawai'i.

COORDINATION IN THE REVIEW OF THE DRAFT ENVIRONMENTAL STATEMENT

Copies of the draft environmental statement will be sent for comment to:

Advisory Council on Historic Preservation  
Department of the Army (Corps of Engineers)  
Department of the Interior  
    Bureau of Indian Affairs  
    Bureau of Mines  
    Bureau of Land Management  
    Bureau of Outdoor Recreation  
    Bureau of Reclamation  
    Bureau of Sport Fisheries and Wildlife  
    Geological Survey  
Department of Transportation  
Civil Service Commission  
Environmental Protection Agency  
State of Hawai'i Clearinghouse  
    State Historic Preservation Officer  
    Department of Land and Natural Resources  
    Harbors Division  
    State Land Use Commission  
County of Hawai'i  
    County Planning Department  
    County Council  
Aboriginal Lands of Hawaiian Ancestry  
Association of Hawaiian Civic Clubs  
Audubon Society  
Bernice Pauahi Bishop Museum  
Conservation Council of Hawai'i  
Congress of the Hawaiian People  
Friends of the Earth  
Hana Kua Development Council  
Hawai'i Visitors Bureau  
Hilo Conservation Group  
I Mua Hawaiian Uplife  
Ka Leo o Na Pua o Hawai'i  
Ke-au-kaha Pana-'ewa Community Association  
Kona Conservation Group  
Kona Coast Company  
Kona Mauka Trollers  
Lani-hau Corporation  
Life of the Land  
Mil-ka-ko Fish Co-op  
Mil-ka-ko Research and Development  
Nana-kuli Hawaiian Homesteaders  
Puna Hawaiian Organization  
Sierra Club  
State Foundation for History and the Humanities  
State Historic Site Review Board  
The Hawaiians  
The Nature Conservancy  
University of Hawai'i

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Letter of May 16, 1974 to President, State Association of Hawaiian Civic Clubs

County of Hawaii, Director, Planning Department

Letter of June 28, 1974 to State Director, National Park Service

